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COLORADO CLIMATE SUMMARY
WATER-YEAR SERIES
(October 1985–September 1986)

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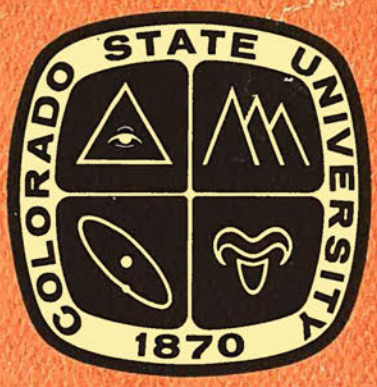
Nolan J. Doesken

Thomas B. McKee



Climatology Report No. 87-3

DEPARTMENT OF ATMOSPHERIC SCIENCE
COLORADO STATE UNIVERSITY
FORT COLLINS, COLORADO

Colorado Climate Summary
Water-Year Series

(October 1985-September 1986)

by

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ACKNOWLEDGMENTS

For many years now we have taken this opportunity to thank the many cooperative weather observers in Colorado and their National Weather Service supervisors, William Tate and Michael Elias, for making it possible to monitor the climate in all parts of Colorado at a very low cost. Again, our sincere thanks are in order. During the year Bill Tate retired from the National Weather Service. His replacement, Dave Clapper, is now in charge of the cooperative network in the western two-thirds of Colorado. Our thanks to Dave, and welcome aboard.

The authors also wish to express their appreciation to Odilia Bliss for doing a fine job of preparing and processing each month's climate data and assembling this finished product. The work of John Kleist in automating much of the data analysis and in improving the appearance of each monthly report has been very helpful.

These summaries have been made possible by funding for the Colorado Climate Center from the CSU Agricultural Experiment Station through the College of Engineering.

TABLE OF CONTENTS

I. INTRODUCTION

The 1986 Water Year marked the 13th year of existence of the Colorado Climate Center (CCC) and the 10th year of closely monitoring the climate of this diverse and interesting state. The first monthly climate summary prepared by the CCC was written in early 1977 in the midst of an unprecedented severe winter drought. Since that time Colorado has experienced a myriad of extremes -- record winter cold, incredible snowstorms, disastrous hail storms, several of the snowiest years in the past half century, and now one of the wettest consecutive periods in the state since the 1920s. Our monthly descriptions of Colorado climate have expanded to document and describe as much of this information as possible.

The monthly climate descriptions are intended to accomplish several purposes. They are a written historical record of what our climate has been which can hopefully always be used as a reference in the future. By tracking monthly departures of temperature and precipitation from long-term normals, these summaries have also become tools for operations, planning and policy-making related to agriculture, water resources, recreation, land use and energy. Finally these summaries are used to educate the people of Colorado about our unique climate and its impact on our lives and livelihoods.

In Colorado, the Water Year (October 1 through September 30) is the most appropriate period for monitoring climate. This 12-month period is directly correlated with the state's water storage--water usage cycle. In October snow usually begins to accumulate in the high mountains. As

winter progresses, the snowpack normally continues to build. This snow is the frozen reservoir which supports the huge ski and winter recreation industry. As it melts in the subsequent spring and summer, it supplies much of the water for human consumption, for extensive irrigation, for industry, and to satisfy long-standing streamflow compacts with neighboring states. Irrigated agriculture still accounts for the vast majority of water used in Colorado. Therefore, demand for water peaks during the summer and tapers off as temperatures drop, crops are harvested, and autumn arrives. September marks an appropriate end to the water year.

Because of the crucial importance of water to Colorado, this publication emphasizes precipitation and water-year accumulated precipitation. Comparisons with long-term averages are made to help determine which parts of the state are wetter or drier than average. This makes it possible to document the availability of water resources and to assess potential drought situations.

A new report format was developed during the 1985 Water Year for displaying and describing the month by month climate and this format has been continued this year. The following paragraphs describe the information content of this report format.

Each month's summary begins with a brief one-paragraph description of observed general temperature and precipitation patterns. This is followed by a section called: "A Look Ahead." This section is not a forecast in the normal sense but is a generalized statewide climatological description (based on past records) of what weather conditions can most typically be expected. This section is really designed as an educational tool for newcomers to Colorado and to those

just learning about climate to help familiarize themselves with the nature of our climate--how it varies both in time and in space. It is also a potential planning tool for those individuals, businesses, researchers, and government agencies who are just starting to try to take climate into account in planning and scheduling activities.

Following the "Look Ahead" section is a special feature story on some aspect of Colorado's climate. Research results, new climate publications, and items of general public interest may appear in this section. Here is a list of this year's special features and the pages on which they are found.

15) More Research Results on the Variability of Precipitation in Colorado. (pp. 99, 107)

16) Climate Trivia for the Home, School and Office. (pp. 107)

12) 1986 Water Year Wrap-Up. (pp. 111-112)

The daily weather description, which has been a part of the monthly summary for several years, has been continued and includes a table of extremes of temperature, precipitation and snow. This narrative section gives the dates of major storms, heat waves and cold blasts and gives selected examples from across Colorado.

One page is dedicated each month to the precipitation pattern. A brief narrative description is followed by a list of the wettest and driest National Weather Service reporting stations. A detailed map showing precipitation amounts is contoured to show which areas were above and below average.

The next page of the summary includes a similar assessment of the water year accumulated precipitation. A brief narrative comparison is made between the current and the past year's precipitation. This is accompanied by a tabular comparison of the wettest and driest locations in the state and a contoured map analysis of the current year's accumulated precipitation compared to average.

Temperature data for the month and comparisons to average are described in a short paragraph. The monthly temperatures for approximately 55 selected locations are plotted on a map and are analyzed using contour lines of departures from the 1961-80 averages. Along with the air temperature data, a detailed analysis of Fort Collins daily soil temperatures at several depths is presented. Soil temperature is an important climatic element in agriculture,

construction, and energy conservation. Unfortunately, detailed soil temperature data are not available throughout Colorado.

Heating degree day data for 36 Colorado cities is published each month in a data table similar to previous years. A description of heating degree days and their use is given in Section II of this report.

Our present summary format ends with two pages of tabular climate information for the month for selected Colorado stations. Stations are divided into 4 regions: the Eastern Plains, the Foothills/Adjacent Plains (includes the Front Range urban corridor), the Mountains and High Interior Valleys, and the Western Valleys (includes stations in western Colorado below 7,000 feet). Data presented for each station include the average high, low and mean temperature for the month and the departure from the 1961-1980 average, the highest and lowest temperature recorded during the month, the monthly total of heating, cooling and growing degree days (see Section II for definitions), the monthly total precipitation, the departure from the 1961-1980 average, the percent of the 1961-1980 average, and the total number of days with measurable precipitation.

The final information contained in each monthly report is a comparative table of number of clear, partly cloudy and cloudy days and the percent of possible sunshine for 5 National Weather Service stations. This is followed by a graph of daily total solar radiation data measured at Fort Collins.

Specific <u>daily</u> temperature and precipitation data are not listed here. Daily data can be obtained in digital and/or hard copy form from the Colorado Climate Center and the National Climatic Data Center

(Asheville, NC). Much of the daily data are published in the government document, Climatological Data.

Most temperature and precipitation data used in the monthly summaries were obtained from the National Weather Service cooperative observer network. Data from the major National Weather Service stations, such as Denver and Grand Junction, are also used extensively.

The averages which are used in this report for both temperature and precipitation were calculated using 1961-1980 data. Heating degree day normals were based on 1951-1980 data.

The written descriptions give a good general accounting of each month's weather, but the majority of information is contained on the maps and tables which accompany each report. The accuracy of all of these maps and tables is quite good. However, these reports were initially prepared soon after the end of each month, and preliminary information had to be used. Therefore, some of the precipitation, temperature, and heating, cooling and growing degree day values may differ slightly from what is later published by the National Climatic Data Center.

II. EXPLANATION OF DEGREE DAYS

Many climatic factors affect fuel consumption for heating and cooling. Wind, solar radiation and humidity all play a part, but temperature is by far the most important element. Very simply, the colder it gets; the more energy is needed to stay warm.

A simple index, given the name, heating degree days, was devised several years ago to relate air temperatures to energy consumption (for heating). The number of heating degrees for a given day is calculated by subtracting the mean daily temperature (the average of the daily high and low temperature) from 65°F. Sixty-five degrees is used as the base temperature because at that temperature a typical building will not require any heating to maintain comfortable indoor temperatures. That difference (65°F minus the mean daily temperature) is the number of heating degrees for that day. The daily values are accumulated throughout the heating season to give heating degree day totals. Different base temperatures can be used to calculate heating degree days, but 65° is the long-standing traditional base.

The heating degree day total for a month or for an entire heating season is approximately proportional to the quantity of fuel consumed for heating. Therefore, the colder it gets and the longer it stays cold, the more heating degree days are accumulated and the more energy is required to heat buildings to a comfortable temperature.

So why is this important? Very simply, if you know how much energy you have used for heating your home or business during a certain period of time, and if you also know the heating degree day total for the same

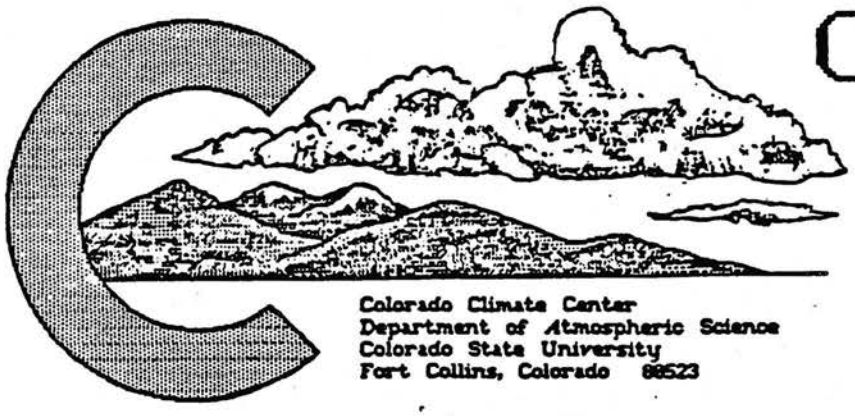
period, you can then establish an energy consumption ratio. With that information you can then make reasonable estimates of your future energy consumption and costs. Also, you can easily check the success and calculate the savings resulting from energy conservation measures such as new insulation, storm windows or lowering the thermostat.

Cooling degree days are calculated in a similar fashion. Cooling degrees occur each day the daily mean temperature is above 65°F. They are accumulated each day throughout the cooling season and are roughly proportional to the amount of energy required to cool a building to a comfortable inside temperature. Cooling degree days are less useful than heating degree days, especially here in Colorado where air conditioning requirements are minimal in many parts of the state. However, they still offer a means of making general comparisons from site to site, year to year or month to month.

Growing degree days are a measure of temperature which has been found to correlate with the rate of development and maturation of crops. Several methods exist for computing growing degree days. In this report the "corn" growing degree day definition was used. The optimum growth occurs at 86°F and essentially no growth occurs at temperatures below 50°F. Therefore, when computing the daily mean temperature any minimum temperature below 50° is counted at 50° and any maximum above 86° is counted as 86°. Growing degree day totals are this adjusted mean temperature (°F) minus 50°F summed for each day.

III. 1986 WATER-YEAR IN REVIEW

In previous years up through the 1984 water year summary several pages were written recapping the highlights of the year's climate and the impact it had on Colorado. This section now appears in abbreviated form as the special feature story that accompanies the September 1986 summary. This can be found on pages 111-112.



COLORADO CLIMATE

Colorado Climate Center
Department of Atmospheric Science
Colorado State University
Fort Collins, Colorado 80523

OCTOBER 1985

October in Review:

A week of cold, stormy weather from the 7th to the 13th marred what was otherwise a pleasant fall month and left Colorado's high country covered by an early layer of snow. October temperatures ended up near average over most of the state except the northeast where temperatures were as much as four degrees Fahrenheit below average. Precipitation was mostly above average except for a dry band from Gunnison to Canon City and then northeastward to Julesburg.

A Look Ahead -- December 1985:

When December rolls around there is little doubt that winter has descended on the Rockies. The mountains and Western Slope are often shrouded in clouds. Even on clear days the sun is up for less then 9 hours across the state and never gets more than an angle of 30° above the horizon. Measurable snow in the mountains falls on an average of 10 to 15 days. The northern mountains experience the most frequent snowfalls. Snow occurs less often in the San Juan Mountains, but when it snows there it means business. Wolf Creek Pass received 68" of snow (6" of water content) from a 2-day snowstorm in December 1978. For the mountains as a whole, December precipitation averages between 2 and 4 inches, although some preferred locations such as the Park Range east of Steamboat Springs receive considerably more. Temperatures in the mountains are predictably cold. Daytime temperatures are typically in the 20s in the high mountains while the surrounding valleys warm into the 30s. At night, temperature inversions often form (particularly on clear nights) as colder temperatures appear in the valleys than in the higher mountains. Temperatures of zero (Fahrenheit) or below are common in many of the mountain valleys in December, while single digit readings are more typical in the mountains. Extremely cold temperatures are most likely later in the winter, but some incredibly cold temperatures have occurred in later December. Fraser dropped to -44°F on December 26, 1962.

Weather conditions east of the Continental Divide are normally much different from the rest of the state in December. There are many sunny days east of the mountains and daytime temperatures are often quite mild climbing into the 40s and 50s. Nighttime temperatures are typically in the teens. Big day-to-day temperature changes are common as warm dry "chinook" winds along the foothills (which can reach speeds of close to 100 mph in preferred locations at the base of the foothills) compete with occasional surges of arctic air on the High Plains. It is common east of the mountains to experience the first subzero temperatures of the winter late in December. Precipitation is light in December averaging 0.50 to 0.80" in the foothills and less then 0.50" across all of the Eastern Plains. Large snowstorms are possible but occur very infrequently east of the Divide. A repeat performance of the Denver Christmas Eve blizzard of 1982 is unlikely.

Snowfall in Colorado -- How does it stack up:

Snow is a part of life in Colorado. Even at low elevations snowfall has occurred in at least 9 of the 12 months. For the higher areas July is the only month when snow is rare (although the ground can be whitened by hail or graupel on any day during the summer). But don't get the idea that the whole state gets similar amounts of snowfall. Annual average snowfall at official weather reporting stations in Colorado ranges from less then 20" in parts of the southeastern plains to more than 450" in some mountain locations. If there was a person taking daily snowfall measurements at Buffalo Pass near Steamboat Springs even greater snowfall would be likely -- perhaps more than 600" a year. Interestingly, despite the incredible high-country snows some of the most devastating storms are the blizzards of the High Plains which occur in areas which receive relatively little snow in typical winters.

(continued on last page)

OCTOBER 1985 DAILY WEATHER

Date	Event
1-6	A period of dry weather with northwesterly winds aloft followed the severe cold of late September. A strong cold front raced southward across the Eastern Plains late on the 3rd bringing strong wind gusts, a few sprinkles and briefly colder temperatures. West of the mountains little daily change was noted.
7-13	A wet, stormy week with moist southwesterly winds aloft. Temperatures climbed into the mid 80s in southeastern Colorado on the 7th as a strong low pressure area developed over Wyoming. It then settled into Arizona bringing much colder temperatures to Colorado. Rains turned to snow on the 8th in the mountains and in parts of northeastern Colorado and then turned into an uncommon bout of freezing rain along the Front Range late on the 8th into the morning of the 9th making travel hazardous. Skies cleared on the 10th but clouded up again as the upper level storm system moved directly over Colorado on the 11th. Moderate precipitation fell in many areas such as 0.93" at Mancos, 0.95" at Manassa and 1.40" at Walsenburg. Again skies cleared briefly on the 12th but precipitation developed again on the 13th as a Pacific cold front approached. Snow fell in the mountains and in parts of northeastern Colorado on the 13th, but most totals were light. Some of the heaviest precipitation reports for the week included 2.53" at Eagle, 2.55" at Kremmling, 3.03" at Craig, 3.91" at Parachute, 4.65" near Redstone and 5.10" at Bonham Reservoir.
14-18	Warmer and drier as the jet stream retreated northward. However, the remnants of an upper level low over the Baja, moved northeastward triggering some rain on the 17th and 18th over extreme southern Colorado and the Eastern Plains. Las Animas received 0.50" and Yuma totalled 1.00" from this weak system.
19-23	Sunny, mild and dry. Daytime temperatures mostly in the 60s and 70s at lower elevations with 40s and 50s in the mountains. Nighttime lows mostly above freezing except 20s were common in the mountains. A fast moving Pacific cold front crossed the area 22-23rd with strong winds and some light rain and snow showers in the northern and central mountains.
24-30	Lovely fall weather -- sunny, dry with above average temperatures. Briefly cooler during the day on the 29th east of the mountains.
31	Pacific frontal system crossed Colorado triggering some scattered showers and even some thunderstorms. Locally moderate precipitation such as 0.40" at Evergreen and 0.80" at Creede as the front passed.

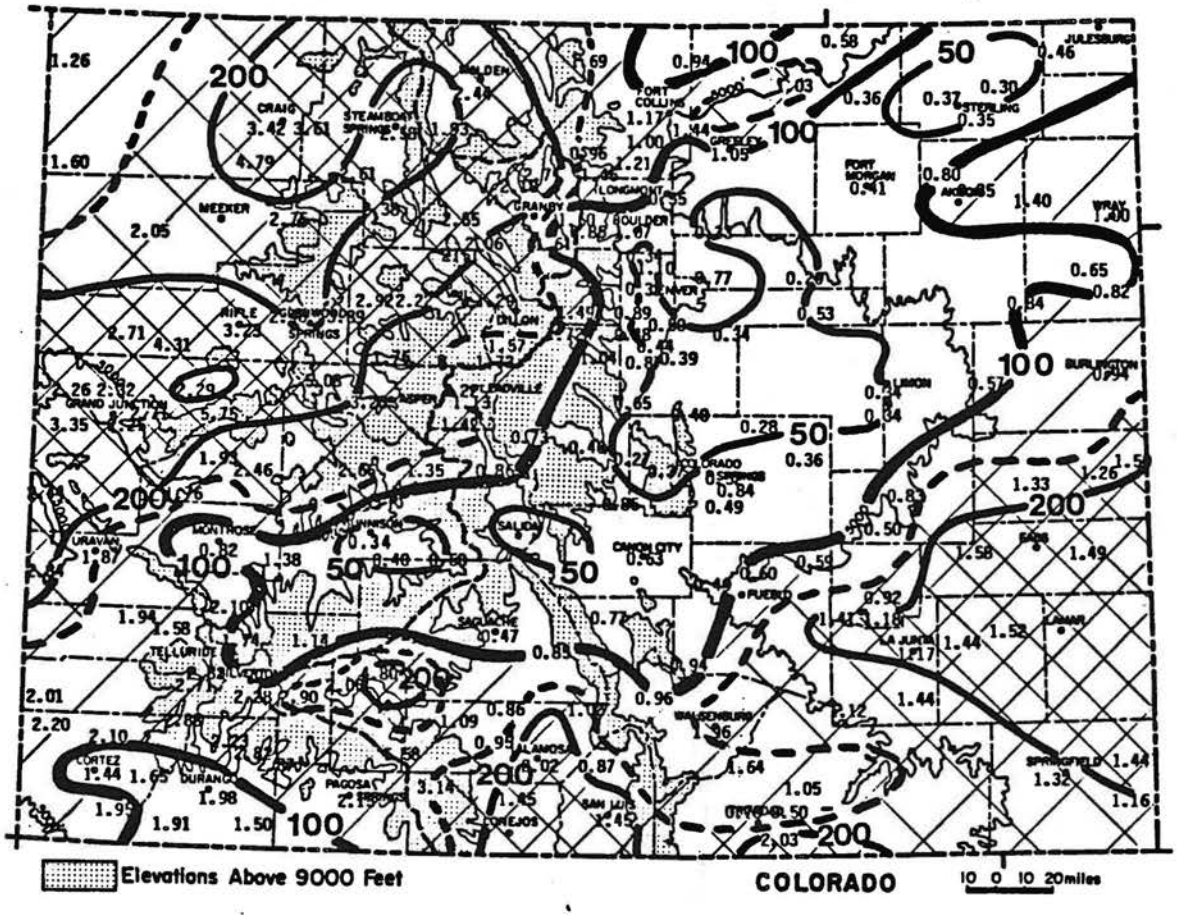
October 1985 Extremes

Highest Temperature	88°F	October 26	Las Animas
Lowest Temperature	-2°F	October 1	Hohnholz Ranch
Greatest Total Precipitation	5.75"		Bonham Reservoir
Least Total Precipitation	0.27"		Florissant Fossil Beds National Monument
Greatest Total Snowfall	24"		Rand

OCTOBER 1985 PRECIPITATION

This is the first month of the new 1986 Water Year. At this early point in the year, precipitation is again above average over most of the state continuing a trend which began more than 4 years ago. The wettest areas compared to average in October was the Colorado River valley from Grand Junction to Grand Lake, the Craig area, the San Luis Valley and the Lower Arkansas Valley. Some of these areas had more than 3 times their average precipitation. But sandwiched between the wet areas was a band from Montrose to Salida and Canon City broadening to encompass much of the northeastern plains which was much drier than average. Ruxton Park near Pikes Peak received just 27% of average.

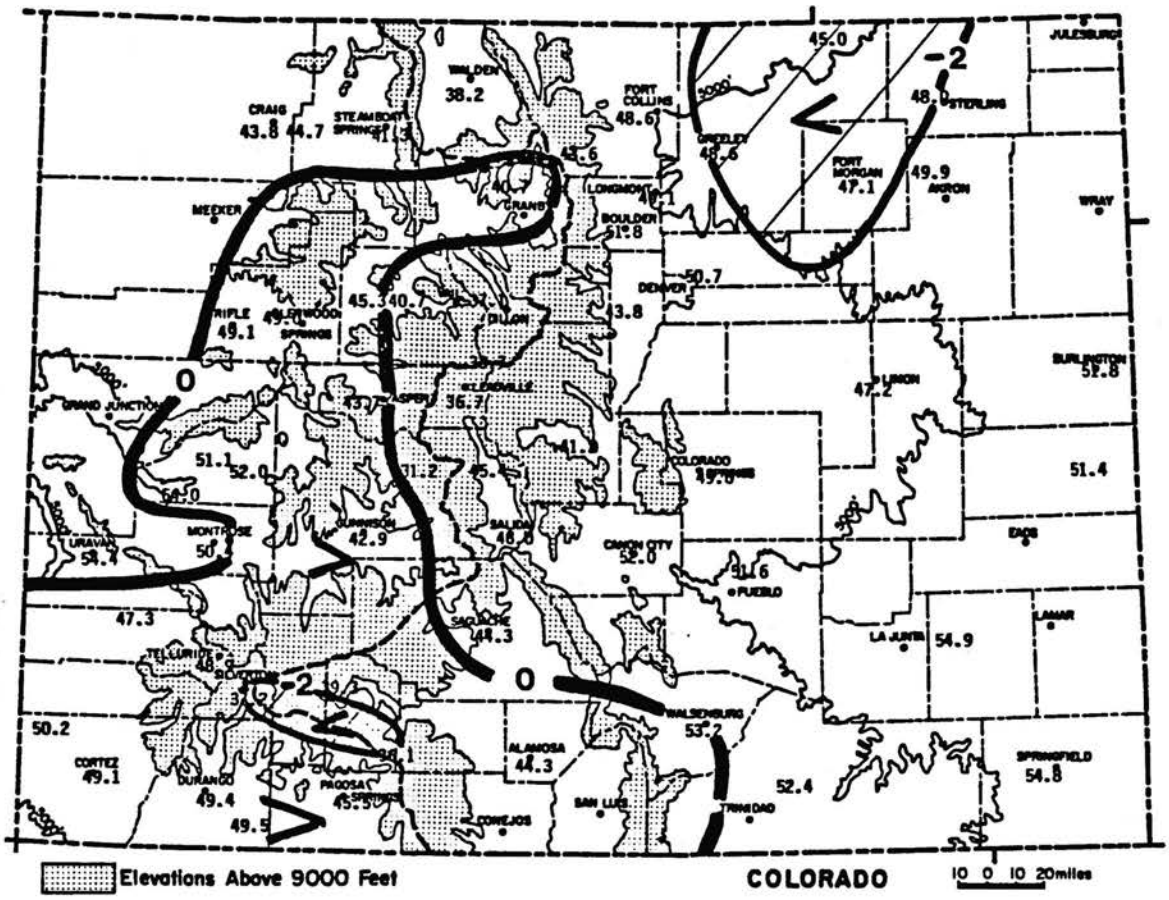
Greatest		Least	
Bonham Reservoir	5.75"	Florissant Fossil Beds	0.27"
Wolf Creek Pass 1E	5.58"	Eastonville 1NNW	0.28"
Redstone 4W	5.08"	Byers 5ENE	0.29"
Creede 1S	4.80"	Fleming 1S	0.30"
Hamilton	4.79"	Lakewood	0.32"



Precipitation amounts (inches) for October 1985 and contours of precipitation as a percent of the 1961-1980 average. Dashed line represents 150% of average.

OCTOBER 1985 TEMPERATURES AND DEGREE DAYS

The first half of October was consistently cooler than average, especially east of the mountains. However, two warm weeks at the end of the month offset the cold. Temperatures for the month as a whole ended up within about one degree Fahrenheit of average over most of Colorado. The only exception was a portion of northeastern Colorado where temperatures were as much as four degrees below average.



October 1985 temperatures (degrees Fahrenheit) and contours of departures from 1961-1980 averages.

OCTOBER 1985 SOIL TEMPERATURES

Unusually cold near-surface soil temperatures early in October gave way to more normal temperatures later in the month.

These soil temperature measurements were taken at Colorado State University beneath sparse unirrigated sod with a flat, open exposure. These data are not representative of all Colorado locations.

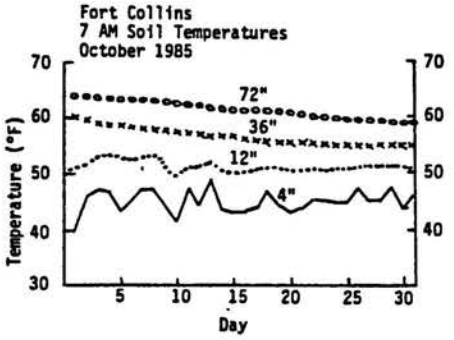


Table 1. Colorado Heating Degree Data through October 1985.

HEATING DEGREE DATA

STATION		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANN
ALAMOSA	AVE	40	100	303	657	1074	1457	1519	1182	1035	732	453	165	8717
	84-85	11	56	252	748	1051	1382	1462	1208	936	625	415	146	8292
	85-86	30	66	378	634									1108
ASPEN	AVE	95	150	348	651	1029	1339	1376	1162	1116	798	524	262	8850
	84-85	87	134	345	883	1034	1282	1415	1293	1047	726	492	223	8961
	85-86	119	107	453	6556									7235
BOULDER	AVE	0	6	130	357	714	908	1004	804	775	483	220	59	5460
	84-85	0	1	171	599	716	938	1162	989	717	385	174	38	5890
	85-86	0	0	222	400									622
BUENA VISTA	AVE	47	116	285	577	936	1184	1218	1025	983	720	459	184	7734
	84-85	16	91	284	828	949	1169	1338	1084	956	646	422	130	7913
	85-86	63	54	405	597									1119
BURLING-TON	AVE	6	5	108	364	762	1017	1110	871	803	459	200	38	5743
	84-85	0	0	148	493	699	980	1207	1012	686	347	145	50	5767
	85-86	0	5	206	405									616
CANON CITY	AVE	0	9	81	301	639	831	911	734	707	411	179	33	4836
	84-85	0	0	175	561	702	841	1069	958	676	362	174	40	5558
	85-86	0	6	186	397									589
COLORADO SPRINGS	AVE	8	25	162	440	819	1042	1122	910	880	564	296	78	6346
	84-85	0	6	200	684	791	982	1233	1077	830	481	246	77	6607
	85-86	5	8	253	487									753
CORTEZ	AVE	0	11	115	434	813	1132	1181	921	828	555	292	68	6350
	84-85	0	0	108	666	839	1072	1173	1085	827	511	289	66	6636
	85-86		4	264	484									752
CRAIG	AVE	32	58	275	608	996	1342	1479	1193	1094	687	419	193	8376
	84-85	15	25	304	799	1002	1424	1609	1432	1063	611	375	132	8791
	85-86	10	42	353	649									1054
DELTA	AVE	0	0	94	394	813	1135	1197	890	753	429	167	31	5903
	84-85	0	11	49	477	713	969	1047	938	683	353	132		5372
	85-86	0		113	335									448
DENVER	AVE	0	0	135	414	789	1004	1101	879	837	528	253	74	6014
	84-85	0	1	183	622	753	990	1213	1040	742	412	167	42	6165
	85-86	0	1	241	435									677
DILLON	AVE	273	332	513	806	1167	1435	1516	1305	1296	972	704	435	10754
	84-85	245	301	510	1004	1161	1380	1581	1449	1219	874	667	404	10795
	85-86	260	300	609	856									2025
DURANGO	AVE	9	34	193	493	837	1153	1218	958	862	600	366	125	6848
	84-85	0	6	124	695	866	1074	1146	1008	831	494	319	59	6622
	85-86	3	8	274	476									761
EAGLE	AVE	33	80	288	626	1026	1407	1448	1148	1014	705	431	171	8377
	84-85	1	27	252	741	998	1300	1435	1219	910	602	381	103	7969
	85-86	19	52	356	605									1032
EVER-GREEN	AVE	59	113	327	621	916	1135	1199	1011	1009	730	489	218	7827
	84-85	21	68	326	826	874	1088	1329	1123	928	616	448	165	7812
	85-86	62	90	387	651									1190
FORT COLLINS	AVE	5	11	171	468	846	1073	1181	930	877	558	281	82	6483
	84-85	0	0	193	606	745	1027	1245	1077	734	389	167	61	6244
	85-86	1	8	243	499									751
FORT MORGAN	AVE	0	6	140	438	867	1156	1283	969	874	516	224	47	6520
	84-85	0	0	185	564	784	1168	1329	1125	687	395	135	57	6429
	85-86	0	2	239	548									789
GRAND JUNCTION	AVE	0	0	65	325	762	1138	1225	882	716	403	148	19	5683
	84-85	0	0	54	452	719	996	1044	919	645	310	81	12	5232
	85-86	0	0	139	351									490

HEATING DEGREE DATA

STATION		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANN
GRAND LAKE	AVE	214	264	468	775	1128	1473	1593	1369	1318	951	654	384	10591
	84-85	155	213	435	888	1096	1428	1662	1498	1238	832	610	361	10416
	85-86	206	265	513	744									1728
GREELEY	AVE	0	0	149	450	861	1128	1240	946	856	522	238	52	6442
	84-85	0	0	213	601	769	1107	1305	1096	719	391	162	41	6404
	85-86	0	6	249	501									756
GUNNISON	AVE	111	188	393	719	1119	1590	1714	1422	1231	816	543	276	10122
	84-85	64	143	372	850	1072	1381	1593	1426	1065	699	495	203	9363
	85-86	84	152	433	678									1347
LAS ANIMAS	AVE	0	0	45	296	729	998	1101	820	698	348	102	9	5146
	84-85	0	0	132	479	653	916	1204	948	586	257	72	7	5254
	85-86	0	0	134	313									447
LEAD-VILLE	AVE	272	337	522	817	1173	1435	1473	1318	1320	1038	726	439	10870
	84-85	308	366	536	1074	1217	1434	1577	1418	1291	967	737	440	11365
	85-86	333	359	666	871									2229
LIMON	AVE	8	6	144	448	834	1070	1156	960	936	570	299	100	6531
	84-85	1	1	230	694	852	1072	1297	1133	868	496	254	100	6998
	85-86	1	12	274	544									831
LONGMONT	AVE	0	6	162	453	843	1082	1194	938	874	546	256	78	6432
	84-85	0	3	237	679	812	1078	1287	1147	743	400	170	42	6598
	85-86	0	6	236	486									728
MEEKER	AVE	28	56	261	564	927	1240	1345	1086	998	651	394	164	7714
	84-85	1	17	228	690	907	1250	1392	1217	963	581	360	116	7722
	85-86	6	31	358	599									994
MONTROSE	AVE	0	10	135	437	837	1159	1218	941	818	522	254	69	6400
	84-85	0	8	102	604	791	1064	1161	1095	741	438	178	31	6213
	85-86	0	0	211	443									654
PAGOSA SPRINGS	AVE	82	113	297	608	981	1305	1380	1123	1026	732	487	233	8367
	84-85	4	39	245	782	970	1190	1305	1207	971	626	438	173	7950
	85-86	34	73	376	600									1083
PUEBLO	AVE	0	0	89	346	744	998	1091	834	756	421	163	23	5465
	84-85	0	0	127	474	713	907	1208	999	664	326	125	9	5552
	85-86	0	0	172	410									582
RIFLE	AVE	6	24	177	499	876	1249	1321	1002	856	555	298	82	6945
	84-85	0	1	131	622	829	1134	1246	1124	804	472	228	47	6638
	85-86	1	6	232	484									723
STEAMBOAT SPRINGS	AVE	113	169	390	704	1101	1476	1541	1277	1184	810	533	297	9595
	84-85	82	103	397	834	1047	1419	1611	1433	1077	730			8733
	85-86	57	130	434	729									1350
STERLING	AVE	0	6	157	462	876	1163	1274	966	896	528	235	51	6614
	84-85	0	0	189	552	784	1140	1260	1160	678		148	71	5982
	85-86	0	6	230	519									755
TELLURIDE	AVE	163	223	396	676	1026	1293	1339	1151	1141	849	589	318	9164
	84-85	99	165	337	867	984	1185	1335	1179	1020	723	550	224	8668
	85-86	121	152	463	648									1384
TRINIDAD	AVE	0	0	86	359	738	973	1051	846	781	468	207	35	5544
	84-85	0	0	138	507	652	891	1225	935	658	366	159	25	5556
	85-86	0	0	175	380									555
WALDEN	AVE	198	285	501	822	1170	1457	1535	1313	1277	915	642	351	10466
	84-85	122	184	448	942	1130	1389	1652	1358	1138	810	592	320	10085
	85-86	171	271	578	824									1844
WALSEN-BURG	AVE	0	8	102	370	720	924	989	820	781	501	240	49	5504
	84-85	0	0	113	517	621	817	1131	902	669	386	187	32	5375
	85-86	0	0	165	358									523

OCTOBER 1985 CLIMATIC DATA

Eastern Plains*

	Temperature						Degree Days			Precipitation			
Name	Max	Min	Mean	Dep	High	Low	Heat	Cool	Grow	Total	Dep	%Norm	# days
KAUFFMAN 4SSE	60.7	29.3	45.0	-4.2	73	17	593	0	176	0.58	0.06	111.5	3
STERLING	64.2	31.7	48.0	-1.9	80	21	519	0	248	0.37	-0.47	44.0	3
FORT MORGAN	65.0	29.3	47.1	-3.9	80	12	548	0	258	0.41	-0.16	71.9	2
AKRON FAA AP	63.6	36.2	49.9	-1.0	77	28	461	0	225	0.80	0.15	123.1	5
BURLINGTON	64.8	38.8	51.8	-2.2	83	28	405	3	242	0.94	0.18	123.7	3
LIMON WSMO	62.8	31.6	47.2	-1.4	76	23	544	0	223	0.34	-0.26	56.7	5
CHEYENNE WELLS	66.1	36.7	51.4	-1.9	84	25	414	0	258	1.26	0.43	151.8	6
LAS ANIMAS	72.3	37.6	54.9	-0.9	88	24	313	6	356	1.44	0.81	228.6	5
SPRINGFIELD 7WSW	70.7	38.8	54.8	-0.4	86	27	312	4	334	1.32	0.62	188.6	6

Foothills/Adjacent Plains*

	Temperature						Degree Days			Precipitation			
Name	Max	Min	Mean	Dep	High	Low	Heat	Cool	Grow	Total	Dep	%Norm	# days
FORT COLLINS	63.9	33.2	48.6	-1.4	74	21	499	0	231	1.17	0.16	115.8	5
GREELEY UNC	64.8	32.4	48.6	-2.1	77	22	501	0	253	1.05	0.06	106.1	5
ESTES PARK	58.0	29.3	43.6	-1.7	67	14	653	0	136	0.96	0.18	123.1	9
LONGMONT 2ESE	65.6	32.5	49.1	-1.3	78	22	486	0	258	0.74	-0.14	84.1	6
BOULDER	67.1	36.5	51.8	-1.7	77	23	400	0	277	1.07	-0.11	90.7	7
DENVER WSFO AP	65.1	36.3	50.7	-1.0	79	27	435	0	251	0.77	-0.11	87.5	3
EVERGREEN	60.1	27.5	43.8	-1.0	72	19	651	0	188	0.89	-0.29	75.4	6
LAKE GEORGE 8SW	55.2	27.1	41.2	-1.1	66	18	729	0	105	0.46	-0.27	63.0	3
COLORADO SPRINGS	63.2	34.8	49.0	-1.6	78	23	487	0	217	0.52	-0.23	69.3	6
CANON CITY	66.1	37.9	52.0	-4.2	82	25	397	1	266	0.63	-0.24	72.4	3
PUEBLO WSO AP	69.1	34.0	51.6	-2.4	85	24	410	1	311	0.60	0.02	103.4	4
WALSENBERG	68.6	37.9	53.2	0.1	80	26	358	0	297	1.96	0.88	181.5	6
TRINIDAD FAA AP	67.6	37.3	52.4	-1.2	82	28	380	0	283	1.05	0.16	118.0	5

Mountains/Interior Valleys*

	Temperature						Degree Days			Precipitation			
Name	Max	Min	Mean	Dep	High	Low	Heat	Cool	Grow	Total	Dep	%Norm	# days
WALDEN	53.8	22.7	38.2	-0.5	65	10	824	0	93	2.44	1.62	297.6	7
LEADVILLE 2SW	50.5	22.8	36.7	-1.3	61	13	871	0	39	1.13	0.13	113.0	5
SALIDA	62.9	29.0	46.0	-1.2	73	19	565	0	200	0.37	-0.65	36.3	4
BUENA VISTA	61.9	28.9	45.4	-0.7	71	21	597	0	195	0.86	0.08	110.3	4
SAGUACHE	60.4	28.2	44.3	-0.5	68	20	635	0	172	0.47	-0.27	63.5	1
HERMIT 7ESE	56.6	22.1	39.3	0.8	66	13	791	0	114	2.05	0.48	130.6	6
ALAMOSA WSO AP	61.5	27.1	44.3	0.6	74	18	634	0	184	2.02	1.30	280.6	7
STEAMBOAT SPRINGS	57.5	25.2	41.3	-0.6	72	13	729	0	146	2.58	0.94	157.3	7
GRAND LAKE 6SSW	54.3	27.1	40.7	0.9	67	15	744	0	80	2.10	1.21	236.0	10
DILLON 1E	52.3	21.9	37.1	-2.0	63	13	856	0	70	1.29	0.54	172.0	6
AVON	58.2	23.2	40.7	-3.3	70	12	743	0	148	2.22	1.22	222.0	8
CLIMAX	44.6	22.7	33.7	-0.3	55	12	965	0	6	1.73	0.46	136.2	6
ASPEN 1SW	57.2	30.2	43.7	0.2	68	22	656	0	128	3.20	1.49	187.1	10
TAYLOR PARK	50.5	12.0	31.2	-7.8	59	3	1040	0	37	1.35	0.11	108.9	7
TELLURIDE	59.7	28.0	43.9	0.8	72	18	648	0	162	1.95	-0.27	87.8	9
PAGOSA SPRINGS	63.0	28.0	45.5	0.2	72	20	600	0	209	2.15	0.16	108.0	9
SILVERTON	54.6	19.9	37.2	-2.8	65	10	852	0	97	2.28	0.01	100.4	7
WOLF CREEK PASS 1	46.9	25.3	36.1	-0.4	59	12	744	0	24	5.58	1.45	135.1	8

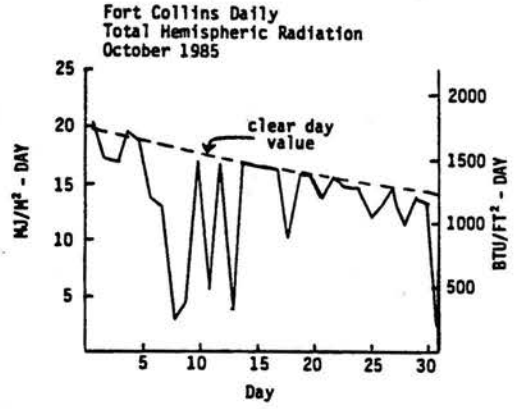
Western Valleys*

	Temperature						Degree Days			Precipitation			
Name	Max	Min	Mean	Dep	High	Low	Heat	Cool	Grow	Total	Dep	%Norm	# days
CRAIG 4SW	58.9	28.7	43.8	-1.4	75	17	649	0	174	3.42	2.15	269.3	9
HAYDEN	59.9	29.5	44.7	-0.3	73	21	620	0	179	3.61	2.27	269.4	8
MEEKER NO. 2	62.5	28.2	45.4	-0.8	75	12	599	0	205	2.97	1.59	215.2	8
EAGLE FAA AP	61.5	29.2	45.3	0.5	76	21	605	0	195	2.92	2.04	331.8	9
GLENWOOD SPRINGS	64.5	33.4	49.0	0.5	72	25	489	0	232	2.48	1.02	169.9	6
RIFLE	66.3	31.9	49.1	0.4	76	25	484	0	264	3.23	2.08	280.9	9
CEDAREDGE	65.2	37.0	51.1	0.4	76	26	424	0	242	1.93	0.70	156.9	7
PAONIA 1SW	65.6	38.4	52.0	0.6	77	31	394	0	251	2.46	1.04	173.2	8
DELTA	71.0	37.0	54.0	2.3	76	30	335	0	331	1.76	0.88	200.0	9
GUNNISON	62.1	23.6	42.9	1.6	71	14	678	0	196	0.34	-0.52	39.5	5
MONTROSE NO. 2	64.9	35.9	50.4	-0.1	75	27	443	0	244	0.82	-0.31	72.6	6
URAVAN	70.6	38.2	54.4	-0.2	80	30	322	0	327	1.87	0.47	133.6	6
NORWOOD	60.8	33.8	47.3	1.0	71	23	542	0	175	1.94	0.46	131.1	5
YELLOW JACKET 2W	61.8	38.7	50.2	0.1	71	29	451	0	190	2.20	0.25	112.8	8
CORTEZ	64.1	34.1	49.1	-1.7	73	27	484	0	227	1.44	-0.16	90.0	9
DURANGO	65.1	33.8	49.4	0.4	76	25	476	0	244	1.98	-0.04	98.0	9
IGNACIO 1N	65.9	33.1	49.5	1.8	76	24	472	0	254	1.50	-0.05	96.8	9

* Data are received by the Colorado Climate Center for more locations than appear in these tables. Please contact the Colorado Climate Center if additional information is needed.

OCTOBER 1985 SUNSHINE AND SOLAR RADIATION

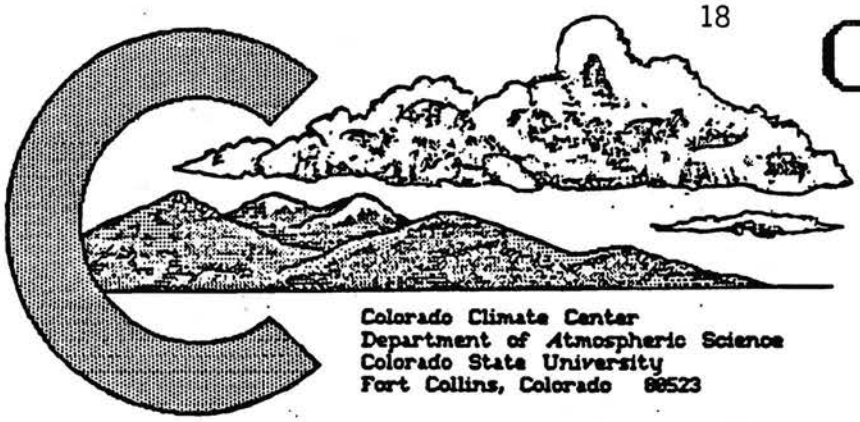
	Number of Days				
Station	clear	partly cloudy	cloudy	% of possible sunshine	average % of possible
Colorado Springs	15	8	8	--	--
Denver	16	8	7	73%	73%
Fort Collins	14	11	6	--	--
Grand Junction	13	8	10	72%	74%
Pueblo	16	7	8	75%	79%



Snowfall in Colorado -- How does it stack up: continued

The Colorado Climate Center has assembled daily snowfall records for many locations in the State. Not all of these data are "truth." Snowfall is difficult to measure. Wind, drifting, melting and settling are some of the problems observers must face in measuring snowfall. These problems can be compounded if there is already old snow on the ground when new snow falls. Even with these problems it is possible to make some valid comparisons. Instead of just waving my hands and trying to find the right words why don't I just give you some numbers to look at so you can make your own judgements and comparisons. Beware that most of the stations in the mountains are in valleys. These sites typically receive less snow than their surroundings.

	1951-80 Averages			Past 10 Years	
Location	Annual Snowfall (inches)	# of Days > 1" Snow on Ground	Snowiest Month	Least Snowy Winter	Snowiest Winter
Akron	40"	57	March	19"(81-82)	85"(83-84)
Alamosa	37	49	March	10"(80-81)	38"(78-79)
Aspen	142	147	Jan	61"(76-77)	279"(83-84)
Berthoud Pass	388	245	March	264"(76-77)	523"(83-84)
Boulder	82	44	March	--	--
Cheyenne Wells	22	18	March	13"(76-77)	54"(79-80)
Colorado Springs AP	43	34	March	18"(80-81)	76"(84-85)
Denver AP	63	45	March	27"(81-82)	86"(79-80)
Dillon	147	138	March	67"(80-81)	170"(83-84)
Durango	77	74	Jan	31"(76-77)	133"(78-79)
Eagle	48	89	Jan	17"(76-77)	110"(78-79)
Evergreen	91	58	March	--	--
Fort Collins	51	44	March	26"(76-77)	114"(79-80)
Grand Junction	26	40	Jan	6"(80-81)	53"(78-79)
Greeley	33	--	March	17"(76-77)	79"(79-80)
Gunnison	56	89	Jan	10"(76-77)	81"(83-84)
Lamar	27	25	March	13"(81-82)	62"(79-80)
Limon	27	34	March	14"(81-82)	95"(83-84)
Meeker	86	93	Jan	42"(76-77)	130"(78-79)
Ouray	140	140	Jan	-- (76-77)	227"(83-84)
Palmer Lake	133	133	April	--	--
Pueblo AP	30	23	March	15"(77-78)	43"(79-80)
Salida	49	26	March	--	--
Steamboat Springs	168	143	Jan	91"(76-77)	237"(83-84)
Stonington	16	--	Jan	7"(80-81)	45"(79-80)
Telluride	185	159	March	77"(76-77)	312"(83-84)
Trinidad AP	41	34	March	28"(80-81)	64"(79-80)
Walden	56	105	Dec	26"(80-81)	82"(83-84)
Wolf Creek Pass	451	222	Dec	--	--
Non-Colorado locations					
Boston, MA	42		Jan		
Chicago, IL	40		Jan		
Duluth, MN	77		Jan		
Fairbanks, AK	67		Nov		
Flagstaff, AZ	96		Mar		
Spokane, WA	52		Jan		
Washington, DC	17		Feb		



COLORADO CLIMATE

Colorado Climate Center
Department of Atmospheric Science
Colorado State University
Fort Collins, Colorado 80523

NOVEMBER 1985

November in Review:

Winter cracked down on Colorado in November. Most of the state was colder than average, but in northeastern Colorado it was one of the coldest Novembers this century. Precipitation was also considerably above average with much of the western three-fourths of the State receiving at least twice as much precipitation as usual. Except for the lower valleys on the Western Slope, most precipitation fell as snow.

A Look Ahead -- January 1986:

January is typically the coldest month of the year in Colorado. This is especially true in the mountains and Western Slope where temperatures tend to be more consistent than east of the mountains. Normal daytime temperatures rise into the 30s and 40s from the Eastern Plains into the foothills. The mountains typically see daytime temperatures rising into the 20s. Thirties are normal in the western valleys. Local topography greatly affects nighttime temperatures. Lows are typically near zero high in the mountains but often fall well below zero in the mountain valleys, especially on clear nights. Lows average from about 10 to 15°F east of the mountains with the Platte and Arkansas River bottoms being the coldest. Areas in or near the lower foothills tend to be warmer. For example, lows average in the 20s at Boulder and Canon City. January is known for having one or more episodes of extreme cold dropping temperatures below zero over most of the state. There are also usually a few warm "chinook" periods where westerly winds produce "downslope" warming east of the mountains. Temperatures in the 50s and 60s are not uncommon during these episodes. But there is sometimes a price to pay for these warm winds. Some of the worst downslope windstorms have occurred in January along the Front Range causing considerable damage in susceptible locations.

In much of the U.S. January is the snowiest month of the year. This is true for most of Colorado's high country and Western Slope. But for the eastern plains and foothills, as well as South Park and the San Luis Valley, January is a very dry month. Major snowstorms are uncommon and there is usually plenty of sunshine. January precipitation totals in these areas are typically from 0.25 to 0.50". Totals increase dramatically in the mountains with preferred areas receiving more than 4.00". January precipitation almost always falls as snow and is often dry and powdery Average snowfall for the month ranges from less than 5" on the southeast plains to more than 50" in some mountain areas. In January 1980 Berthoud Pass totalled 99" of new snow.

The Warm Winds of Winter--The Chinook:

The areas immediately east of the Rocky Mountains from Canada to Colorado experience relatively mild winter temperatures compared to other areas of similar latitude, elevation and mid-continent location. It is not a mere coincidence that most of Colorado's population lives in a narrow strip at the eastern base of the Rockies. These warmer winter temperatures accompanied by cooler summer temperatures, low humidity, light winds, low precipitation but proximity to the water supplies of the mountains make this belt a desirable climate in which to live.

The prevailing wind direction in the atmosphere at mid latitudes (that's where Colorado is) is westerly (winds blowing from west to east). These westerly winds become strongest over the Central Rocky Mountains during mid winter as the jet stream reaches its southernmost position. The jet stream weakens and drifts northward in the summer leaving light westerly winds at mountaintop level during most of the summer. The strong

(continued on last page)

NOVEMBER 1985 DAILY WEATHER

Date	Event
1	Cooler temperatures as precipitation from the October 31 frontal passage ended. Some significant totals were reported in southern Colorado such as 0.75" at Canon City and Walsenburg and 1.00" at Trinidad.
2-5	A dry period with above average temperatures until rainshowers moved into northwestern Colorado on the 5th Temperatures climbed into the 70s over parts of eastern Colorado 4-5th with 60s in the western valleys and 40s-50s in the mountains. Holly claimed the high for Colorado with 85° on the 5th.
6-7	A cold front raced across the state bringing a few light showers to the Eastern Plains and a little snow in the northern and central mountains early on the 6th. Seasonal temperatures.
8-10	Major winter storm developed over Wyoming and then drifted westward as arctic air drove into eastern Colorado. Warm east of the mountains on the 8th until the cold front dropped temperatures drastically late in the day. Heavy wet snows fell all day on the 8th in northwestern Colorado and spread to the Front Range overnight. Precipitation diminished on the 10th but very cold temperatures gripped northeastern Colorado with highs only in the teens. The storm totally missed southern Colorado, but snowfall totals in the north included 7" at Denver, 10" at Fort Collins and Walden, 12" at Rifle and Meeker, 16" at Dillon and Hayden and much more in the mountains. Williams Fork Dam reported 34".
11-12	Warm moist southerly winds still associated with the same upper-air storm system, spread clouds, rain and high elevation snow into southwestern Colorado. Silverton received 20" of new snow. Continued cloudy, foggy and cold over northeastern Colorado and mild in the southeast.
14-15	Surprise heavy snowstorm skipped over Colorado dumping 9" of snow at Alamosa and Fort Collins, 12" at Canon City and 16" at Pueblo but only an inch or two in Denver and most mountain areas.
16-19	A brief respite on the 16th until a new surge of snow and cold pushed into the state on the 17-19th. Significant precipitation from the Front Range west to Utah but little snow on the plains. Durango received 8" of snow and Platoro measured 25". Grand Junction set a record low of 8° on the 19th.
20-30	Unseasonably cold temperatures and persistent fog made life miserable in parts of eastern Colorado. Fog and freezing drizzle made travel difficult on numerous occasions and closed the Denver airport most of the 26th. Temperatures were much warmer in and west of the mountains but frequent impulses of Pacific moisture produced plenty of clouds and precipitation from the Continental Divide westward. A new major storm on the 29-30th buried the mountains with 1 to 3 feet of snow. As the storm moved out on the plains it dropped southward. Heavy snow, ice and high winds knocked out power in parts of extreme southeast Colorado, but most of eastern Colorado was spared the brunt of this furious storm which quickly moved toward the upper Midwest.

November 1985 Extremes

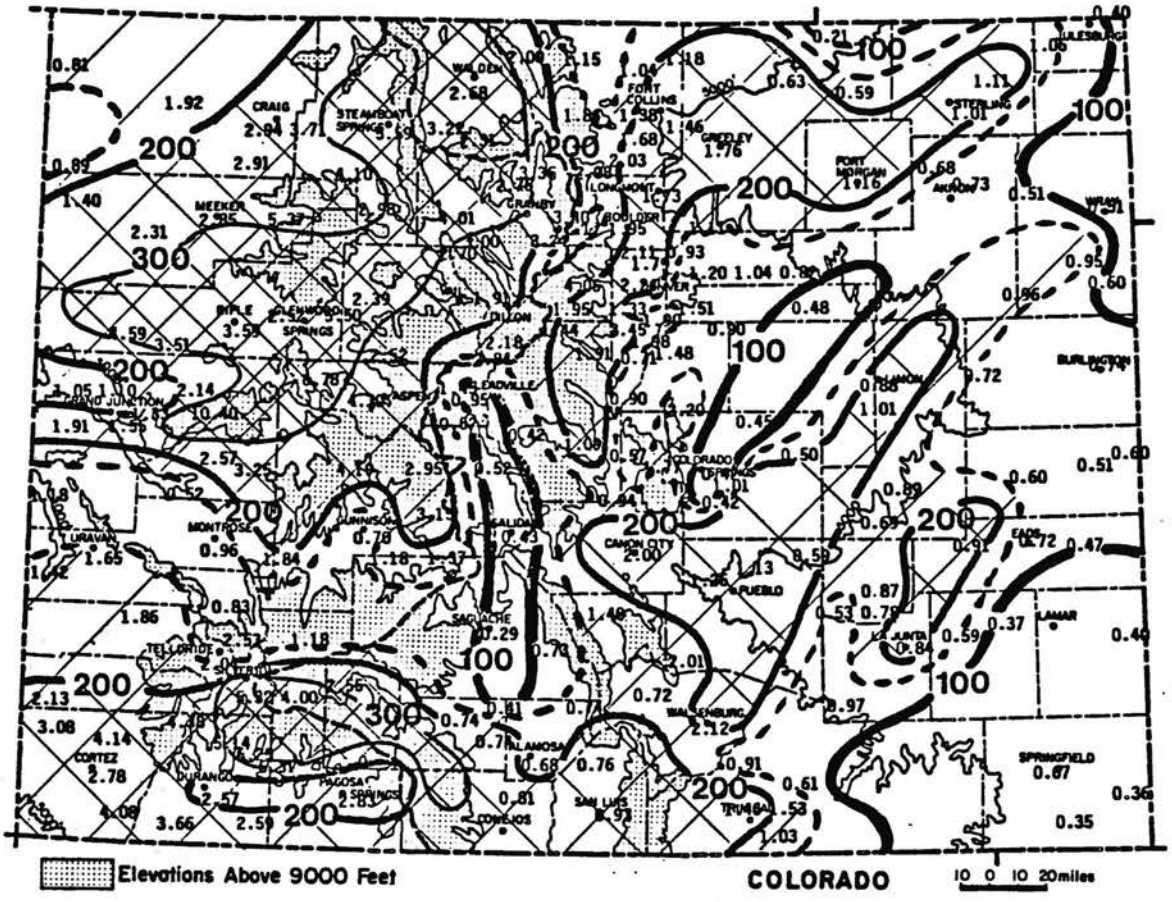
Highest Temperature	85°F	November 5	Holly
Lowest Temperature	-17°F	November 20	Taylor Park Dam
Greatest Total Precipitation	10.40"		Bonham Reservoir
Least Total Precipitation	0.21"		Kauffman 4SSE
Greatest Total Snowfall*	105"		Platoro
Greatest Snowdepth	55"	November 25	Bonham Reservoir

* data derived only from those stations with complete daily snowfall records.

NOVEMBER 1985 PRECIPITATION

The November precipitation pattern was extremely complex with numerous areas receiving very heavy precipitation amounts while some nearby locations were drier than average. Northwestern Colorado was wettest. Areas from Parachute, Rifle and the Grand Mesa northeastward to Steamboat Springs, Walden and Granby received more than 3 times their November average. Other extremely snowy and wet areas included the southern half of the San Juan Mountain complex, the south end of the San Luis Valley, the northern Front Range east of the mountains into the Platte Valley, and a strip from Walsenburg and Canon City northeast to Limon. Drier than average areas included the north end of the San Luis Valley, the upper Arkansas Valley bottom, a narrow strip northeast from Colorado Springs, and the southeastern corner of the state.

Greatest		Least	
Bonham Reservoir	10.40"	Kauffman 4SSE	0.21"
Platoro	8.95"	Saguache	0.29"
Redstone 4W	6.78"	Campo 7S	0.35"
Vallecito Dam	6.31"	Stonington	0.36"
Lemon Dam	6.25"	John Martin Dam	0.37"



Precipitation amounts (inches) for November 1985 and contours of precipitation as a percent of the 1961-1980 average. Dashed lines represent 150% of average.

1986 WATER YEAR PRECIPITION

Precipitation for the first two months of the 1986 water year is generally a little above average over most of eastern Colorado and much above average over most of the western half. Areas such as Rifle, Eagle and Kremmling have more than tripled their average. Drier than average areas include a band from Saguache to north of Salida and the area south and east of Denver southward to Colorado Springs.

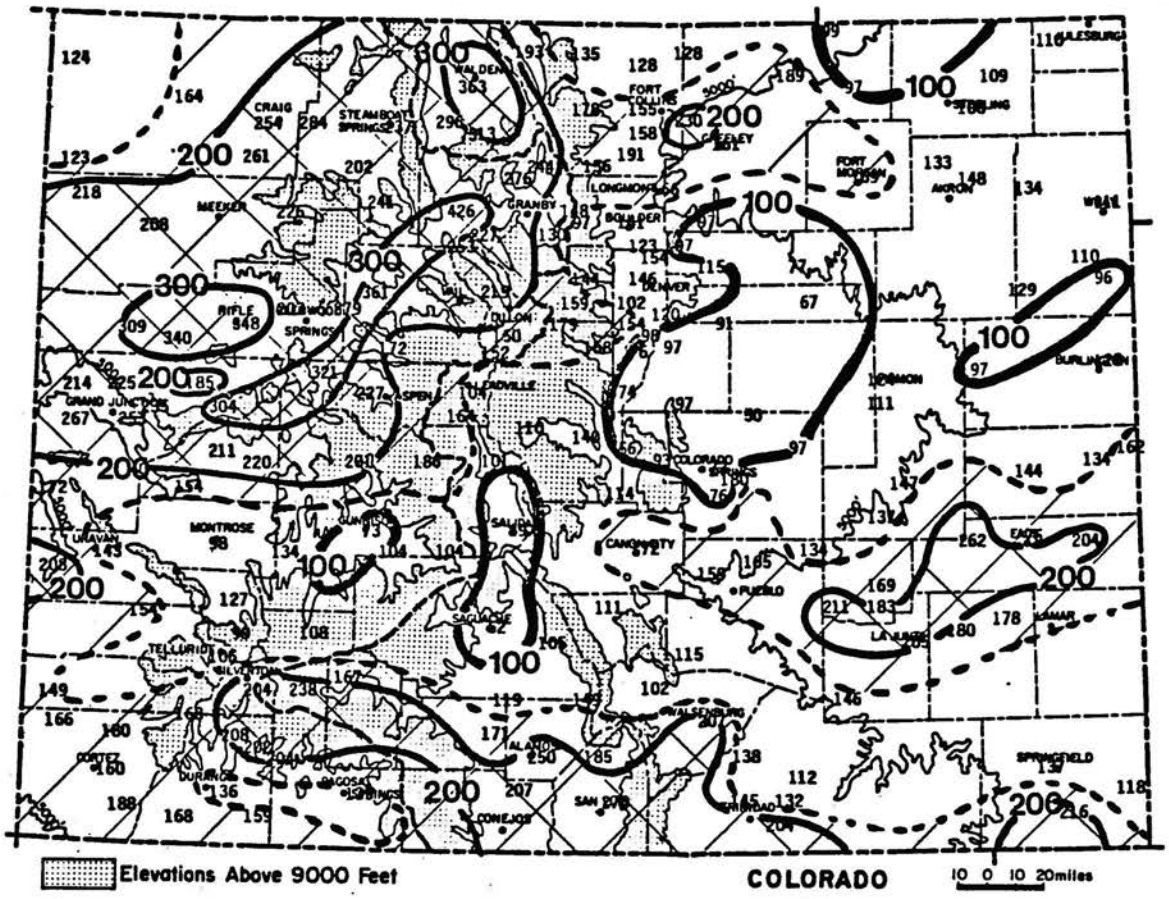
Comparison to Last Year

Most of eastern Colorado is drier this year than at the same time last year especially the area between Colorado Springs, Burlington and Denver. But western Colorado, and particularly the northwest quarter, is well ahead of last year.

1986 Water Year to Date through November

Wettest (as % of average)			Driest (as % of average)		
Kremmling 1E	426%	6.56"	Salida	49%	0.80"
Walden	363%	5.12"	Eastonville 1NNW	50%	0.73"
Eagle	361%	5.31"	Saguache	62%	0.76"

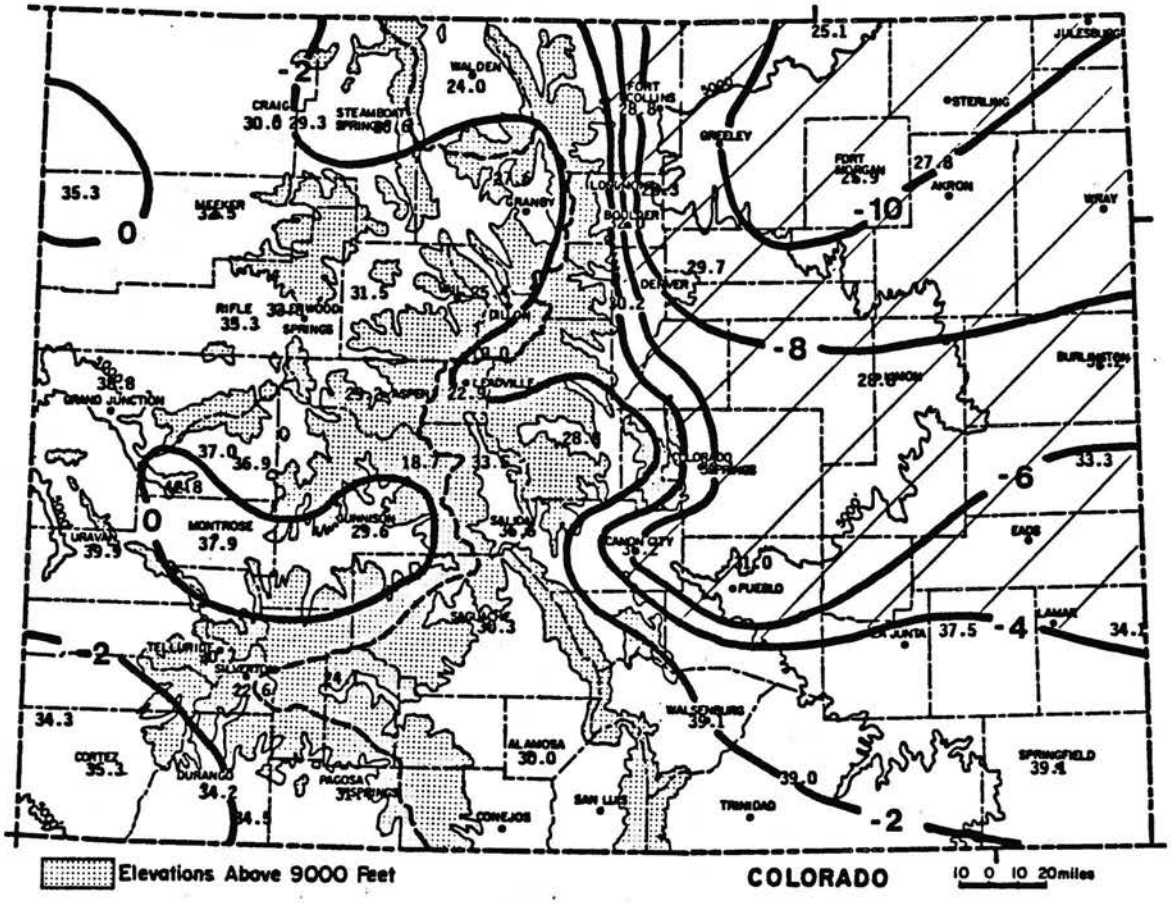
Wettest (total precipitation)			Driest (total precipitation)		
Bonham Reservoir	16.15"	304%	Eastonville 1NNW	0.73"	50%
Platoro	12.09"	NA	Saguache	0.76"	62%
Redstone 4W	11.86"	321%	Kauffman 4SSE	0.79"	99%



Precipitation for October 1985 through November 1985 as a percent of the 1961-1980 average. Dashed lines represent 150% of average.

NOVEMBER 1985 TEMPERATURES AND DEGREE DAYS

An interesting temperature pattern developed in November as cold arctic air gripped northeastern Colorado but could not push into the mountains. Temperatures in western Colorado were near average while the northeastern quarter of the state experienced one of the coldest Novembers this century. Temperatures at Fort Morgan, for example, resembled a typical January and were nearly 11 degrees Fahrenheit below average.



November 1985 temperatures (degrees Fahrenheit) and contours of departures from 1961-1980 averages.

NOVEMBER 1985 SOIL TEMPERATURES

The November soil temperature distribution was close to average. Persistent snowcover after November 9 in northeastern Colorado insulated the soil from the abnormally cold air temperatures and rapid temperature changes.

These soil temperature measurements were taken at Colorado State University beneath sparse unirrigated sod with a flat, open exposure. These data are not representative of all Colorado locations.

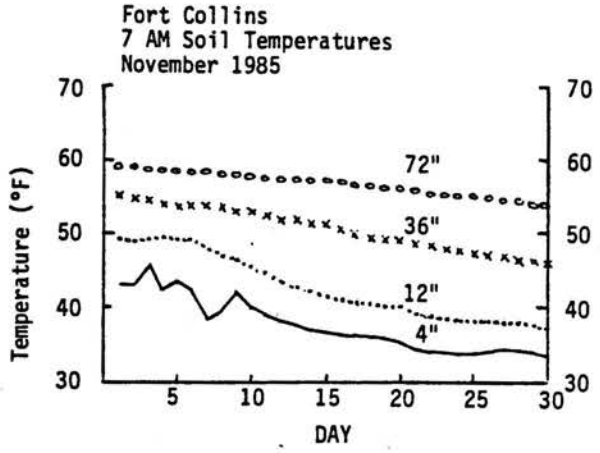


Table 1. Colorado Heating Degree Day Data through November 1985.

HEATING DEGREE DATA

STATION		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANN
ALAMOSA	AVE	40	100	303	657	1074	1457	1519	1182	1035	732	453	165	8717
	84-85	11	56	252	748	1051	1382	1462	1208	936	625	415	146	8292
	85-86	30	66	378	634	1045								2153
ASPEN	AVE	95	150	348	651	1029	1339	1376	1162	1116	798	524	262	8850
	84-85	87	134	345	883	1034	1282	1415	1293	1047	726	492	223	8961
	85-86	119	107	453	656	1066								2401
BOULDER	AVE	0	6	130	357	714	908	1004	804	775	483	220	59	5460
	84-85	0	1	171	599	716	938	1162	989	717	385	174	38	5890
	85-86	0	0	222	400	982								1604
BUENA VISTA	AVE	47	116	285	577	936	1184	1218	1025	983	720	459	184	7734
	84-85	16	91	284	828	949	1169	1338	1084	956	646	422	130	7913
	85-86	63	54	405	597	938								2057
BURLING-TON	AVE	6	5	108	364	762	1017	1110	871	803	459	200	38	5743
	84-85	0	0	148	493	699	980	1207	1012	686	347	145	50	5767
	85-86	0	5	206	405	977								1593
CANON CITY	AVE	0	9	81	301	639	831	911	734	707	411	179	33	4836
	84-85	0	0	175	561	702	841	1069	958	676	362	174	40	5558
	85-86	0	6	186	397	886								1475
COLORADO SPRINGS	AVE	8	25	162	440	819	1042	1122	910	880	564	296	78	6346
	84-85	0	6	200	684	791	982	1233	1077	830	481	246	77	6607
	85-86	5	8	253	487	978								1731
CORTEZ	AVE	0	11	115	434	813	1132	1181	921	828	555	292	68	6350
	84-85	0	0	108	666	839	1072	1173	1085	827	511	289	66	6636
	85-86		4	264	484	884								1636
CRAIG	AVE	32	58	275	608	996	1342	1479	1193	1094	687	419	193	8376
	84-85	15	25	304	799	1002	1424	1609	1432	1063	611	375	132	8791
	85-86	10	42	353	649	1043								2097
DELTA	AVE	0	0	94	394	813	1135	1197	890	753	429	167	31	5903
	84-85	0	11	49	477	713	969	1047	938	683	353	132		5372
	85-86	0		113	335									448
DENVER	AVE	0	0	135	414	789	1004	1101	879	837	528	253	74	6014
	84-85	0	1	183	622	753	990	1213	1040	742	412	167	42	6165
	85-86	0	1	241	435	1051								1728
DILLON	AVE	273	332	513	806	1167	1435	1516	1305	1296	972	704	435	10754
	84-85	245	301	510	1004	1161	1380	1581	1449	1219	874	667	404	10795
	85-86	260	300	609	856	1183								3208
DURANGO	AVE	9	34	193	493	837	1153	1218	958	862	600	366	125	6848
	84-85	0	6	124	695	866	1074	1146	1008	831	494	319	59	6622
	85-86	3	8	274	476	916								1677
EAGLE	AVE	33	80	288	626	1026	1407	1448	1148	1014	705	431	171	8377
	84-85	1	27	252	741	998	1300	1435	1219	910	602	381	103	7969
	85-86	19	52	356	605	995								2027
EVER-GREEN	AVE	59	113	327	621	916	1135	1199	1011	1009	730	489	218	7827
	84-85	21	68	326	826	874	1088	1329	1123	928	616	448	165	7812
	85-86	62	90	387	651	1039								2229
FORT COLLINS	AVE	5	11	171	468	846	1073	1181	930	877	558	281	82	6483
	84-85	0	0	193	606	745	1027	1245	1077	734	389	167	61	6244
	85-86	1	8	243	499	1078								1829
FORT MORGAN	AVE	0	6	140	438	867	1156	1283	969	874	516	224	47	6520
	84-85	0	0	185	564	784	1168	1329	1125	687	395	135	57	6429
	85-86	0	2	239	548	1165								1954
GRAND JUNCTION	AVE	0	0	65	325	762	1138	1225	882	716	403	148	19	5683
	84-85	0	0	54	452	719	996	1044	919	645	310	81	12	5232
	85-86	0	0	139	351	779								1269

HEATING DEGREE DATA

STATION		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANN
GRAND LAKE	AVE	214	264	468	775	1128	1473	1593	1369	1318	951	654	384	10591
	84-85	155	213	435	888	1096	1428	1662	1498	1238	832	610	361	10416
	85-86	206	265	513	744	1115								2843
GREELEY	AVE	0	0	149	450	861	1128	1240	946	856	522	238	52	6442
	84-85	0	0	213	601	769	1107	1305	1096	719	391	162	41	6404
	85-86	0	6	249	501	1131								1887
GUNNISON	AVE	111	188	393	719	1119	1590	1714	1422	1231	816	543	276	10122
	84-85	64	143	372	850	1072	1381	1593	1426	1065	699	495	203	9363
	85-86	84	152	433	678	1058								2405
LAS ANIMAS	AVE	0	0	45	296	729	998	1101	820	698	348	102	9	5146
	84-85	0	0	132	479	653	916	1204	948	586	257	72	7	5254
	85-86	0	0	134	313	816								1263
LEAD-VILLE	AVE	272	337	522	817	1173	1435	1473	1318	1320	1038	726	439	10870
	84-85	308	366	536	1074	1217	1434	1577	1418	1291	967	737	440	11365
	85-86	333	359	666	871	1258								3487
LIMON	AVE	8	6	144	448	834	1070	1156	960	936	570	299	100	6531
	84-85	1	1	230	694	852	1072	1297	1133	868	496	254	100	6998
	85-86	1	12	274	544	1078								1909
LONGMONT	AVE	0	6	162	453	843	1082	1194	938	874	546	256	78	6432
	84-85	0	3	237	679	812	1078	1287	1147	743	400	170	42	6598
	85-86	0	6	236	486	1095								1823
MEEKER	AVE	28	56	261	564	927	1240	1345	1086	998	651	394	164	7714
	84-85	1	17	228	690	907	1250	1392	1217	963	581	360	116	7722
	85-86	6	31	358	599	967								1961
MONTROSE	AVE	0	10	135	437	837	1159	1218	941	818	522	254	69	6400
	84-85	0	8	102	604	791	1064	1161	1095	741	438	178	31	6213
	85-86	0	0	211	443	803								1457
PAGOSA SPRINGS	AVE	82	113	297	608	981	1305	1380	1123	1026	732	487	233	8367
	84-85	4	39	245	782	970	1190	1305	1207	971	626	438	173	7950
	85-86	34	73	376	600	1000								2083
PUEBLO	AVE	0	0	89	346	744	998	1091	834	756	421	163	23	5465
	84-85	0	0	127	474	713	907	1208	999	664	326	125	9	5552
	85-86	0	0	172	410	1012								1594
RIFLE	AVE	6	24	177	499	876	1249	1321	1002	856	555	298	82	6945
	84-85	0	1	131	622	829	1134	1246	1124	804	472	228	47	6638
	85-86	1	6	232	484	882								1605
STEAMBOAT SPRINGS	AVE	113	169	390	704	1101	1476	1541	1277	1184	810	533	297	9595
	84-85	82	103	397	834	1047	1419	1611	1433	1077	730			8733
	85-86	57	130	434	729	1144								2494
STERLING	AVE	0	6	157	462	876	1163	1274	966	896	528	235	51	6614
	84-85	0	0	189	552	784	1140	1260	1160	678		148	71	5982
	85-86	0	6	230	519									755
TELLURIDE	AVE	163	223	396	676	1026	1293	1339	1151	1141	849	589	318	9164
	84-85	99	165	337	867	984	1185	1335	1179	1020	723	550	224	8668
	85-86	121	152	463	648	1023								2407
TRINIDAD	AVE	0	0	86	359	738	973	1051	846	781	468	207	35	5544
	84-85	0	0	138	507	652	891	1225	935	658	366	159	25	5556
	85-86	0	0	175	380	772								1327
WALDEN	AVE	198	285	501	822	1170	1457	1535	1313	1277	915	642	351	10466
	84-85	122	184	448	942	1130	1389	1652	1358	1138	810	592	320	10085
	85-86	171	271	578	824	1224								2068
WALSEN-BURG	AVE	0	8	102	370	720	924	989	820	781	501	240	49	5504
	84-85	0	0	113	517	621	817	1131	902	669	386	187	32	5375
	85-86	0	0	165	358	770								1293

NOVEMBER 1985 CLIMATIC DATA

Eastern Plains*

	Temperature						Degree Days			Precipitation			
Name	Max	Min	Mean	Dep	High	Low	Heat	Cool	Grow	Total	Dep	%Norm	# days
KAUFFMAN 4SSE	37.3	12.9	25.1	-10.8	69	-6	1189	0	33	0.21	-0.07	75.0	2
FORT MORGAN	38.2	13.6	25.9	-10.8	72	-2	1165	0	56	1.16	0.80	322.2	7
AKRON FAA AP	38.1	17.6	27.8	-8.9	70	-8	1106	0	45	0.68	0.22	147.8	8
BURLINGTON	42.4	22.0	32.2	-7.5	73	0	977	0	55	0.61	0.06	110.9	5
LIMON WSMO	40.3	17.4	28.8	-7.2	70	-7	1078	0	42	0.88	0.50	231.6	7
CHEYENNE WELLS	46.6	19.9	33.3	-5.8	73	-5	944	0	80	0.51	0.02	104.1	4
LAS ANIMAS	50.8	24.2	37.5	-3.5	74	11	816	0	98	0.59	0.09	118.0	4
HOLLY	47.6	20.5	34.1	-5.2	85	9	921	0	90	0.40	-0.17	70.2	5
SPRINGFIELD 7WSW	52.8	25.4	39.1	-2.6	79	9	768	0	117	0.67	-0.08	89.3	4

Foothills/Adjacent Plains*

	Temperature						Degree Days			Precipitation			
Name	Max	Min	Mean	Dep	High	Low	Heat	Cool	Grow	Total	Dep	%Norm	# days
FORT COLLINS	39.5	18.0	28.8	-8.5	68	0	1078	0	43	1.38	0.75	219.0	10
LONGMONT	40.2	16.3	28.3	-8.9	72	-4	1095	0	58	1.73	1.12	283.6	9
BOULDER	43.3	20.7	32.0	-8.8	71	1	982	0	59	1.95	0.99	203.1	9
DENVER WSFO AP	40.4	19.1	29.7	-9.1	72	-1	1051	0	55	1.20	0.37	144.6	10
EVERGREEN	44.3	16.0	30.2	-4.0	66	-3	1039	0	42	1.33	0.33	133.0	7
LAKE GEORGE 8SW	41.1	16.5	28.8	0.5	58	0	1079	0	8	1.09	0.71	286.8	5
COLORADO SPRINGS	42.9	21.3	32.1	-5.6	68	3	978	0	49	0.42	-0.11	79.2	8
CANON CITY 2SE	47.9	22.5	35.2	-7.1	72	3	886	0	80	2.00	1.34	303.0	6
PUEBLO WSO AP	43.4	18.6	31.0	-9.5	76	3	1012	0	64	1.13	0.66	240.4	5
WALSENBERG	53.1	25.1	39.1	-2.0	71	5	770	0	94	2.12	1.23	238.2	3
TRINIDAD FAA AP	53.7	24.4	39.0	-2.0	71	3	772	0	105	0.61	0.02	103.4	3

Mountains/Interior Valleys*

	Temperature						Degree Days			Precipitation			
Name	Max	Min	Mean	Dep	High	Low	Heat	Cool	Grow	Total	Dep	%Norm	# days
WALDEN	34.3	13.6	24.0	-2.3	59	-10	1224	0	6	2.68	2.09	454.2	18
LEADVILLE 2SW	34.0	11.7	22.9	-2.1	53	-9	1258	0	2	0.95	0.05	105.6	17
SALIDA	47.4	25.6	36.5	0.0	66	9	846	0	43	0.43	-0.19	69.4	4
BUENA VISTA	44.7	22.2	33.5	-0.3	62	6	938	0	21	0.52	-0.07	88.1	7
SAGUACHE	44.3	16.2	30.3	-1.0	60	1	1036	0	24	0.29	-0.20	59.2	5
HERMIT 7ESE	38.4	9.8	24.1	-0.5	60	-12	1223	0	13	2.55	1.37	216.1	7
ALAMOSA WSO AP	43.3	16.6	30.0	0.1	62	-13	1045	0	26	0.68	0.32	188.9	7
STEAMBOAT SPRINGS	36.9	16.3	26.6	-2.3	62	-9	1144	0	15	5.59	3.78	308.8	20
GRAND LAKE 6SSW	35.8	19.3	27.6	-0.2	53	-1	1115	0	3	2.75	1.88	316.1	20
DILLON 1E	35.8	14.9	25.4	-1.3	55	-1	1183	0	3	1.91	1.20	269.0	18
CLIMAX	27.9	10.1	19.0	-2.8	49	-10	1372	0	0	2.84	1.11	164.2	21
ASPEN 1SW	38.9	19.6	29.2	-0.8	59	1	1066	0	9	4.30	2.70	268.8	17
TAYLOR PARK	34.6	2.8	18.7	-0.5	54	-17	1379	0	3	2.95	1.88	275.7	18
TELLURIDE	42.3	19.1	30.7	-0.5	61	0	1023	0	16	2.04	0.49	131.6	12
PAGOSA SPRINGS	45.8	17.0	31.4	-1.6	65	-8	1000	0	46	2.83	1.23	176.9	11
SILVERTON	37.2	8.0	22.6	-1.2	58	-12	1262	0	8	5.32	3.87	366.9	17

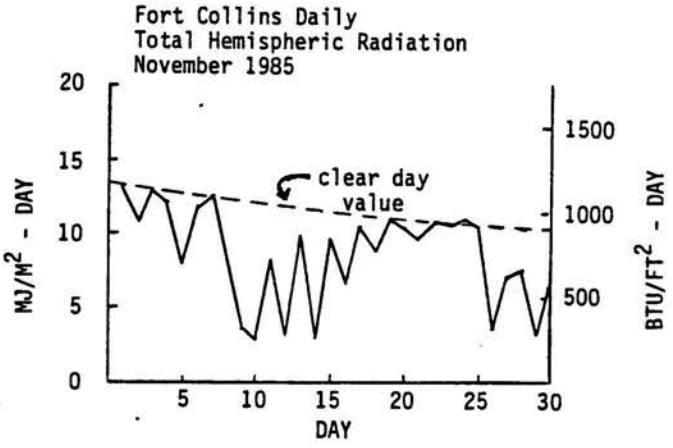
Western Valleys*

	Temperature						Degree Days			Precipitation			
Name	Max	Min	Mean	Dep	High	Low	Heat	Cool	Grow	Total	Dep	%Norm	# days
CRAIG 4SW	40.3	19.7	30.0	-1.5	64	1	1043	0	12	2.94	1.74	245.0	20
HAYDEN	38.7	19.9	29.3	-2.6	64	-4	1062	0	16	3.71	2.47	299.2	22
MEEKER NO. 2	43.3	21.6	32.5	-0.7	67	7	967	0	19	2.85	1.89	296.9	11
RANGELY 1E	45.9	24.7	35.3	1.6	65	6	886	0	45	1.40	0.77	222.2	12
EAGLE FAA AP	41.5	21.6	31.5	-0.1	63	-2	995	0	18	2.39	1.80	405.1	16
GLENWOOD SPRINGS	42.7	25.0	33.8	-1.6	64	7	929	0	26	2.52	1.52	252.0	10
RIFLE	46.1	24.6	35.3	-1.4	67	7	882	0	42	3.59	2.78	443.2	16
GRAND JUNCTION WS	47.9	29.7	38.8	-1.4	64	8	779	0	54	1.10	0.49	180.3	8
CEDAREDGE	46.8	27.2	37.0	-0.9	65	8	832	0	36	2.57	1.67	285.6	11
PAONIA 1SW	47.0	26.7	36.9	-1.8	66	11	835	0	43	3.25	2.08	277.8	14
DELTA	55.3	30.3	42.8	4.3	64	17	658	0	98	0.52	-0.08	86.7	7
GUNNISON	42.6	16.5	29.6	1.5	60	-6	1058	0	19	0.70	0.14	125.0	12
MONTROSE NO. 2	49.8	26.0	37.9	0.4	65	10	803	0	58	0.96	0.28	141.2	8
URAVAN	52.7	27.0	39.9	-1.1	71	15	744	0	80	1.65	0.59	155.7	9
YELLOW JACKET 2W	43.7	24.9	34.3	-3.0	65	-5	913	0	26	3.08	1.84	248.4	11
CORTEZ	47.8	22.8	35.3	-3.0	68	-5	884	0	49	2.78	1.75	269.9	12
DURANGO	46.3	22.1	34.2	-3.2	64	-1	916	0	46	2.57	1.24	193.2	10
IGNACIO 1N	48.5	20.4	34.5	-1.2	66	0	907	0	61	2.59	1.56	251.5	13

* Data are received by the Colorado Climate Center for more locations than appear in these tables. Please contact the Colorado Climate Center if additional information is needed.

NOVEMBER 1985 SUNSHINE AND SOLAR RADIATION

	Number of Days				
Station	clear	partly cloudy	cloudy	% of possible sunshine	average % of possible
Colorado Springs	5	10	15	--	--
Denver	5	9	16	48%	65%
Fort Collins	4	12	14	--	--
Grand Junction	4	10	16	45%	63%
Pueblo	6	10	14	48%	74%



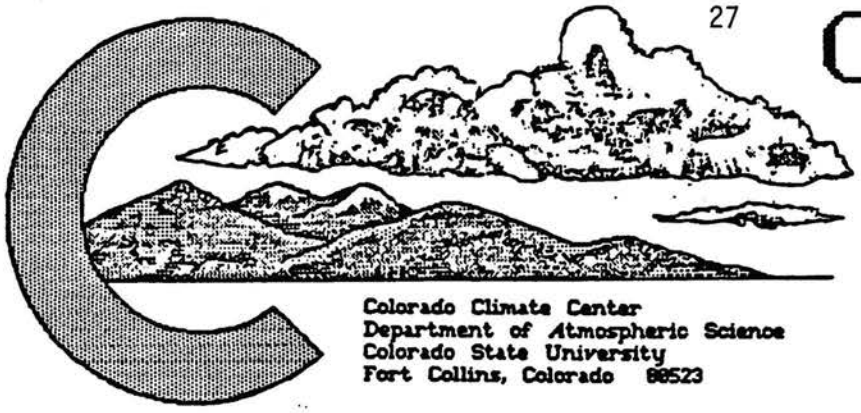
The Warm Winds of Winter--The Chinook: (continued)

wintertime westerly winds often stack clouds up against the mountains. Their effect can also be seen during clear weather as plumes of snow can be seen blowing off the highest mountain peaks.

During certain weather patterns, these westerly winds cascade down the eastern slope of the Rockies warming thermodynamically as they descend. Descending air is compressed by increased air pressure which results in warming at a rate of about 5.5°F per 1000 feet vertical drop. If, for example, a parcel of air from the top of Mount Evans at 0°F was quickly dropped to the elevation of Denver the temperature of that parcel would be about 50°F.

The name given to these dry westerly "downslope" winds is chinook. This American Indian word is said to mean "snow eater." Indeed, snow at the eastern base of the Rockies often melts and evaporates very quickly after the onset of the chinook wind All of this sounds warm and friendly, but the chinook has a nasty side -- a side which sometimes gives Colorado an undesirable reputation. These westerly winds are often much more than comfortable warm breezes. Winds sometimes accelerate as they descend reaching maximum speeds near the base of the eastern foothills. In some preferred locations wind speeds well in excess of 125 mph have been recorded. A gust of 147 mph was measured near the National Center for Atmospheric Research in Boulder on January 25. 1971 Winds like this can do incredible damage to man-made structures. Media attention has made outsiders think that much of Colorado is susceptible to these storms. But in truth only small local areas ever experience winds this strong. Winds of 75-100 mph are possible over a few mile wide band in the lower foothills extending out a few miles east onto the plains. By the time they reach Interstate 25, winds above 75 mph are rare. One of the most recent very severe downslope windstorms occurred on January 17, 1982. Winds near Boulder peaked close to 140 mph but the strongest wind recorded at Denver's Stapleton Airport was only 26 mph. This type of variation is common during these windstorm episodes.

Downslope windstorms have occurred from mid August into June but the majority occur from November to March. The likelihood of damaging downslope windstorms is definitely greatest in January so it is appropriate at this time of year to at least acknowledge their existence. They don't happen every year. There were very few in Colorado from 1978-81, for example, but it was followed by a large number of significant wind storms in 1982. It is difficult to predict windstorms long in advance, but if you live in one of the windprone areas, now is as good a time as any to batten down the hatches.



COLORADO CLIMATE

Colorado Climate Center
Department of Atmospheric Science
Colorado State University
Fort Collins, Colorado 80523

DECEMBER 1985

December in Review:

Only three periods of snowy weather hit Colorado in December leaving most of the state drier and sunnier than normal. The main exception was northeastern Colorado where a storm on the 8-9th buried parts of several counties. Temperatures were a few degrees below average east of the mountains, near average in the mountains and above average in some western valleys. With the jet stream over the state much of the month, it was unusually windy in parts of the mountains and foothills.

A Look Ahead -- February 1986:

Last year, colder and drier than average conditions prevailed in Colorado during February. It is impossible to anticipate with certainty what's ahead for us this year, but climatological records for the past several decades at least make it possible to determine the most likely conditions.

One thing is certain. Daylength becomes noticeably longer in February. As it does, warm sunny days, especially east of the mountains and in the western valleys, give early hints of the approach of spring. Temperatures typically begin a gradual warm-up in February averaging 1 to 4 degrees Fahrenheit warmer than January in the mountains and foothills. Out on the plains and in some western valleys the warm-up is often more noticeable. At Lamar and Grand Junction, February temperatures average 8 and 10 degrees higher, respectively, than in January. After the first week of February, chances of subzero temperatures on the Eastern Plains drop dramatically, but in the mountains subzero temperatures are just as likely in February as in January. Colorado's coldest temperature extremes have occurred in early February. Maybell's -61°F reading last year was a good example.

February is a very dry month over most of eastern Colorado averaging only about 0.25" in most areas. Precipitation increases to 0.50"-1.00" in the eastern foothills and rises to 2.00"-4.00" in the higher mountains. In the western valleys precipitation typically ranges from about 0.50" to 1.50". Nearly all February precipitation falls as snow with totals averaging 3-8" east of the mountains and in some of the drier western valleys. Major snowstorms have been rare at lower elevations during the past 30 years. February is often a placid month in advance of a renewed winter onslaught in March. It's a different story in the mountains, however, with many higher areas averaging more than 40" of snow.

What's So Hard About Measuring Snow?

In the October issue of Colorado Climate, snowfall statistics for many Colorado cities were reported. I made a brief mention of the fact that measuring snow can give weather observers nightmares. Now, I'm going to take it a step further and describe problems we have measuring snow (I'm an observer myself at the Fort Collins official National Weather Service cooperative station) and what this may mean in terms of our knowledge of Colorado's climate.

After almost any snowfall of more than an inch it's easy to find people on the street arguing about how much snow really fell. It's easy to understand why these skirmishes arise. All you have to do is go out in your own yard with a ruler (or yard stick -- depending on where in the state you live) during or after a storm. Chances are you can find anything from an inch to a foot depending on where you put your ruler and when you take your measurements. There are many complicating factors. If temperatures are near the freezing point, or if soil temperatures are above freezing, all or part of a given

(continued on last page)

DECEMBER 1985 DAILY WEATHER

Date	Event
1-2	Ferocious snowstorm raced across Great Lakes. Very cold across Eastern Plains with temperatures well below zero in the northeast. Some records such as -14° at Akron and Sterling on the 1st. From 4-18" of new snow fell on parts of the Northern and Central Mountains. Even a little rain fell on the 2nd on the Western Slope.
3	Upper air disturbance crossed the state preceded by chinook winds and rapid warm-up east of the mountains and then rain and snowshowers and strong winds gusting over 40 mph in some areas. Climax picked up 9" of new snow.
4-7	Clear to partly cloudy and dry with seasonally cool temperatures east of the mountains, but breezy and mild from the foothills westward.
8-11	Major winter storm formed over Utah and dropped into New Mexico. Snows developed in western Colorado on the 8th and also spread southward along the Front Range and across the Eastern Plains 8-9th as an Arctic surge enhanced the easterly upslope flow. Snow slackened on the 9th but increased again on the 10th mostly across southern areas of the state. The hardest hit areas for the whole storm period were the San Juan Mountains (6-16") and areas along the Front Range and in the South Platte valley north and northeastward from Denver. A foot or more of snow accompanied by strong winds fell in a 12-hour period from late on the 8th into the 9th in parts of Larimer, Weld and Boulder counties bringing these areas to a near standstill. The greatest snowfall reports for the entire storm period were 22.7" at Wellington 5W, 18.6" at Fort Collins and 18.5" at Leroy 5WSW (near Sterling). In contrast, Aspen only received 1.3".
11-16	Snow ended and skies cleared early on the 11th. Temperatures fell below zero over most snowcovered areas. A few snowshowers fell on the 12th and 13th, otherwise the period was dry. Temperatures were as much as 35 degrees Fahrenheit below average on the 11th but warmed gradually through the week. The coldest temperatures reported during this period (also the coldest for the month as a whole) occurred on the 12th: -10° at Pueblo and Longmont, -14° at Las Animas, Fort Morgan -23° and -25° at Monte Vista. The mountains weren't much colder although Rio Grande Reservoir did drop to -35° to claim honors for the coldest reporting station in Colorado. Strong winds occurred daily in the mountains 13-16th.
17-28	Stationary high pressure ridge west of Colorado with strong northwesterly winds aloft over the state. Windy in the higher mountains, eastern foothills and occasionally onto the plains. Prolonged dry, sunny and warm period in and west of the mountains. Mild east of the mountains except for brief invasions of colder air which was gripping the Central U.S. Colder surges occurred on the 17th, 19th and again on the 24th and 27th. Temperatures soared into the 50s and 60s on the 21st. A little snow fell in eastern Colorado on Christmas Eve, but all of Colorado enjoyed a sunny and mild Christmas with temperatures mostly in the 40s and 50s.
29-31	A temporary change as an upper level disturbance brought increasing clouds and mountain snows on the 29th and 30th. Snowfalls of 6" at Aspen, 8" at Breckenridge, 9" at Telluride and 12" at Crested Butte were welcomed by the holiday skiers. Eastern Colorado continued to enjoy dry weather and some of the warmest readings of the month on the 29-30th as temperatures rose into the 50s and 60s. Evergreen reached 59° and Wheatridge took honors for the state's hot spot in December with 66° on the 29th. Cooler weather returned on the 31st.

December 1985 Extremes

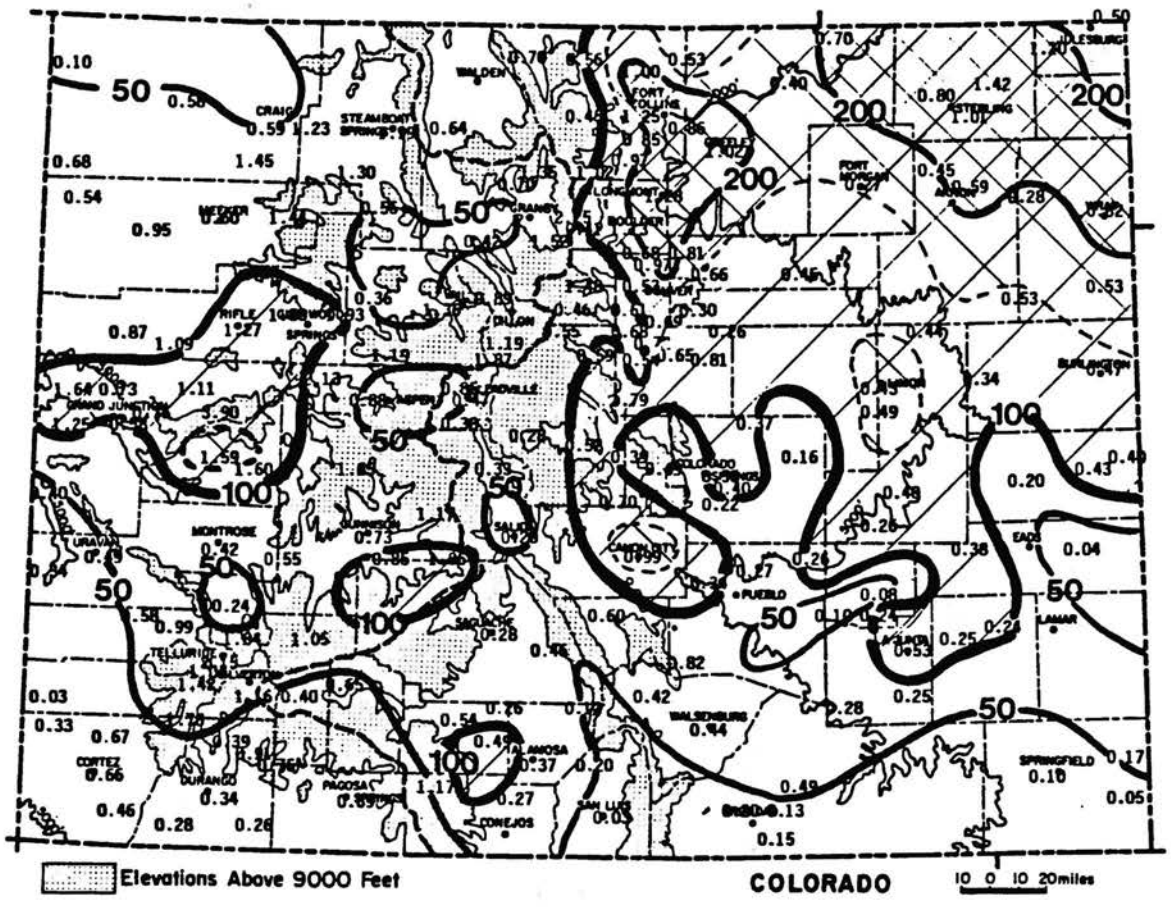
Highest Temperature	66°F	December 29	Wheatridge
Lowest Temperature	-35°F	December 12	Rio Grande Reservoir
Greatest Total Precipitation	3.90"		Bonham Reservoir
Least Total Precipitation	0.03"		San Luis 2SE and Northdale
Greatest Total Snowfall	39.5"		Climax and Crested Butte
Greatest Snowdepth	63"	December 4	Bonham Reservoir

* data derived only from those stations with complete daily snowfall records.

DECEMBER 1985 PRECIPITATION

The one major snowstorm of early December resulted in average or above average precipitation for the month as a whole over northeastern Colorado. Areas near Fort Collins, Longmont, Greeley and Sterling all received more than double their average. For most of the rest of the state it was a dry month. The driest area relative to average was the southern half of the San Juan Mountains. Durango, for example, received only 0.34", 17% of average. Precipitation was also sparse in southeast Colorado where a handful of stations received 0.10" or less. One area did fare a bit better. The Grand Mesa area between Grand Junction and Glenwood Springs was a little wetter than average.

Greatest		Least	
Bonham Reservoir	3.90"	San Luis 2SE	0.03"
Silver Lake	2.25"	Northdale	0.03"
Telluride	2.15"	Brandon	0.04"
Redstone 4W	2.13"	Stonington	0.05"
Steamboat Springs	1.99"	Ordway 2ENE	0.08"



Precipitation amounts (inches) for December 1985 and contours of precipitation as a percent of the 1961-1980 average. Dashed lines represent 150% of average.

1986 WATER YEAR PRECIPITION

Even with a dry December, the first quarter of the 1986 water year was wetter than average over nearly all of Colorado. Portions of west central Colorado, the Northern Mountains and areas just east of the mountains along the Front Range have totalled close to double the average. The only sizeable area that is below average includes much of Adams, Arapahoe, Douglas, Elbert and El Paso Counties.

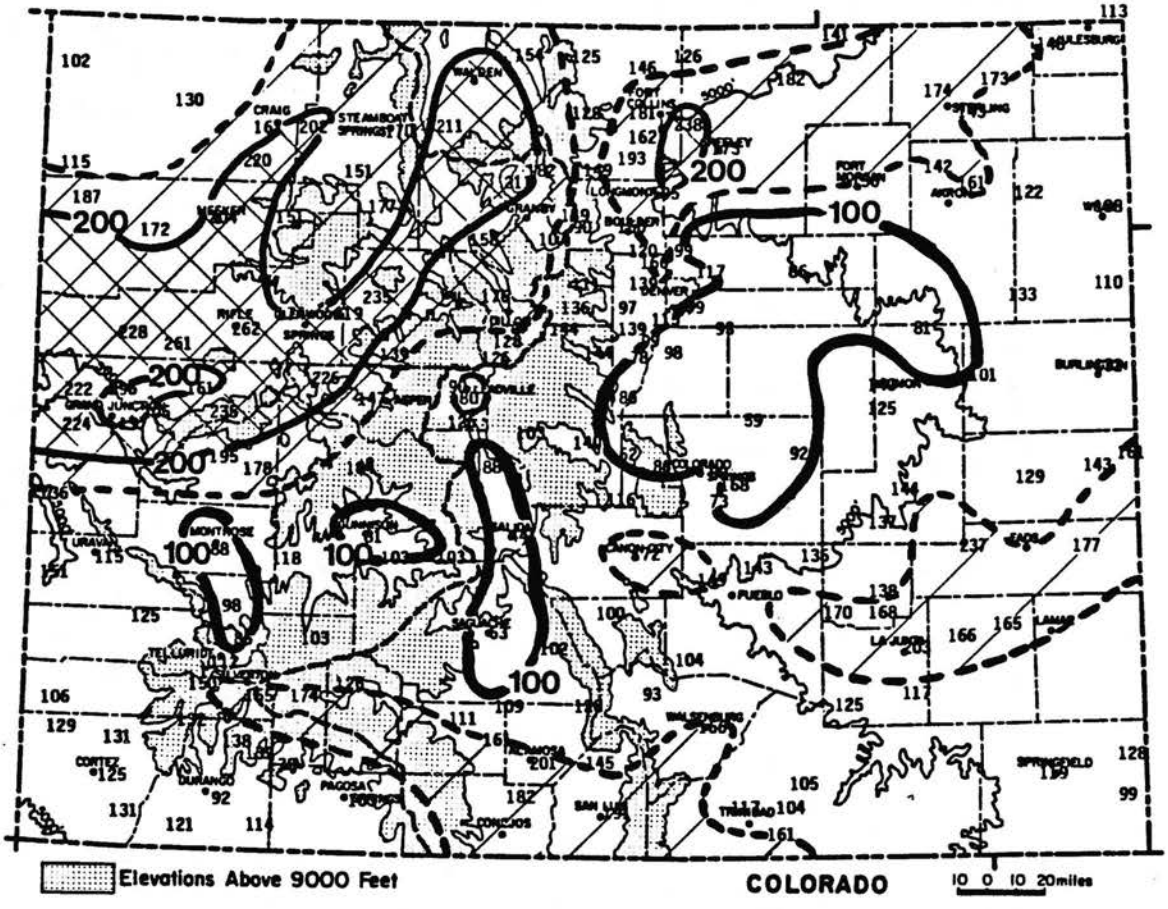
Comparison to Last Year

The northern part of the state is wetter this year than it was a year ago. However, the Palmer Ridge and much of southeastern Colorado is a bit drier. Moisture in southwest Colorado is fairly similar to last year.

1986 Water Year to Date through December

Wettest (as % of average)			Driest (as % of average)		
Rifle	262%	8.09"	Salida	44%	1.00"
Parachute	261%	8.91"	Eastonville 1NNW	59%	1.10"
Windsor	238%	3.76"	Florissant Fossil Beds	62%	0.76"

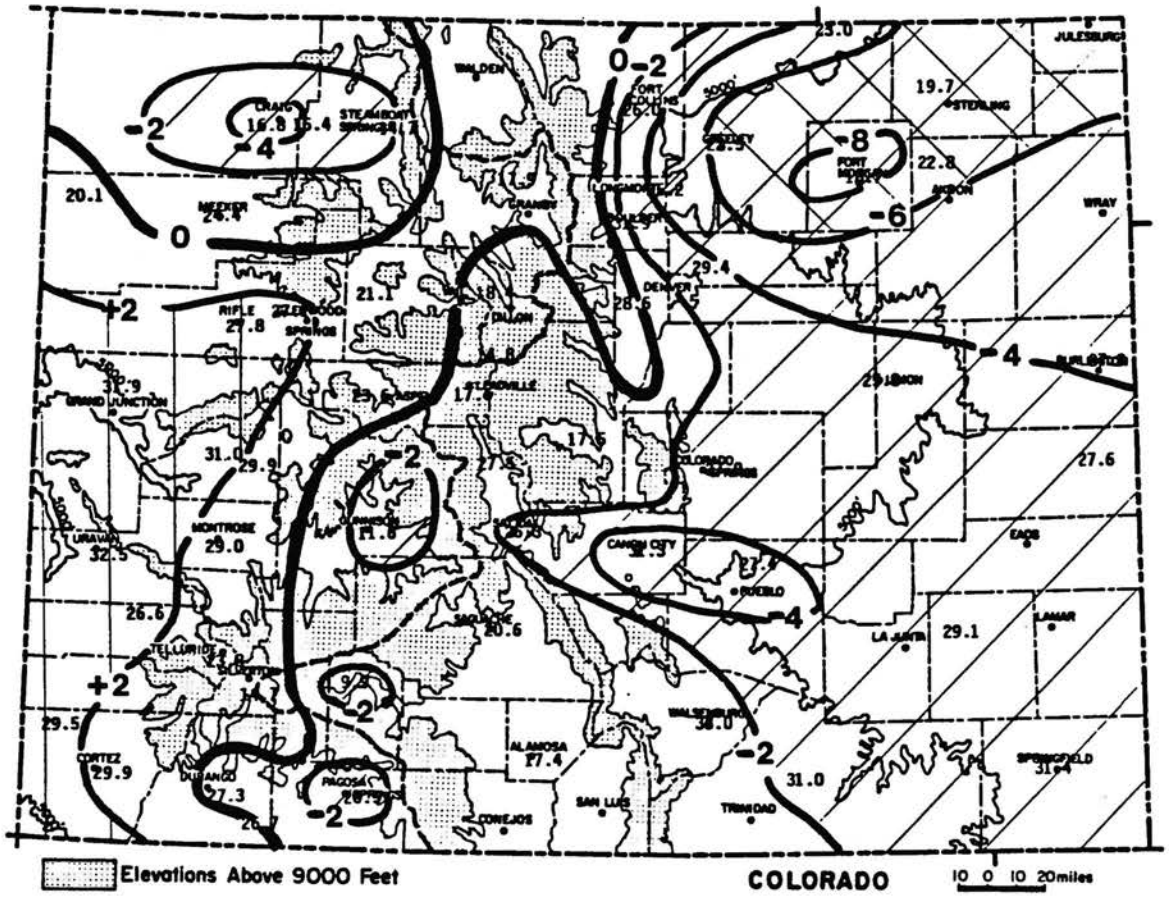
Wettest (total precipitation)			Driest (total precipitation)		
Bonham Reservoir	20.05"	235%	Salida	1.00"	44%
Redstone 4W	13.99"	226%	Rush 4N	1.02"	92%
Platoro	13.26"	--	Saguache	1.04"	63%



Precipitation for October 1985 through December 1985 as a percent of the 1961-1980 average. Dashed lines represent 150% of average.

DECEMBER 1985 TEMPERATURES AND DEGREE DAYS

Temperatures for the month as a whole ranged from at least seven degrees below average in northeastern Colorado to four degrees above average near Grand Junction. In general, eastern Colorado was colder than normal, especially in snowcovered areas in the Platte Valley. The mountains were near average while western valleys were above average except where snowcover helped trap cold air (Gunnison and Craig, for example).



December 1985 temperatures (degrees Fahrenheit) and contours of departures from 1961-1980 averages.

DECEMBER 1985 SOIL TEMPERATURES

Persisting snowcover in northeastern Colorado throughout December helped to keep soil temperatures very stable and protected the soil from deep frost penetration. Areas with less snowcover would have experienced much colder soil temperatures.

These soil temperature measurements were taken at Colorado State University beneath sparse unirrigated sod with a flat, open exposure. These data are not representative of all Colorado locations.

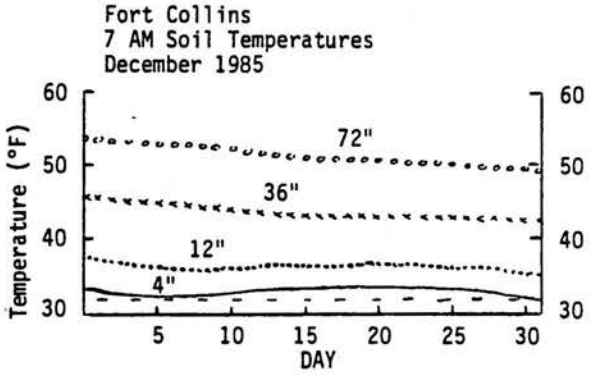


Table 1. Colorado Heating Degree Data through December 1985.

HEATING DEGREE DATA

STATION		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANN
ALAMOSA	AVE	40	100	303	657	1074	1457	1519	1182	1035	732	453	165	8717
	84-85	11	56	252	748	1051	1382	1462	1208	936	625	415	146	8292
	85-86	30	66	378	634	1045	1472							3625
ASPEN	AVE	95	150	348	651	1029	1339	1376	1162	1116	798	524	262	8850
	84-85	87	134	345	883	1034	1282	1415	1293	1047	726	492	223	8961
	85-86	119	107	453	656	1066	1278							3679
BOULDER	AVE	0	6	130	357	714	908	1004	804	775	483	220	59	5460
	84-85	0	1	171	599	716	938	1162	989	717	385	174	38	5890
	85-86	0	0	222	400	982	1018							2622
BUENA VISTA	AVE	47	116	285	577	936	1184	1218	1025	983	720	459	184	7734
	84-85	16	91	284	828	949	1169	1338	1084	956	646	422	130	7913
	85-86	63	54	405	597	938	1158							3215
BURLING-TON	AVE	6	5	108	364	762	1017	1110	871	803	459	200	38	5743
	84-85	0	0	148	493	699	980	1207	1012	686	347	145	50	5767
	85-86	0	5	206	405	977	1142							2735
CANON CITY	AVE	0	9	81	301	639	831	911	734	707	411	179	33	4836
	84-85	0	0	175	561	702	841	1069	958	676	362	174	40	5558
	85-86	0	6	186	397	886	1036							2511
COLORADO SPRINGS	AVE	8	25	162	440	819	1042	1122	910	880	564	296	78	6346
	84-85	0	6	200	684	791	982	1233	1077	830	481	246	77	6607
	85-86	5	8	253	487	978	1143							2874
CORTEZ	AVE	0	11	115	434	813	1132	1181	921	828	555	292	68	6350
	84-85	0	0	108	666	839	1072	1173	1085	827	511	289	66	6636
	85-86		4	264	484	884	1081							2717
CRAIG	AVE	32	58	275	608	996	1342	1479	1193	1094	687	419	193	8376
	84-85	15	25	304	799	1002	1424	1609	1432	1063	611	375	132	8791
	85-86	10	42	353	649	1043	1487							3584
DELTA	AVE	0	0	94	394	813	1135	1197	890	753	429	167	31	5903
	84-85	0	11	49	477	713	969	1047	938	683	353	132		5372
	85-86	0		113	335	658								1106
DENVER	AVE	0	0	135	414	789	1004	1101	879	837	528	253	74	6014
	84-85	0	1	183	622	753	990	1213	1040	742	412	167	42	6165
	85-86	0	1	241	435	1051	1094							2822
DILLON	AVE	273	332	513	806	1167	1435	1516	1305	1296	972	704	435	10754
	84-85	245	301	510	1004	1161	1380	1581	1449	1219	874	667	404	10795
	85-86	260	300	609	856	1183	1439							4647
DURANGO	AVE	9	34	193	493	837	1153	1218	958	862	600	366	125	6848
	84-85	0	6	124	695	866	1074	1146	1008	831	494	319	59	6622
	85-86	3	8	274	476	916	1159							2836
EAGLE	AVE	33	80	288	626	1026	1407	1448	1148	1014	705	431	171	8377
	84-85	1	27	252	741	998	1300	1435	1219	910	602	381	103	7969
	85-86	19	52	356	605	995	1352							3379
EVER-GREEN	AVE	59	113	327	621	916	1135	1199	1011	1009	730	489	218	7827
	84-85	21	68	326	826	874	1088	1329	1123	928	616	448	165	7812
	85-86	62	90	387	651	1039	1119							3348
FORT COLLINS	AVE	5	11	171	468	846	1073	1181	930	877	558	281	82	6483
	84-85	0	0	193	606	745	1027	1245	1077	734	389	167	61	6244
	85-86	1	8	243	499	1078	1199							3028
FORT MORGAN	AVE	0	6	140	438	867	1156	1283	969	874	516	224	47	6520
	84-85	0	0	185	564	784	1168	1329	1125	687	395	135	57	6429
	85-86	0	2	239	548	1165	1425							3379
GRAND JUNCTION	AVE	0	0	65	325	762	1138	1225	882	716	403	148	19	5683
	84-85	0	0	54	452	719	996	1044	919	645	310	81	12	5232
	85-86	0	0	139	351	779	1018							2287

HEATING DEGREE DATA

STATION		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANN
GRAND LAKE	AVE	214	264	468	775	1128	1473	1593	1369	1318	951	654	384	10591
	84-85	155	213	435	888	1096	1428	1662	1498	1238	832	610	361	10416
	85-86	206	265	513	744	1115	1454							4297
GREELEY	AVE	0	0	149	450	861	1128	1240	946	856	522	238	52	6442
	84-85	0	0	213	601	769	1107	1305	1096	719	391	162	41	6404
	85-86	0	6	249	501	1131	1311							3198
GUNNISON	AVE	111	188	393	719	1119	1590	1714	1422	1231	816	543	276	10122
	84-85	64	143	372	850	1072	1381	1593	1426	1065	699	495	203	9363
	85-86	84	152	433	678	1058	1648							4053
LAS ANIMAS	AVE	0	0	45	296	729	998	1101	820	698	348	102	9	5146
	84-85	0	0	132	479	653	916	1204	948	586	257	72	7	5254
	85-86	0	0	134	313	816	1106							2369
LEAD-VILLE	AVE	272	337	522	817	1173	1435	1473	1318	1320	1038	726	439	10870
	84-85	308	366	536	1074	1217	1434	1577	1418	1291	967	737	440	11365
	85-86	333	359	666	871	1258	1470							4957
LIMON	AVE	8	6	144	448	834	1070	1156	960	936	570	299	100	6531
	84-85	1	1	230	694	852	1072	1297	1133	868	496	254	100	6998
	85-86	1	12	274	544	1078	1233							3142
LONGMONT	AVE	0	6	162	453	843	1082	1194	938	874	546	256	78	6432
	84-85	0	3	237	679	812	1078	1287	1147	743	400	170	42	6598
	85-86	0	6	236	486	1095	1228							3051
MEEKER	AVE	28	56	261	564	927	1240	1345	1086	998	651	394	164	7714
	84-85	1	17	228	690	907	1250	1392	1217	963	581	360	116	7722
	85-86	6	31	358	599	967	1249							3210
MONTROSE	AVE	0	10	135	437	837	1159	1218	941	818	522	254	69	6400
	84-85	0	8	102	604	791	1064	1161	1095	741	438	178	31	6213
	85-86	0	0	211	443	803	1106							2563
PAGOSA SPRINGS	AVE	82	113	297	608	981	1305	1380	1123	1026	732	487	233	8367
	84-85	4	39	245	782	970	1190	1305	1207	971	626	438	173	7950
	85-86	34	73	376	600	1000	1373							3456
PUEBLO	AVE	0	0	89	346	744	998	1091	834	756	421	163	23	5465
	84-85	0	0	127	474	713	907	1208	999	664	326	125	9	5552
	85-86	0	0	172	410	1012	1161							2755
RIFLE	AVE	6	24	177	499	876	1249	1321	1002	856	555	298	82	6945
	84-85	0	1	131	622	829	1134	1246	1124	804	472	228	47	6638
	85-86	1	6	232	484	882	1147							2752
STEAMBOAT SPRINGS	AVE	113	169	390	704	1101	1476	1541	1277	1184	810	533	297	9595
	84-85	82	103	397	834	1047	1419	1611	1433	1077	730			8733
	85-86	57	130	434	729	1144	1554							4048
STERLING	AVE	0	6	157	462	876	1163	1274	966	896	528	235	51	6614
	84-85	0	0	189	552	784	1140	1260	1160	678		148	71	5982
	85-86	0	6	230	519	1161	1395							3311
TELLURIDE	AVE	163	223	396	676	1026	1293	1339	1151	1141	849	589	318	9164
	84-85	99	165	337	867	984	1185	1335	1179	1020	723	550	224	8668
	85-86	121	152	463	648	1023	1270							3677
TRINIDAD	AVE	0	0	86	359	738	973	1051	846	781	468	207	35	5544
	84-85	0	0	138	507	652	891	1225	935	658	366	159	25	5556
	85-86	0	0	175	380	772	1046							2373
WALDEN	AVE	198	285	501	822	1170	1457	1535	1313	1277	915	642	351	10466
	84-85	122	184	448	942	1130	1389	1652	1358	1138	810	592	320	10085
	85-86	171	271	578	824	1224								3068
WALSEN-BURG	AVE	0	8	102	370	720	924	989	820	781	501	240	49	5504
	84-85	0	0	113	517	621	817	1131	902	669	386	187	32	5375
	85-86	0	0	165	358	770	982							2275

DECEMBER 1985 CLIMATIC DATA

Eastern Plains*

	Temperature						Degree Days			Precipitation			
Name	Max	Min	Mean	Dep	High	Low	Heat	Cool	Grow	Total	Dep	%Norm	# days
KAUFFMAN 4SSE	35.5	10.4	23.0	-5.8	58	-19	1295	0	4	0.70	0.44	269.2	3
STERLING	31.4	8.1	19.7	-7.3	48	-16	1395	0	0	0.80	0.49	258.1	5
FORT MORGAN	32.5	5.0	18.7	-8.6	47	-23	1425	0	0	0.27	0.02	108.0	4
AKRON FAA AP	32.9	12.7	22.8	-5.8	48	-14	1299	0	0	0.45	0.20	180.0	7
BURLINGTON	38.3	17.4	27.9	-4.0	60	-7	1142	0	11	0.47	0.15	146.9	3
LIMON WSMO	36.5	13.5	25.0	-3.7	55	-9	1233	0	8	0.43	0.23	215.0	7
CHEYENNE WELLS	39.9	15.4	27.6	-3.1	61	-8	1152	0	18	0.43	0.21	195.5	5
LAS ANIMAS	44.7	13.5	29.1	-2.6	62	-14	1106	0	34	0.25	0.01	104.2	2
SPRINGFIELD 7WSW	45.3	17.4	31.4	-2.8	61	-5	1035	0	41	0.10	-0.21	32.3	2

Foothills/Adjacent Plains*

	Temperature						Degree Days			Precipitation			
Name	Max	Min	Mean	Dep	High	Low	Heat	Cool	Grow	Total	Dep	%Norm	# days
FORT COLLINS	38.6	13.4	26.0	-3.9	54	-12	1199	0	8	1.25	0.79	271.7	5
GREELEY UNC	34.9	10.1	22.5	-7.2	51	-15	1311	0	1	1.02	0.55	217.0	4
LONGMONT	38.2	12.2	25.2	-4.3	53	-10	1228	0	6	1.28	0.85	297.7	3
BOULDER	43.9	19.9	31.9	-3.2	64	-5	1018	0	35	1.13	0.50	179.4	5
DENVER WSFO AP	41.6	17.2	29.4	-2.6	60	-6	1094	0	25	0.66	0.12	122.2	5
EVERGREEN	44.1	13.2	28.6	0.4	59	-16	1119	0	23	0.61	-0.14	81.3	3
LAKE GEORGE 8SW	31.8	3.3	17.5	-0.9	46	-31	1464	0	0	0.52	0.15	140.5	3
COLORADO SPRINGS	40.0	15.7	27.9	-2.8	57	-6	1143	0	17	0.55	0.16	141.0	6
CANON CITY 2SE	44.9	17.7	31.3	-4.7	61	-12	1036	0	42	0.99	0.41	170.7	3
PUEBLO WSO AP	40.6	14.1	27.4	-4.6	63	-10	1161	0	15	0.27	-0.08	77.1	4
WALSENBERG	47.2	18.8	33.0	-1.5	62	-8	982	0	57	0.44	-0.31	58.7	3
TRINIDAD FAA AP	47.6	14.4	31.0	-2.2	64	-11	1046	0	67	0.49	-0.08	86.0	4

Mountains/Interior Valleys*

	Temperature						Degree Days			Precipitation			
Name	Max	Min	Mean	Dep	High	Low	Heat	Cool	Grow	Total	Dep	%Norm	# days
LEADVILLE 2SW	30.8	3.9	17.4	-0.6	41	-24	1470	0	8	0.47	-0.63	42.7	11
SALIDA	41.7	10.8	26.3	-2.5	52	-22	1193	0	4	0.20	-0.41	32.8	3
BUENA VISTA	41.7	13.2	27.5	1.3	52	-16	1158	0	4	0.33	-0.25	56.9	3
SAGUACHE	35.6	5.5	20.6	-0.1	45	-13	1367	0	0	0.28	-0.15	65.1	3
HERMIT 7ESE	25.8	-6.1	9.9	-3.0	34	-32	1702	0	0	0.65	-0.78	45.5	3
ALAMOSA WSO AP	35.5	-0.7	17.4	-0.1	49	-25	1472	0	0	0.37	-0.08	82.2	4
STEAMBOAT SPRINGS	26.5	2.9	14.7	-2.5	39	-20	1554	0	0	1.99	-0.55	78.3	6
GRAND LAKE 6SSW	29.5	6.3	17.9	0.3	39	-10	1454	0	0	0.70	-0.17	80.5	12
DILLON 1E	32.3	4.5	18.4	-0.3	45	-15	1439	0	0	0.89	0.02	102.3	8
CLIMAX	25.9	3.6	14.8	-0.6	38	-15	1550	0	0	1.87	-0.24	88.6	14
ASPEN 1SW	36.2	11.0	23.6	1.6	48	-5	1278	0	0	0.88	-1.53	36.5	8
TELLURIDE	39.7	7.9	23.8	0.6	48	-13	1270	0	0	2.15	0.44	125.7	8
PAGOSA SPRINGS	39.9	1.1	20.5	-3.0	47	-18	1373	0	0	0.69	-1.20	36.5	4
SILVERTON	36.6	-7.1	14.7	0.7	47	-27	1550	0	0	1.16	-0.78	59.8	9

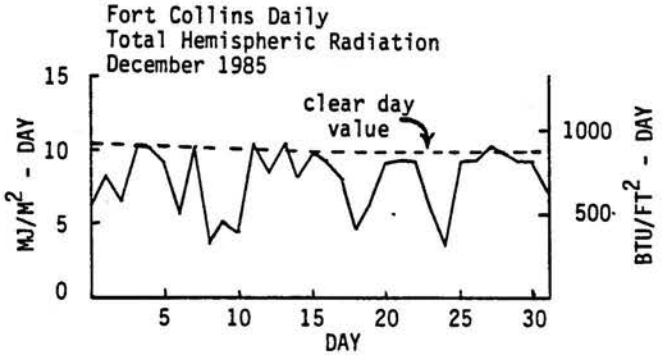
Western Valleys*

	Temperature						Degree Days			Precipitation			
Name	Max	Min	Mean	Dep	High	Low	Heat	Cool	Grow	Total	Dep	%Norm	# days
CRAIG 4SW	27.8	5.8	16.8	-4.5	39	-15	1487	0	0	0.59	-1.06	35.8	10
HAYDEN	27.1	5.7	16.4	-3.6	43	-15	1496	0	0	1.23	-0.42	74.5	11
MEEKER NO. 2	37.0	11.8	24.4	-0.5	48	-15	1249	0	0	0.60	-0.21	74.1	6
RANGELY 1E	31.2	8.9	20.1	0.9	47	-13	1384	0	0	0.54	-0.01	98.2	3
EAGLE FAA AP	35.3	7.0	21.1	1.2	47	-8	1352	0	0	0.36	-0.58	38.3	5
GLENWOOD SPRINGS	38.2	16.3	27.2	2.2	49	4	1163	0	0	1.80	0.35	124.1	8
RIFLE	40.6	15.0	27.8	3.2	50	-5	1147	0	0	1.27	0.14	112.4	11
GRAND JUNCTION WS	41.1	22.6	31.9	4.1	50	9	1018	0	0	0.73	0.13	121.7	5
CEDAREDGE	42.3	19.6	31.0	2.7	52	3	1049	0	4	1.59	0.59	159.0	8
PAONIA 1SW	41.4	18.3	29.9	1.3	51	0	1082	0	1	1.60	0.09	106.0	7
GUNNISON	26.9	-3.7	11.6	-2.1	42	-18	1648	0	0	0.73	-0.04	94.8	5
MONTROSE NO. 2	41.0	17.1	29.0	1.6	50	5	1106	0	0	0.42	-0.28	60.0	5
URAVAN	45.6	19.4	32.5	2.2	56	8	998	0	10	0.49	-0.54	47.6	5
NORWOOD	39.8	13.4	26.6	2.6	49	-3	1184	0	0	0.58	-0.46	55.8	4
YELLOW JACKET 2W	39.9	19.0	29.5	2.2	47	0	1093	0	0	0.33	-1 .22	2.9	4
CORTEZ	43.8	15.9	29.9	1.9	55	-2	1081	0	8	0.66	-0.61	52.0	6
DURANGO	41.4	13.2	27.3	-0.2	48	0	1159	0	0	0.34	-1.65	17.1	5
IGNACIO 1N	42.6	10.7	26.7	1.3	50	-4	1180	0	0	0.26	-0.98	21.0	5

* Data are received by the Colorado Climate Center for more locations than appear in these tables. Please contact the Colorado Climate Center if additional information is needed.

DECEMBER 1985 SUNSHINE AND SOLAR RADIATION

Station	Number of Days			% of possible sunshine	average % of possible
	clear	partly cloudy	cloudy		
Colorado Springs	13	10	8	--	--
Denver	9	11	11	63%	65%
Fort Collins	10	12	9	--	--
Grand Junction	12	9	10	70%	63%
Pueblo	15	8	8	74%	74%



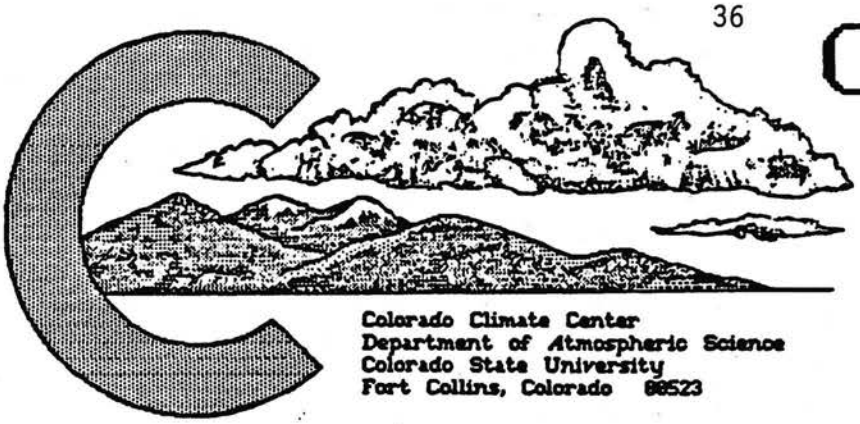
What's So Hard About Measuring Snow? (continued)

snowfall may melt as it falls. Technically, the precipitation is snow, but there may be nothing on the ground to measure. Also, there's the problem of settling. During a heavy snow, the weight of new snow steadily compresses the snow beneath it. During some of the fluffy, dry midwinter snows, 8" may fall during the night, but by noon the next day the snow may have compressed to 3 or 4". If you take your measurement at 7 AM or at 11 AM or 4 PM, you may get entirely different readings. And then there is the problem of drifting. Any rural weather observer must constantly battle the effects of the wind in order to determine an accurate snow measurement. There have been blizzards in eastern Colorado that have piled up 8 foot drifts around fences, roads and farms -- but in the open fields the ground is bare. How do you deal with that? Each of the above challenges to make accurate measurements are complicated even further if old uneven snow is on the ground at the time of a new snowfall.

There are two basic references which describe the proper procedures for snowfall measurements. The Federal Meteorological Handbook No. 1 governs staffed National Weather Service, Federal Aviation Administration and military stations. National Weather Service Observing Handbook No. 2 is in force for all of the thousands of cooperative stations across the country. While content is similar in each, some significant differences exist. Stations where observations are taken more than once daily often measure snowfall every 6 hours thus reducing the effect of settling and melting. These stations typically measure more snowfall than nearby cooperative stations that only take measurements once a day. For example, the Grand Junction National Weather Service office averages 26" of snowfall per season while the surrounding cooperative stations at Fruita, Palisade and Orchard Mesa each indicate only 17". The effect of time of day on observations can also be seen. Eastern Colorado stations with afternoon observation times often report less snow than morning observers.

What really matters for most climatological applications is not the amount of snowfall but the precipitation (melted water content of the snow). It is the water content that determines how difficult the snow is to plow, how quickly it melts and how much runoff it produces. The 8" diameter standard raingage is normally used for this measurement. The snow which lands in the gage is melted and this water is measured as if it were rain. But even here there are problems -- the biggest of which is gage catch efficiency. A raingage very accurately catches a representative sample of falling rain, but unless snowflakes are quite dense and the wind nearly calm, not all the snow which falls goes into the gage. As a result most winter gage measurements underestimate the actual amount of precipitation which falls. These errors are greatest out on the open plains and in exposed high elevation locations where strong winds usually accompany snowfall. An example is the recent December snowstorm. The Fort Collins weather station, with a protected urban site, received 14.6" of snowfall with 1.07" of water content from the December 8-9, 1985 storm. A nearby station near Wellington with an open and much windier exposure measured 19.2" of snow during the same period but with only 0.78" of water content. Temperatures at both sites were very similar so snow density was probably also similar. The difference in precipitation was likely a result of inefficient gage catch in the windy location.

Several conclusions can be drawn from this discussion -- and most of them are depressing to those who need to analyze climate data. We like to think that observed climatic differences between stations are real, but it is important to remember that station exposure, instrumentation and different observational procedures can account for significant differences. This is particularly scary for scientists studying long term climate change. It is possible that moving a raingage in Eastern Colorado from the open prairie to behind a windbreak could have a greater effect on apparent winter precipitation than melting the polar ice caps or doubling the atmospheric carbon dioxide.



COLORADO CLIMATE

JANUARY 1986

Colorado Climate Center
Department of Atmospheric Science
Colorado State University
Fort Collins, Colorado 80523

January in Review:

One minor snowstorm in early January accounted for most of the month's miniscule precipitation total. For the remainder of the month, the weather was controlled by a large and nearly stationary ridge of high pressure over the western U.S. Sunshine was plentiful and temperatures soared to new record highs across much of Colorado. All told, it was one of the warmest, driest, and most enjoyable Januarys in the past century.

A Look Ahead -- March 1986:

The sun moves steadily higher in the sky as we move into March, and by the end of the month daylength increases to more than 12 hours (3 hours more than in late December). Both air and soil temperatures respond to the rapidly increasing solar energy. At elevations below 6,000 feet, daytime high temperatures average in the 50s with lows typically in the 20s. However, temperatures may vary from these normals by as much as 20 degrees during brief warm or cold periods. Higher elevation areas warm up more gradually. For example, March temperatures average only about 6 degrees warmer than typical January readings at places such as Estes Park and Climax. At lower elevations the warmup is more noticeable. March temperatures average 10 to 15 degrees warmer than during midwinter.

With warmer weather comes an increase in precipitation. March is often the snowiest month of the year east of the mountains ranging from an average of 7" in southeast Colorado to 18" or more in the eastern foothills. Winds also increase in March over most of the state. The combination of wind and snow can produce awesome blizzards which are potentially devastating to eastern Colorado ranchers during their calving season. Fortunately, March snows usually melt quickly east of the mountains.

Snow continues to pile up in the high mountains during a typical March. Forty to 80" of new snow is common on many of Colorado's mountain passes. Below 9,000 feet some melting of the winter snowpack may begin by the end of the month, but in general, snowdepths continue to increase on into April.

Is Weather Lore Fading Away?

It's hard to believe, but as recently as the 1940s, weather folklore was still the major forecasting tool used in much of this country -- especially in the rural areas. Competent professional weather forecasting is a relatively recent development. Now we are barraged daily with satellite images, jet stream maps, radar scans, and color graphics. Yes, the forecasts made today are more accurate than ever before. But something strange is happening in our high tech, information-based society. Where we used to all rely on our senses to feel the changes in the atmosphere and see its effect on plants and animals, now all we have to do is flip on the cable TV and we have 100 times more information. Yes, we have more information. Yes, we have better forecasts. But do we have the same appreciation for the weather and how it affects all of nature? There is so much to be learned by simply watching, listening, feeling, and even smelling the weather.

While we still have contact with the older generations that grew up without the benefit of weather radar, lightning detectors, and satellites, lets learn how the old timers used to predict the weather. Some (not all) of their methods made a lot of sense.

I am assembling all of the weather lore and wisdom which has been used in Colorado that I can get my hands on. I'm afraid if we wait too long these observations and knowledge gleaned from our past may be forgotten. I you have any local lore that you have heard or used, I'd sure appreciate hearing from you. Your contributions will be credited and archived along with years of climate data we have for Colorado. Send your lore and wisdom to: **Nolan Doesken, Colorado Climate Center, Department of Atmospheric Science, CSU, Fort Collins, CO 80523**

JANUARY 1986 DAILY WEATHER

January is typically the coldest month of the winter and the month most likely to receive at least one invasion of harsh arctic cold. This year, the cold stayed north and east as a nearly stationary high pressure ridge aloft remained planted over the western U.S.

Date	Event
1-5	Two upper air disturbances and Pacific cold fronts crossed Colorado in rapid succession. Strong winds blew 1st-3rd with some gusts over 60 mph on the 3rd from the mountains eastward. A few inches of snow fell on the 3rd in the Northern and Central Mountains. Mild 1st-3rd, then colder on the 4th -- the coldest day of the month over most of the Eastern Plains. Fort Morgan dropped to -3°F on the morning of the 5th, but Taylor Park Dam's -36° reading that day was the coldest in the state for the month.
5-7	The only snowstorm of the month occurred as an upper air disturbance crossed Colorado from the northwest on the 6th as an area of cold high pressure pushed southward across the central U.S. Most of Colorado got some precipitation, but heavy snowfall was confined to parts of northwestern and central Colorado and along parts of the Front Range south of Denver. Heaviest snowfall reports included 6" at Walsenburg and Trinidad, 8" southwest of Denver, 10" at Vail, 11" at Meeker, and 19" at Marvine Ranch east of Meeker.
7-19	Sunny, dry, and pleasant period. Cold lingered in the snowcovered mountain valleys, but elsewhere temperatures climbed well above average. Snow that had been on the ground in northeast Colorado since early November finally melted as temperatures climbed into the 50s and 60s each day east of the mountains with a few 70s recorded in the southeast. Record highs were tied or broken on the 11th and again on the 19th. Leadville and Dillon each hit 55° while Pueblo reached 75° on the 19th. Gusty winds accompanied the warmth east of the Divide 15-19th, and a little snow fell in the mountains on the 15th and 17th.
20-24	Unsettled weather as storm systems rapidly crossed the northern Rockies on the 20th and again on the 23-24th. Very windy with some gusts along the Front Range over 70 mph on the night of the 23rd. Some light mountain snows on the 20th and 23rd.
25-30	Cool 25-26th, then a return to near-record warmth. Las Animas took honors for the state's hottest temperature with 81° on the 30th.
30-31	The first major change in the jet stream pattern brought southwesterly flow into Colorado and a little rain to the Western Slope. It also brought Denver a brief but severe air pollution episode. Temperatures again climbed into 50s and 60s east at low elevations.

January 1986 Extremes

Highest Temperature	81°F	January 30	Las Animas
Lowest Temperature	-36°F	January 1&5	Taylor Park Reservoir
Greatest Total Precipitation	1.43"		Marvine Ranch
Least Total Precipitation	0.00"		Numerous locations
Greatest Total Snowfall*	29.0"		Marvine Ranch
Greatest Snowdepth*	57"	January 7	Bonham Reservoir

* data derived only from those stations with complete daily snowfall records.

January 1986 Monthly Temperature Records

The following is a list of selected Colorado locations which experienced their warmest January on record. The number in parenthesis is the year when temperature data collection began at that station.

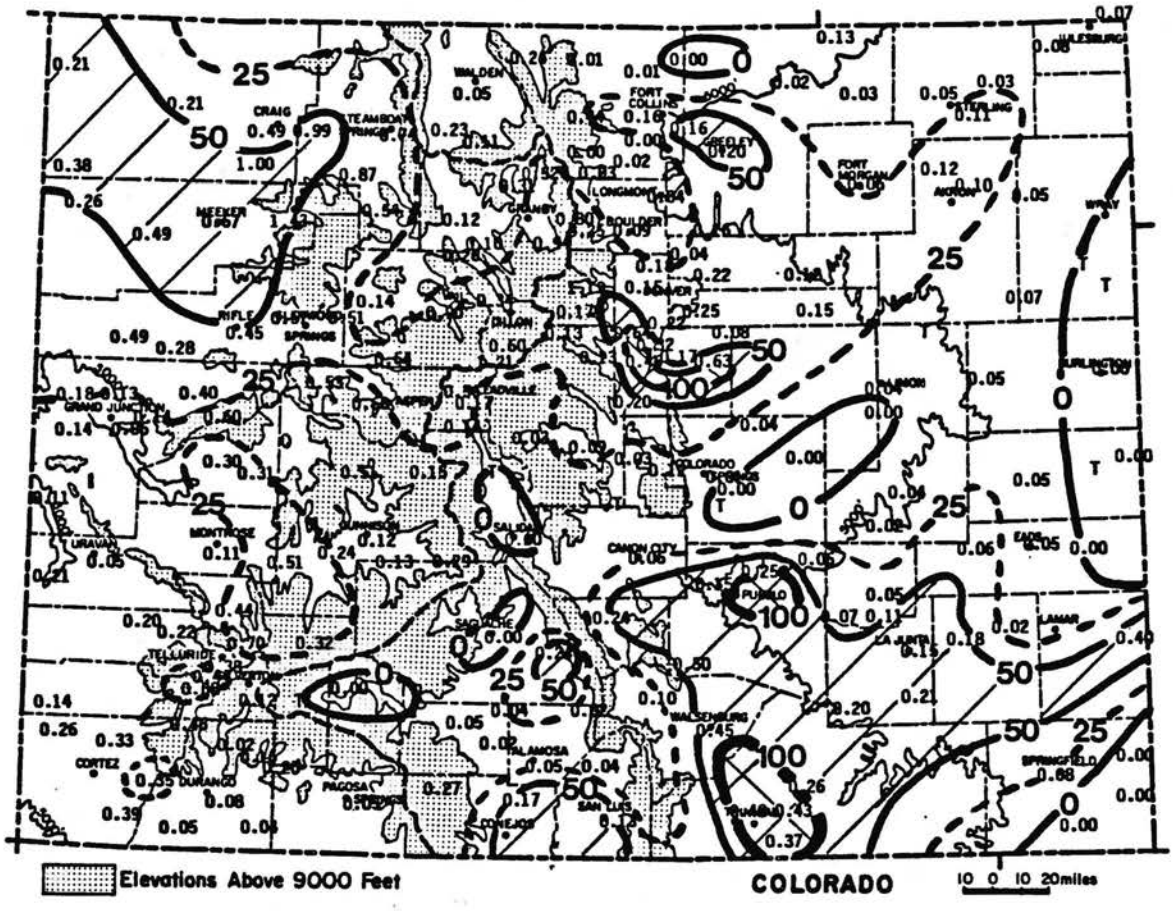
Akron (1911), Alamosa (1948), Burlington (1904), Cheyenne Wells (1897), Colorado Springs (1886), Denver (1872), Estes Park (1917), Ignacio (1915), Las Animas (1882), Norwood (1925), Telluride (1909) -- tied in 1981, Trinidad (1937), Walsenburg (1934).

Boulder, Fort Collins, Longmont, Pueblo, Climax, Buena Vista, and Durango all experienced their 2nd warmest January on record. January 1953 was the previous record holder across much of eastern Colorado.

JANUARY 1986 PRECIPITATION

Most of Colorado received less than half of average January precipitation. Little or no precipitation fell near Buena Vista, Colorado Springs, on the southern and eastern slopes of the San Juans, and across much of extreme eastern Colorado. It was the driest January on record at Pagosa Springs, Walden, and Taylor Park, and tied the record at Durango. The only areas with near average precipitation included Trinidad, Pueblo, southern Lincoln County, and a small crescent-shaped area south and southwest of Denver.

Greatest		Least	
Marvine Ranch	1.43"	Burlington	0.00"
Climax	1.21"	Hermit 7ESE	0.00"
Mount Evans	1.19"	Holly	0.00"
Hamilton	1.00"	Salida	0.00"
Hayden	0.99"	21 additional sites reported 0.00" or a trace	



Precipitation amounts (inches) for January 1986 and contours of precipitation as a percent of the 1961-1980 average.

1986 WATER YEAR PRECIPITION

Areas of Colorado with less than average precipitation for the first 4 months of the water year expanded in January. Still the majority of the state remains average or above. Much of the immediate Colorado River valley continues to report more than 150% of average.

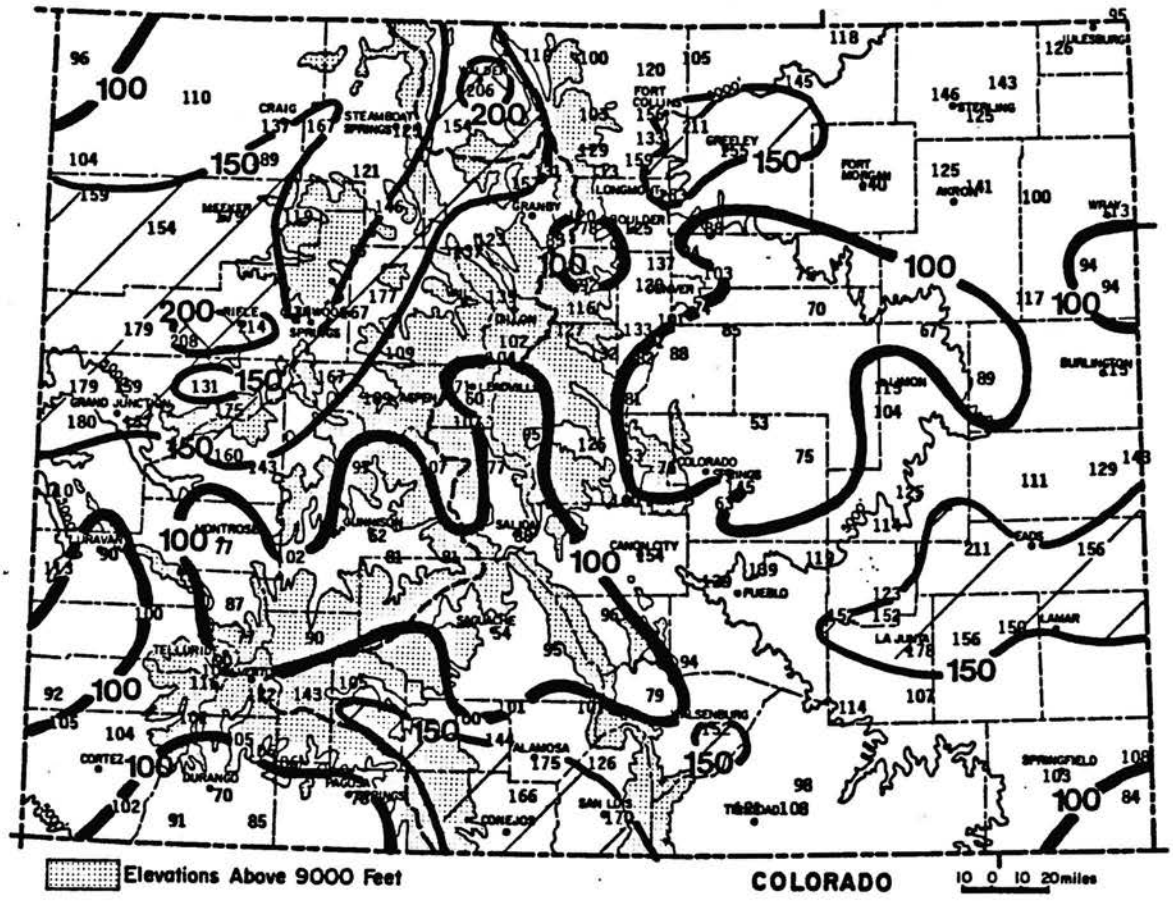
Comparison to Last Year

Most of Colorado is now drier than at this time last year. The exception is the northern mountains and parts of west central Colorado where some areas like Eagle, Grand Lake, Walden, and Cameron Pass are much wetter than last year.

1986 Water Year to Date through January

Wettest (as % of average)			Driest (as % of average)		
Rifle	214%	8.54"	Salida	38%	1.00"
Windsor	211%	3.92"	Eastonville 1NNW	53%	1.14"
Parachute	208%	9.19"	Florissant Fossil Beds	53%	1.26"

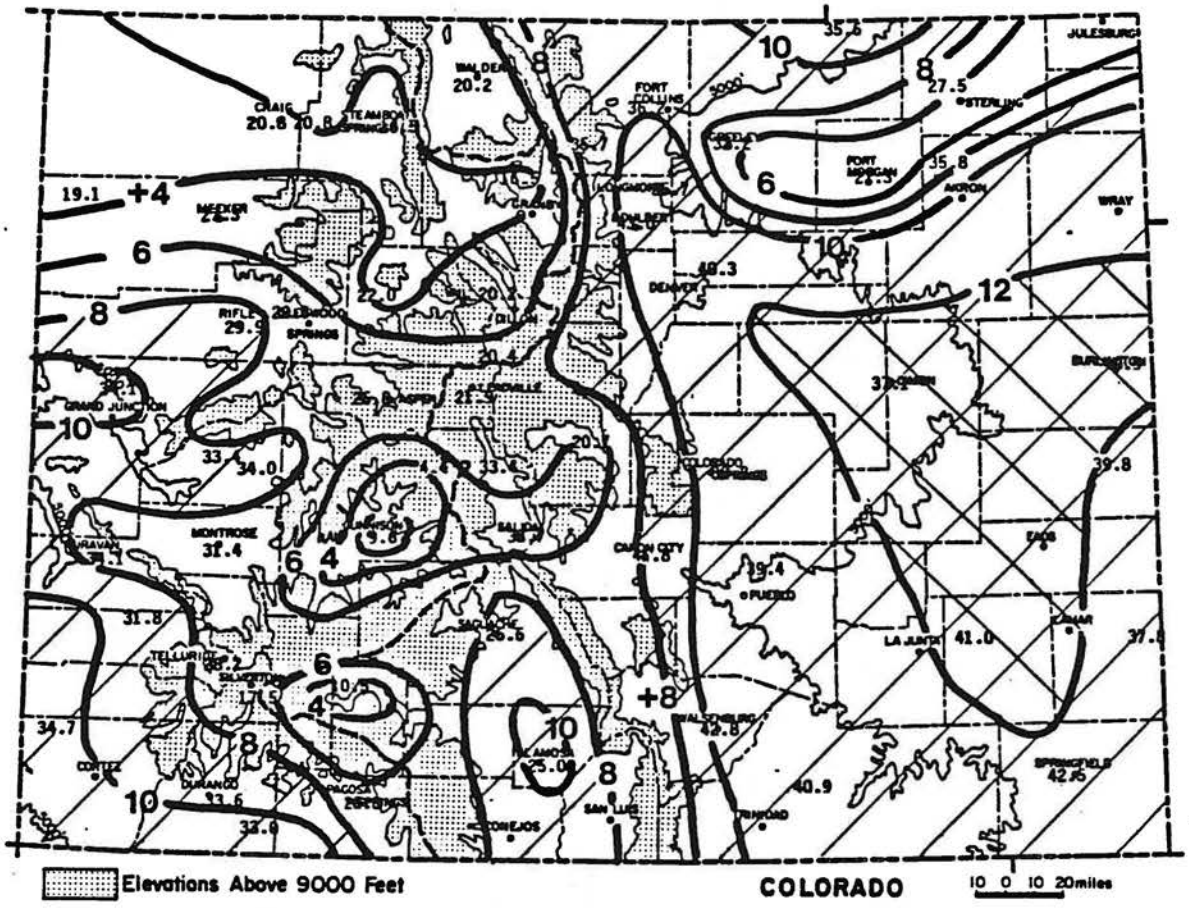
Wettest (total precipitation)			Driest (total precipitation)		
Bonham Reservoir	20.65"	175%	Salida	1.00"	38%
Redstone 4W	14.52"	167%	Rush 4N	1.02"	75%
Platoro	13.53"	--	Saguache	1.04"	54%



Precipitation for October 1985 through January 1986 as a percent of the 1961-1980 average.

JANUARY 1986 TEMPERATURES AND DEGREE DAYS

January temperatures were above average statewide but ranged from just a degree or two above average in some of the high elevation snowcovered valleys (upper Gunnison, Rio Grande, and Yampa) to more than ten degrees above average in some of the lower western valleys and across much of eastern Colorado. Most of these areas were near or above their all time records (see bottom of page 2).



January 1986 temperatures (degrees Fahrenheit) and contours of departures from 1961-1980 averages.

JANUARY 1986 SOIL TEMPERATURES

After the Fort Collins snowcover finally melted in mid January, 4" soil temperatures began to show some day-to-day fluctuations. Deeper soil temperatures continued their typically midwinter cooling but are a bit warmer than normal for this time of year.

These soil temperature measurements were taken at Colorado State University beneath sparse unirrigated sod with a flat, open exposure. These data are not representative of all Colorado locations.

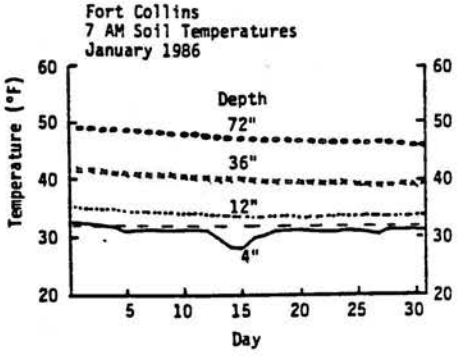


Table 1. Colorado Heating Degree Day Data through January 1986.

HEATING DEGREE DATA

STATION		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANN
ALAMOSA	AVE	40	100	303	657	1074	1457	1519	1182	1035	732	453	165	8717
	84-85	11	56	252	748	1051	1382	1462	1208	936	625	415	146	8292
	85-86	30	66	378	634	1045	1472	1231						4856
ASPEN	AVE	95	150	348	651	1029	1339	1376	1162	1116	798	524	262	8850
	84-85	87	134	345	883	1034	1282	1415	1293	1047	726	492	223	8961
	85-86	119	107	453	656	1066	1278	1175						4854
BOULDER	AVE	0	6	130	357	714	908	1004	804	775	483	220	59	5460
	84-85	0	1	171	599	716	938	1162	989	717	385	174	38	5890
	85-86	0	0	222	400	982	1018	674						3296
BUENA VISTA	AVE	47	116	285	577	936	1184	1218	1025	983	720	459	184	7734
	84-85	16	91	284	828	949	1169	1338	1084	956	646	422	130	7913
	85-86	63	54	405	597	938	1158	972						4187
BURLING-TON	AVE	6	5	108	364	762	1017	1110	871	803	459	200	38	5743
	84-85	0	0	148	493	699	980	1207	1012	686	347	145	50	5767
	85-86	0	5	206	405	977	1142	740						3475
CANON CITY	AVE	0	9	81	301	639	831	911	734	707	411	179	33	4836
	84-85	0	0	175	561	702	841	1069	958	676	362	174	40	5558
	85-86	0	6	186	397	886	1036	711						3222
COLORADO SPRINGS	AVE	8	25	162	440	819	1042	1122	910	880	564	296	78	6346
	84-85	0	6	200	684	791	982	1233	1077	830	481	246	77	6607
	85-86	5	8	253	487	978	1143	822						3696
CORTEZ	AVE	0	11	115	434	813	1132	1181	921	828	555	292	68	6350
	84-85	0	0	108	666	839	1072	1173	1085	827	511	289	66	6636
	85-86		4	264	484	884	1081							2717
CRAIG	AVE	32	58	275	608	996	1342	1479	1193	1094	687	419	193	8376
	84-85	15	25	304	799	1002	1424	1609	1432	1063	611	375	132	8791
	85-86	10	42	353	649	1043	1487	1362						4946
DELTA	AVE	0	0	94	394	813	1135	1197	890	753	429	167	31	5903
	84-85	0	11	49	477	713	969	1047	938	683	353	132		5372
	85-86	0		113	335	658								1106
DENVER	AVE	0	0	135	414	789	1004	1101	879	837	528	253	74	6014
	84-85	0	1	183	622	753	990	1213	1040	742	412	167	42	6165
	85-86	0	1	241	435	1051	1094	758						3580
DILLON	AVE	273	332	513	806	1167	1435	1516	1305	1296	972	704	435	10754
	84-85	245	301	510	1004	1161	1380	1581	1449	1219	874	667	404	10795
	85-86	260	300	609	856	1183	1439	1380						6027
DURANGO	AVE	9	34	193	493	837	1153	1218	958	862	600	366	125	6848
	84-85	0	6	124	695	866	1074	1146	1008	831	494	319	59	6622
	85-86	3	8	274	476	916	1159	967						3803
EAGLE	AVE	33	80	288	626	1026	1407	1448	1148	1014	705	431	171	8377
	84-85	1	27	252	741	998	1300	1435	1219	910	602	381	103	7969
	85-86	19	52	356	605	995	1352	1324						4703
EVER-GREEN	AVE	59	113	327	621	916	1135	1199	1011	1009	730	489	218	7827
	84-85	21	68	326	826	874	1088	1329	1123	928	616	448	165	7812
	85-86	62	90	387	651	1039	1119							3348
FORT COLLINS	AVE	5	11	171	468	846	1073	1181	930	877	558	281	82	6483
	84-85	0	0	193	606	745	1027	1245	1077	734	389	167	61	6244
	85-86	1	8	243	499	1078	1199	883						3911
FORT MORGAN	AVE	0	6	140	438	867	1156	1283	969	874	516	224	47	6520
	84-85	0	0	185	564	784	1168	1329	1125	687	395	135	57	6429
	85-86	0	2	239	548	1165	1425	1160						4539
GRAND JUNCTION	AVE	0	0	65	325	762	1138	1225	882	716	403	148	19	5683
	84-85	0	0	54	452	719	996	1044	919	645	310	81	12	5232
	85-86	0	0	139	351	779	1018	949						3236

HEATING DEGREE DATA

STATION		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANN
GRAND LAKE	AVE	214	264	468	775	1128	1473	1593	1369	1318	951	654	384	10591
	84-85	155	213	435	888	1096	1428	1662	1498	1238	832	610	361	10416
	85-86	206	265	513	744	1115	1454	1494						5791
GREELEY	AVE	0	0	149	450	861	1128	1240	946	856	522	238	52	6442
	84-85	0	0	213	601	769	1107	1305	1096	719	391	162	41	6404
	85-86	0	6	249	501	1131	1311	1010						4208
GUNNISON	AVE	111	188	393	719	1119	1590	1714	1422	1231	816	543	276	10122
	84-85	64	143	372	850	1072	1381	1593	1426	1065	699	495	203	9363
	85-86	84	152	433	678	1058	1648	1712						5765
LAS ANIMAS	AVE	0	0	45	296	729	998	1101	820	698	348	102	9	5146
	84-85	0	0	132	479	653	916	1204	948	586	257	72	7	5254
	85-86	0	0	134	313	816	1106	737						3106
LEAD-VILLE	AVE	272	337	522	817	1173	1435	1473	1318	1320	1038	726	439	10870
	84-85	308	366	536	1074	1217	1434	1577	1418	1291	967	737	440	11365
	85-86	333	359	666	871	1258	1470	1328						6285
LIMON	AVE	8	6	144	448	834	1070	1156	960	936	570	299	100	6531
	84-85	1	1	230	694	852	1072	1297	1133	868	496	254	100	6998
	85-86	1	12	274	544	1078	1233	861						4003
LONGMONT	AVE	0	6	162	453	843	1082	1194	938	874	546	256	78	6432
	84-85	0	3	237	679	812	1078	1287	1147	743	400	170	42	6598
	85-86	0	6	236	486	1095	1228	869						3920
MEEKER	AVE	28	56	261	564	927	1240	1345	1086	998	651	394	164	7714
	84-85	1	17	228	690	907	1250	1392	1217	963	581	360	116	7722
	85-86	6	31	358	599	967	1249	1164						4374
MONTROSE	AVE	0	10	135	437	837	1159	1218	941	818	522	254	69	6400
	84-85	0	8	102	604	791	1064	1161	1095	741	438	178	31	6213
	85-86	0	0	211	443	803	1106	1032						3595
PAGOSA SPRINGS	AVE	82	113	297	608	981	1305	1380	1123	1026	732	487	233	8367
	84-85	4	39	245	782	970	1190	1305	1207	971	626	438	173	7950
	85-86	34	73	376	600	1000	1373	1191						4647
PUEBLO	AVE	0	0	89	346	744	998	1091	834	756	421	163	23	5465
	84-85	0	0	127	474	713	907	1208	999	664	326	125	9	5552
	85-86	0	0	172	410	1012	1161	783						3538
RIFLE	AVE	6	24	177	499	876	1249	1321	1002	856	555	298	82	6945
	84-85	0	1	131	622	829	1134	1246	1124	804	472	228	47	6638
	85-86	1	6	232	484	882	1147	1076						3828
STEAMBOAT SPRINGS	AVE	113	169	390	704	1101	1476	1541	1277	1184	810	533	297	9595
	84-85	82	103	397	834	1047	1419	1611	1433	1077	730			8733
	85-86	57	130	434	729	1144	1554	1495						5543
STERLING	AVE	0	6	157	462	876	1163	1274	966	896	528	235	51	6614
	84-85	0	0	189	552	784	1140	1260	1160	678		148	71	5982
	85-86	0	6	230	519	1161	1395	1155						4466
TELLURIDE	AVE	163	223	396	676	1026	1293	1339	1151	1141	849	589	318	9164
	84-85	99	165	337	867	984	1185	1335	1179	1020	723	550	224	8668
	85-86	121	152	463	648	1023	1270	1130						4807
TRINIDAD	AVE	0	0	86	359	738	973	1051	846	781	468	207	35	5544
	84-85	0	0	138	507	652	891	1225	935	658	366	159	25	5556
	85-86	0	0	175	380	772	1046	738						3111
WALDEN	AVE	198	285	501	822	1170	1457	1535	1313	1277	915	642	351	10466
	84-85	122	184	448	942	1130	1389	1652	1358	1138	810	592	320	10085
	85-86	171	271	578	824	1224	1458	1381						5907
WALSEN-BURG	AVE	0	8	102	370	720	924	989	820	781	501	240	49	5504
	84-85	0	0	113	517	621	817	1131	902	669	386	187	32	5375
	85-86	0	0	165	358	770	982	681						2956

JANUARY 1986 CLIMATIC DATA

Eastern Plains*

	Temperature						Degree Days			Precipitation			
Name	Max	Min	Mean	Dep	High	Low	Heat	Cool	Grow	Total	Dep	%Norm	# days
KAUFFMAN 4SSE	49.0	22.1	35.6	10.4	65	8	907	0	49	0.13	-0.18	41.9	1
STERLING	40.6	14.4	27.5	4.6	55	2	1155	0	5	0.05	-0.29	14.7	1
FORT MORGAN	41.6	13.1	27.3	4.6	58	-3	1160	0	7	0.06	-0.12	33.3	1
AKRON FAA AP	47.4	24.2	35.8	10.9	65	12	898	0	44	0.12	-0.16	42.9	1
BURLINGTON	55.4	26.3	40.9	12.2	74	15	740	0	120	0.0	-0.24	0.0	0
LIMON WSMO	53.0	21.1	37.1	12.6	73	9	861	0	105	0.04	-0.25	13.8	1
CHEYENNE WELLS	56.2	23.4	39.8	11.7	78	11	775	0	125	0.0	-0.16	0.0	0
LAS ANIMAS	60.5	21.5	41.0	12.7	81	9	737	0	181	0.18	-0.03	85.7	1
HOLLY	60.5	15.1	37.8	10.9	79	5	838	0	183	0.0	-0.20	0.0	0
SPRINGFIELD 7WSW	60.8	24.3	42.5	11.7	79	10	687	0	192	0.08	-0.26	23.5	1

Foothills/Adjacent Plains*

	Temperature						Degree Days			Precipitation			
Name	Max	Min	Mean	Dep	High	Low	Heat	Cool	Grow	Total	Dep	%Norm	# days
FORT COLLINS	50.3	22.1	36.2	9.8	65	7	883	0	58	0.16	-0.28	36.4	2
GREELEY UNC	45.7	18.6	32.2	6.1	65	0	1010	0	20	0.20	-0.18	52.6	2
ESTES PARK	47.4	24.1	35.7	8.9	58	11	899	0	28	0.0	-0.44	0.0	0
LONGMONT	52.2	21.2	36.7	11.0	71	7	869	0	81	0.04	-0.37	9.8	1
BOULDER	57.1	28.9	43.0	11.5	71	15	674	0	137	0.09	-0.54	14.3	2
DENVER WSFO AP	54.7	25.9	40.3	11.8	68	12	758	0	111	0.22	-0.29	43.1	2
LAKE GEORGE 8SW	38.2	3.3	20.7	5.2	53	-13	1367	0	3	0.09	-0.14	39.1	1
COLORADO SPRINGS	53.0	23.3	38.2	10.3	71	11	822	0	101	0.01	-0.23	4.2	1
CANON CITY 2SE	56.6	27.0	41.8	8.3	72	11	711	0	130	0.06	-0.22	21.4	1
PUEBLO WSO AP	58.0	20.9	39.4	10.4	76	8	783	0	161	0.25	0.03	113.6	2
WALSENBURG	57.4	28.2	42.8	10.9	70	12	681	0	136	0.45	-0.09	83.3	1
TRINIDAD FAA AP	58.3	23.5	40.9	10.4	77	10	738	0	158	0.26	-0.15	63.4	2

Mountains/Interior Valleys*

	Temperature						Degree Days			Precipitation			
Name	Max	Min	Mean	Dep	High	Low	Heat	Cool	Grow	Total	Dep	%Norm	# days
WALDEN	32.8	7.6	20.2	5.1	48	-12	1381	0	0	0.05	-0.58	7.9	3
LEADVILLE 2SW	38.2	5.6	21.9	7.4	55	-14	1328	0	3	0.17	-1.03	14.2	4
SALIDA	50.5	16.9	33.7	5.8	60	6	962	0	51	0.0	-0.35	0.0	0
BUENA VISTA	49.6	17.2	33.4	7.7	60	3	972	0	42	0.0	-0.27	0.0	0
SAGUACHE	41.8	11.4	26.6	8.7	53	1	1182	0	3	0.0	-0.27	0.0	0
HERMIT 7ESE	27.3	-6.4	10.5	0.2	32	-19	1683	0	0	0.0	-0.82	0.0	0
ALAMOSA WSO AP	43.9	6.1	25.0	10.2	59	-7	1231	0	21	0.05	-0.20	20.0	1
STEAMBOAT SPRINGS	31.0	2.1	16.5	2.0	46	-18	1495	0	0	0.74	-1.99	27.1	5
GRAND LAKE 6SSW	31.8	1.3	16.5	3.5	47	-18	1494	0	0	0.31	-0.80	27.9	8
DILLON 1E	37.9	2.5	20.2	4.7	55	-13	1380	0	3	0.34	-0.52	39.5	6
CLIMAX	33.3	7.5	20.4	7.7	48	-9	1376	0	0	1.21	-1.02	54.3	8
ASPEN 1SW	42.	11.5	26.8	6.8	58	-10	1175	0	11	0.60	-1.90	24.0	5
TAYLOR PARK	31.5	-22.7	4.4	2.3	47	-36	1872	0	0	0.15	-1.29	10.4	2
TELLURIDE	45.2	11.3	28.2	7.1	58	-2	1130	0	12	0.33	-1.37	19.4	3
PAGOSA SPRINGS	47.5	5.1	26.3	6.1	58	-2	1191	0	27	0.05	-1.83	2.7	3
SILVERTON	41.4	-6.3	17.5	6.1	52	-20	1463	0	2	0.12	-1.49	7.5	3

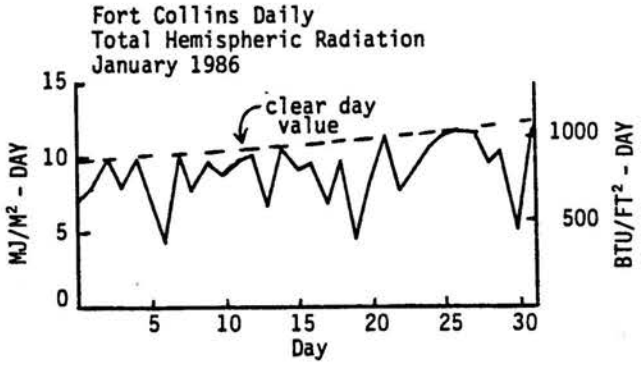
Western Valleys*

	Temperature						Degree Days			Precipitation			
Name	Max	Min	Mean	Dep	High	Low	Heat	Cool	Grow	Total	Dep	%Norm	# days
CRAIG 4SW	33.1	8.5	20.8	3.8	48	-4	1362	0	0	0.49	-0.81	37.7	4
HAYDEN	32.2	9.5	20.8	4.5	46	-7	1361	0	0	0.99	-0.50	66.4	7
MEEKER NO. 2	42.3	12.4	27.3	5.1	57	-4	1164	0	9	0.67	-0.14	82.7	2
RANGELY 1E	33.4	4.9	19.1	3.5	45	-8	1413	0	0	0.26	-0.27	49.1	1
EAGLE FAA AP	38.4	5.6	22.0	3.9	52	-11	1324	0	1	0.14	-0.74	15.9	1
GLENWOOD SPRINGS	42.8	15.7	29.3	6.7	56	2	1103	0	10	0.57	-1.01	36.1	7
RIFLE	44.3	15.5	29.9	8.9	62	0	1076	0	11	0.45	-0.45	50.0	4
GRAND JUNCTION WS	44.4	23.9	34.1	10.4	55	13	949	0	9	0.13	-0.45	22.4	2
CEDAREDGE	46.7	20.0	33.4	8.0	62	9	975	0	27	0.30	-0.56	34.9	5
PAONIA 1SW	46.5	21.5	34.0	9.7	63	3	955	0	31	0.31	-0.91	25.4	4
GUNNISON	27.1	-7.9	9.6	1.3	41	-19	1712	0	0	0.12	-0.73	14.1	1
MONTROSE NO. 2	45.5	17.4	31.4	7.5	62	9	1032	0	24	0.11	-0.39	22.0	1
URAVAN	48.8	19.5	34.1	6.6	66	11	949	0	40	0.05	-0.95	5.0	1
NORWOOD	46.3	17.3	31.8	10.4	58	6	1024	0	24	0.20	-0.88	18.5	2
YELLOW JACKET 2W	46.0	23.5	34.7	10.8	60	14	931	0	18	0.26	-1.00	20.6	3
DURANGO	48.9	18.2	33.6	9.1	60	10	967	0	41	0.08	-1.72	4.4	2
IGNACIO 1N	50.7	15.4	33.0	12.3	64	8	984	0	52	0.04	-1.33	2.9	1

* Data are received by the Colorado Climate Center for more locations than appear in these tables. Please contact the Colorado Climate Center if additional information is needed.

JANUARY 1986 SUNSHINE AND SOLAR RADIATION

Station	Number of Days: clear	partly cloudy	cloudy	% of possible sunshine	average % of possible
Colorado Springs	13	8	10	--	--
Denver	14	8	9	69%	72%
Fort Collins	10	14	7	--	--
Grand Junction	14	2	15	75%	58%
Pueblo	11	12	8	85%	75%



An Inventory of Meteorological Societies and Organizations

Association of American Weather Observers--

This is a new and steadily growing organization composed both of professionals and lay weather enthusiasts. Its basic objectives are:

1) To enhance the education of all weather enthusiasts,
2) To promote communication among all weather enthusiasts,
3) To provide a spirit of cooperation among all weather enthusiasts.

Membership dues are $16/year which includes a subscription to the American Weather Observer, a monthly newspaper-style bulletin containing easy to understand articles on a wide range of topics of timely interest to weather enthusiasts and educators.

For more information, please write to:

American Weather Observer
401 Whitney Blvd.
Belvidere, IL 61008

National Weather Association--

This professional organization serves operational weather forecasters and analysts. Current membership is composed mostly of National Weather Service, military, and private weather forecasters. Its basic objective is professional development in practical meteorology. Membership dues are $20/year for which members receive a monthly newsletter and a quarterly journal, the National Weather Digest. These publications focus on changes, improvements, and research on weather data collection, communication, and forecasting.

For more information, please write to:

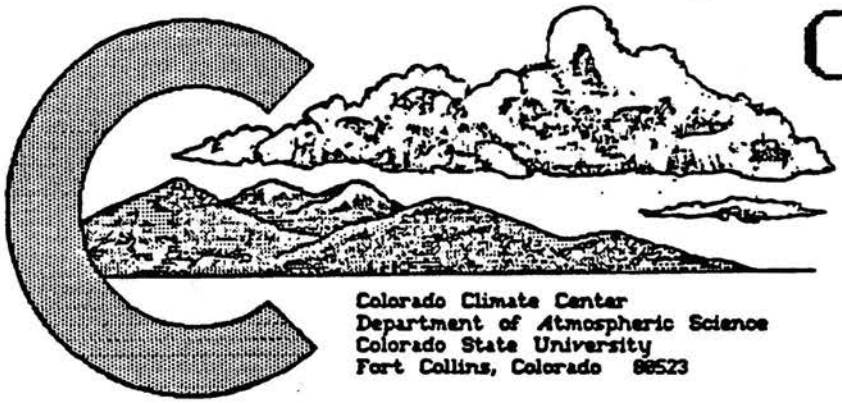
National Weather Association
4400 Stamp Road, #404
Temple Hills, MD 20748

American Meteorological Society (AMS)--

This is the backbone professional society of the meteorological community and has many local chapters across the country, some in Colorado. The AMS sponsors many scientific conferences each year, publishes a number of technical journals and specialized reports, and is involved in all aspects of meteorological endeavor. Annual dues are $30 which includes a subscription to the monthly Bulletin of the American Meteorological Society.

For more information, please write to:

American Meteorological Society
45 Beacon Street
Boston, MA 02108



COLORADO CLIMATE

FEBRUARY 1986

Colorado Climate Center
Department of Atmospheric Science
Colorado State University
Fort Collins, Colorado 80523

February in Review:

A one-week dose of sharp winter cold, a 10-day mountain snow blitz in the middle of the month and record high temperatures late in the month highlighted the weather of February 1986. Temperatures for the month as a whole ended up warmer than average statewide and most of the state was also wetter than usual.

A Look Ahead -- April 1986:

April is often an exciting month for weather lovers but a stressful month for people who have trouble adapting to sudden changes and wide climatic diversity. It is indeed a month of change in which delightfully warm and sunny days are interspersed with stormy wet weather and occasional heavy snows even at low elevations.

Winter usually holds its grip on Colorado's high country during April. In parts of the Central Mountains, April is the wettest month of the year with nearly all of that precipitation falling as snow. Snowdepths in the mountains above 10,000 feet normally reach their maximum value for the winter during April. Daytime temperatures are usually in the 30s and 40s with lows typically in the teens. Subzero temperatures can still be expected at night in some of the mountain communities but become infrequent after the first week of the month.

At elevations below 7,500 feet, daytime temperatures typically rise into the 50s and 60s but a few days with readings in the 70s are common. Last year temperatures even soared into the mid 80s along the Front Range April 15-17th. Temperatures in the 30s are common at night. Except near Grand Junction where the last spring freeze usually occurs in April, gardeners and farmers should still expect occasional episodes of subfreezing temperatures on into May.

April precipitation on the Eastern Plains averages 1-2" with the greatest amounts along the Front Range and in the northeast. This is a dramatic rise from the small amounts of precipitation which fall during midwinter. The first widespread thunderstorm activity can be expected in April. But snow also continues to be a possibility. April snowfall averages 1-3" on the southeast plains and western valleys but increases to 6-12" along the Front Range urban corrider. Two to 3 foot snowfalls are not that unusual in the eastern foothills and the 75.8" which fell in 24 hours at Silver Lake west of Boulder back in April 1921 is the record for North America.

The Last Snow of the Winter:

How often have you been in a discussion about when the last snow of the season usually occurs? The first snow of the winter is often a topic of lively conversation, but the last snow is usually forgotten. The reason is obvious, I suppose. We know when the first snow arrives. Regardless of when it occurs, September or November, those first wet flakes fluttering down from the sky are a gentle and almost exciting reminder of the coming winter -- the season for which Colorado is perhaps best known, and the season that brings people from around the world to enjoy our mountain skiing. The last snow of the spring gets no such fanfare. It's usually muddy, sloppy and gloomy outside when it falls and people are in the mood for summer. Furthermore, each spring snow may be followed by another one. We're not sure until the 4th of July when the last snow really was, and by then snow is the farthest thing from our mind.

No, the date of the last snow is not the most exciting climate statistic, but it does present some interesting information about our climate in Colorado. For example, the reality of winter in the Rockies becomes apparent when you see that the last snowfall at Berthoud Pass almost always occurs in June. Even at lower elevations May snows are not uncommon, and Colorado Springs has had snow in June in the city limits within the past few years.

FEBRUARY 1986 DAILY WEATHER

Date	Event
1-4	The high pressure ridge over the western U.S. which had prevailed since mid-December gradually decayed. Pleasant weather continued 1-2nd, but gave way to cooler temperature and increasing clouds on the 3rd. A few inches of snow fell in the mountains, and rainshowers and even some thunderstorms changing to snow occurred over northeastern Colorado. Locally heavy snow continued on the 4th across the Northeastern Plains. Up to ten inches of unexpected wet snow with a water content of from 0.50 to 1.30" brought beneficial moisture to the dryland wheat-growing regions of Washington, Yuma, Logan and Phillips counties.
5-12	A wintry week in Colorado. "Upslope" conditions east of the mountains persisted 5-11th as a cold arctic high pressure area from Canada slipped southward. Light, fluffy snow fell on and off throughout the period east of the mountains. Snows became heavy on the 7th with as much as 8-12" falling in the southern foothills and even more in the San Juan Mountains. Snowfall totals for the entire period 5-11th included 15" at Trinidad and 16" at Boulder, but most areas east of mountains received 1-4". The mountains and western valleys received only a few light snow showers. However, the arctic air gripped the entire state. From the 7th to the 12th temperatures stayed well below freezing during the day over most of the state, and many areas reported subzero nighttime temperatures and some of the coldest readings of the winter. Examples included -16 at Julesburg on the 11th and 12th, -19 at Estes Park, -7 at Colorado Springs and -23 at Bailey on the 10th. Crested Butte had a nippy -30° on the 10th, but, as usual, Taylor Park Reservoir claimed the coldest temperature of the month with a -45° reading.
12-20	A series of storms crashed into California producing heavy rains and flooding. Enough moisture remained to bring heavy snows to portions of the Colorado Rockies. Snow changed to rain in some areas as unusually mild temperatures accompanied the storms. Fierce winds helped trigger incredible numbers of large avalanches in the mountains. Just a few light sprinkles made it into eastern Colorado, but very strong west winds were common especially along the Front Range. Colorado Springs received significant wind damage on the 15th when winds gusted to more than 100 mph in some locations. Several Front Range areas experienced winds over 50 mph on 6 consecutive days 14-19th. Unusually high winds also knocked out power and damaged trees and buildings in northwest Colorado 18-19th. Extremely heavy precipitation fell in the mountains 19-20th before the storm finally abated. Precipitation totals for the 19-20th included 1.78" at Crested Butte, 1.63" at Pyramid, 1.93" at Steamboat Springs and 2.14" at Grand Lake. Flooding occurred in the Hayden area on the 19th from rain and melting snow. Significant moisture spilled over the Continental Divide with 0.39" at Denver, 0.52" at Estes Park, 0.94" at Allenspark and 1.38" at Mount Evans. Examples of snowfall totals for the entire 9-day period included: Aspen 26", Breckenridge 32", Silverton 47", Climax 61" and Crested Butte 68".
21-23	Chilly 21st. Warming trend 22-23rd as high pressure ridge began to build again over the western U.S. A small upper air disturbance triggered some light snows in the northern and central mountains.
24-26	Unusually warm statewide with many new records set. Highs in the 60s and 70s over much of the state with 50s in the mountains as high as 10,000 feet. Examples included: 47° at Climax; 70° at Montrose; 76° at Greeley, Fort Collins and Littleton; 77° at Longmont and Canon City; and 80° at Pueblo on the 25th. The 81° reading at Las Animas on the 24th was the highest in the state.
27-28	A few snow flurries as colder air backed into Colorado from the northeast on the 27th. Dry and warmer again as the month came to an end.

February 1986 Extremes

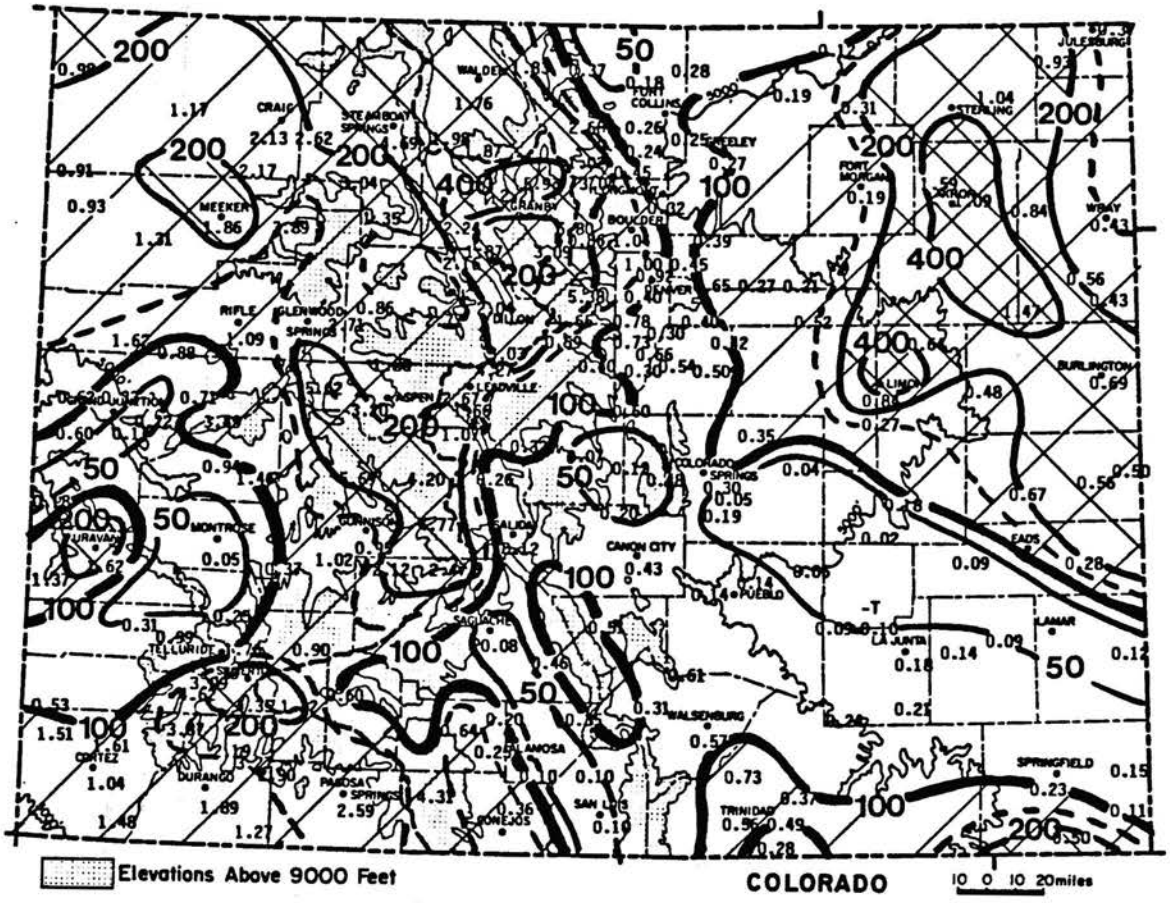
Highest Temperature	81°F	February 24	Las Animas
Lowest Temperature	-45°F	February 10	Taylor Park Reservoir
Greatest Total Precipitation	6.80"		Silver Lake
Least Total Precipitation	Trace		Ordway
Greatest Total Snowfall*	77"		Crested Butte
Greatest Snowdepth**	152"	February 25	Tower

* data derived only from those stations with complete daily snowfall records.
** from Soil Conservation Service Snowpack measurements.

FEBRUARY 1986 PRECIPITATION

Above average precipitation fell over the majority of Colorado in February. Most of the mountains were snowier than normal with extensive areas of the high country receiving at least double the February average. The northeastern corner of the state was also wet as a result of a single wet snow early in the month. Several dry areas were apparent, however. An area in western Colorado including Grand Junction, Montrose, Gateway and Norwood missed the brunt of the storms. Montrose measured only 0.05", 12% of average. Most of the Front Range and the Arkansas Valley downstream from Buena Vista was also drier than normal.

Greatest		Least	
Silver Lake	6.80"	Ordway 2ENE	Trace
Grand Lake 1NW	5.93"	Ordway 21N	0.02"
Crested Butte	5.69"	Rush 4N	0.04"
Redstone 4W	5.62"	Montrose	0.05"
Mount Evans	5.38"	Fountain	0.05"
		Tacony 10SE	0.05"



Precipitation amounts (inches) for February 1986 and contours of precipitation as a percent of the 1961-1980 average.

1986 WATER YEAR PRECIPITION

February moisture helped to expand the areas of Colorado that are wetter than average. We are now well into our 5th consecutive wetter than average year over much of the state. Below average moisture is limited to the Palmer Ridge area south of Denver and selected portions of southwestern Colorado.

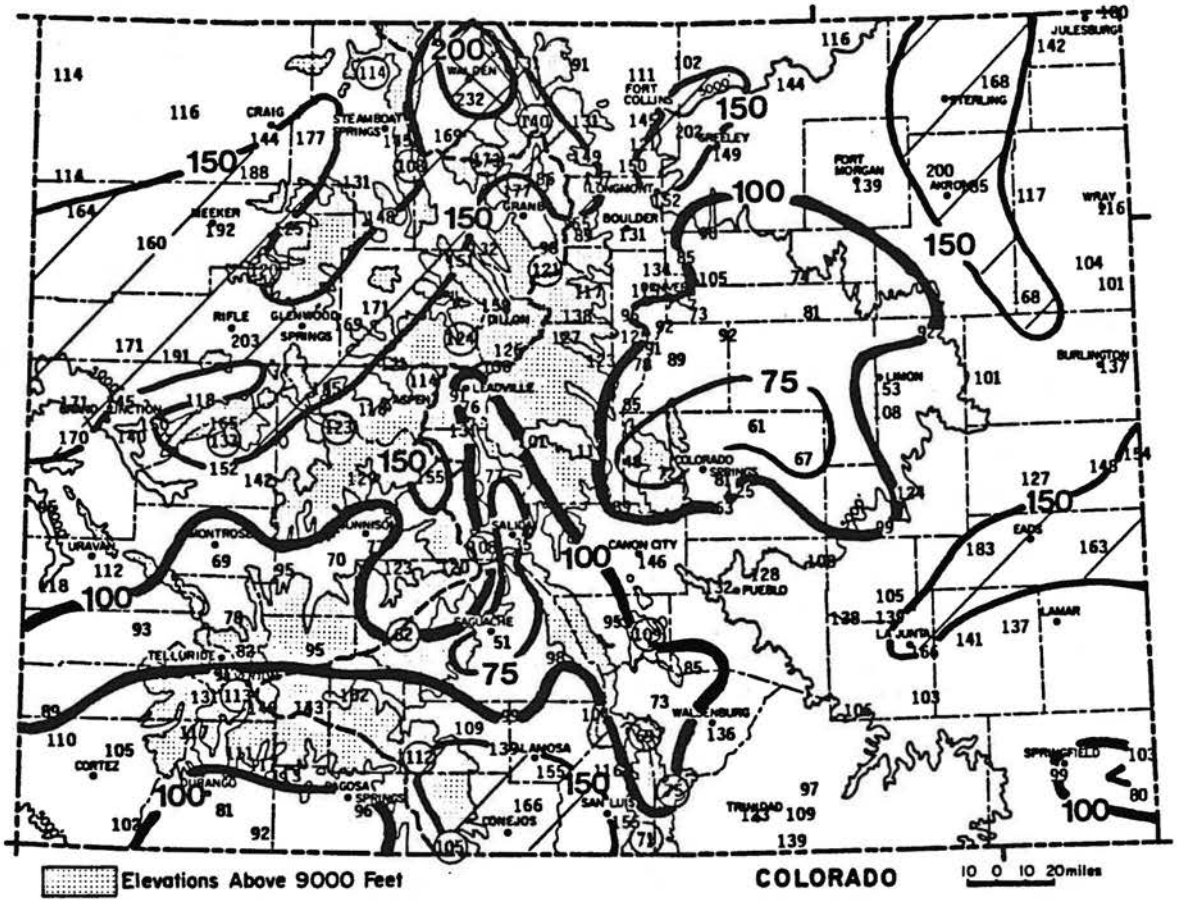
Comparison to Last Year

Most of Colorado is not as wet as it was last year at this time. The primary exceptions are the Northern and Central Mountains and the headwaters of the North Platte and Colorado Rivers which are considerably wetter than they were at this time in 1985.

1986 Water Year to Date through February

Wettest (as % of average)			Driest (as % of average)		
Walden	232%	7.23"	Salida	35%	1.12"
Rifle	203%	9.63"	Florissant Fossil Beds Natl. Mon.	48%	1.38"
Windsor	202%	4.17"	Saguache	51%	1.12"

Wettest (total precipitation)			Driest (total precipitation)		
Bonham Reservoir	24.14"	165%	Rush 4N	1.06"	67%
Redstone 4W	20.14"	185%	Salida	1.12"	35%
Platoro	17.84"	--	Saguache	1.12"	51%

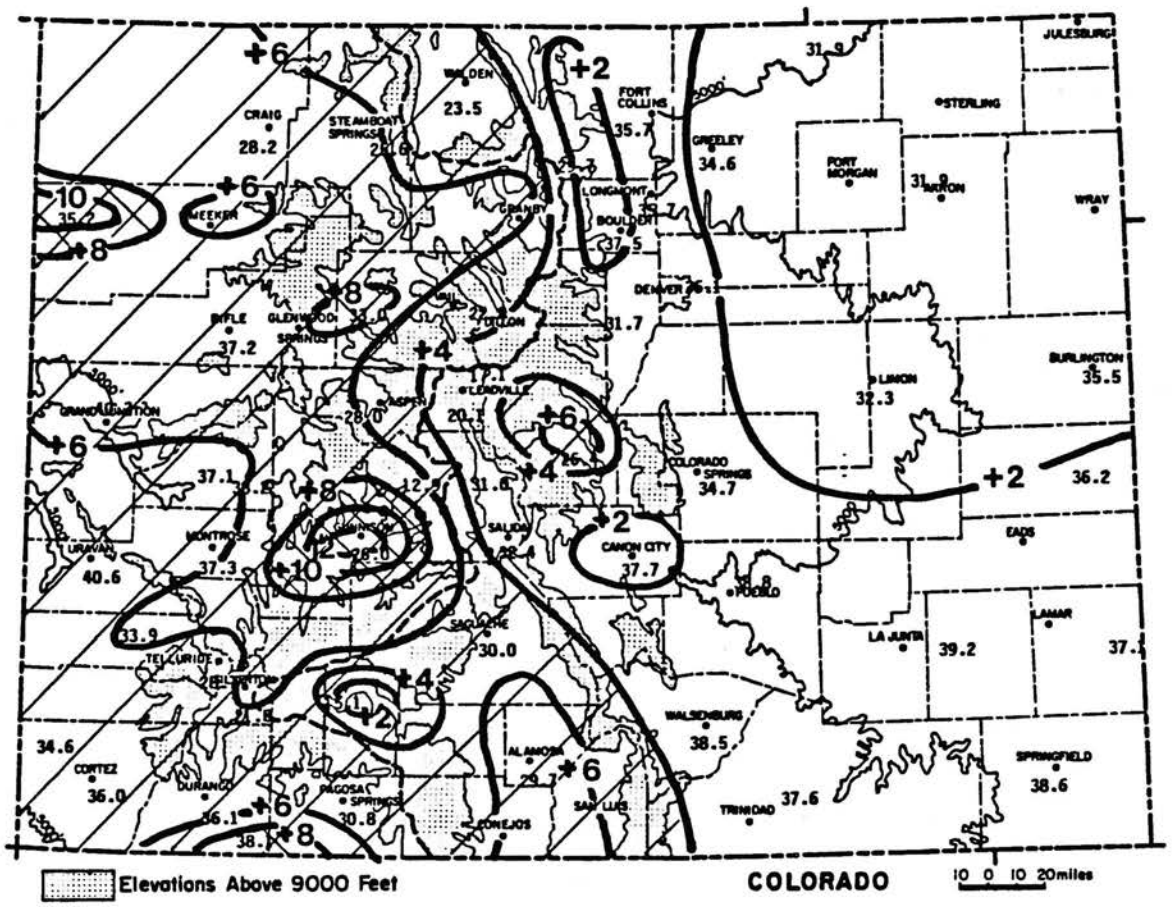


Precipitation for October 1985 through February 1986 as a percent of the 1961-1980 average.

(XX) Soil Conservation Service March 1 snowpack as a percent of 1961-80 average.

FEBRUARY 1986 TEMPERATURES AND DEGREE DAYS

February temperature were above average statewide for the second consecutive month. This time the warmest temperatures were in the western half of the state. Monthly departures of 6 to 12 degrees Fahrenheit above normal were common to the west. Despite the record warmth late in the month temperature ended up only 1 to 4 degrees above average east of the mountains.



February 1986 temperatures (degrees Fahrenheit) and contours of departures from 1961-1980 averages.

FEBRUARY 1986 SOIL TEMPERATURES

Soil temperatures in the top foot of the soil began their springtime climb a bit earlier than average. As the soil dried out and the frost went out of the soil, the magnitude of fluctuations in temperature increased markedly. Deeper down, soil temperature approached their winter minimum values.

These soil temperature measurements were taken at Colorado State University beneath sparse unirrigated sod with a flat, open exposure. These data are not representative of all Colorado locations.

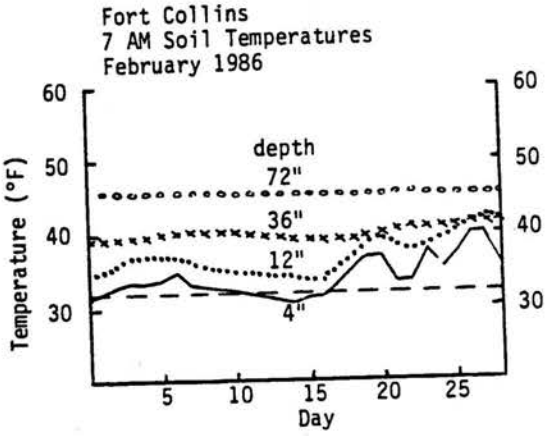


Table 1. Colorado Heating Degree Day Data through February 1986.

HEATING DEGREE DATA

STATION		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANN
ALAMOSA	AVE	40	100	303	657	1074	1457	1519	1182	1035	732	453	165	8717
	84-85	11	56	252	748	1051	1382	1462	1208	936	625	415	146	8292
	85-86	30	66	378	634	1045	1472	1231	983					5839
ASPEN	AVE	95	150	348	651	1029	1339	1376	1162	1116	798	524	262	8850
	84-85	87	134	345	883	1034	1282	1415	1293	1047	726	492	223	8961
	85-86	119	107	453	656	1066	1278	1175	1029					5883
BOULDER	AVE	0	6	130	357	714	908	1004	804	775	483	220	59	5460
	84-85	0	1	171	599	716	938	1162	989	717	385	174	38	5890
	85-86	0	0	222	400	982	1018	674	762					4058
BUENA VISTA	AVE	47	116	285	577	936	1184	1218	1025	983	720	459	184	7734
	84-85	16	91	284	828	949	1169	1338	1084	956	646	422	130	7913
	85-86	63	54	405	597	938	1158	972	946					5133
BURLING-TON	AVE	6	5	108	364	762	1017	1110	871	803	459	200	38	5743
	84-85	0	0	148	493	699	980	1207	1012	686	347	145	50	5767
	85-86	0	5	206	405	977	1142	740	820					4295
CANON CITY	AVE	0	9	81	301	639	831	911	734	707	411	179	33	4836
	84-85	0	0	175	561	702	841	1069	958	676	362	174	40	5558
	85-86	0	6	186	397	886	1036	711	756					3978
COLORADO SPRINGS	AVE	8	25	162	440	819	1042	1122	910	880	564	296	78	6346
	84-85	0	6	200	684	791	982	1233	1077	830	481	246	77	6607
	85-86	5	8	253	487	978	1143	822	840					4536
CORTEZ	AVE	0	11	115	434	813	1132	1181	921	828	555	292	68	6350
	84-85	0	0	108	666	839	1072	1173	1085	827	511	289	66	6636
	85-86		4	264	484	884	1081		805					3522
CRAIG	AVE	32	58	275	608	996	1342	1479	1193	1094	687	419	193	8376
	84-85	15	25	304	799	1002	1424	1609	1432	1063	611	375	132	8791
	85-86	10	42	353	649	1043	1487	1362	1023					5969
DELTA	AVE	0	0	94	394	813	1135	1197	890	753	429	167	31	5903
	84-85	0	11	49	477	713	969	1047	938	683	353	132		5372
	85-86	0		113	335	658								1106
DENVER	AVE	0	0	135	414	789	1004	1101	879	837	528	253	74	6014
	84-85	0	1	183	622	753	990	1213	1040	742	412	167	42	6165
	85-86	0	1	241	435	1051	1094	758	802					4382
DILLON	AVE	273	332	513	806	1167	1435	1516	1305	1296	972	704	435	10754
	84-85	245	301	510	1004	1161	1380	1581	1449	1219	874	667	404	10795
	85-86	260	300	609	856	1183	1439	1380	1175					7202
DURANGO	AVE	9	34	193	493	837	1153	1218	958	862	600	366	125	6848
	84-85	0	6	124	695	866	1074	1146	1008	831	494	319	59	6622
	85-86	3	8	274	476	916	1159	967	802					4605
EAGLE	AVE	33	80	288	626	1026	1407	1448	1148	1014	705	431	171	8377
	84-85	1	27	252	741	998	1300	1435	1219	910	602	381	103	7969
	85-86	19	52	356	605	995	1352	1324	890					5593
EVER-GREEN	AVE	59	113	327	621	916	1135	1199	1011	1009	730	489	218	7827
	84-85	21	68	326	826	874	1088	1329	1123	928	616	448	165	7812
	85-86	62	90	387	651	1039	1119	947	927					5222
FORT COLLINS	AVE	5	11	171	468	846	1073	1181	930	877	558	281	82	6483
	84-85	0	0	193	606	745	1027	1245	1077	734	389	167	61	6244
	85-86	1	8	243	499	1078	1199	883	816					4727
FORT MORGAN	AVE	0	6	140	438	867	1156	1283	969	874	516	224	47	6520
	84-85	0	0	185	564	784	1168	1329	1125	687	395	135	57	6429
	85-86	0	2	239	548	1165	1425	1160	915					5454
GRAND JUNCTION	AVE	0	0	65	325	762	1138	1225	882	716	403	148	19	5683
	84-85	0	0	54	452	719	996	1044	919	645	310	81	12	5232
	85-86	0	0	139	351	779	1018	949	685					3921

HEATING DEGREE DATA

STATION		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANN
GRAND LAKE	AVE	214	264	468	775	1128	1473	1593	1369	1318	951	654	384	10591
	84-85	155	213	435	888	1096	1428	1662	1498	1238	832	610	361	10416
	85-86	206	265	513	744	1115	1454	1494	1174					6965
GREELEY	AVE	0	0	149	450	861	1128	1240	946	856	522	238	52	6442
	84-85	0	0	213	601	769	1107	1305	1096	719	391	162	41	6404
	85-86	0	6	249	501	1131	1311	1010	845					5053
GUNNISON	AVE	111	188	393	719	1119	1590	1714	1422	1231	816	543	276	10122
	84-85	64	143	372	850	1072	1381	1593	1426	1065	699	495	203	9363
	85-86	84	152	433	678	1058	1648	1712	1084					6849
LAS ANIMAS	AVE	0	0	45	296	729	998	1101	820	698	348	102	9	5146
	84-85	0	0	132	479	653	916	1204	948	586	257	72	7	5254
	85-86	0	0	134	313	816	1106	737	715					3821
LEAD-VILLE	AVE	272	337	522	817	1173	1435	1473	1318	1320	1038	726	439	10870
	84-85	308	366	536	1074	1217	1434	1577	1418	1291	967	737	440	11365
	85-86	333	359	666	871	1258	1470	1328	1251					7536
LIMON	AVE	8	6	144	448	834	1070	1156	960	936	570	299	100	6531
	84-85	1	1	230	694	852	1072	1297	1133	868	496	254	100	6998
	85-86	1	12	274	544	1078	1233	861	910					4913
LONGMONT	AVE	0	6	162	453	843	1082	1194	938	874	546	256	78	6432
	84-85	0	3	237	679	812	1078	1287	1147	743	400	170	42	6598
	85-86	0	6	236	486	1095	1228	869	814					4734
MEEKER	AVE	28	56	261	564	927	1240	1345	1086	998	651	394	164	7714
	84-85	1	17	228	690	907	1250	1392	1217	963	581	360	116	7722
	85-86	6	31	358	599	967	1249	1164	893					5267
MONTROSE	AVE	0	10	135	437	837	1159	1218	941	818	522	254	69	6400
	84-85	0	8	102	604	791	1064	1161	1095	741	438	178	31	6213
	85-86	0	0	211	443	803	1106	1032	766					4361
PAGOSA SPRINGS	AVE	82	113	297	608	981	1305	1380	1123	1026	732	487	233	8367
	84-85	4	39	245	782	970	1190	1305	1207	971	626	438	173	7950
	85-86	34	73	376	600	1000	1373	1191	952					5599
PUEBLO	AVE	0	0	89	346	744	998	1091	834	756	421	163	23	5465
	84-85	0	0	127	474	713	907	1208	999	664	326	125	9	5552
	85-86	0	0	172	410	1012	1161	783	728					4266
RIFLE	AVE	6	24	177	499	876	1249	1321	1002	856	555	298	82	6945
	84-85	0	1	131	622	829	1134	1246	1124	804	472	228	47	6638
	85-86	1	6	232	484	882	1147	1076	769					4597
STEAMBOAT SPRINGS	AVE	113	169	390	704	1101	1476	1541	1277	1184	810	533	297	9595
	84-85	82	103	397	834	1047	1419	1611	1433	1077	730			8733
	85-86	57	130	434	729	1144	1554	1495	1097					6640
STERLING	AVE	0	6	157	462	876	1163	1274	966	896	528	235	51	6614
	84-85	0	0	189	552	784	1140	1260	1160	678		148	71	5982
	85-86	0	6	230	519	1161	1395	1155						4466
TELLURIDE	AVE	163	223	396	676	1026	1293	1339	1151	1141	849	589	318	9164
	84-85	99	165	337	867	984	1185	1335	1179	1020	723	550	224	8668
	85-86	121	152	463	648	1023	1270	1130	1011					5818
TRINIDAD	AVE	0	0	86	359	738	973	1051	846	781	468	207	35	5544
	84-85	0	0	138	507	652	891	1225	935	658	366	159	25	5556
	85-86	0	0	175	380	772	1046	738	764					3875
WALDEN	AVE	198	285	501	822	1170	1457	1535	1313	1277	915	642	351	10466
	84-85	122	184	448	942	1130	1389	1652	1358	1138	810	592	320	10085
	85-86	171	271	578	824	1224	1458	1381	1155					7062
WALSEN-BURG	AVE	0	8	102	370	720	924	989	820	781	501	240	49	5504
	84-85	0	0	113	517	621	817	1131	902	669	386	187	32	5375
	85-86	0	0	165	358	770	982	681	734					3690

FEBRUARY 1986 CLIMATIC DATA

Eastern Plains*

	Temperature						Degree Days			Precipitation			
Name	Max	Min	Mean	Dep	High	Low	Heat	Cool	Grow	Total	Dep	%Norm	# days
KAUFFMAN 4SSE	46.3	17.5	31.9	1.3	73	-12	921	0	84	0.12	-0.01	92.3	1
AKRON FAA AP	43.3	20.4	31.9	1.0	73	-8	923	0	69	1.59	1.41	883.3	7
BURLINGTON	48.3	22.7	35.5	0.9	73	-8	820	0	103	0.69	0.49	345.0	4
LIMON WSMO	47.6	17.0	32.3	1.2	73	-12	910	0	98	0.84	0.66	466.7	5
CHEYENNE WELLS	51.4	21.1	36.2	2.6	76	-12	798	0	129	0.56	0.40	350.0	4
LAS ANIMAS	57.5	21.0	39.2	3.0	81	-4	715	0	187	0.14	-0.12	53.8	4
HOLLY	55.0	19.2	37.1	3.4	79	-10	775	0	165	0.12	-0.14	46.2	1
SPRINGFIELD 7WSW	54.5	22.7	38.6	2.8	77	-9	731	0	171	0.23	-0.10	69.7	2

Foothills/Adjacent Plains*

	Temperature						Degree Days			Precipitation			
Name	Max	Min	Mean	Dep	High	Low	Heat	Cool	Grow	Total	Dep	%Norm	# days
FORT COLLINS	48.6	22.8	35.7	3.2	76	-5	816	0	95	0.26	-0.11	70.3	7
GREELEY UNC	47.9	21.3	34.6	0.8	76	-1	845	0	99	0.27	-0.01	96.4	7
ESTES PARK	39.4	20.0	29.7	0.3	60	-19	978	0	17	1.02	0.64	268.4	14
LONGMONT	49.1	22.4	35.7	3.8	77	-2	814	0	108	0.32	-0.05	86.5	8
BOULDER	49.5	25.6	37.5	1.3	75	-3	762	0	102	1.04	0.40	162.5	9
DENVER WSFO AP	48.7	23.5	36.1	2.4	74	-5	802	0	102	0.65	0.07	112.1	8
EVERGREEN	45.6	17.9	31.7	2.7	69	-14	927	0	56	0.78	0.02	102.6	6
LAKE GEORGE 8SW	38.8	14.0	26.4	6.7	60	-19	1074	0	10	0.07	-0.24	22.6	2
COLORADO SPRINGS	47.7	21.7	34.7	2.2	72	-7	840	0	98	0.30	0.00	100.0	6
CANON CITY 2SE	51.8	23.7	37.7	0.5	77	-14	756	0	126	0.43	0.01	102.4	4
PUEBLO WSO AP	55.6	22.1	38.8	3.4	80	-4	728	0	171	0.14	-0.11	56.0	5
WALSENBERG	51.9	25.0	38.5	3.0	75	-8	734	0	125	0.57	-0.25	69.5	4
TRINIDAD FAA AP	53.9	21.2	37.6	2.6	78	-8	764	0	148	0.37	-0.04	90.2	4

Mountains/Interior Valleys*

	Temperature						Degree Days			Precipitation			
Name	Max	Min	Mean	Dep	High	Low	Heat	Cool	Grow	Total	Dep	%Norm	# days
WALDEN	34.0	13.0	23.5	5.1	52	-26	1155	0	1	1.76	1.30	382.6	16
LEADVILLE 2SW	32.5	7.8	20.1	3.6	49	-19	1251	0	0	1.66	0.66	166.0	13
SALIDA	45.9	18.8	32.4	2.2	67	-10	907	0	49	0.12	-0.52	18.7	3
BUENA VISTA	43.4	18.5	31.0	2.3	64	-13	946	0	25	0.26	-0.09	74.3	4
SAGUACHE	43.7	16.2	30.0	5.1	63	-2	975	0	27	0.08	-0.18	30.8	3
HERMIT 7ESE	28.4	1.8	15.1	0.6	35	-22	1392	0	0	0.60	-0.12	83.3	2
ALAMOSA WSO AP	46.2	13.1	29.7	7.3	66	-7	983	0	43	0.10	-0.20	33.3	3
STEAMBOAT SPRINGS	36.0	15.2	25.6	6.1	53	-22	1097	0	5	4.69	2.65	229.9	9
GRAND LAKE 6SSW	32.8	12.7	22.8	6.7	51	-31	1174	0	1	2.21	1.40	272.8	18
DILLON 1E	34.6	10.9	22.8	4.3	52	-23	1175	0	1	2.04	1.15	229.2	17
CLIMAX	27.0	7.2	17.1	2.2	47	-20	1332	0	0	4.27	2.43	232.1	16
ASPEN 1SW	39.7	16.3	28.0	5.3	60	-10	1029	0	16	0.0	-2.10	0.0	0
TAYLOR PARK	32.1	-6.3	12.9	6.9	48	-45	1449	0	0	4.20	3.14	396.2	13
TELLURIDE	41.1	16.2	28.7	4.7	65	-10	1011	0	25	1.39	-0.08	94.6	12
PAGOSA SPRINGS	45.8	15.9	30.8	5.1	70	-8	952	0	40	2.59	1.25	193.3	12
SILVERTON	37.9	4.1	21.0	7.1	55	-22	1224	0	6	4.35	2.76	273.6	14

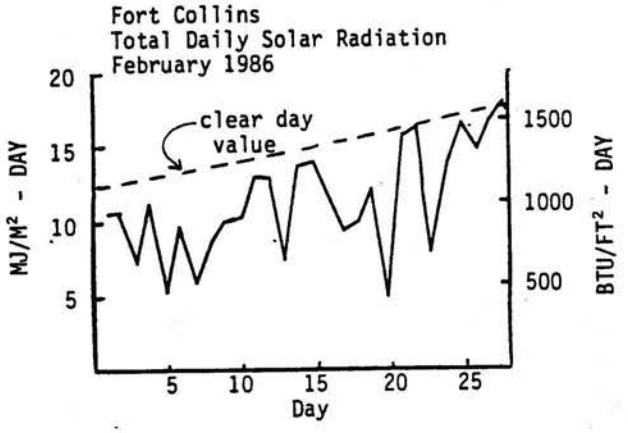
Western Valleys*

	Temperature						Degree Days			Precipitation			
Name	Max	Min	Mean	Dep	High	Low	Heat	Cool	Grow	Total	Dep	%Norm	# days
CRAIG 4SW	38.0	18.4	28.2	6.3	58	-10	1023	0	12	2.13	0.93	177.5	11
HAYDEN	37.5	18.6	28.0	6.3	56	-11	1029	0	11	2.62	1.47	227.8	10
MEEKER NO. 2	44.7	21.0	32.8	5.3	65	-5	893	0	37	1.86	1.17	269.6	6
RANGELY 1E	46.1	24.2	35.2	10.9	67	3	828	0	54	0.93	0.44	189.8	3
EAGLE FAA AP	44.8	21.3	33.0	8.1	65	-8	890	0	31	0.86	0.26	143.3	10
RIFLE	49.2	25.1	37.2	7.5	69	3	769	0	67	1.09	0.34	145.3	6
GRAND JUNCTION WS	50.9	29.8	40.3	6.3	68	9	685	0	77	0.33	-0.14	70.2	3
CEDAREDGE	47.6	26.6	37.1	4.9	68	3	775	0	50	0.94	0.12	114.6	9
PAONIA 1SW	48.2	28.2	38.2	6.3	68	9	742	0	51	1.46	0.38	135.2	9
GUNNISON	37.7	14.3	26.0	12.2	50	-14	1084	0	0	0.96	0.30	145.5	6
MONTROSE NO. 2	49.8	24.9	37.3	5.8	70	4	766	0	64	0.05	-0.36	12.2	3
URAVAN	54.8	26.4	40.6	4.8	73	8	677	0	96	1.62	1.06	289.3	7
NORWOOD	44.9	23.0	33.9	6.3	65	-8	863	0	29	0.31	-0.39	44.3	2
YELLOW JACKET 2W	44.4	24.8	34.6	5.3	65	-7	845	0	31	1.51	0.40	136.0	8
CORTEZ	48.5	23.5	36.0	5.5	79	1	805	0	58	1.04	0.11	111.8	9
DURANGO	48.5	23.6	36.1	5.2	71	-3	802	0	56	1.89	0.51	137.0	10
IGNACIO 1N	52.8	23.4	38.1	10.1	69	11	587	0	61	1.27	0.33	135.1	10

* Data are received by the Colorado Climate Center for more locations than appear in these tables. Please contact the Colorado Climate Center if additional information is needed.

FEBRUARY 1986 SUNSHINE AND SOLAR RADIATION

	Number of Days				
Station	clear	partly cloudy	cloudy	% of possible sunshine	average % of possible
Colorado Springs	2	12	14	--	--
Denver	3	9	16	58%	71%
Fort Collins	3	10	15	--	--
Grand Junction	7	7	14	73%	64%
Pueblo	3	9	16	74%	74%



The Last Snow of the Winter: continued

In the high elevations of the Northern and Central Mountains the date of the last measurable snow is very consistent from year to year and usually occurs between June 4 and June 20. At lower elevations the differences from year to year are much greater. At Grand Junction the last measurable snow occurred as early as January 12 in 1972 but early last snows like that are rare. Latitude make surprizingly little difference in the date of the last snow. It occurs at about the same time each year at most areas along the Front Range of comparable elevation. If you get tired of late spring snows the best place to be in Colorado is Lamar and the lower Arkansas Valley. There the last snow has occurred by the end of March in more than half the years.

Late spring snows can be depressing to newcomers to Colorado, but they serve a very important function. Spring precipitation is crucial for growth and germination of seeds. Rain is great but sometimes it falls in downpours which run off and erode and compact the soil, or it falls in little showers that quickly evaporate. Spring snow is especially effective because it falls gently, melts gradually and soaks totally into the ground. So let's hear it for the last snow of winter.

Last Snow Statistics for Colorado (based on 1961-1985 data)

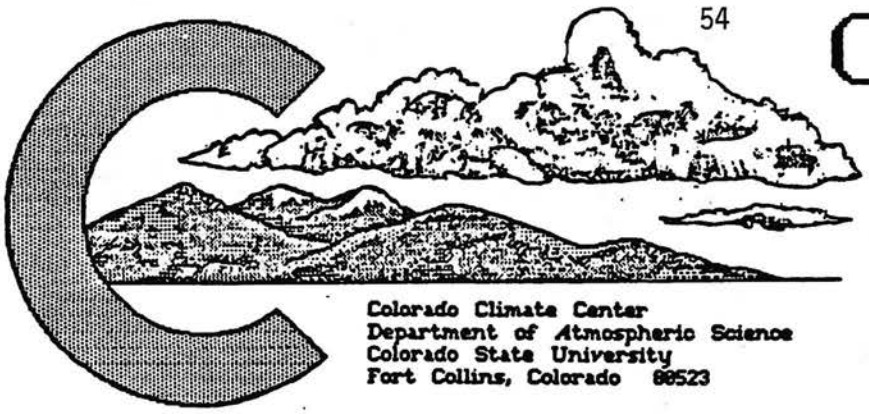
Station	Elevation	Earliest Last Snow	Probability that the last measurable snow of winter will occur on or after this date. 80%	50%	20%	Latest Last Snow
Akron	4,663	Mar 7	Apr 2	Apr 26	May 10	May 14
Alamosa	7,536	Mar 28	Apr 13	Apr 29	May 14	Jun 13
Berthoud Pass	11,314	May 18	Jun 4	Jun 13	Jun 20	Jun 27
Boulder	5,420	Mar 25	Apr 7	Apr 24	May 2	May 14
Colorado Springs	6,090	Mar 13	Apr 13	Apr 30	May 12	Jun 10
Crested Butte	8,860	Apr 14	May 6	May 20	Jun 10	Jun 26
Denver	5,286	Mar 24	Apr 18	Apr 29	May 12	May 29
Dillon	9,065	May 11	May 15	Jun 2	Jun 16	Jun 26
Durango	6,600	Feb 20	Apr 2	Apr 21	May 7	May 27
Eagle	6,497	Mar 29	Apr 13	Apr 30	May 13	Jun 14
Fort Collins	5,004	Mar 13	Apr 4	Apr 20	May 10	May 17
Grand Junction	4,849	Jan 12	Mar 18	Apr 16	Apr 27	May 8
Lamar	3,620	Mar 3	Mar 11	Mar 30	Apr 12	Apr 30
Limon	5,562	Mar 13	Mar 30	Apr 20	May 13	May 17
Pueblo	4,640	Mar 13	Mar 29	Apr 13	May 5	May 12
Springfield	4,580	Mar 13	Apr 3	Apr 15	May 6	May 14
Steamboat Springs	6,770	Mar 31	Apr 27	May 14	May 22	Jun 14
Telluride	8,800	Apr 8	Apr 29	May 14	Jun 10	Jun 26
Trinidad	5,746	Mar 13	Apr 4	Apr 27	May 10	May 18

A brief history of this publication, Colorado Climate:

The Colorado Climate Center at Colorado State University was established in 1974 after the federal State Climatologist program was terminated in 1973. The State Climatologist for Colorado used to be a part of the National Weather Service and was located in Denver. Dr. Thomas McKee joined the faculty of the Department of Atmospheric Science at CSU in 1974 and was appointed State Climatologist.

The severe drought of the winter of 1976-77 was instrumental in initiating this publication, Colorado Climate. Since that time there has been a much greater recognition of the need for and benefits from closely monitoring our state's climate. The first issue of Colorado Climate was published in January 1977. This issue is the 110th monthly report prepared by the Colorado Climate Center and the 100th consecutive report authored by Nolan Doesken, Assistant State Climatologist.

I sincerely hope that you find this report interesting, informative, and useful. We always welcome your comments and suggestions on how to continue to improve our products.



COLORADO CLIMATE

Colorado Climate Center
Department of Atmospheric Science
Colorado State University
Fort Collins, Colorado 80523

MARCH 1986

March in Review:

March temperatures were much above average and close to all time records over all of Colorado. Except for a few areas of western Colorado, precipitation for the month was below average. A few weather stations reported no measurable precipitation in March.

A Look Ahead -- May 1986:

May is a unique month in Colorado. All of the factors which are a part of our climate seem to come together during the spring to produce even more diversity and extremes than during the rest of the year.

Snows continue to fall in the mountains during May. In 1983, Berthoud Pass totalled 70" of May snowfall. Even at lower elevations snows can occur in May and on occasions are very heavy. Fortunately the snow melts quickly. Even in the high country, the snowmelt is normally in full swing in May. Based on warm temperatures in Colorado already this year, there are indications that the snowmelt may reach a peak earlier than normal producing peak streamflows in May instead of June on the larger rivers. But based on current conditions this should minimize the threat of snowmelt flooding except in some of the northern Front Range watersheds.

Thunderstorms, hail and tornadoes are also a normal part of our May climate. Historically, only June has a higher frequency of tornadoes than May. The areas most likely affected by tornadoes and damaging hail in May lie east of Interstate 25.

Precipitation patterns in May are noticeably different than during the winter months. Precipitation in the mountains and western valleys begins to taper off while a dramatic increase occurs east of the mountains. On the average May is the wettest month of the year from the northern Front Range across the northeastern plains with some areas averaging in excess of 3" (more than what normally falls in the entire November-March period). May is also the cloudiest month of the year over eastern Colorado with roughly twice as many cloudy days as clear days.

May temperatures are normally pleasant with lower elevations averaging in the 70s during the day and in the 40s at night. (In the mountains above 9,000 feet 40s and 50s during the day and 20s at night are common). May heatwaves have driven readings up into the 80s and 90s. Nevertheless, farmers and gardeners still must contend with the threat of frost well into the month.

Warmest January-March Since 1907:

If you thought the first three months of 1986 were unusually warm, you were right. In fact, for most of Colorado it was the warmest January-March period on record. When averaged over the entire state, the mean temperature for these three months was 35.7°F. This year was second only to 1907 which averaged 36.1°. For comparison, January-March temperatures historically average 28.7° statewide. The 1985 value was 27.0° and the coldest period on record was 1929 with 23.5°. Consistent statewide averages have been computed beginning with 1888.

When analyzing these data since 1888 we noticed that our most extreme and prolonged drought periods in Colorado (and actually over large portions of the U.S.) followed years with abnormally warm January-March periods--specifically 1934-35 and 1953-54. Those years also had extremely hot summers. Before boldly issuing a drought and heatwave forecast we judiciously undertook a more thorough analysis. January-March temperatures 1888-1985 were ranked and compared with annual precipitation for each year. The results were plotted as

continued on last page

MARCH 1986 DAILY WEATHER

Date	Event
1-8	High pressure ridge prevailed over the western U.S. producing unusually warm and dry weather in Colorado. Daily high temperatures reached the 60s and 70s at lower elevations with a few new records established on the 1st, 4th and 8th such as Denver's 72° on the 8th. A few light showers on the 3rd east of the mountains were the only precipitation reported in the state.
9	A fast moving storm from California struck Colorado and quickly moved east. The mountains picked up several inches of wet snow while rain and snow mixed fell over the western valleys. Precipitation was heaviest over northwestern Colorado. Browns Park Wildlife Refuge received 1.07" from the storm. Little precipitation fell east of the mountains, but strong winds and a few brief thundershowers were reported.
10-20	Unsettled period with seasonably cool temperatures as a trough of low pressure aloft lingered over the Rockies. Moderate snow fell across southwest Colorado on the 11th with scattered rain and snow showers spreading eastward on the 12th and 13th. Canon City received 0.52" of moisture the night of the 12th. Cold temperatures followed. Taylor Park Reservoir awoke to a -25° reading on the 13th, the coldest in the state for the month. Heavier precipitation developed again the evening of the 14th across northern Colorado. Several inches of wet snow were reported from Longmont northward to Wellington. A more organized storm system approached Colorado on the 16th triggering a few evening thundershowers in the northeast. Light to moderate snow spread over the mountains on the 17th with the heaviest amounts reported in the San Juans. Telluride received 15" of new snow from the storm. Cold and blustery 18-20th as an arctic air mass slipped southward behind the storm. Temperatures dipped into the 20s in the fruit growing areas on the Western Slope doing some damage to the early blossoming fruit orchards. Temperatures dipped below zero in some mountain areas. Much of eastern Colorado had their coldest temperature of the month on the 19th although readings were actually only slightly below average.
21-30	A return to spring-like temperatures, very dry air and little or no precipitation as the jet stream moved back to the north. Just a few brief showers on the 25th as an upper-level disturbance raced across the state. Records were shattered as a heatwave developed 27-30th. Temperatures rose into the 50s and 60s in the mountains causing some early snowmelt. Readings near 80° occurred on the Western Slope and along the Front Range and in the 80s across the Eastern Plains. Holly's 91° on the 28th was the warmest in the state and came within 5 degrees of the previous highest temperature ever reported in March in Colorado--96° back in 1907.
31	Another fast-moving upper air disturbance and Pacific cold front crossed the state bringing cooler temperatures and producing snow in the Northern Mountains, rain in the valleys and a few thundershowers along the Front Range.

March 1986 Extremes

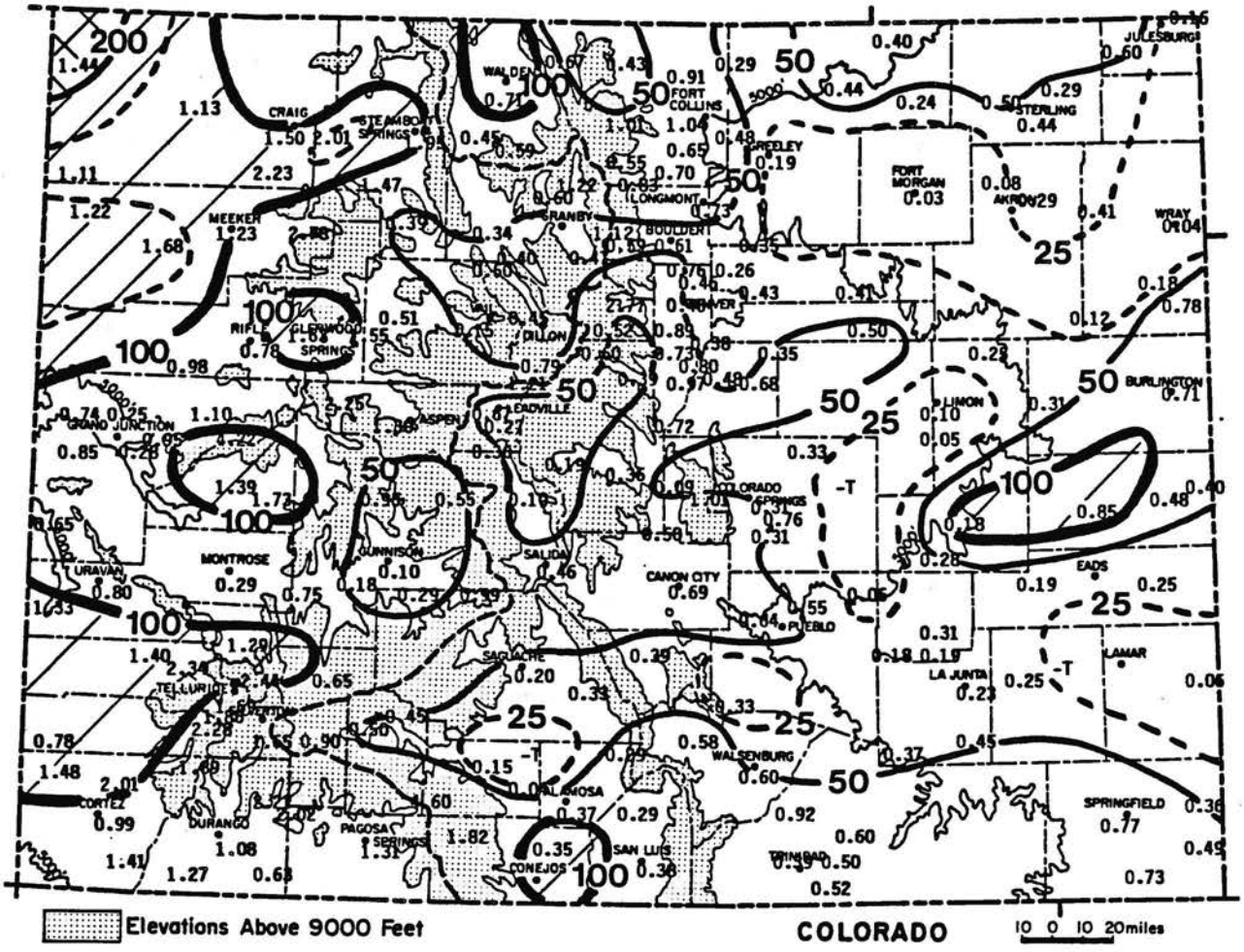
Highest Temperature	91°F	March 28	Holly
Lowest Temperature	-25°F	March 13	Taylor Park Reservoir
Greatest Total Precipitation	4.60"		Wolf Creek Pass 1E
Least Total Precipitation	Trace		Center, John Martin Dam
Greatest Total Snowfall*	58"		Wolf Creek Pass 1E
Greatest Snowdepth**	154"	March 26	Tower (Park Range)

* data derived only from those stations with complete daily snowfall records.
** from Soil Conservation Service Snowpack measurements.

MARCH 1986 PRECIPITATION

Precipitation was below average in March across most of Colorado. Scarcely any precipitation at all fell from east of Colorado Springs to Limon, in portions of northeastern Colorado near Fort Morgan and Wray, in the lower Arkansas Valley and in the San Luis Valley near Center and Monte Vista. The combination of spring winds, very low humidity and much above average temperatures created grassland fire problems and blowing dust. In general, more precipitation fell west of the Continental Divide. The Grand Mesa area, a portion of southwestern Colorado and much of the Yampa and White River Valley in northwestern Colorado were also wetter than average.

Greatest		Least	
Wolf Creek Pass 1E	4.60"	John Martin Dam	Trace
Bonham Reservoir	4.22"	Center 4SSW	Trace
Marvine Ranch	2.78"	Rush 4N	Trace
Mount Evans	2.77"	Fort Morgan	0.03"
Ouray	2.44"	Wray	0.04"
		Monte Vista 1E	0.04"



Precipitation amounts (inches) for March 1986 and contours of precipitation as a percent of the 1961-1980 average.

1986 WATER YEAR PRECIPITION

The majority of the state remains wetter than average through the first 6 months of the water year. However, dry areas have expanded considerably east of the Continental Divide. The northern mountains and northwestern valleys continue to be the wettest region of the state. The driest areas relative to average include the Palmer Ridge, the Collegiate Valley near Salida and northern portions of the San Luis Valley.

Comparison to Last Year

Except for the Northern Mountains and northwestern valleys, most of Colorado is now considerably drier than at this time last year. This difference is most dramatic on the Palmer Ridge north and east of Colorado Springs which last year was 200% of average.

1986 Water Year to Date through March

Wettest (as % of average)

Walden	215%	7.94"
Rifle	186%	10.41"
Hamilton	177%	15.55"

Driest (as % of average)

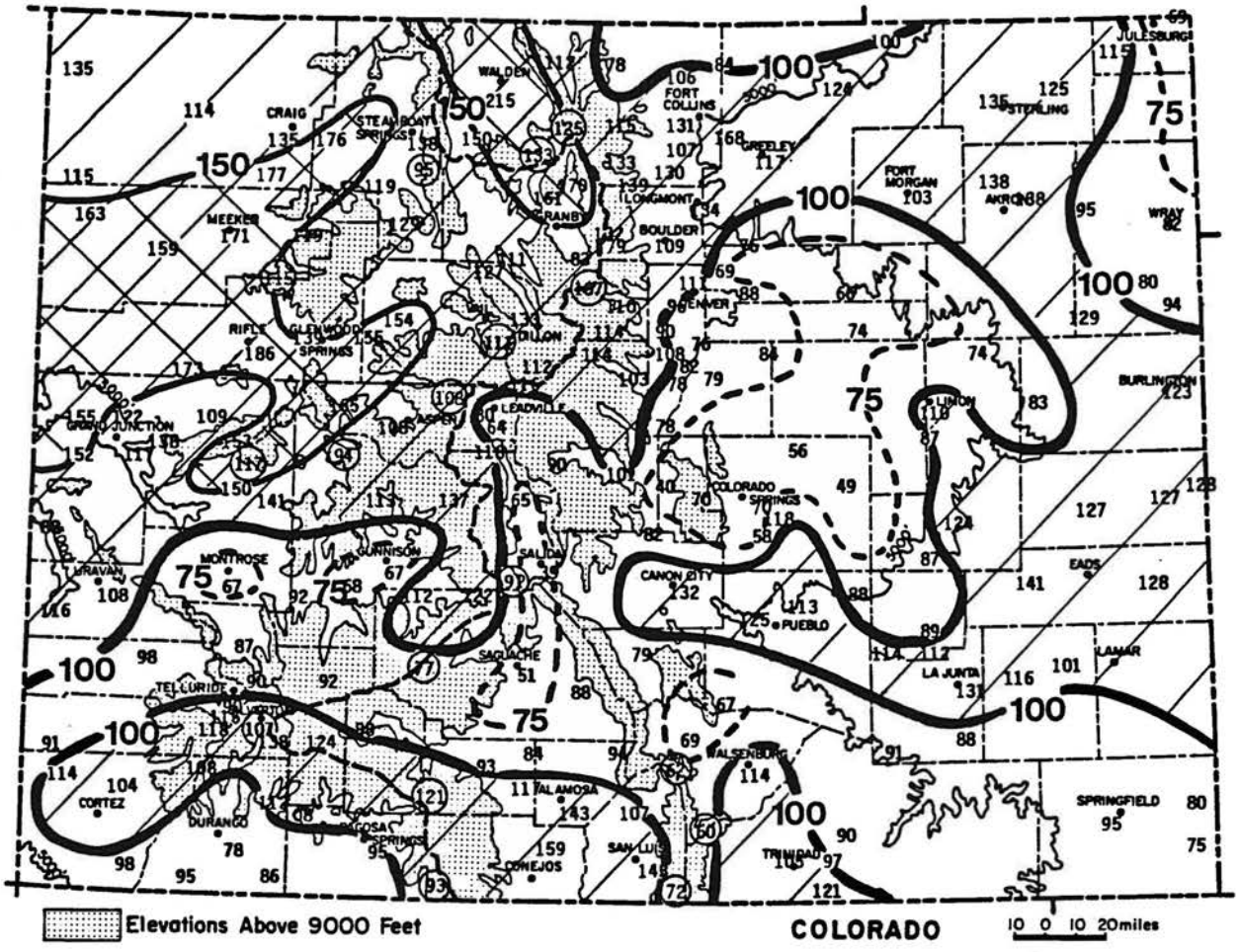
Salida	39%	1.58"
Florissant Fossil Beds Natl. Mon.	40%	1.47"
Rush	49%	1.06"

Wettest (total precipitation)

Bonham Reservoir	28.36"	153%
Redstone 4W	22.39"	165%
Platoro	19.66"	--

Driest (total precipitation)

Rush 4N	1.06"	49%
Florissant Fossil Beds Natl. Mon.	1.47"	40%
Saguache	1.32"	51%

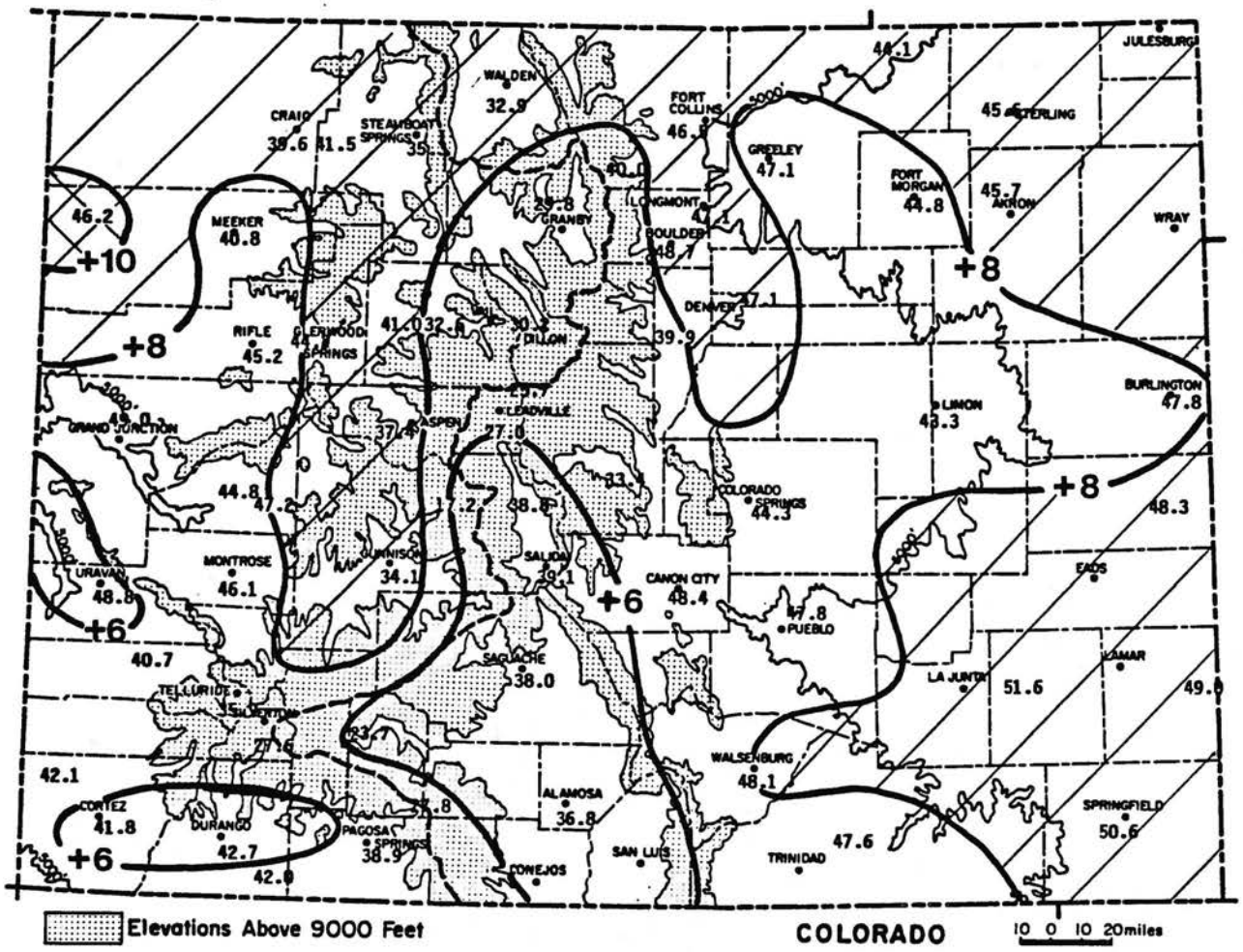


Precipitation for October 1985 through March 1986 as a percent of the 1961-1980 average.

(XX) Soil Conservation Service April 1 snowpack as a percent of 1961-80 average.

MARCH 1986 TEMPERATURES AND DEGREE DAYS

Temperatures were above average statewide for the 3rd consecutive month. Numerous new record daily highs were set early and late in the month, and no unseasonably cold readings were reported. Statewide temperatures ended up about 8 degrees above average with only minor local variations. Compared to average, the eastern and northwestern parts of the state were warmest with smaller departures from normal in southcentral Colorado.



March 1986 temperatures (degrees Fahrenheit) and contours of departures from 1961-1980 averages.

MARCH 1986 SOIL TEMPERATURES

Unusually warm soil temperatures were observed in March permitting abnormally early vegetative activity. Even at 72", warming was noted a few weeks earlier than normal.

These soil temperature measurements were taken at Colorado State University beneath sparse unirrigated sod with a flat, open exposure. These data are not representative of all Colorado locations.

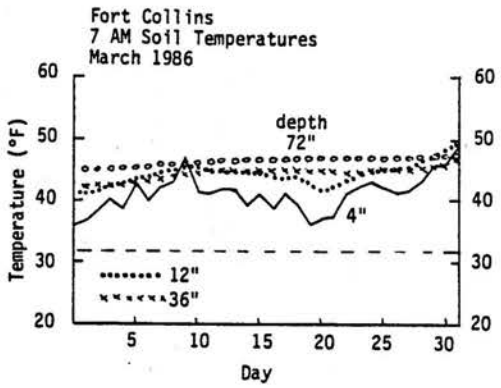


Table 1. Colorado Heating Degree Day Data through March 1986.

HEATING DEGREE DATA

STATION		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANN
ALAMOSA	AVE	40	100	303	657	1074	1457	1519	1182	1035	732	453	165	8717
	84-85	11	56	252	748	1051	1382	1462	1208	936	625	415	146	8292
	85-86	30	66	378	634	1045	1472	1231	983	864				6703
ASPEN	AVE	95	150	348	651	1029	1339	1376	1162	1116	798	524	262	8850
	84-85	87	134	345	883	1034	1282	1415	1293	1047	726	492	223	8961
	85-86	119	107	453	656	1066	1278	1175	1029	848				6731
BOULDER	AVE	0	6	130	357	714	908	1004	804	775	483	220	59	5460
	84-85	0	1	171	599	716	938	1162	989	717	385	174	38	5890
	85-86	0	0	222	400	982	1018	674	762	496				4554
BUENA VISTA	AVE	47	116	285	577	936	1184	1218	1025	983	720	459	184	7734
	84-85	16	91	284	828	949	1169	1338	1084	956	646	422	130	7913
	85-86	63	54	405	597	938	1158	972	946	806				5939
BURLING-TON	AVE	6	5	108	364	762	1017	1110	871	803	459	200	38	5743
	84-85	0	0	148	493	699	980	1207	1012	686	347	145	50	5767
	85-86	0	5	206	405	977	1142	740	820	525				4820
CANON CITY	AVE	0	9	81	301	639	831	911	734	707	411	179	33	4836
	84-85	0	0	175	561	702	841	1069	958	676	362	174	40	5558
	85-86	0	6	186	397	886	1036	711	756	507				4485
COLORADO SPRINGS	AVE	8	25	162	440	819	1042	1122	910	880	564	296	78	6346
	84-85	0	6	200	684	791	982	1233	1077	830	481	246	77	6607
	85-86	5	8	253	487	978	1143	822	840	635				5171
CORTEZ	AVE	0	11	115	434	813	1132	1181	921	828	555	292	68	6350
	84-85	0	0	108	666	839	1072	1173	1085	827	511	289	66	6636
	85-86		4	264	484	884	1081		805	711				4233
CRAIG	AVE	32	58	275	608	996	1342	1479	1193	1094	687	419	193	8376
	84-85	15	25	304	799	1002	1424	1609	1432	1063	611	375	132	8791
	85-86	10	42	353	649	1043	1487	1362	1023	780				6749
DELTA	AVE	0	0	94	394	813	1135	1197	890	753	429	167	31	5903
	84-85	0	11	49	477	713	969	1047	938	683	353	132		5372
	85-86	0		113	335	658			684	530				2320
DENVER	AVE	0	0	135	414	789	1004	1101	879	837	528	253	74	6014
	84-85	0	1	183	622	753	990	1213	1040	742	412	167	42	6165
	85-86	0	1	241	435	1051	1094	758	802	548				4930
DILLON	AVE	273	332	513	806	1167	1435	1516	1305	1296	972	704	435	10754
	84-85	245	301	510	1004	1161	1380	1581	1449	1219	874	667	404	10795
	85-86	260	300	609	856	1183	1439	1380	1175	1072				8274
DURANGO	AVE	9	34	193	493	837	1153	1218	958	862	600	366	125	6848
	84-85	0	6	124	695	866	1074	1146	1008	831	494	319	59	6622
	85-86	3	8	274	476	916	1159	967	802	686				5291
EAGLE	AVE	33	80	288	626	1026	1407	1448	1148	1014	705	431	171	8377
	84-85	1	27	252	741	998	1300	1435	1219	910	602	381	103	7969
	85-86	19	52	356	605	995	1352	1324	890	736				6329
EVER-GREEN	AVE	59	113	327	621	916	1135	1199	1011	1009	730	489	218	7827
	84-85	21	68	326	826	874	1088	1329	1123	928	616	448	165	7812
	85-86	62	90	387	651	1039	1119	947	927	770				5992
FORT COLLINS	AVE	5	11	171	468	846	1073	1181	930	877	558	281	82	6483
	84-85	0	0	193	606	745	1027	1245	1077	734	389	167	61	6244
	85-86	1	8	243	499	1078	1199	883	816	568				5295
FORT MORGAN	AVE	0	6	140	438	867	1156	1283	969	874	516	224	47	6520
	84-85	0	0	185	564	784	1168	1329	1125	687	395	135	57	6429
	85-86	0	2	239	548	1165	1425	1160	915	616				6070
GRAND JUNCTION	AVE	0	0	65	325	762	1138	1225	882	716	403	148	19	5683
	84-85	0	0	54	452	719	996	1044	919	645	310	81	12	5232
	85-86	0	0	139	351	779	1018	949	685	489				4410

HEATING DEGREE DATA

STATION		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANN
GRAND LAKE	AVE	214	264	468	775	1128	1473	1593	1369	1318	951	654	384	10591
	84-85	155	213	435	888	1096	1428	1662	1498	1238	832	610	361	10416
	85-86	206	265	513	744	1115	1454	1494	1174	1083				8048
GREELEY	AVE	0	0	149	450	861	1128	1240	946	856	522	238	52	6442
	84-85	0	0	213	601	769	1107	1305	1096	719	391	162	41	6404
	85-86	0	6	249	501	1131	1311	1010	845	545				5598
GUNNISON	AVE	111	188	393	719	1119	1590	1714	1422	1231	816	543	276	10122
	84-85	64	143	372	850	1072	1381	1593	1426	1065	699	495	203	9363
	85-86	84	152	433	678	1058	1648	1712	1084	952				7801
LAS ANIMAS	AVE	0	0	45	296	729	998	1101	820	698	348	102	9	5146
	84-85	0	0	132	479	653	916	1204	948	586	257	72	7	5254
	85-86	0	0	134	313	816	1106	737	715	409				4230
LEAD-VILLE	AVE	272	337	522	817	1173	1435	1473	1318	1320	1038	726	439	10870
	84-85	308	366	536	1074	1217	1434	1577	1418	1291	967	737	440	11365
	85-86	333	359	666	871	1258	1470	1328	1251	1168				8704
LIMON	AVE	8	6	144	448	834	1070	1156	960	936	570	299	100	6531
	84-85	1	1	230	694	852	1072	1297	1133	868	496	254	100	6998
	85-86	1	12	274	544	1078	1233	861	910	662				5575
LONGMONT	AVE	0	6	162	453	843	1082	1194	938	874	546	256	78	6432
	84-85	0	3	237	679	812	1078	1287	1147	743	400	170	42	6598
	85-86	0	6	236	486	1095	1228	869	814	549				5283
MEEKER	AVE	28	56	261	564	927	1240	1345	1086	998	651	394	164	7714
	84-85	1	17	228	690	907	1250	1392	1217	963	581	360	116	7722
	85-86	6	31	358	599	967	1249	1164	893	742				6009
MONTROSE	AVE	0	10	135	437	837	1159	1218	941	818	522	254	69	6400
	84-85	0	8	102	604	791	1064	1161	1095	741	438	178	31	6213
	85-86	0	0	211	443	803	1106	1032	766	577				4938
PAGOSA SPRINGS	AVE	82	113	297	608	981	1305	1380	1123	1026	732	487	233	8367
	84-85	4	39	245	782	970	1190	1305	1207	971	626	438	173	7950
	85-86	34	73	376	600	1000	1373	1191	952	803				6402
PUEBLO	AVE	0	0	89	346	744	998	1091	834	756	421	163	23	5465
	84-85	0	0	127	474	713	907	1208	999	664	326	125	9	5552
	85-86	0	0	172	410	1012	1161	783	728	523				4789
RIFLE	AVE	6	24	177	499	876	1249	1321	1002	856	555	298	82	6945
	84-85	0	1	131	622	829	1134	1246	1124	804	472	228	47	6638
	85-86	1	6	232	484	882	1147	1076	769	607				5204
STEAMBOAT SPRINGS	AVE	113	169	390	704	1101	1476	1541	1277	1184	810	533	297	9595
	84-85	82	103	397	834	1047	1419	1611	1433	1077	730			8733
	85-86	57	130	434	729	1144	1554	1495	1097	915				7555
STERLING	AVE	0	6	157	462	876	1163	1274	966	896	528	235	51	6614
	84-85	0	0	189	552	784	1140	1260	1160	678		148	71	5982
	85-86	0	6	230	519	1161	1395	1155	990	594				6050
TELLURIDE	AVE	163	223	396	676	1026	1293	1339	1151	1141	849	589	318	9164
	84-85	99	165	337	867	984	1185	1335	1179	1020	723	550	224	8668
	85-86	121	152	463	648	1023	1270	1130	1011	892				6710
TRINIDAD	AVE	0	0	86	359	738	973	1051	846	781	468	207	35	5544
	84-85	0	0	138	507	652	891	1225	935	658	366	159	25	5556
	85-86	0	0	175	380	772	1046	738	764	529				4404
WALDEN	AVE	198	285	501	822	1170	1457	1535	1313	1277	915	642	351	10466
	84-85	122	184	448	942	1130	1389	1652	1358	1138	810	592	320	10085
	85-86	171	271	578	824	1224	1458	1381	1155	989				8051
WALSEN-BURG	AVE	0	8	102	370	720	924	989	820	781	501	240	49	5504
	84-85	0	0	113	517	621	817	1131	902	669	386	187	32	5375
	85-86	0	0	165	358	770	982	681	734	515				4205

M A R C H 1 9 8 6 C L I M A T I C D A T A

Eastern Plains*

	Temperature						Degree Days			Precipitation			
Name	Max	Min	Mean	Dep	High	Low	Heat	Cool	Grow	Total	Dep	%Norm	# days
KAUFFMAN 4SSE	60.3	27.9	44.1	8.9	79	16	641	0	181	0.40	-0.24	62.5	1
STERLING	61.5	29.6	45.6	8.8	84	21	594	0	202	0.50	-0.30	62.5	1
FORT MORGAN	62.3	27.3	44.8	7.4	84	20	616	0	216	0.03	-0.53	5.4	2
AKRON FAA AP	58.8	32.5	45.7	9.4	80	24	592	0	177	0.08	-0.79	9.2	4
BURLINGTON	62.1	33.5	47.8	7.8	82	21	525	0	205	0.71	-0.11	86.6	5
LIMON WSMO	59.7	26.9	43.3	7.1	79	13	662	0	177	0.10	-0.64	13.5	5
CHEYENNE WELLS	64.0	32.6	48.3	8.9	85	20	509	0	235	0.48	-0.21	69.6	6
LAS ANIMAS	70.8	32.4	51.6	8.1	89	17	409	1	324	0.25	-0.37	40.3	4
HOLLY	70.0	27.9	49.0	8.3	91	12	492	0	308	0.06	-0.64	8.6	1
SPRINGFIELD 7WSW	67.3	34.0	50.6	9.0	84	19	437	0	279	0.77	-0.14	84.6	2

Foothills/Adjacent Plains*

	Temperature						Degree Days			Precipitation			
Name	Max	Min	Mean	Dep	High	Low	Heat	Cool	Grow	Total	Dep	%Norm	# days
FORT COLLINS	60.9	32.0	46.5	9.0	79	23	568	0	191	1.04	-0.06	94.5	9
GREELEY UNC	63.4	30.8	47.1	7.1	81	22	545	0	225	0.19	-0.76	20.0	6
ESTES PARK	51.9	28.1	40.0	7.5	66	11	767	0	94	0.55	-0.18	75.3	9
LONGMONT	63.1	31.1	47.1	9.7	81	22	549	0	221	0.73	-0.18	80.2	4
BOULDER	62.2	35.3	48.7	8.4	79	24	496	0	209	0.61	-0.75	44.9	7
DENVER WSFO AP	61.0	33.1	47.1	8.7	79	23	548	0	199	0.43	-0.71	37.7	7
EVERGREEN	56.2	23.6	39.9	7.7	73	9	770	0	146	0.89	-0.41	68.5	7
LAKE GEORGE 8SW	48.9	18.0	33.4	6.9	64	4	971	0	58	0.36	-0.19	65.5	4
COLORADO SPRINGS	58.7	29.8	44.3	7.7	76	15	635	0	160	0.31	-0.49	38.7	9
CANON CITY 2SE	62.9	33.9	48.4	7.7	80	20	507	0	211	0.69	-0.14	83.1	4
PUEBLO WSO AP	66.5	29.1	47.8	6.8	84	18	523	0	261	0.55	-0.18	75.3	7
WALSENBURG	63.3	33.0	48.1	8.2	78	20	515	0	218	0.60	-0.72	45.5	5
TRINIDAD FAA AP	65.2	30.1	47.6	7.3	83	20	529	0	246	0.60	-0.29	67.4	7

Mountains/Interior Valleys*

	Temperature						Degree Days			Precipitation			
Name	Max	Min	Mean	Dep	High	Low	Heat	Cool	Grow	Total	Dep	%Norm	# days
WALDEN	46.0	19.7	32 9	8.8	62	8	989	0	34	0.71	0.14	124.6	10
LEADVILLE 2SW	42.5	11.5	27.0	6.0	54	-4	1168	0	9	0.27	-1.03	20.8	7
SALIDA	56.6	21.6	39.1	2.9	70	9	794	0	136	0.46	-0.32	59.0	2
BUENA VISTA	54.0	23.6	38.8	5.2	69	14	806	0	114	0.10	-0.53	15.9	2
SAGUACHE	54.0	22.0	38.0	5.1	67	9	827	0	106	0.20	-0.22	47.6	2
HERMIT 7ESE	39.0	8.5	23.7	4.4	48	-3	1272	0	0	0.50	-0.96	34.2	1
ALAMOSA WSO AP	56.2	17.5	36.8	5.2	69	0	864	0	130	0.37	-0.06	86.0	6
STEAMBOAT SPRINGS	49.3	21.3	35.3	8.5	67	11	915	0	54	1.95	0.03	101.6	9
GRAND LAKE 6SSW	43.6	16.1	29.8	7.4	58	2	1083	0	17	0.60	-0.25	70.6	12
DILLON 1E	44.3	16.1	30.2	6.9	60	3	1072	0	30	0.45	-0.66	40.5	7
AVON	50.8	14.5	32.6	4.1	67	0	996	0	77	0.00	-1.35	0.0	0
CLIMAX	39.0	12.3	25.7	7.3	52	-3	1213	0	3	1.21	-0.92	56.8	10
ASPEN 1SW	50.9	24.0	37.4	9.9	65	8	848	0	70	1.30	-0.90	59.1	10
TAYLOR PARK	42.4	-7.9	17.2	5.0	54	-25	1473	0	7	0.55	-0.71	43.7	5
TELLURIDE	51.5	20.3	35.9	7.5	73	3	892	0	90	1.69	-0.26	86.7	12
PAGOSA SPRINGS	56.8	21.1	38.9	6.6	72	13	803	0	142	1.31	-0.13	91.0	6
SILVERTON	47.2	8.1	27.6	7.6	61	-8	1152	0	45	1.65	-0.26	86.4	10
WOLF CREEK PASS 1	40.9	14.7	27.8	6.6	54	-2	1146	0	7	4.60	-0.26	94.7	9

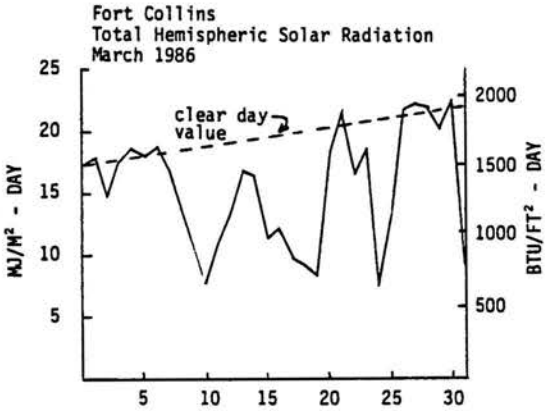
Western Valleys*

Name	Temperature Max	Min	Mean	Dep	High	Low	Degree Days Heat	Cool	Grow	Precipitation Total	Dep	%Norm	# days
CRAIG 4SW	52.9	26.3	39.6	9.2	70	18	780	0	107	1.50	-0.05	96.8	13
HAYDEN	56.1	26.9	41.5	13.1	72	20	720	0	133	2.01	0.83	170.3	9
MEEKER NO. 2	56.1	25.5	40.8	6.2	71	9	742	0	132	1.23	-0.09	93.2	4
RANGELY 1E	60.8	31.5	46.2	11.2	76	25	576	0	186	1.22	0.45	158.4	4
EAGLE FAA AP	56.6	25.4	41.0	8.1	73	19	736	0	139	0.51	-0.26	66.2	7
GLENWOOD SPRINGS	58.2	30.2	44.2	8.1	74	23	639	0	154	1.63	0.39	131.5	8
RIFLE	62.0	28.5	45.2	7.5	79	20	607	0	205	0.78	-0.07	91.8	8
GRAND JUNCTION WS	62.1	35.9	49.0	6.8	77	20	489	0	199	0.25	-0.57	30.5	5
CEDAREDGE	58.7	30.8	44.8	6.0	75	21	621	0	169	1.39	0.39	139.0	6
PAONIA 1SW	60.8	33.6	47.2	8.3	77	22	543	0	188	1.73	0.45	135.2	7
GUNNISON	50.2	18.0	34.1	8.6	67	9	952	0	68	0.10	-0.59	14.5	3
MONTROSE NO. 2	60.5	31.7	46.1	7.5	76	20	577	0	179	0.29	-0.24	54.7	4
URAVAN	66.2	31.5	48.8	5.6	81	22	492	0	260	0.80	-0.17	82.5	4
NORWOOD	55.1	26.3	40.7	6.9	69	10	750	0	128	1.40	0.29	126.1	5
YELLOW JACKET 2W	54.2	29.9	42.1	7.1	69	11	704	0	123	1.48	0.42	139.6	9
CORTEZ	56.5	27.0	41.8	4.5	72	12	711	0	141	0.99	-0.35	73.9	7
DURANGO	58.7	26.7	42.7	5.4	74	18	686	0	164	1.08	-0.55	66.3	8
IGNACIO 1N	60.0	24.0	42.0	6.8	75	17	703	0	175	0.63	-0.57	52.5	5

* Data are received by the Colorado Climate Center for more locations than appear in these tables. Please contact the Colorado Climate Center if additional information is needed.

MARCH 1986 SUNSHINE AND SOLAR RADIATION

Station	Number of Days clear	partly cloudy	cloudy	% of possible sunshine	average % of possible
Colorado Springs	10	5	16	--	--
Denver	6	7	18	66%	71%
Fort Collins	5	13	13	--	--
Grand Junction	8	10	13	85%	64%
Pueblo	9	8	14	87%	75%



Warmest January-March Since 1907: continued

a scatter diagram to better visualize how temperature and precipitation are related. And the results--well, let us simply say that our dream of a well-defined relationship which could be used to help forecast statewide precipitation and drought probabilities for the coming year failed. Nevertheless, some interesting and possibly significant results were obtained. While not being much help for forecasting, at least some characteristics of our climate were pointed out.

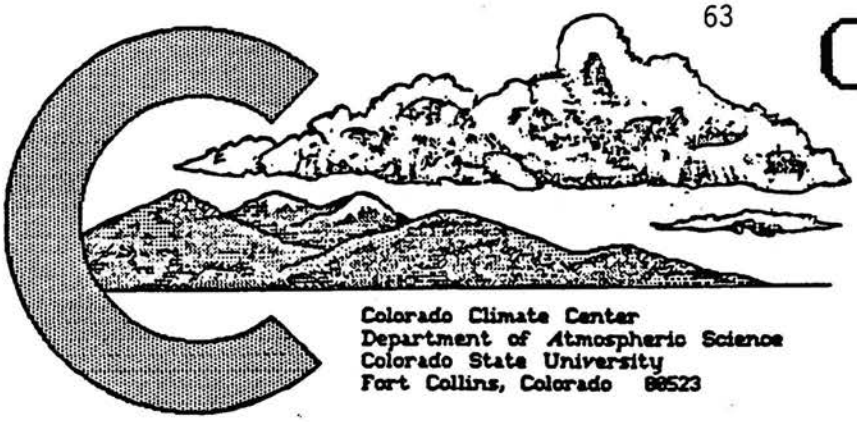
First of all, years that begin with abnormally warm temperatures (in the warmest one-third of the distribution) have accounted for 4 of the 5 driest years since 1888. At the same time, the 6 wettest years all followed abnormally warm January-March periods. Years that begin with near average temperatures most often are followed by near average precipitation. Extreme wet or dry years have rarely followed when temperatures early in the year were near average. Years that begin with abnormally cold January-March periods are most often followed by dry or moderately wet years. Extremely wet weather has rarely followed when a year got off to a cold start.

Looking at the more immediate future, correlations were also made between January-March temperatures and temperatures for the following 2-month April-May period. No significant correlations were noted. The all-time warmest January-March period (1907) was followed by a cold April and May. However, both 1934 and 1954 had record warm April-May following their unusually warm winters. Correlations between January-March temperatures and June-September summer temperatures appear to be a bit more informative. Based on data from the past 98 years there has been a preference for warm summers to follow warm January-March periods. In fact, 4 of the 5 warmest January-March's were followed by above average summer temperatures.

It is hard to say with certainty what this all means. Statistics alone rarely are useful in providing accurate long range forecasts without identifying physical causes and effects. If we were simply playing the odds based on the past 98 years, we would lean toward thinking a hot summer is on the way and the year may be very wet or very dry. What seems to be more true, however, is that extremes (both wet an dry, hot and cold) tend to come in clumps. We have now been in a period of large variability and extremes for several years and it appears to be continuing.

1986 Janaury-March Mean Temperature

Location	Temperature (°F)	Departure from 1961-80 Average
Alamosa	30.5	+7.6
Burlington	41.4	+7.0
Climax	21.1	+5.8
Colorado Springs	39.1	+6.8
Denver	41.2	+7.7
Dillon	24.4	+5.3
Durango	37.5	+6.6
Fort Collins	39.5	+7.4
Grand Junction	41.1	+7.8
Las Animas	43.9	+7.9
Pueblo	42.0	+6.9
Steamboat Springs	25.8	+5.5



COLORADO CLIMATE

Colorado Climate Center
Department of Atmospheric Science
Colorado State University
Fort Collins, Colorado 80523

APRIL 1986

April in Review:

Above average temperatures were again the rule in Colorado for the 4th consecutive month. Most of the state was also wetter than average with the huge storm of April 2-3rd contributing the majority of the month's moisture. A few parts of the state were missed by the storm. Very dry conditions have now begun to develop over the southeastern plains.

A Look Ahead -- June 1986:

June is the month of happy river rafters and kayakers as Colorado's major rivers swell from the mountains' snowmelt. Some flooding has occurred in each of the past three years during the peak runoff period. Although early predictions suggested peak flows would be early this year, it now appears they will occur close to their normal June dates.

June brings an abrupt transition from the occasional periods of cool and wet weather of spring to the heat and low humidity of summer and the traditional afternoon and evening thundershowers. Occasional cool and damp periods are still possible until about mid June especially east of the mountains. But by the end of June most every day dawns bright and sunny. As this transition occurs, Colorado gets its share of severe weather. More tornadoes occur in June than in any other month. Severe hail storms are even more of a problem often wreaking havoc both to rural and urban areas. Last year's June weather was fairly placid, but we often aren't that fortunate. On June 13, 1984 incredible damage was done in west Denver by a hailstorm. June 3, 1981 was the date of the infamous Thornton tornado. Incredible flash flooding occurred in several areas in mid June of 1965, and back in early June of 1921 dozens were killed by flash flooding in the Pueblo area following heavy rain.

Temperatures in June are quite consistent from year to year and are much more predictable than winter and spring temperatures. Daytime temperatures early in the month average in the 70s at most areas below 6,500 feet in elevation but climb into the 80s and 90s by the end of the month. In the higher mountains above 10,000 feet daytime temperatures still only rise into the 50s and freezing nighttime temperatures are still likely.

Total June precipitation averages about 3" in northeastern Colorado but decreases steadily toward the southwest. The Northern and Central Mountains only receive about 1-2". In the San Juan Mountains and southwestern valleys June is normally the sunniest and driest month of the year. This is a convenient characteristic of Colorado's climate which helps minimize the potential flood threat in the areas of the state which have the greatest snowmelt.

Severe Weather -- Keep your eyes and ears open and use your head:

June is the heart of Colorado's severe weather season. Thunderstorms are more frequent in July and August over the state, and rainfall is greater both in May and July at many locations. However, the conditions necessary to produce severe weather--tornadoes, hail and strong thunderstorm downdrafts--occur most often in June.

What are these conditions? First of all, warm moist air is a requirement. Our major source of moisture in Colorado during the growing season comes from the Gulf of Mexico. During the winter these air masses rarely reach Colorado, but as temperatures rise and upper level westerly winds weaken these air masses move up into Colorado more frequently.

continued on last page

APRIL 1986 DAILY WEATHER

Date	Event
1-2	Strong storm system developed over western U.S. Rain began in western Colorado on the 1st and became heavy in the southwest on the 2nd and changed to snow in the mountains. Vallecito Dam and Lemon Reservoirs northeast of Durango totalled 2.75" of moisture. Heavy thunderstorms developed in northeastern Colorado late on the 2nd.
3-4	Major blizzard developed over portions of Colorado as deep low pressure area on the southeastern plains drifted northeastward. Very strong winds east of the mountains made life miserable even in those areas where little or no snow fell. Pueblo's winds averaged 45 mph throughout the day. Where snowfall was heavy, huge drifts of dense, wet snow stopped all but the largest snow plows. The combinations of wind, ice and snow tore down many power lines in the Denver area and across parts of northeastern Colorado. Roofs and awnings also collapsed under the weight of the snow. The Denver area received from 1 to 2 feet of snow, but the heaviest snow fell in the foothills west of Denver and Boulder. Mt. Thorodin got 40" in 24 hours and Mt. Evans totalled 54" in just over a day. The storm subsided early on the 4th leaving cold temperatures in its wake. For one of the few times on record, Denver's low of 16° was reported as the "coldest in the nation" of the major reporting stations. Many smaller Colorado towns were much colder.
5-10	Return to mild and dry weather 5-6th. Continued pleasant 7-9th west of the mountains, but flow around a large high pressure center over the Central Plains brought clouds, cold rain and some mountain snows to the eastern half of Colorado. Up to 0.80" of rain was reported 8-10th near Boulder.
11-13	Mild temperatures 11-12th as a new Pacific storm system developed and headed toward Colorado. A few showers east of the mountains 11th as cooler air slipped in from the north. Several inches of snow fell in the mountains but the brunt of the storm passed to the north. Very windy and colder on the 13th as a very deep low pressure area crossed southern Wyoming.
14-15	A brief clear and dry period but with very cold early morning temperatures on the 14th. Taylor Park reported the state's coldest temperature with -12°F. Temperatures dropped into the teens even at Springfield and Walsh in extreme southeast Colorado. Subfreezing temperatures caused additional damage to the fruit orchard areas of western Colorado.
16-19	Cool and unsettled. Moderate precipitation with heavy graupel showers (soft hail) fell over part of northeastern Colorado on the 17th. The heaviest precipitation fell in the San Juan Mountains with Wolf Creek Pass totalling 1.64".
20-24	Pleasantly warm and mostly dry with temperatures rising into the 70s and 80s at lower elevations. Afternoon thundershowers developed most days but didn't produce much rain. Holly's 94° on the 23rd was the hottest in the state.
25-27	Another stormy period. Precipitation began in northwestern Colorado on the 25th and spread southeastward. A few heavy thunderstorms on the plains the 26th. While much of the southeastern plains again missed this storm, about 3/4" of rain fell at Stonington and Holly.
28-30	The month ended warm and dry. Again a few readings in the 90s appeared in southeastern Colorado.

April 1986 Extremes

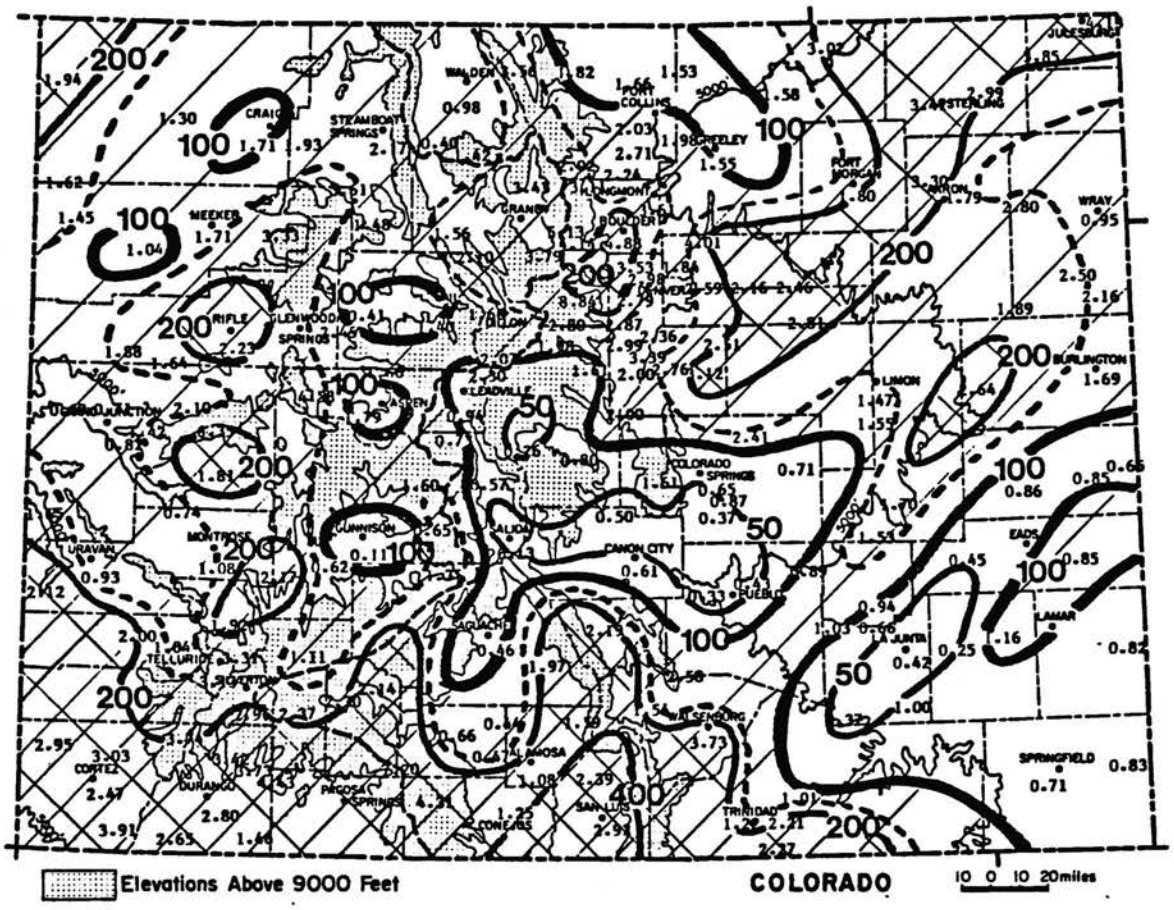
Highest Temperature	94°F	April 23	Holly
Lowest Temperature	-12°F	April 14	Taylor Park Reservoir
Greatest Total Precipitation	8.84"		Mount Evans Research Center
Least Total Precipitation	0.11"		Gunnison
Greatest Total Snowfall*	85"		Mt. Evans Rsch Center
Greatest Snowdepth**	150"		Tower (Park Range)

* data derived only from those stations with complete daily snowfall records.
** from Soil Conservation Service Snowpack measurements.

APRIL 1986 PRECIPITATION

April precipitation was above average over most of Colorado. More than twice the average monthly moisture fell across much of southwestern Colorado, parts of the northeastern plains, and also in scattered localized areas such as Boulder and the nearby foothills, Cedaredge and parts of the Grand Mesa, Rifle and extreme northwestern Colorado. A large portion of this heavy precipitation fell from the April 2-3rd storm. Several areas missed the full force of that storm and ended up drier than normal. Dry areas included the Arkansas Valley above Pueblo, South Park, the Pikes Peak region, much of the southeastern plains, a small area of the Front Range north from Greeley and Fort Collins and a few isolated areas west of the Divide such as Little Hills, Aspen, Eagle and Gunnison.

Greatest		Least	
Mount Evans Research Center	8.84"	Gunnison	0.11"
Wolf Creek Pass 1E	7.20"	Salida	0.13"
Bonham Reservoir	6.35"	Las Animas	0.25"
Gross Reservoir	6.27"	Antero Reservoir	0.26"
Silver Lake	5.13"	Pueblo Reservoir	0.33"



Precipitation amounts (inches) for April 1986 and contours of precipitation as a percent of the 1961-1980 average. The dashed line represents 150% of average.

1986 WATER YEAR PRECIPITION

Despite the heavy April precipitation, below average precipitation for the first 7 months of the 1986 water year continues to be noted over a large portion of southeastern Colorado. For most of the remainder of Colorado moisture continues well above average continuing the trend of recent years.

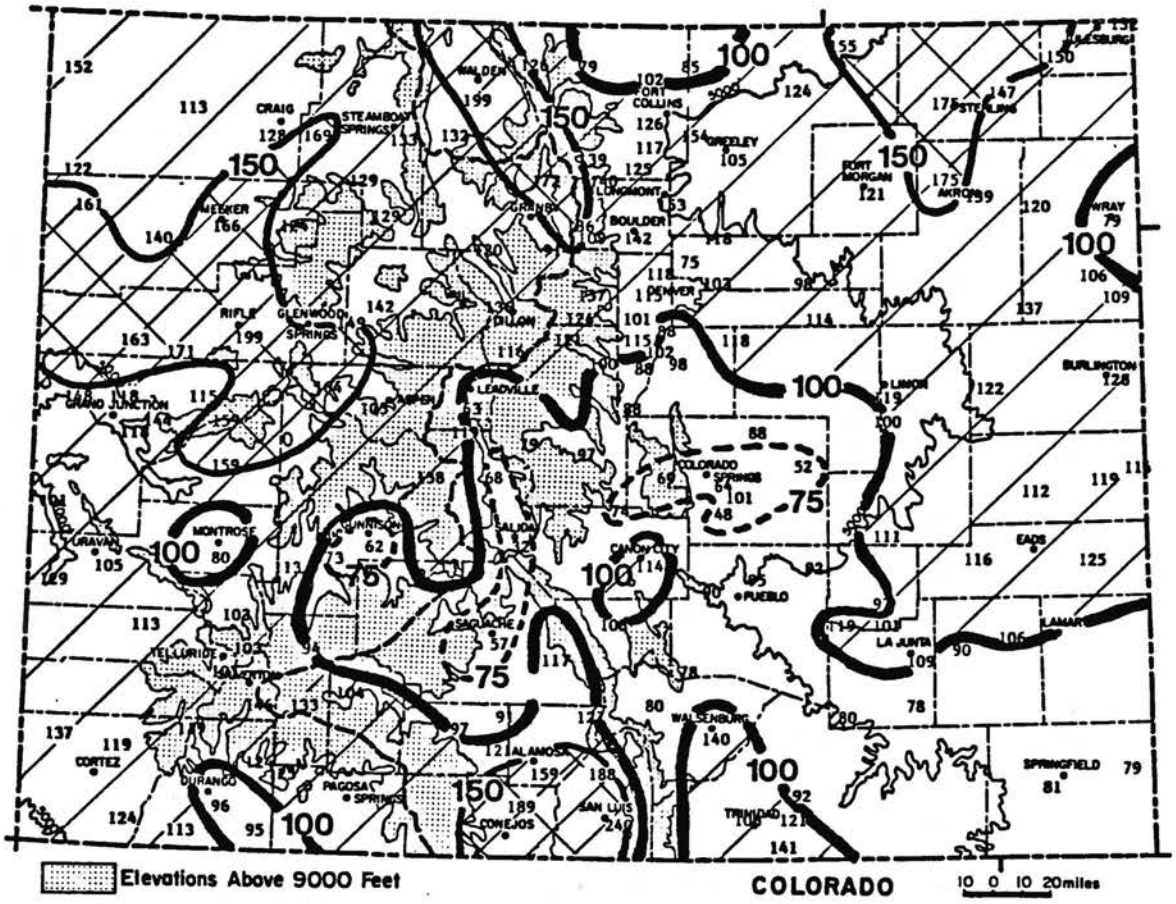
Comparison to Last Year

Most of the northern 1/3 of Colorado is wetter than at this time last year. Over most of the rest of the state, even those areas which are much wetter than average, moisture this year is less than a year ago. The most extreme difference is in the Colorado Springs area where this year's total is only about 1/4 of last year.

1986 Water Year to Date through April

Wettest (as % of average)			Driest (as % of average)		
San Luis 2SE	240%	5.94	Salida	32%	1.71"
Rifle	199%	12.64"	Fort Carson	48%	2.00"
Walden	199%	8.92"	Rush 4N	52%	1.77"

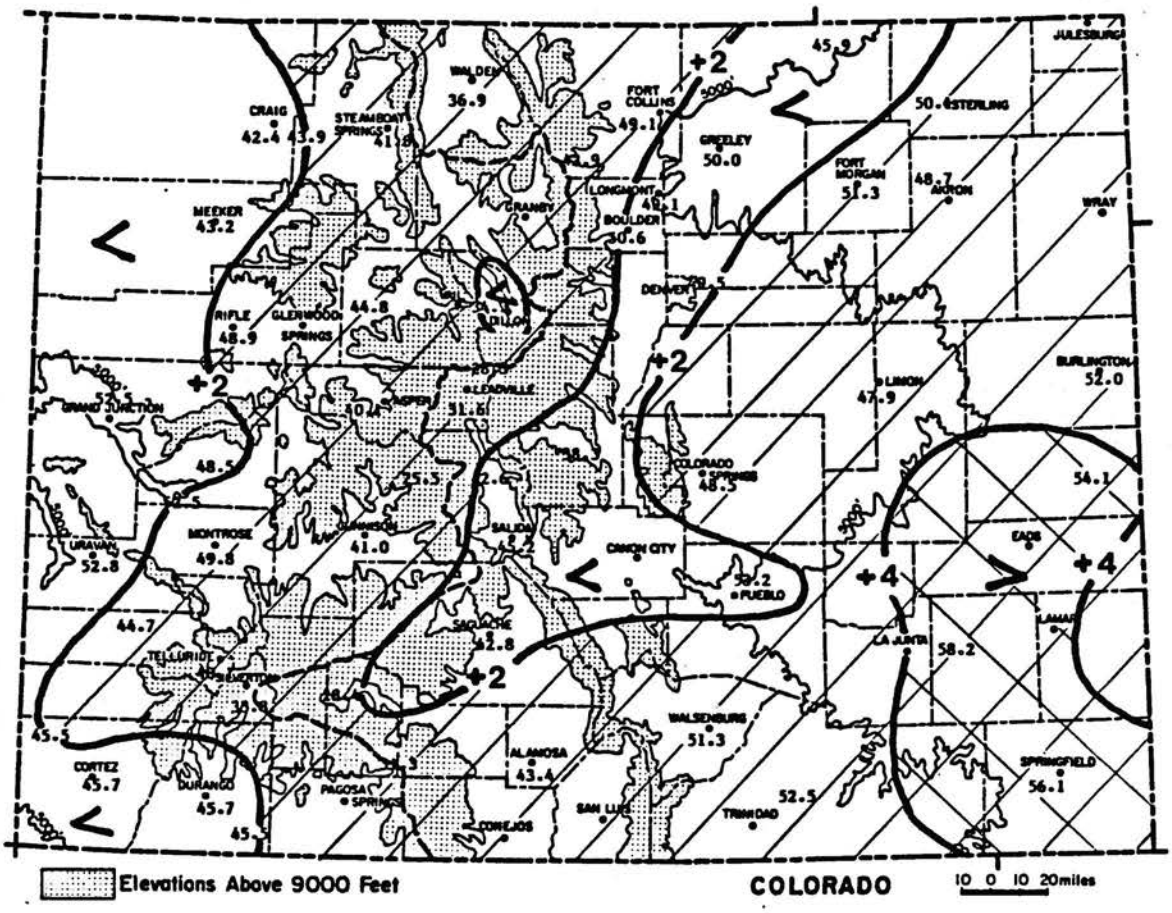
Wettest (total precipitation)			Driest (total precipitation)		
Bonham Reservoir	34.71"	159%	Salida	1.71"	32%
Redstone 4W	26.97"	164%	Rush 4N	1.77"	52%
Mount Evans Research Center	25.71"	137%	Saguache	1.78"	57%



Precipitation for October 1985 through April 1986 as a percent of the 1961-1980 average.

APRIL 1986 TEMPERATURES AND DEGREE DAYS

Temperatures were above average statewide for the 4th consecutive month. In southeastern Colorado some locations were more than 4 degrees F above average, but for most of the state the departures were +1 to +3 degrees. Since temperatures were only a few degrees warmer than in March, the warm April temperatures went almost unnoticed.



April 1986 temperatures (degrees Fahrenheit) and contours of departures from 1961-1980 averages.

APRIL 1986 SOIL TEMPERATURES

Following a very warm start in March, soil temperatures rose only gradually in April and by the end of the month were just about average for this time of year.

These soil temperature measurements were taken at Colorado State University beneath sparse unirrigated sod with a flat, open exposure. These data are not representative of all Colorado locations.

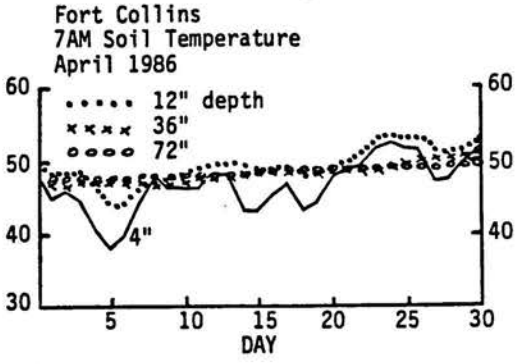


Table 1. Colorado heating degree day data through April 1986.

HEATING DEGREE DATA

STATION		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANN
ALAMOSA	AVE	40	100	303	657	1074	1457	1519	1182	1035	732	453	165	8717
	84-85	11	56	252	748	1051	1382	1462	1208	936	625	415	146	8292
	85-86	30	66	378	634	1045	1472	1231	983	864	638			7341
ASPEN	AVE	95	150	348	651	1029	1339	1376	1162	1116	798	524	262	8850
	84-85	87	134	345	883	1034	1282	1415	1293	1047	726	492	223	8961
	85-86	119	107	453	656	1066	1278	1175	1029	848	739			7470
BOULDER	AVE	0	6	130	357	714	908	1004	804	775	483	220	59	5460
	84-85	0	1	171	599	716	938	1162	989	717	385	174	38	5890
	85-86	0	0	222	400	982	1018	674	762	496	423			4977
BUENA VISTA	AVE	47	116	285	577	936	1184	1218	1025	983	720	459	184	7734
	84-85	16	91	284	828	949	1169	1338	1084	956	646	422	130	7913
	85-86	63	54	405	597	938	1158	972	946	806	661			6600
BURLING-TON	AVE	6	5	108	364	762	1017	1110	871	803	459	200	38	5743
	84-85	0	0	148	493	699	980	1207	1012	686	347	145	50	5767
	85-86	0	5	206	405	977	1142	740	820	525	386			5206
CANON CITY	AVE	0	9	81	301	639	831	911	734	707	411	179	33	4836
	84-85	0	0	175	561	702	841	1069	958	676	362	174	40	5558
	85-86	0	6	186	397	886	1036	711	756	507	399			4884
COLORADO SPRINGS	AVE	8	25	162	440	819	1042	1122	910	880	564	296	78	6346
	84-85	0	6	200	684	791	982	1233	1077	830	481	246	77	6607
	85-86	5	8	253	487	978	1143	822	840	635	487			5658
CORTEZ	AVE	0	11	115	434	813	1132	1181	921	828	555	292	68	6350
	84-85	0	0	108	666	839	1072	1173	1085	827	511	289	66	6636
	85-86		4	264	484	884	1081		805	711	572			4805
CRAIG	AVE	32	58	275	608	996	1342	1479	1193	1094	687	419	193	8376
	84-85	15	25	304	799	1002	1424	1609	1432	1063	611	375	132	8791
	85-86	10	42	353	649	1043	1487	1362	1023	780	669			7418
DELTA	AVE	0	0	94	394	813	1135	1197	890	753	429	167	31	5903
	84-85	0	11	49	477	713	969	1047	938	683	353	132		5372
	85-86	0		113	335	658			684	530	365			2685
DENVER	AVE	0	0	135	414	789	1004	1101	879	837	528	253	74	6014
	84-85	0	1	183	622	753	990	1213	1040	742	412	167	42	6165
	85-86	0	1	241	435	1051	1094	758	802	548	456			5386
DILLON	AVE	273	332	513	806	1167	1435	1516	1305	1296	972	704	435	10754
	84-85	245	301	510	1004	1161	1380	1581	1449	1219	874	667	404	10795
	85-86	260	300	609	856	1183	1439	1380	1175	1072	915			9189
DURANGO	AVE	9	34	193	493	837	1153	1218	958	862	600	366	125	6848
	84-85	0	6	124	695	866	1074	1146	1008	831	494	319	59	6622
	85-86	3	8	274	476	916	1159	967	802	686	575			5866
EAGLE	AVE	33	80	288	626	1026	1407	1448	1148	1014	705	431	171	8377
	84-85	1	27	252	741	998	1300	1435	1219	910	602	381	103	7969
	85-86	19	52	356	605	995	1352	1324	890	736	598			6927
EVER-GREEN	AVE	59	113	327	621	916	1135	1199	1011	1009	730	489	218	7827
	84-85	21	68	326	826	874	1088	1329	1123	928	616	448	165	7812
	85-86	62	90	387	651	1039	1119	947	927	770	608			6600
FORT COLLINS	AVE	5	11	171	468	846	1073	1181	930	877	558	281	82	6483
	84-85	0	0	193	606	745	1027	1245	1077	734	389	167	61	6244
	85-86	1	8	243	499	1078	1199	883	816	568	470			5765
FORT MORGAN	AVE	0	6	140	438	867	1156	1283	969	874	516	224	47	6520
	84-85	0	0	185	564	784	1168	1329	1125	687	395	135	57	6429
	85-86	0	2	239	548	1165	1425	1160	915	616	401			6471
GRAND JUNCTION	AVE	0	0	65	325	762	1138	1225	882	716	403	148	19	5683
	84-85	0	0	54	452	719	996	1044	919	645	310	81	12	5232
	85-86	0	0	139	351	779	1018	949	685	489	366			4776

HEATING DEGREE DATA

STATION		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANN
GRAND LAKE	AVE	214	264	468	775	1128	1473	1593	1369	1318	951	654	384	10591
	84-85	155	213	435	888	1096	1428	1662	1498	1238	832	610	361	10416
	85-86	206	265	513	744	1115	1454	1494	1174	1083				8048
GREELEY	AVE	0	0	149	450	861	1128	1240	946	856	522	238	52	6442
	84-85	0	0	213	601	769	1107	1305	1096	719	391	162	41	6404
	85-86	0	6	249	501	1131	1311	1010	845	545	440			6038
GUNNISON	AVE	111	188	393	719	1119	1590	1714	1422	1231	816	543	276	10122
	84-85	64	143	372	850	1072	1381	1593	1426	1065	699	495	203	9363
	85-86	84	152	433	678	1058	1648	1712	1084	952	711			8512
LAS ANIMAS	AVE	0	0	45	296	729	998	1101	820	698	348	102	9	5146
	84-85	0	0	132	479	653	916	1204	948	586	257	72	7	5254
	85-86	0	0	134	313	816	1106	737	715	409	220			4450
LEAD-VILLE	AVE	272	337	522	817	1173	1435	1473	1318	1320	1038	726	439	10870
	84-85	308	366	536	1074	1217	1434	1577	1418	1291	967	737	440	11365
	85-86	333	359	666	871	1258	1470	1328	1251	1168				8704
LIMON	AVE	8	6	144	448	834	1070	1156	960	936	570	299	100	6531
	84-85	1	1	230	694	852	1072	1297	1133	868	496	254	100	6998
	85-86	1	12	274	544	1078	1233	861	910	662	508			6083
LONGMONT	AVE	0	6	162	453	843	1082	1194	938	874	546	256	78	6432
	84-85	0	3	237	679	812	1078	1287	1147	743	400	170	42	6598
	85-86	0	6	236	486	1095	1228	869	814	549	469			5752
MEEKER	AVE	28	56	261	564	927	1240	1345	1086	998	651	394	164	7714
	84-85	1	17	228	690	907	1250	1392	1217	963	581	360	116	7722
	85-86	6	31	358	599	967	1249	1164	893	742	646			6655
MONTROSE	AVE	0	10	135	437	837	1159	1218	941	818	522	254	69	6400
	84-85	0	8	102	604	791	1064	1161	1095	741	438	178	31	6213
	85-86	0	0	211	443	803	1106	1032	766	577	453			5391
PAGOSA SPRINGS	AVE	82	113	297	608	981	1305	1380	1123	1026	732	487	233	8367
	84-85	4	39	245	782	970	1190	1305	1207	971	626	438	173	7950
	85-86	34	73	376	600	1000	1373	1191	952	803				6402
PUEBLO	AVE	0	0	89	346	744	998	1091	834	756	421	163	23	5465
	84-85	0	0	127	474	713	907	1208	999	664	326	125	9	5552
	85-86	0	0	172	410	1012	1161	783	728	523	346			5135
RIFLE	AVE	6	24	177	499	876	1249	1321	1002	856	555	298	82	6945
	84-85	0	1	131	622	829	1134	1246	1124	804	472	228	47	6638
	85-86	1	6	232	484	882	1147	1076	769	607	477			5681
STEAMBOAT SPRINGS	AVE	113	169	390	704	1101	1476	1541	1277	1184	810	533	297	9595
	84-85	82	103	397	834	1047	1419	1611	1433	1077	730			8733
	85-86	57	130	434	729	1144	1554	1495	1097	915	688			8243
STERLING	AVE	0	6	157	462	876	1163	1274	966	896	528	235	51	6614
	84-85	0	0	189	552	784	1140	1260	1160	678		148	71	5982
	85-86	0	6	230	519	1161	1395	1155	990	594	439			6489
TELLURIDE	AVE	163	223	396	676	1026	1293	1339	1151	1141	849	589	318	9164
	84-85	99	165	337	867	984	1185	1335	1179	1020	723	550	224	8668
	85-86	121	152	463	648	1023	1270	1130	1011	892	740			7450
TRINIDAD	AVE	0	0	86	359	738	973	1051	846	781	468	207	35	5544
	84-85	0	0	138	507	652	891	1225	935	658	366	159	25	5556
	85-86	0	0	175	380	772	1046	738	764	529	365			4769
WALDEN	AVE	198	285	501	822	1170	1457	1535	1313	1277	915	642	351	10466
	84-85	122	184	448	942	1130	1389	1652	1358	1138	810	592	320	10085
	85-86	171	271	578	824	1224	1458	1381	1155	989	836			8887
WALSEN-BURG	AVE	0	8	102	370	720	924	989	820	781	501	240	49	5504
	84-85	0	0	113	517	621	817	1131	902	669	386	187	32	5375
	85-86	0	0	165	358	770	982	681	734	515	404			4609

APRIL 1986 CLIMATIC DATA

Eastern Plains*

Name	Temperature Max	Min	Mean	Dep	High	Low	Degree Days Heat	Cool	Grow	Precipitation Total	Dep	%Norm	# days
KAUFFMAN 4SSE	60.7	31.2	45.9	0.4	78	17	527	0	154	3.02	1.83	253.8	6
STERLING	64.1	36.0	50.1	2.3	83	20	439	0	224	3.41	2.13	266.4	7
FORT MORGAN	65.1	37.5	51.3	2.9	83	20	401	0	239	1.80	0.63	153.8	9
AKRON FAA AP	62.2	35.2	48.7	2.0	79	19	482	0	196	3.30	1.98	250.0	13
BURLINGTON	66.4	37.6	52.0	1.7	85	22	386	3	256	1.69	0.49	140.8	5
LIMON WSMO	62.8	32.9	47.9	2.8	80	17	508	0	207	1.47	0.42	140.0	10
CHEYENNE WELLS	70.2	38.1	54.1	4.2	87	22	324	6	308	0.85	-0.03	96.6	4
LAS ANIMAS	76.3	40.1	58.2	4.4	92	22	220	24	398	0.25	-0.75	25.0	1
HOLLY	76.4	34.6	55.5	3.0	94	20	282	4	397	0.82	-0.15	84.5	2
SPRINGFIELD 7WSW	73.7	38.5	56.1	4.5	91	18	278	17	366	0.71	-0.75	48.6	4

Foothills/Adjacent Plains*

Name	Temperature Max	Min	Mean	Dep	High	Low	Degree Days Heat	Cool	Grow	Precipitation Total	Dep	%Norm	# days
FORT COLLINS	61.7	36.4	49.1	2.1	78	23	470	0	192	2.03	0.24	113.4	11
GREELEY UNC	64.1	36.0	50.0	1.2	83	22	440	0	229	1.55	-0.39	79.9	7
ESTES PARK	54.6	31.2	42.9	3.2	69	9	654	0	99	2.02	0.72	155.4	9
LONGMONT	62.6	35.6	49.1	1.8	83	22	469	0	211	3.61	1.69	188.0	9
BOULDER	64.1	37.2	50.6	1.9	83	21	423	0	220	4.88	2.72	225.9	8
DENVER WSFO AP	62.2	36.9	49.5	1.9	78	16	456	0	205	2.59	0.77	142.3	10
EVERGREEN	59.7	29.2	44.4	4.1	74	7	608	0	157	2.87	0.60	126.4	7
LAKE GEORGE 8SW	51.1	25.5	38.3	1.8	67	10	796	0	70	0.80	-0.12	87.0	9
COLORADO SPRINGS	62.2	34.8	48.5	2.2	79	24	487	0	200	0.65	-0.63	50.8	5
CANON CITY 2SE	65.7	37.2	51.4	1.6	83	26	399	1	247	0.61	-0.51	54.5	4
PUEBLO WSO AP	70.3	36.1	53.2	1.6	89	24	346	0	314	0.43	-0.51	45.7	6
WALSENBURG	65.8	36.7	51.3	2.9	80	19	404	0	248	3.73	2.10	228.8	8
TRINIDAD FAA AP	69.4	35.7	52.5	2.9	85	25	365	0	301	1.01	0.00	100.0	7

Mountains/Interior Valleys*

Name	Temperature Max	Min	Mean	Dep	High	Low	Degree Days Heat	Cool	Grow	Precipitation Total	Dep	%Norm	# days
WALDEN	50.4	23.3	36.9	2.5	66	11	836	0	58	0.98	0.19	124.1	8
LEADVILLE 2SW	44.3	18.9	31.6	2.6	58	5	994	0	22	0.94	-0.46	67.1	11
SALIDA	59.9	30.5	45.2	0.9	74	17	585	0	167	0.13	-1.12	10.4	3
BUENA VISTA	57.0	28.3	42.6	1.6	70	17	661	0	126	0.57	-0.13	81.4	4
SAGUACHE	56.8	28.8	42.8	1.6	72	17	659	0	125	0.46	-0.05	90.2	5
HERMIT 7ESE	41.8	15.1	28.4	-2.1	49	2	1089	0	0	2.30	1.14	198.3	7
ALAMOSA WSO AP	59.6	27.3	43.4	2.8	74	11	638	0	157	1.08	0.66	257.1	8
STEAMBOAT SPRINGS	54.6	29.0	41.8	3.8	71	19	688	0	116	2.17	0.02	100.9	9
DILLON 1E	47.2	21.4	34.3	1.5	61	6	915	0	35	1.66	0.54	148.2	13
CLIMAX	40.3	16.4	28.3	2.6	54	5	1090	0	2	2.30	-0.10	95.8	16
ASPEN 1SW	52.3	28.0	40.1	2.1	67	9	739	0	80	1.79	-0.51	77.8	14
TAYLOR PARK	44.5	6.5	25.5	2.2	57	-12	1178	0	13	1.60	0.51	146.8	12
TELLURIDE	54.0	26.1	40.1	3.5	71	13	740	0	91	3.13	1.23	164.7	14
SILVERTON	48.0	19.7	33.8	4.0	63	4	927	0	40	2.96	1.52	205.6	15
WOLF CREEK PASS 1	45.0	17.6	31.3	2.3	9999	2	802	0	9	7.20	4.25	244.1	6

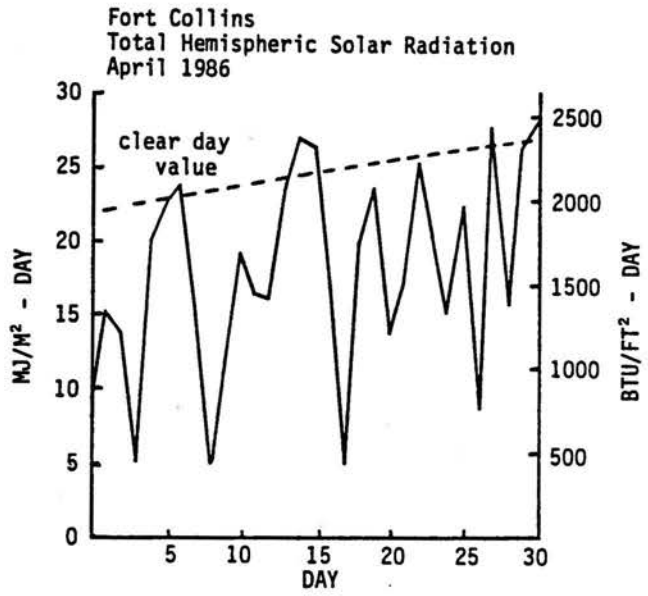
Western Valleys*

Name	Temperature Max	Min	Mean	Dep	High	Low	Degree Days Heat	Cool	Grow	Precipitation Total	Dep	%Norm	# days
CRAIG 4SW	54.5	30.4	42.4	0.4	73	20	669	0	111	1.71	-0.09	95.0	14
HAYDEN	56.4	31.5	43.9	2.5	73	19	625	0	126	1.93	0.44	129.5	11
MEEKER NO. 2	58.6	27.8	43.2	0.6	73	15	646	0	146	1.71	0.50	141.3	9
RANGELY 1E	64.7	36.1	50.4	3.6	79	24	430	0	228	1.45	0.51	154.3	10
EAGLE FAA AP	59.6	30.1	44.8	3.1	72	19	598	0	165	0.41	-0.26	61.2	8
RIFLE	64.6	33.2	48.9	2.6	81	20	477	0	228	2.23	1.47	293.4	12
GRAND JUNCTION WS	65.7	39.3	52.5	1.1	79	23	366	0	247	0.71	-0.03	95.9	10
CEDAREDGE	62.7	34.3	48.5	1.6	79	21	488	0	203	1.81	1.00	223.5	5
DELTA	68.4	36.6	52.5	2.6	83	23	365	0	287	0.74	0.28	160.9	6
GUNNISON	56.6	25.4	41.0	3.6	69	15	711	0	126	0.11	-0.45	19.6	3
MONTROSE NO. 2	63.4	36.1	49.8	2.6	78	21	453	0	212	1.08	0.34	145.9	11
URAVAN	69.1	36.5	52.8	1.3	82	25	358	0	292	0.93	-0.12	88.6	7
NORWOOD	58.8	30.7	44.7	3.3	77	14	599	0	148	2.00	1.04	208.3	8
YELLOW JACKET 2W	58.7	32.4	45.5	2.3	71	20	578	0	154	2.95	2.10	347.1	6
CORTEZ	60.4	31.0	45.7	0.8	74	17	572	0	173	2.47	1.73	333.8	8
DURANGO	60.6	30.8	45.7	0.9	75	21	575	0	176	2.80	1.75	266.7	10
IGNACIO 1N	62.1	29.0	45.5	2.0	87	19	578	0	194	1.46	0.67	184.8	5

* Data are received by the Colorado Climate Center for more locations than appear in these tables. Please contact the Colorado Climate Center if additional information is needed.

APRIL 1986 SUNSHINE AND SOLAR RADIATION

Station	Number of Days clear	partly cloudy	cloudy	% of possible sunshine	average % of possible
Colorado Springs	7	11	12	--	--
Denver	7	10	13	76%	67%
Fort Collins	6	9	15	--	--
Grand Junction	6	13	11	79%	67%
Pueblo	10	11	9	85%	74%



Severe Weather -- Keep your eyes and ears open and use your head: continued

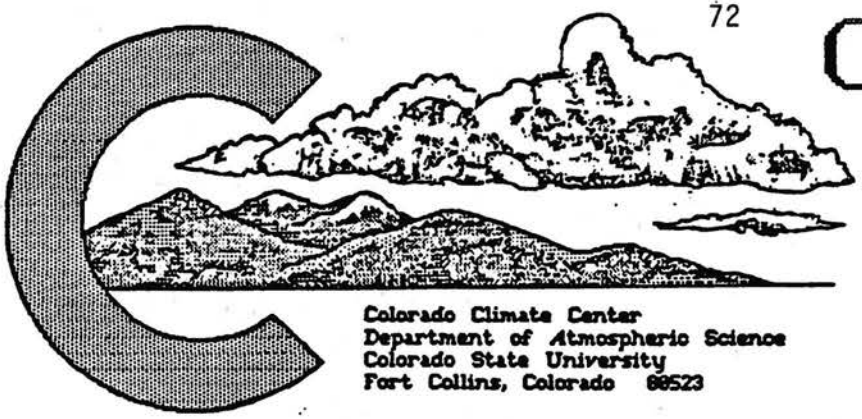
Secondly, instability is required in the atmosphere. Instability is determined by the distribution of temperature with height in the atmosphere. Instability is present when temperature decreases with height at a sufficient rate such that once a parcel of air is first pushed upward it will be warmer than the surrounding air. Since warm air is less dense than colder air it will be buoyant just like a child's helium balloon. As a result it will continue to rise until it eventually encounters air of the same or warmer temperature. We can all see the effect of instability as we watch puffy cumulus clouds form and grow. Instability is often greatest in June due to the intense solar heating at the surface at the time of year when the sun is most directly overhead. Meanwhile, thousands of feet up in the atmosphere, the warmup lags by several weeks resulting in a greater rate of decrease of temperature with height than is observed later in the summer.

The final ingredient is what meteorologists call a "trigger" -- a mechanism to start the moist air rising. A trigger may simply be surface heating by the sun (that is what sets off thunderstorms almost every day later in the summer), or it could be "upslope winds" that force air to rise up the mountain barrier. Cold fronts and/or disturbances in the upper atmosphere are often very effective triggers. These last three triggers actually occur most often during the winter and spring, but then there is rarely sufficient moisture and instability to produce severe weather. They occur least frequently during the summer but still occur with some regularity in June. When they do occur in combination with warm, moist surface air and instability, look out!

The National Weather Service is responsible for alerting the public to the possibility of severe weather. With cooperation from local weather services, Civil Defense agencies, law enforcement offices and local media, information on severe storms is being communicated better than ever before. Over the past two decades there has been a sharp increase in reported severe weather in Colorado. This is probably because of the improved detection, communication and public awareness and not because of an actual change in the climate. Several characteristics of Colorado storms make the job of alerting the public extremely difficult. Colorado tornadoes, for example, tend to be small in size and have a short lifetime. As a result, by the time a warning is sounded a Colorado tornado has likely done its damage and dissipated. Hail is no easier to monitor. Because of our high elevation and the great instability of our summer atmosphere, most strong thunderstorms produce hail sometime during their lifetime. Radar is an excellent tool for detecting hail in or falling from a cloud. But because of our dry Colorado atmosphere the hail often melts or may even evaporate completely before reaching the ground. Therefore, what appears on radar and what actually hits the ground may be two altogether different things.

The use of advanced technology to help detect, track and predict severe weather is of great importance. But it is important for all of us to recognize technology's limitations and to use it in combination with our own senses to make the best local judgment of the immediate threat of severe weather. We can sense those unusually moist mornings by the temperature of the air, fragrances, the presence of dew, unusually low clouds or unusually early development of cumulus clouds. We can sometimes get an idea of how unstable the atmosphere is by how rapidly the temperature rises in the morning, how early cumulus clouds begin to form, how rapidly they grow and how tall they become. The triggering mechanisms can also be detected without elaborate instruments. An experienced weather watcher can often tell of the approach of a cold front or upper air disturbance by the wind direction and windshifts, pressure changes and cloud formations.

The trained eye becomes even more useful in sensing the threat of severe weather once storms are already forming. Unusually large or tall thunderheads, unusually low and well-defined cloud bases, extremely rapid cloud development, rotations parallel to the ground, frequent and intense lightning, streaks of precipitation totally obscuring visibility beyond them -- you weather watchers probably have more to add to this list -- but these are the things that severe weather is made of. Stay tuned to local broadcast media to hear warnings, but use your senses and learn to distinguish between the many gentle thunderstorms we get in the summer and those few that really cause damage. And learn to react appropriately. More information on appropriate safety precautions can be obtained from the National Weather Service or your local Civil Defense and law enforcement agencies.



COLORADO CLIMATE

Colorado Climate Center
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Colorado State University
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MAY 1986

May in Review:

May temperatures and temperature variations were incredibly average. The number of storms during the month was less than normal causing most of eastern and northwestern Colorado to be unusually dry.

A Look Ahead -- July 1986:

July is the heart of Colorado's summer and reliably the hottest month of the year. It is also the month when weather conditions are most predictable, changing little from day to day. Only rarely does the monthly mean temperature deviate by more than 3 degrees from the long term average. July is also the month when the relationship between temperature and elevation is most clear and pronounced. For example, afternoon high temperatures average in the 90s where elevations are below 5,000 feet, 80° where elevations are near 7,500 feet, 70° near 10,000 feet and struggle to reach 60° at elevations of 12,000 feet and above. It's no wonder the mountains are a popular place to be in the summer. Tourists often are surprised (and unprepared) for the nighttime chill in the high mountains. Temperatures near 32° at night are not uncommon and temperatures in the mid 20s occur on occasion. Climax reported a low of 20°F on July 13, 1975. At lower elevations, nighttime temperatures average in the 50s and 60s allowing for comfortable sleep even after the hottest of days -- and there have been some hot ones. Temperatures in excess of 110° have occurred at a number of eastern Colorado locations in July.

July is the month of the classic "20% chance of afternoon and evening thundershowers." The pattern often works like a clock. The morning dawns crystal clear and by 10 a.m. a few puffy cumulus begin to appear, especially over the higher mountains. Between noon and 2 p.m. these clouds grow into eye-catching thundershowers which drop occasionally intense, but normally brief, showers over the mountains -- often accompanied by small, soft hail. The lightning sends hikers and mountain climbers scurrying off exposed peaks and ridges. As the afternoon progresses these storms drift eastward toward the Eastern Plains and often dissipate only to redevelop in the late afternoon as raging storms producing awesome nighttime lightning displays as they cross into Kansas and Nebraska about midnight.

While this cloud pattern holds true throughout the summer, precipitation amounts change a lot throughout the month. Early in July rainfall is quite light, especially in the western two-thirds of the state. As the month progresses, precipitation amounts often increase and storms become more numerous. The "Southwest Monsoon," warm moist winds moving northward across Mexico into the southwestern U.S., can get very well established in July and continue through much of August. This added moisture helps produce localized but very heavy rain. Average July precipitation ranges from close to 1 inch in Colorado's dry western valleys to more than 4 inches near Pikes Peak.

July 31 -- The Anniversary of the Big Thompson Flood:

Ten years ago (1976) during the late afternoon and evening of 31 July a huge thunderstorm developed over the Big Thompson Canyon between Loveland and Estes Park. In just 4 hours, at least 10 inches of rain fell at Glen Haven and Glen Comfort. A raging flood resulted which claimed 139 lives and destroyed $35 million of property. For many, the memory of that day is still fresh. That storm, above all else, prompted the highway signs we now see in many Colorado canyons "In case of flash flood climb to safety." That advice is indeed sound.

Geological studies revealed that the Big Thompson Flood was the worst flood in that canyon in at least 10,000 years. But does this mean we won't have to worry about another similar flood for another 9,990 years? Not hardly.

continued on last page

MAY 1986 DAILY WEATHER

Date	Event
1-3	Mostly sunny, dry and very warm. Lower elevation temperatures in the 80s on the 2nd and 3rd with 90s on the southeast plains. A few isolated thundershowers during the period. Colorado Springs received 0.70" of rain on the 1st. Much of the San Juan mountain area received rain on the 3rd.
4-5	A very deep low pressure area quickly passed north of Colorado. Very strong westerly and southwesterly winds over much of the state, especially as the cold front moved through. Several areas of the state sustained some damage from the wind. A wind gust hit 91 mph at Fort Collins knocking out power in parts of the city. Hot on the 4th, then cooler on the 5th but still windy. Grand Junction awoke to frost on the 5th.
6-9	A slow-moving major storm system brought cool and wet weather to much of the state. Precipitation began in western Colorado early on the 7th and spread northeastward, changing to snow in the mountains. Precipitation was heavy in some areas of western Colorado. Paonia totalled 1.71" from the storm. Bonham Reservoir on the Grand Mesa received 2.55" (28" of snow). Parts of the Central Mountains and most of southeastern Colorado missed the storm. Dry, hot and windy conditions in southeast Colorado spawned talk of drought. Sharply colder temperatures occurred on the 8th as the cold front finally pushed out of the area. Taylor Park Reservoir reported 0°F on the 8th for the state's coldest reading. Freezing temperatures were noted over much of the state on the morning of the 9th including the southeast plains.
10-14	Generally seasonal temperatures with plenty of sunshine. A few scattered thunder showers especially east of the mountains on the 12th and 13th as a Pacific cold front crossed the state. Brighton received 0.41" of rain and small hail on the 12th.
15-17	Major spring storm brought much colder temperatures and widespread precipitation to Colorado. Heavy thunderstorms rumbled across the northeastern plains late on the 15th. Damaging hail was reported in several locations including Joes. Thunderstorms then gave way to steady cold rain on the 16th with snow above about 6,000 feet. Temperatures stayed in the 30s and 40s over most of eastern Colorado. Nearly a foot of snow fell in parts of the eastern foothills. The precipitiation gradually ended on the 17th and daytime temperatures warmed a bit. Total storm precipitation exceeded 1" in much of northeastern Colorao. The greatest storm totals were at Mount Evans, 2.08" (17" snow) and Leroy near Sterling, 2.04". Once again, southeastern Colorado missed out on significant moisture.
18-22	Very chilly early on the 18th with subfreezing temperatures in some areas. Then a summer-like heatwave developed pushing temperatures well into the 60s in the mountains and into the 80s and 90s at low elevations on the 20th and 21st. Las Animas hit 97° on the 21st to claim the state's warmest temperature for May. Little or no precipitation for the period.
23-31	Cooler air moved into the state on the 23rd. The remainder of the month was chilly and unsettled east of the mountains and dry and seasonably mild in western Colorado. An upper-level low pressure system that had been over Minnesota on the 25th drifted gradually southwestward ending up over New Mexico by the 1st of June. Shower activity developed each day across eastern Colorado at last bringing some rains to the Arkansas Valley. Walsh, for example, received light showers each day 25-30th totalling 1.16" after having received no precipitation earlier in the month. Strong, chilly winds on the 26th made for "jacket weather" on Memorial Day on the Eastern Plains.

May 1986 Extremes

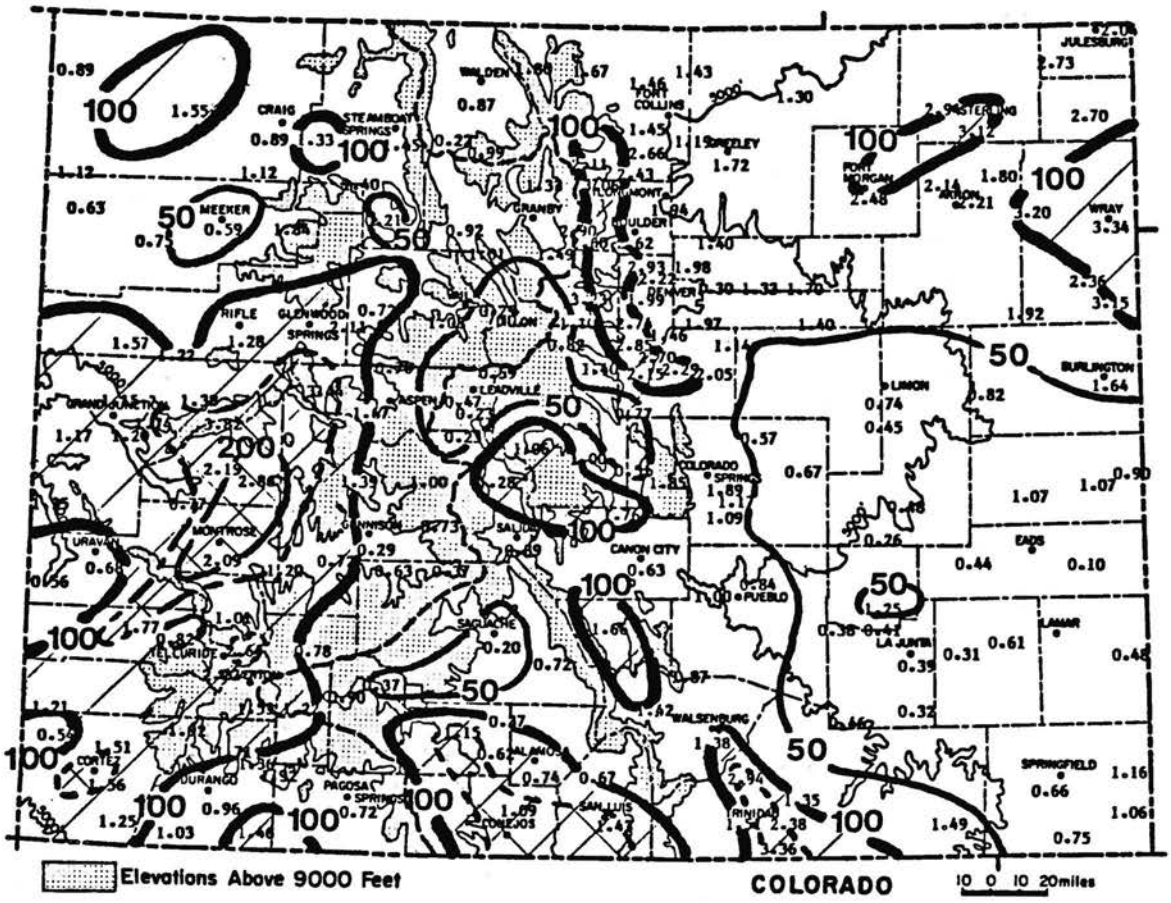
Highest Temperature	97°F	May 21	Las Animas
Lowest Temperature	0°F	May 8	Taylor Park Reservoir
Greatest Total Precipitation	3.82"		Bonham Reservoir
Least Total Precipitation	0.10"		Brandon
Greatest Total Snowfall*	39"		Bonham Reservoir
Greatest Snowdepth**	108"	May 12	Wolf Creek Summit

* data derived only from those stations with complete daily snowfall records.
** from Soil Conservation Service Snowpack measurements.

MAY 1986 PRECIPITATION

May precipitation was extremely variable ranging from less than 25% of average over parts of southeastern Colorado to more than 200% of average near Paonia and Montrose. Most of eastern Colorado was considerably drier than average. Average or above average precipitation was limited to a narrow band in the eastern foothills from Estes Park to west of Castle Rock, localized areas on the northeastern plains, a small area near Westcliffe and another thin band from Walsenburg southward into New Mexico. In western Colorado, wet areas included the western portion of the San Juans, much of the lower elevation portions of the Gunnison and Colorado River basins and the southern half of the San Luis Valley. In the western half of the state the driest area compared to average included the central mountain region. Dillon and Leadville, for example, received only 21% and 18% of their May average, respectively.

Greatest		Least	
Bonham Reservoir	3.82"	Brandon	0.10"
Redstone 4W	3.44"	Saguache	0.20"
Strontia Springs	3.41"	Yampa	0.21"
Wooton Ranch	3.36"	Spicer	0.22"
Wray	3.34"	Twin Lakes Reservoir	0.23"
		Leadville 2SW	0.23"



Precipitation amounts (inches) for May 1986 and contours of precipitation as a percent of the 1961-1980 average. The dashed line represents 150% of average.

1986 WATER YEAR PRECIPITATION

Two-thirds of the way through the 1986 water year, drier than average conditions have now expanded to cover most of eastern Colorado. But over the mountains and western valleys, above average precipitation is still the rule. Streamflow from most of Colorado's significant watersheds are still projected to be above average throughout the summer.

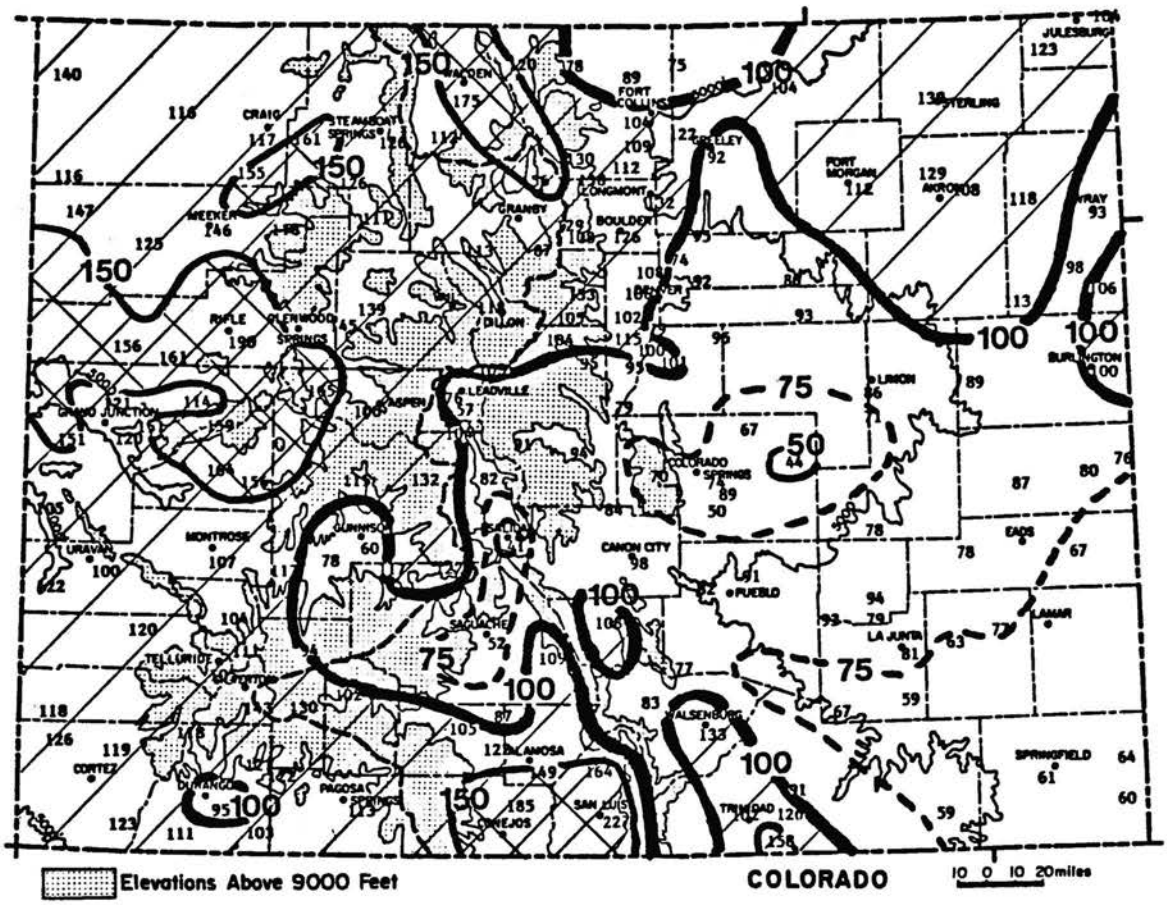
Comparison to Last Year

Southeastern Colorado is much drier than last year at this time. Portions of the San Juan Mountains and southwestern valleys are also drier. The northern mountains remain wetter than at this time last year. Other areas of the state are not much different than last year.

1986 Water Year to Date through May

Wettest (as % of average)			Driest (as % of average)		
San Luis 2SE	227%	7.37"	Salida	41%	2.60"
Rifle	190%	13.92"	Rush 4N	44%	2.44"
Manassa	185%	5.75"	Fort Carson	50%	3.09"

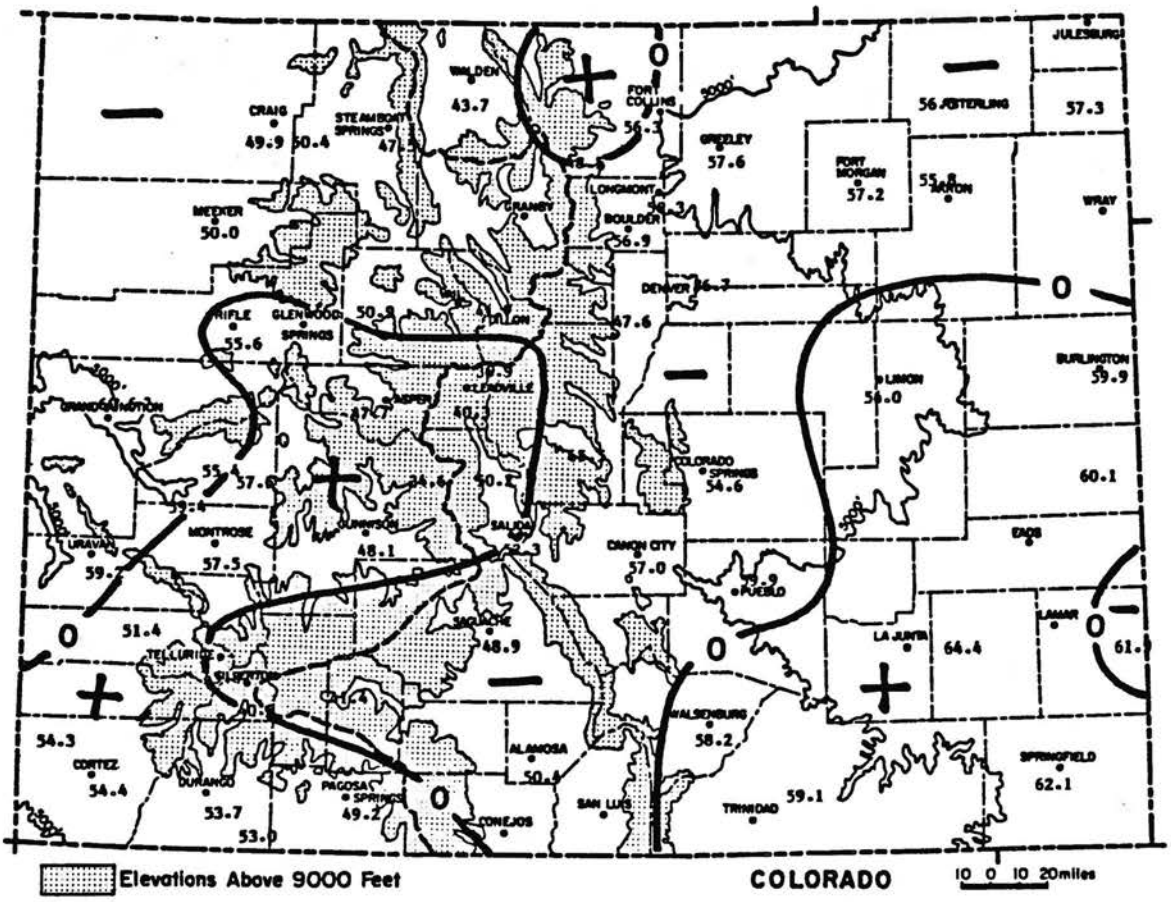
Wettest (total precipitation)			Driest (total precipitation)		
Bonham Reservoir	38.53"	159%	Saguache	1.98"	52%
Redstone 4W	30.41"	165%	Rush 4N	2.44"	44%
Mount Evans Research Center	28.94"	133%	Center 4SSW	2.58"	87%



Precipitation for October 1985 through May 1986 as a percent of the 1961-1980 average.

MAY 1986 TEMPERATURES AND DEGREE DAYS

For all practical purposes, May temperatures in Colorado were average. Southeastern and southwestern Colorado were slightly above average for the month while south central and most of northern Colorado were slightly cooler than normal. There were no unusual extremes of warm or cold temperatures during the month.



May 1986 temperatures (degrees Fahrenheit) and contours of departures from 1961-1980 averages.

MAY 1986 SOIL TEMPERATURES

A fairly normal progression of soil temperatures was observed in May.

These soil temperature measurements were taken at Colorado State University beneath sparse unirrigated sod with a flat, open exposure. These data are not representative of all Colorado locations.

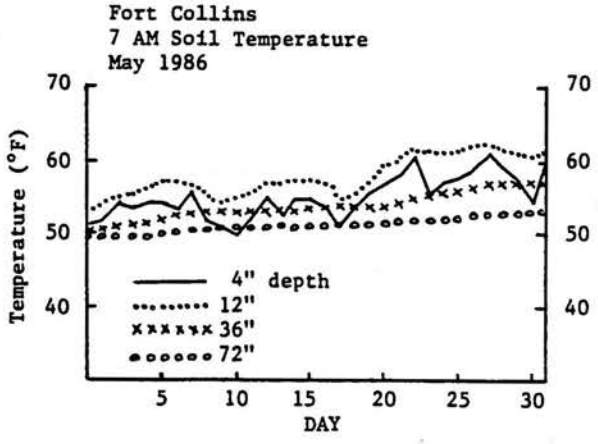


Table 1. Colorado Heating Degree Day Data through May 1986.

Heating Degree Data

STATION		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANN
ALAMOSA	AVE	40	100	303	657	1074	1457	1519	1182	1035	732	453	165	8717
	84-85	11	56	252	748	1051	1382	1462	1208	936	625	415	146	8292
	85-86	30	66	378	634	1045	1472	1231	983	864	638	446		7787
ASPEN	AVE	95	150	348	651	1029	1339	1376	1162	1116	798	524	262	8850
	84-85	87	134	345	883	1034	1282	1415	1293	1047	726	492	223	8961
	85-86	119	107	453	656	1066	1278	1175	1029	848	739	530		8000
BOULDER	AVE	0	6	130	357	714	908	1004	804	775	483	220	59	5460
	84-85	0	1	171	599	716	938	1162	989	717	385	174	38	5890
	85-86	0	0	222	400	982	1018	674	762	496	423	249		5226
BUENA VISTA	AVE	47	116	285	577	936	1184	1218	1025	983	720	459	184	7734
	84-85	16	91	284	828	949	1169	1338	1084	956	646	422	130	7913
	85-86	63	54	405	597	938	1158	972	946	806	661	450		7050
BURLING-TON	AVE	6	5	108	364	762	1017	1110	871	803	459	200	38	5743
	84-85	0	0	148	493	699	980	1207	1012	686	347	145	50	5767
	85-86	0	5	206	405	977	1142	740	820	525	386	163		5369
CANON CITY	AVE	0	9	81	301	639	831	911	734	707	411	179	33	4836
	84-85	0	0	175	561	702	841	1069	958	676	362	174	40	5558
	85-86	0	6	186	397	886	1036	711	756	507	399	248		5132
COLORADO SPRINGS	AVE	8	25	162	440	819	1042	1122	910	880	564	296	78	6346
	84-85	0	6	200	684	791	982	1233	1077	830	481	246	77	6607
	85-86	5	8	253	487	978	1143	822	840	635	487	315		5973
CORTEZ	AVE	0	11	115	434	813	1132	1181	921	828	555	292	68	6350
	84-85	0	0	108	666	839	1072	1173	1085	827	511	289	66	6636
	85-86		4	264	484	884	1081		805	711	572	321		5126
CRAIG	AVE	32	58	275	608	996	1342	1479	1193	1094	687	419	193	8376
	84-85	15	25	304	799	1002	1424	1609	1432	1063	611	375	132	8791
	85-86	10	42	353	649	1043	1487	1362	1023	780	669	461		7879
DELTA	AVE	0	0	94	394	813	1135	1197	890	753	429	167	31	5903
	84-85	0	11	49	477	713	969	1047	938	683	353	132		5372
	85-86	0		113	335	658			684	530	365	174		2859
DENVER	AVE	0	0	135	414	789	1004	1101	879	837	528	253	74	6014
	84-85	0	1	183	622	753	990	1213	1040	742	412	167	42	6165
	85-86	0	1	241	435	1051	1094	758	802	548	456	260		5646
DILLON	AVE	273	332	513	806	1167	1435	1516	1305	1296	972	704	435	10754
	84-85	245	301	510	1004	1161	1380	1581	1449	1219	874	667	404	10795
	85-86	260	300	609	856	1183	1439	1380	1175	1072	915	716		9905
DURANGO	AVE	9	34	193	493	837	1153	1218	958	862	600	366	125	6848
	84-85	0	6	124	695	866	1074	1146	1008	831	494	319	59	6622
	85-86	3	8	274	476	916	1159	967	802	686	575	341		6207
EAGLE	AVE	33	80	288	626	1026	1407	1448	1148	1014	705	431	171	8377
	84-85	1	27	252	741	998	1300	1435	1219	910	602	381	103	7969
	85-86	19	52	356	605	995	1352	1324	890	736	598	428		7355
EVER-GREEN	AVE	59	113	327	621	916	1135	1199	1011	1009	730	489	218	7827
	84-85	21	68	326	826	874	1088	1329	1123	928	616	448	165	7812
	85-86	62	90	387	651	1039	1119	947	927	770	608	532		7132
FORT COLLINS	AVE	5	11	171	468	846	1073	1181	930	877	558	281	82	6483
	84-85	0	0	193	606	745	1027	1245	1077	734	389	167	61	6244
	85-86	1	8	243	499	1078	1199	883	816	568	470	261		6026
FORT MORGAN	AVE	0	6	140	438	867	1156	1283	969	874	516	224	47	6520
	84-85	0	0	185	564	784	1168	1329	1125	687	395	135	57	6429
	85-86	0	2	239	548	1165	1425	1160	915	616	401	246		6717
GRAND JUNCTION	AVE	0	0	65	325	762	1138	1225	882	716	403	148	19	5683
	84-85	0	0	54	452	719	996	1044	919	645	310	81	12	5232
	85-86	0	0	139	351	779	1018	949	685	489	366	168		4944

Heating Degree Data

STATION		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANN
GRAND LAKE	AVE	214	264	468	775	1128	1473	1593	1369	1318	951	654	384	10591
	84-85	155	213	435	888	1096	1428	1662	1498	1238	832	610	361	10416
	85-86	206	265	513	744	1115	1454	1494	1174	1083	896			8944
GREELEY	AVE	0	0	149	450	861	1128	1240	946	856	522	238	52	6442
	84-85	0	0	213	601	769	1107	1305	1096	719	391	162	41	6404
	85-86	0	6	249	501	1131	1311	1010	845	545	440	232		6270
GUNNISON	AVE	111	188	393	719	1119	1590	1714	1422	1231	816	543	276	10122
	84-85	64	143	372	850	1072	1381	1593	1426	1065	699	495	203	9363
	85-86	84	152	433	678	1058	1648	1712	1084	952	711	517		9029
LAS ANIMAS	AVE	0	0	45	296	729	998	1101	820	698	348	102	9	5146
	84-85	0	0	132	479	653	916	1204	948	586	257	72	7	5254
	85-86	0	0	134	313	816	1106	737	715	409	220	77		4527
LEAD-VILLE	AVE	272	337	522	817	1173	1435	1473	1318	1320	1038	726	439	10870
	84-85	308	366	536	1074	1217	1434	1577	1418	1291	967	737	440	11365
	85-86	333	359	666	871	1258	1470	1328	1251	1168	994	760		10458
LIMON	AVE	8	6	144	448	834	1070	1156	960	936	570	299	100	6531
	84-85	1	1	230	694	852	1072	1297	1133	868	496	254	100	6998
	85-86	1	12	274	544	1078	1233	861	910	662	508	336		6419
LONGMONT	AVE	0	6	162	453	843	1082	1194	938	874	546	256	78	6432
	84-85	0	3	237	679	812	1078	1287	1147	743	400	170	42	6598
	85-86	0	6	236	486	1095	1228	869	814	549	469	262		6014
MEEKER	AVE	28	56	261	564	927	1240	1345	1086	998	651	394	164	7714
	84-85	1	17	228	690	907	1250	1392	1217	963	581	360	116	7722
	85-86	6	31	358	599	967	1249	1164	893	742	646	458		7113
MONTROSE	AVE	0	10	135	437	837	1159	1218	941	818	522	254	69	6400
	84-85	0	8	102	604	791	1064	1161	1095	741	438	178	31	6213
	85-86	0	0	211	443	803	1106	1032	766	577	453	235		5626
PAGOSA SPRINGS	AVE	82	113	297	608	981	1305	1380	1123	1026	732	487	233	8367
	84-85	4	39	245	782	970	1190	1305	1207	971	626	438	173	7950
	85-86	34	73	376	600	1000	1373	1191	952	803	668	481		7551
PUEBLO	AVE	0	0	89	346	744	998	1091	834	756	421	163	23	5465
	84-85	0	0	127	474	713	907	1208	999	664	326	125	9	5552
	85-86	0	0	172	410	1012	1161	783	728	523	346	167		5302
RIFLE	AVE	6	24	177	499	876	1249	1321	1002	856	555	298	82	6945
	84-85	0	1	131	622	829	1134	1246	1124	804	472	228	47	6638
	85-86	1	6	232	484	882	1147	1076	769	607	477	287		5968
STEAMBOAT SPRINGS	AVE	113	169	390	704	1101	1476	1541	1277	1184	810	533	297	9595
	84-85	82	103	397	834	1047	1419	1611	1433	1077	730			8733
	85-86	57	130	434	729	1144	1554	1495	1097	915	688	533		8776
STERLING	AVE	0	6	157	462	876	1163	1274	966	896	528	235	51	6614
	84-85	0	0	189	552	784	1140	1260	1160	678		148	71	5982
	85-86	0	6	230	519	1161	1395	1155	990	594	439	279		6768
TELLURIDE	AVE	163	223	396	676	1026	1293	1339	1151	1141	849	589	318	9164
	84-85	99	165	337	867	984	1185	1335	1179	1020	723	550	224	8668
	85-86	121	152	463	648	1023	1270	1130	1011	892	740	585		8035
TRINIDAD	AVE	0	0	86	359	738	973	1051	846	781	468	207	35	5544
	84-85	0	0	138	507	652	891	1225	935	658	366	159	25	5556
	85-86	0	0	175	380	772	1046	738	764	529	365	194		4963
WALDEN	AVE	198	285	501	822	1170	1457	1535	1313	1277	915	642	351	10466
	84-85	122	184	448	942	1130	1389	1652	1358	1138	810	592	320	10085
	85-86	171	271	578	824	1224	1458	1381	1155	989	836	656		9543
WALSEN-BURG	AVE	0	8	102	370	720	924	989	820	781	501	240	49	5504
	84-85	0	0	113	517	621	817	1131	902	669	386	187	32	5375
	85-86	0	0	165	358	770	982	681	734	515	404	221		4830

MAY 1986 CLIMATIC DATA

Eastern Plains*

	Temperature						Degree Days			Precipitation			
Name	Max	Min	Mean	Dep	High	Low	Heat	Cool	Grow	Total	Dep	%Norm	# days
KAUFFMAN 4SSE	69.8	37.5	53.6	-1.4	83	24	345	1	319	1.71	-0.66	72.2	6
STERLING	70.6	41.3	56.0	-2.0	86	31	279	4	330	2.94	-0.25	92.2	9
FORT MORGAN	72.3	42.1	57.2	-1.1	90	33	246	13	350	2.48	0.02	100.8	9
AKRON FAA AP	69.8	41.8	55.8	-0.7	86	32	281	4	317	2.14	-0.96	69.0	11
HOLYOKE	70.4	44.1	57.3	-1.8	91	35	240	7	324	2.70	-0.34	88.8	11
BURLINGTON	73.8	45.9	59.9	0.5	88	35	163	12	380	1.64	-1.12	59.4	7
LIMON WSMO	70.2	37.7	54.0	0.9	87	30	336	0	322	0.74	-1.44	33.9	8
CHEYENNE WELLS	75.8	44.5	60.1	0.4	90	31	163	18	404	1.07	-1.93	35.7	6
LAS ANIMAS	82.7	46.0	64.4	1.1	97	33	77	64	485	0.31	-1.64	15.9	3
HOLLY	83.0	40.7	61.9	-0.3	96	27	111	21	490	0.48	-2.16	18.2	3
SPRINGFIELD 7WSW	78.5	45.7	62.1	1.8	91	31	125	42	446	0.66	-2.03	24.5	7

Foothills/Adjacent Plains*

	Temperature						Degree Days			Precipitation			
Name	Max	Min	Mean	Dep	High	Low	Heat	Cool	Grow	Total	Dep	%Norm	# days
FORT COLLINS	69.5	43.1	56.3	-0.0	84	36	261	0	311	1.45	-1.18	55.1	6
GREELEY UNC	71.8	43.4	57.6	-0.2	88	34	232	8	346	1.72	-0.93	64.9	7
ESTES PARK	62.1	35.0	48.5	0.5	75	29	502	0	199	2.11	0.14	107.1	8
LONGMONT	69.9	42.8	56.3	-0.8	87	33	262	3	321	1.94	-0.42	82.2	9
BOULDER	71.2	42.6	56.9	-1.5	85	36	249	4	340	2.62	-0.42	86.2	11
DENVER WSFO AP	69.9	43.5	56.7	-0.4	87	34	260	11	325	1.30	-0.89	59.4	8
EVERGREEN	63.1	32.1	47.6	-1.4	79	17	532	0	216	2.74	0.16	106.2	7
LAKE GEORGE 8SW	59.2	31.8	45.5	-0.7	70	20	595	0	166	1.00	-0.19	84.0	4
COLORADO SPRINGS	68.7	40.5	54.6	-0.9	84	32	315	1	303	1.89	-0.08	95.9	10
CANON CITY 2SE	72.5	41.5	57.0	-1.3	86	28	248	7	357	0.63	-0.80	44.1	3
PUEBLO WSO AP	77.3	42.5	59.9	-1.3	92	30	167	17	425	0.84	-0.25	77.1	6
WALSENBURG	73.5	43.0	58.2	0.7	84	31	221	17	385	1.38	-0.03	97.9	3
TRINIDAD FAA AP	74.6	43.6	59.1	0.1	88	32	194	21	390	1.35	-0.19	87.7	9

Mountains/Interior Valleys*

	Temperature						Degree Days			Precipitation			
Name	Max	Min	Mean	Dep	High	Low	Heat	Cool	Grow	Total	Dep	%Norm	# days
WALDEN	60.2	27.2	43.7	-0.4	73	19	656	0	174	0.87	-0.25	77.7	6
LEADVILLE 2SW	55.6	24.9	40.3	0.8	65	13	760	0	112	0.23	-0.97	19.2	5
SALIDA	68.6	36.0	52.3	0.0	79	23	387	0	296	0.89	-0.23	79.5	4
BUENA VISTA	66.0	34.4	50.2	0.3	77	23	450	0	258	1.28	0.38	142.2	4
SAGUACHE	65.1	32.7	48.9	-1.4	75	23	491	0	244	0.20	-0.49	29.0	1
HERMIT 7ESE	58.5	24.4	41.4	-0.1	69	7	725	0	144	0.90	-0.11	89.1	3
ALAMOSA WSO AP	68.0	32.9	50.4	-0.1	77	21	446	0	287	0.74	0.05	107.2	6
STEAMBOAT SPRINGS	64.4	30.6	47.5	0.0	75	22	533	0	236	1.45	-0.56	72.1	5
DILLON 1E	57.3	26.1	41.7	-0.6	67	18	716	0	134	0.25	-0.95	20.8	3
CLIMAX	49.4	24.4	36.9	1.3	57	11	864	0	34	0.59	-1.26	31.9	5
ASPEN 1SW	61.7	33.6	47.7	0.7	74	20	530	0	199	1.67	-0.43	79.5	7
TAYLOR PARK	55.3	13.8	34.6	-1.7	64	0	937	0	107	1.00	-0.16	86.2	5
TELLURIDE	62.6	29.0	45.8	-0.3	77	13	585	0	213	2.22	0.59	136.2	7
PAGOSA SPRINGS	68.0	30.4	49.2	0.1	80	23	481	0	292	0.72	-0.34	67.9	9
SILVERTON	58.2	23.3	40.8	-0.1	69	7	744	0	153	1.53	0.15	110.9	7

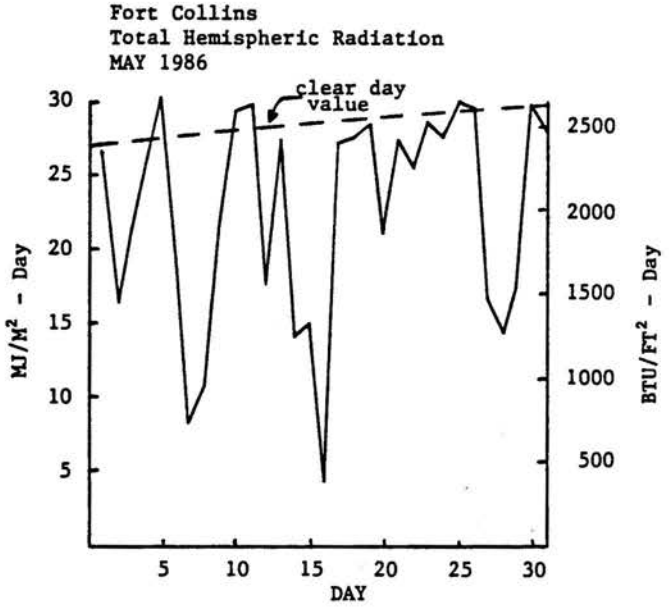
Western Valleys*

Name	Temperature Max	Min	Mean	Dep	High	Low	Degree Days Heat	Cool	Grow	Precipitation Total	Dep	%Norm	# days
CRAIG 4SW	64.8	34.9	49.9	-1.6	76	26	461	0	242	0.89	-0.76	53.9	6
HAYDEN	66.2	34.6	50.4	-1.1	78	23	444	0	261	1.33	0.05	103.9	7
MEEKER NO. 2	68.3	31.7	50.0	-1.4	80	10	458	0	293	0.59	-0.78	43.1	4
EAGLE FAA AP	68.6	33.2	50.9	-0.2	80	25	428	0	298	0.72	0.05	107.5	5
RIFLE	72.9	38.2	55.6	0.2	86	28	287	0	362	1.28	0.32	133.3	6
GRAND JUNCTION WS	74.3	46.9	60.6	-1.4	86	32	168	39	401	1.15	0.33	140.2	5
CEDAREDGE	71.3	39.5	55.4	-1.1	82	28	292	0	337	2.19	1.07	195.5	6
PAONIA 1SW	73.0	41.9	57.5	0.7	84	27	232	5	367	2.86	1.57	221.7	10
DELTA	77.5	41.2	59.4	-0.1	88	31	174	5	432	0.77	0.21	137.5	6
GUNNISON	66.7	29.5	48.1	1.0	75	19	517	0	271	0.29	-0.33	46.8	3
MONTROSE NO. 2	72.3	42.6	57.5	0.7	84	30	235	8	356	2.09	1.33	275.0	7
URAVAN	75.9	42.5	59.2	-2.1	89	32	183	9	408	0.67	-0.34	66.3	4
NORWOOD	66.9	35.9	51.4	0.3	80	21	412	0	276	1.77	0.76	175.2	6
YELLOW JACKET 2W	70.1	38.5	54.3	0.6	79	26	324	0	320	0.54	-0.65	45.4	3
CORTEZ	70.7	38.1	54.4	1.0	81	28	321	0	329	1.56	0.64	169.6	8
DURANGO	71.9	35.5	53.7	0.4	83	27	341	0	346	0.96	-0.16	85.7	9
IGNACIO 1N	72.2	33.8	53.0	0.6	85	24	366	0	349	1.46	0.60	169.8	7

* Data are received by the Colorado Climate Center for more locations than appear in these tables. Please contact the Colorado Climate Center if additional information is needed.

MAY 1986 SUNSHINE AND SOLAR RADIATION

Station	Number of Days clear	partly cloudy	cloudy	% of possible sunshine	average % of possible
Colorado Springs	7	12	12	--	--
Denver	8	12	11	78%	65%
Fort Collins	7	13	11	--	--
Grand Junction	9	13	9	82%	71%
Pueblo	6	14	11	84%	73%



July 31 -- The Anniversary of the Big Thompson Flood: continued

Each year there is about a 3-week period in late July and early August when high-humidity air masses slip northward into Colorado from the south. The wind responsible for moving this moist air northward over the Southwest states is called the "Southwest Monsoon." During this period the normal afternoon thundershowers occasionally become much more widespread and longer lasting. Since upper-level winds in the atmosphere are normally quite light at that time of year, the large storms may move very slowly and thus produce very heavy rains at a given point. Almost every year some locations in Colorado will experience flash flooding sometime during late July and early August. Last year, Cheyenne, Wyoming, was punished by a wicked storm on August 1 which dropped more than 6" of rain in 3 hours. This year a similar storm could happen again. The areas most prone to late July-early August flash flooding are the southern Front Range from Trinidad to Canon City, the Pikes Peak-Palmer Divide area, and the southern slopes of the San Juan Mountains. The central mountains and northern Front Range are also quite vulnerable. No portion of Colorado is truly free of the treat of a flood-producing downpour; but obviously the mountain and foothill areas which funnel rainfall into steep canyons, and the urban areas which funnel rainfall into streets and underpasses, are most likely to experience flash floods.

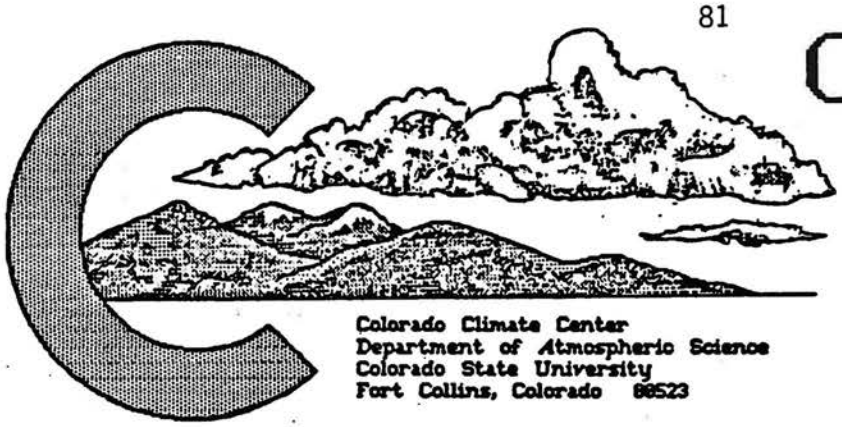
For personal safety reasons it's always good to keep your eye on the sky when thunderstorms are around. But late July-early August deserves special attention. If you are in a canyon camping, fishing or even driving, keep your eye on the sky and the river level. Even if it's not raining where you are, a storm upstream could produce a flood. Most of all, enjoy your summer. Thunderstorms should be respected but also enjoyed. Their interaction with our mountain environment is part of the awesome beauty of Colorado.

Last Spring Freeze

In the mountains, temperatures are still dropping below freezing on occasion. For the rest of the state the threat of frost is now past until fall. Here are the dates of this spring's last freeze (last date on which the minimum temperature was 32°F or colder) at many Colorado locations. Please remember that subtle local factors have a large effect on minimum temperature and frost dates. Locations just a few miles from the official National Weather Service stations may experience considerably different freeze dates.

Date	Last freezing temperature at these locations
April 14	Palisade
April 15	Fort Morgan*, Sterling*, Littleton*
April 16	Joes*
April 18	Las Animas*, Wray*
April 19	Denver*, Brighton*, Boulder*, Longmont*, Greeley*, Fort Collins*, Sedgwick*, Holyoke*
April 27	Burlington, Stratton, Yuma, Rocky Ford
May 5	Grand Junction+
May 9	Bonny Reservoir, Colorado Springs, Canon City, Cheyenne Wells, LaJunta, John Martin Reservoir, Walsh
May 10	Byers, Julesburg, Parachute, Paonia, Cedaredge, Montrose, Uravan, Cherry Creek Reservoir
May 13	Rifle
May 17	Akron, Leroy, Yellow Jacket, Trinidad, Walsenburg
May 18	Cortez, Durango, Del Norte, Center, Saguache, Pueblo+, Rye, Ordway+, Holly+, Kit Carson+, Limon, Flagler, Springfield+
May 23	Estes Park, Parker, Castle Rock, Meeker, Collbran

* Unusually early last spring freeze.
\+ Unusually late last spring freeze.



COLORADO CLIMATE

Colorado Climate Center
Department of Atmospheric Science
Colorado State University
Fort Collins, Colorado 80523

JUNE 1986

June in Review:

Plenty of water rushed down Colorado's rivers as the winter snowpack in the mountains melted quickly but politely. Few flooding problems were noted. As usual, some hail and tornadoes were observed in parts of Colorado during June -- the month known for severe weather. Temperatures for the month were above average over most of the state. Precipitation was spotty and variable with parts of west central Colorado extremely dry while much of southern Colorado was wet.

A Look Ahead -- August 1986:

Last summer the infamous "Southwest Monsoon" started and ended earlier than usual. This resulted in a wet July but an unusually dry August across most of Colorado. Last year was the 4th consecutive hotter than average August. It is difficult to interpret exactly what that means for us this year. But it usually is a safe statement that August isn't too much different from July.

Normally, the "Southwest Monsoon" is in full gear in early August bringing moist air into Colorado from Mexico. Historically, the first week of August is the wettest of the year in Colorado. Slow moving storms, like the one which flooded Cheyenne, Wyoming, on 1 August last year, may again be possible. But while these early August storms may bring heavy rains, the likelihood of hail and tornadoes decreases dramatically from June and July. After the first few days of August the subtropical moisture often begins a slow southward retreat. Frequent thundershowers continue across southern portions of the state througout August, especially over the San Juan, Elk and Sangre de Cristo Mountains, while the northern and eastern portions of the state become noticeably drier. Average August precipitation ranges from about 1" in extreme western and northwestern Colorado, 1-2" from the Front Range northeastward to Nebraska and also in the Arkansas and Rio Grande Valleys, 2-3" over much of the mountains and from Colorado Springs east to Burlington, and more than 3" near Pikes Peak and across the higher elevations of southwestern Colorado.

Temperatures, as in July, tend to be quite consistent, predictable and well correlated with elevation. For the state as a whole August monthly temperatures historically average about 2 degrees cooler than July. Typical afternoon high temperatures range from the low 90s in the Arkansas and lower Colorado River Valleys to the 50s and 60s high in the mountains. Heatwaves driving low elevation temperatures into the 90s and 100s are possible but not nearly as likely or prolonged as they are in late June and July. Lows are typically in the 50s and 60s except in the mountains where 30s and 40s are most common. By late August temperatures are normally quite comfortable with a crisp evening chill becoming noticeable.

New Report on Precipitation Probabilities Available:

The Colorado Climate Center has completed a new climate report entitled, Precipitation Probabilities for Selected Colorado Locations. Historic daily precipitation data from 45 weather stations were used to produce a detailed description of precipitation characteristics throughout Colorado. Probabilities were computed for receiving a total of at least 0.10", 0.20", 0.30", 0.40", 0.50", 0.70", 1.00", 1.50" and 2.00" of precipitation in 3-day, 7-day and 14-day periods. Precipitation is defined as both rain and the melted water equivalent of snow and other frozen forms of precipitation.

Complete probability tables for all 45 stations are included in this report along with a narrative description and a brief statewide graphic comparison. These analyses point out some of the incredible diversity in our climate here in Colorado. For example, in early January there is only about a 10% chance of receiving 0.20" of precipitation in any 1-week period east of the mountains. Meanwhile up in the Northern and Central Mountains, probabilities approach 90% during that same period. For the state as a whole, the wettest week of the year is the 7-day period beginning on July 30. Most of the state

(continued on last page)

JUNE 1986 DAILY WEATHER

Date	Event
1-5	Remains of an upper-level low pressure system kept weather unsettled. A weak cold front crossed northeastern Colorado on 3-4th producing additional low clouds and showers. One to two inch rainfall totals were common in southeastern Colorado 1-2nd. Walsenburg's 2-day rainfall total was 2.74". Shower activity abated on the 3rd but then increased again 4-5th. Most of the heavier storms stayed east of the mountains. Fountain recorded 1.85" on the 4th. But southwestern Colorado also had some decent rains. Yellow Jacket, for example, received 1.14". While much of the state received beneficial rains, little or no precipitation fell throughout this period in parts of northern Colorado and in most of west central Colorado.
6-7	Hot and sunny on the 6th. Some scattered p.m. thunderstorms on the 7th. Greeley reported 0.65" of rain and some hail on the 7th.
8-10	A major cold front and upper level storm system approached Colorado on the 8th triggering severe weather. Tornadoes in southeast Denver and Aurora on the 8th caused substantial property damage and some minor injuries. Campo, in extreme southeastern Colorado measured 3.22" of rain and several other areas east of the mountains reported more than 1 inch. Stormy weather continued statewide on the 9th as much colder air moved into the state. At the official New Raymer station 2.41" of rain fell on the 9th with some much higher unofficial reports. Thunderstorms gave way to steady cold rains later on the 9th and 10th. Several inches of snow were reported in some mountain locations such as Breckenridge.
11	Skies cleared and most areas of Colorado awoke to the chilliest morning of the month. Denver fell to 45° while the U.S. Air Force Academy recorded 35°. Ruxton Park near Pikes Peak beat out Taylor Park by 1 degree for the coldest temperature in June in Colorado. They recorded an 18° reading.
12-30	An early summer weather pattern established itself with no organized storm systems or cold fronts and plenty of hot weather. Scattered afternoon and evening thundershowers occurred but produced fairly light precipitation especially east of the mountains. The following noteworthy events occurred: 14th -- Strong thunderstorms near Colorado Springs with damaging hail. 16th -- Incredible evening lightning display over the Denver area. Several injuries from lightning. Some locally heavy rains. 17th -- First 100° temperature of the summer in Colorado was reported at Palisade and Parachute. 19th -- Heavy late-evening storm in eastern Colorado particularly Cheyenne County. Arapahoe received 2.60" of rain. 24-26th -- Increased clouds and thunderstorm activity as Gulf of Mexico air flowed northward into Colorado. Little Hills (western Colorado) received 0.98" on 25th. 28-29th -- Scorching heat. Denver hit 99° on 28th, a new record. Temperatures reached 100° at Byers, Nunn, and Briggsdale and 101° at Fort Morgan. On the 29th the heat moved southward. Pueblo reached 101°, Lamar 103° and Holly claimed the state's hot spot award with a 104°. 28-30th -- Monsoon moisture reached southwestern Colorado. Ouray received a 1.31" downpour, one of their heaviest June rainfall amounts on record.

June 1986 Extremes

Highest Temperature	104°F	June 29	Holly
Lowest Temperature	18°F	June 10	Ruxton Park
Greatest Total Precipitation	5.20"		Arapahoe
Least Total Precipitation	0.08"		Parachute
Greatest Total Snowfall*	3.2"		Climax

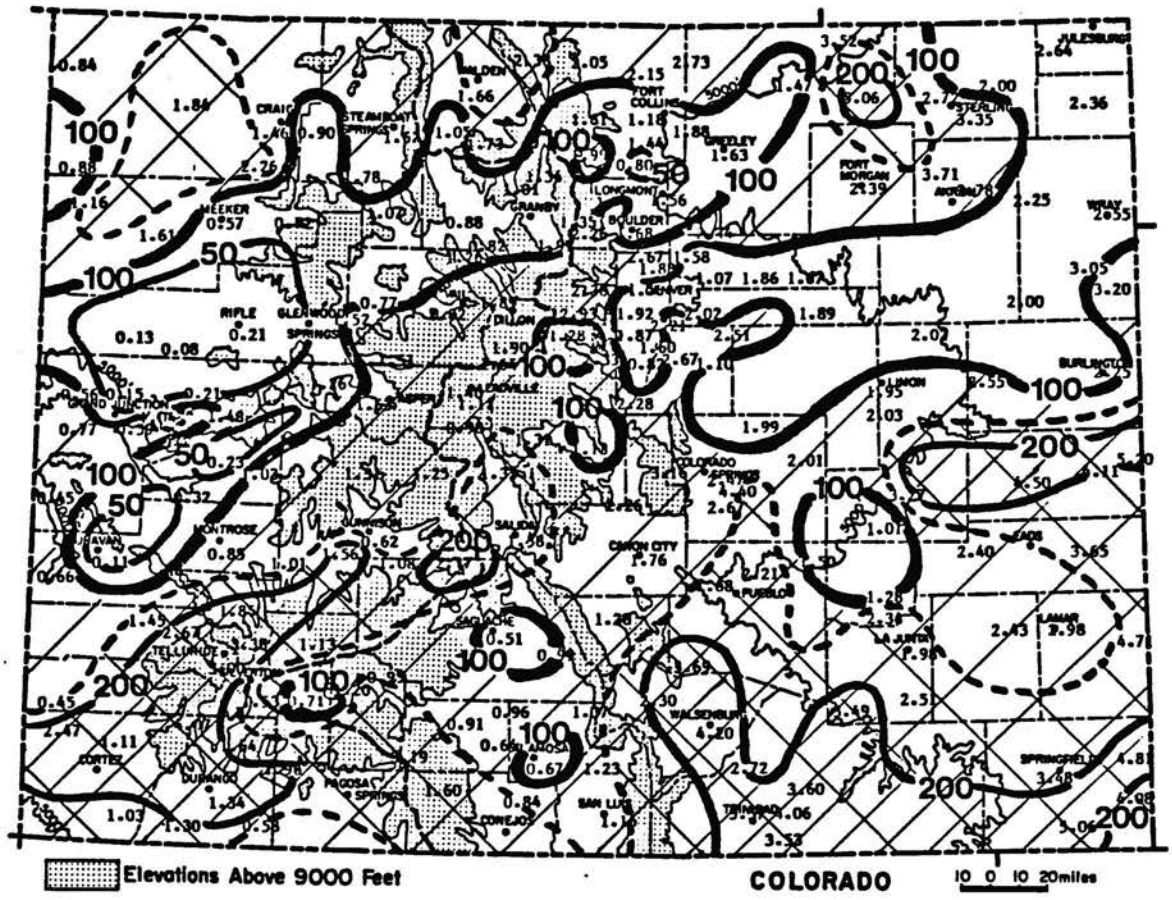
* data derived only from those stations with complete daily snowfall records.

JUNE 1986 PRECIPITATION

As is often the case with summer precipitation, there were some very large local differences in precipitation. For example, Grand Junction measured just 0.15" (30% of average) while just to the east at Palisade 1.04" fell (200%). In southwestern Colorado, Northdale received just 0.45" (129%) while Yellow Jacket a few miles to the southeast added 2.47" (504%). Briggsdale, in northeast Colorado had 1.47" (64% of average) while New Raymer totalled 5.06" (213%).

The wettest areas of the state were mostly in southwestern and southeastern Colorado. June is normally a very dry month over the southwestern mountains, but this year precipitation was plentiful. Rico, for example, received 4.07", 331% of average. The rains in southeastern Colorado came too late to help this year's wheat crop but did relieve some of the developing drought stress. More than double the average precipitation fell in several areas. There were a few wet spots in the northern half of the state such as Maybell, Walden, New Raymer and some mountain locations west of Denver. But many areas were dry. Boulder to Fort Collins received less than 75% of average while in west central Colorado hardly any rain fell at all. Parachute's 0.08" total was just 9% of average.

Greatest		Least	
Arapahoe	5.20"	Parachute	0.08"
New Raymer	5.06"	Uravan	0.11"
Campo 7S	5.06"	Altenbern	0.13"
Walsh	4.81"	Grand Junction	0.15"



Precipitation amounts (inches) for June 1986 and contours of precipitation as a percent of the 1961-1980 average. The dashed line represents 150% of average.

1986 WATER YEAR PRECIPITATION

Most of western Colorado remains wetter than average through the first 9 months of the 1986 water year. June precipitation helped some of the emerging dry areas in southeastern Colorado. Most areas east of the mountains have received between 80% and 110% of their average moisture.

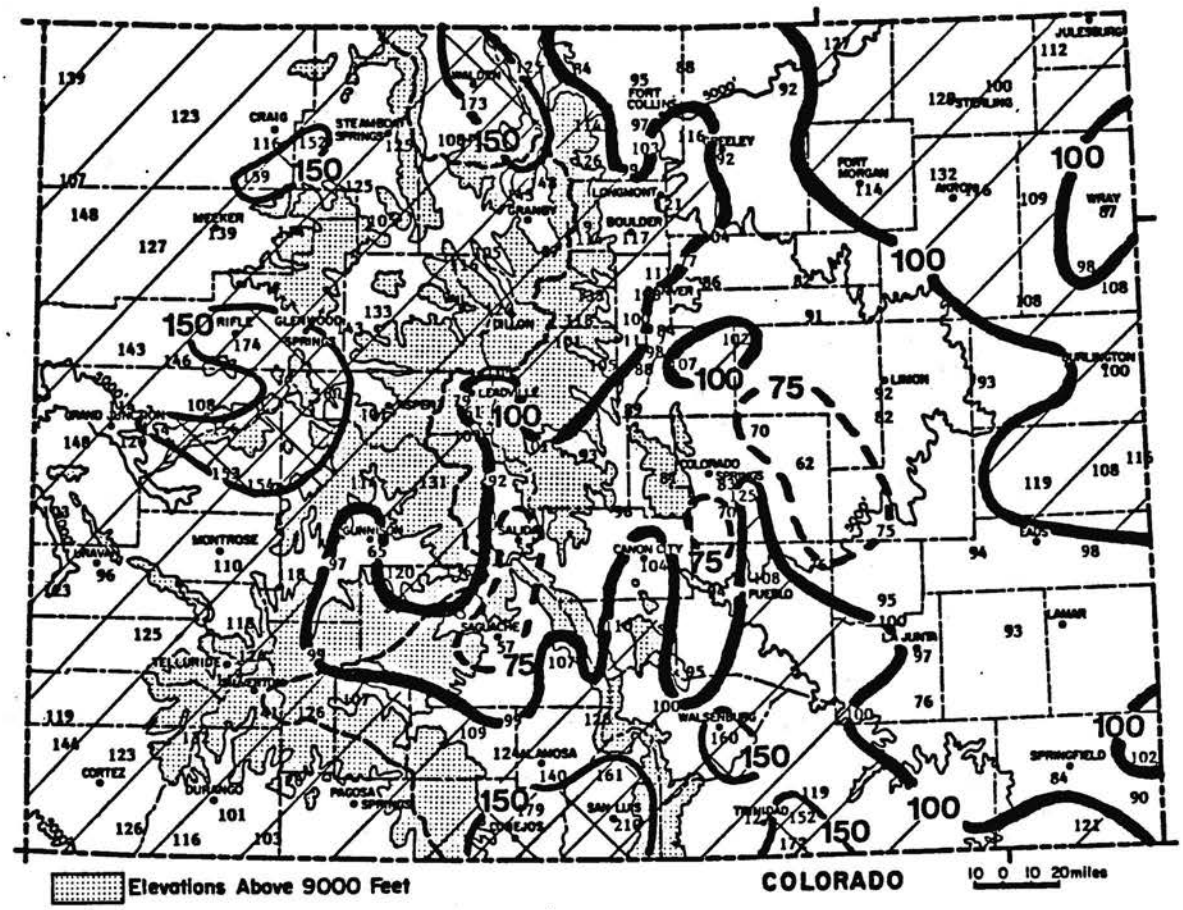
Comparison to Last Year

There are many more dry areas in Colorado this year, while last year at this time practically the entire state was wetter than usual.

1986 Water Year to Date through June

Wettest (as % of average)			Driest (as % of average)		
San Luis 2SE	210%	8.53"	Salida	55%	3.98"
Manassa	179%	6.59"	Saguache	57%	2.49"
Rifle	174%	14.13"	Rush 4N	62%	4.45"

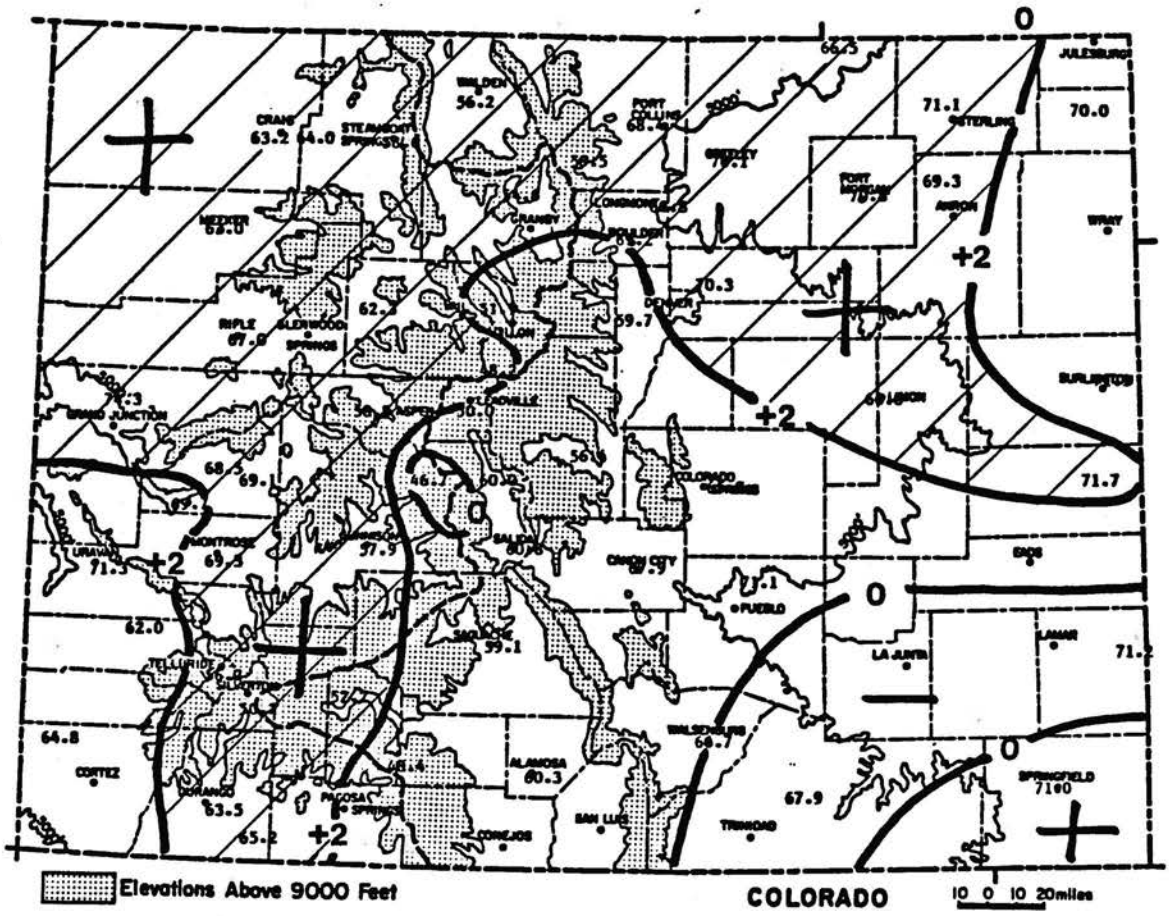
Wettest (total precipitation)			Driest (total precipitation)		
Bonham Reservoir	40.01"	156%	Saguache	2.49"	57%
Redstone 4W	31.67"	160%	Center 4SSW	3.54"	99%
Mount Evans Research Center	31.32"	133%	Salida	3.98"	55%



Precipitation for October 1985 through June 1986 as a percent of the 1961-1980 average.

JUNE 1986 TEMPERATURES AND DEGREE DAYS

A few locations in southeastern Colorado were a little cooler than average for the month. The rest of the state was warmer than normal. Much of northwest Colorado and the northern Front Range from Denver to Wyoming were all at least 3 degrees Fahrenheit above average.



June 1986 temperatures (degrees Fahrenheit) and contours of departures from 1961-1980 averages.

JUNE 1986 SOIL TEMPERATURES

The effects of the chilly wet weather of June 9-11 can be seen in the soil temperature graph. In general these temperatures were close to normal summertime values.

These soil temperature measurements were taken at Colorado State University beneath sparse unirrigated sod with a flat, open exposure. These data are not representative of all Colorado locations.

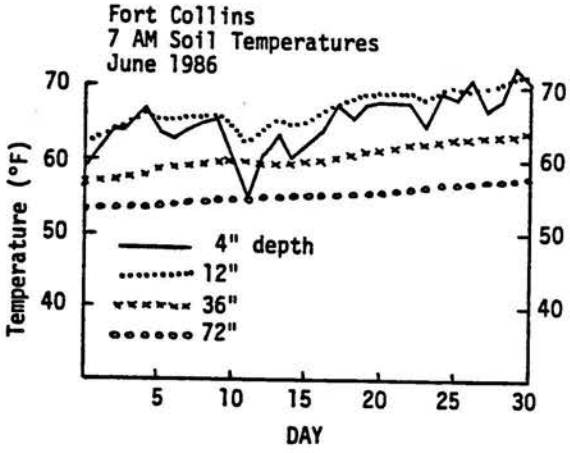


Table 1. Colorado Heating Degree Day Data through June 1986.

Heating Degree Data

STATION		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANN
ALAMOSA	AVE	40	100	303	657	1074	1457	1519	1182	1035	732	453	165	8717
	84-85	11	56	252	748	1051	1382	1462	1208	936	625	415	146	8292
	85-86	30	66	378	634	1045	1472	1231	983	864	638	446	138	7925
ASPEN	AVE	95	150	348	651	1029	1339	1376	1162	1116	798	524	262	8850
	84-85	87	134	345	883	1034	1282	1415	1293	1047	726	492	223	8961
	85-86	119	107	453	656	1066	1278	1175	1029	848	739	530	185	8185
BOULDER	AVE	0	6	130	357	714	908	1004	804	775	483	220	59	5460
	84-85	0	1	171	599	716	938	1162	989	717	385	174	38	5890
	85-86	0	0	222	400	962	1018	674	762	496	423	249	16	5242
BUENA VISTA	AVE	47	116	285	577	936	1184	1218	1025	983	720	459	184	7734
	84-85	16	91	284	828	949	1169	1338	1084	956	646	422	130	7913
	85-86	63	54	405	597	938	1158	972	946	806	661	450	149	7199
BURLING-TON	AVE	6	5	108	364	762	1017	1110	871	803	459	200	38	5743
	84-85	0	0	148	493	699	980	1207	1012	686	347	145	50	5767
	85-86	0	5	206	405	977	1142	740	820	525	386	163	12	5381
CANON CITY	AVE	0	9	81	301	639	831	911	734	707	411	179	33	4836
	84-85	0	0	175	561	702	841	1069	958	676	362	174	40	5558
	85-86	0	6	186	397	886	1036	711	756	507	399	248	40	5172
COLORADO SPRINGS	AVE	8	25	162	440	819	1042	1122	910	880	564	296	78	6346
	84-85	0	6	200	684	791	982	1233	1077	830	481	246	77	6607
	85-86	5	8	253	487	978	1143	822	840	635	487	315	49	6022
CORTEZ	AVE	0	11	115	434	813	1132	1181	921	828	555	292	68	6350
	84-85	0	0	108	666	839	1072	1173	1085	827	511	289	66	6636
	85-86		4	264	484	884	1081		805	711	572	321		5126
CRAIG	AVE	32	58	275	608	996	1342	1479	1193	1094	687	419	193	8376
	84-85	15	25	304	799	1002	1424	1609	1432	1063	611	375	132	8791
	85-86	10	42	353	649	1043	1487	1362	1023	780	669	461	76	7955
DELTA	AVE	0	0	94	394	813	1135	1197	890	753	429	167	31	5903
	84-85	0	11	49	477	713	969	1047	938	683	353	132		5372
	85-86	0		113	335	658			684	530	365	174	6	2865
DENVER	AVE	0	0	135	414	789	1004	1101	879	837	528	253	74	6014
	84-85	0	1	183	622	753	990	1213	1040	742	412	167	42	6165
	85-86	0	1	241	435	1051	1094	758	802	548	456	260	22	5668
DILLON	AVE	273	332	513	806	1167	1435	1516	1305	1296	972	704	435	10754
	84-85	245	301	510	1004	1161	1380	1581	1449	1219	874	667	404	10795
	85-86	260	300	609	856	1183	1439	1380	1175	1072	915	716	388	10293
DURANGO	AVE	9	34	193	493	837	1153	1218	958	862	600	366	125	6848
	84-85	0	6	124	695	866	1074	1146	1008	831	494	319	59	6622
	85-86	3	8	274	476	916	1159	967	802	686	575	341	70	6277
EAGLE	AVE	33	80	288	626	1026	1407	1448	1148	1014	705	431	171	8377
	84-85	1	27	252	741	998	1300	1435	1219	910	602	381	103	7969
	85-86	19	52	356	605	995	1352	1324	890	736	598	428	88	7443
EVER-GREEN	AVE	59	113	327	621	916	1135	1199	1011	1009	730	489	218	7827
	84-85	21	68	326	826	874	1088	1329	1123	928	616	448	165	7812
	85-86	62	90	387	651	1039	1119	947	927	770	608	532	157	7289
FORT COLLINS	AVE	5	11	171	468	846	1073	1181	930	877	558	281	82	6483
	84-85	0	0	193	606	745	1027	1245	1077	734	389	167	61	6244
	85-86	1	8	243	499	1078	1199	883	816	568	470	261	22	6048
FORT MORGAN	AVE	0	6	140	438	867	1156	1283	969	874	516	224	47	6520
	84-85	0	0	185	564	784	1168	1329	1125	687	395	135	57	6429
	85-86	0	2	239	548	1165	1425	1160	915	616	401	246	19	6736
GRAND JUNCTION	AVE	0	0	65	325	762	1138	1225	882	716	403	148	19	5683
	84-85	0	0	54	452	719	996	1044	919	645	310	81	12	5232
	85-86	0	0	139	351	779	1018	949	685	489	366	168	3	4947

Heating Degree Data

STATION		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANN
GRAND LAKE	AVE	214	264	468	775	1128	1473	1593	1369	1318	951	654	384	10591
	84-85	155	213	435	888	1096	1428	1662	1498	1238	832	610	361	10416
	85-86	206	265	513	744	1115	1454	1494	1174	1083	896	651	304	9899
GREELEY	AVE	0	0	149	450	861	1128	1240	946	856	522	238	52	6442
	84-85	0	0	213	601	769	1107	1305	1096	719	391	162	41	6404
	85-86	0	6	249	501	1131	1311	1010	845	545	440	232	15	6285
GUNNISON	AVE	111	188	393	719	1119	1590	1714	1422	1231	816	543	276	10122
	84-85	64	143	372	850	1072	1381	1593	1426	1065	699	495	203	9363
	85-86	84	152	433	678	1058	1648	1712	1084	952	711	517	204	9233
LAS ANIMAS	AVE	0	0	45	296	729	998	1101	820	698	348	102	9	5146
	84-85	0	0	132	479	653	916	1204	948	586	257	72	7	5254
	85-86	0	0	134	313	816	1106	737	715	409	220	77		4527
LEAD-VILLE	AVE	272	337	522	817	1173	1435	1473	1318	1320	1038	726	439	10870
	84-85	308	366	536	1074	1217	1434	1577	1418	1291	967	737	440	11365
	85-86	333	359	666	871	1258	1470	1328	1251	1168	994	760	441	10899
LIMON	AVE	8	6	144	448	834	1070	1156	960	936	570	299	100	6531
	84-85	1	1	230	694	852	1072	1297	1133	868	496	254	100	6998
	85-86	1	12	274	544	1078	1233	861	910	662	508	336	57	6476
LONGMONT	AVE	0	6	162	453	843	1082	1194	938	874	546	256	78	6432
	84-85	0	3	237	679	812	1078	1287	1147	743	400	170	42	6598
	85-86	0	6	236	486	1095	1228	869	814	549	469	262	20	6034
MEEKER	AVE	28	56	261	564	927	1240	1345	1086	998	651	394	164	7714
	84-85	1	17	228	690	907	1250	1392	1217	963	581	360	116	7722
	85-86	6	31	358	599	967	1249	1164	893	742	646	458	75	7188
MONTROSE	AVE	0	10	135	437	837	1159	1218	941	818	522	254	69	6400
	84-85	0	8	102	604	791	1064	1161	1095	741	438	178	31	6213
	85-86	0	0	211	443	803	1106	1032	766	577	453	235	24	5650
PAGOSA SPRINGS	AVE	82	113	297	608	981	1305	1380	1123	1026	732	487	233	8367
	84-85	4	39	245	782	970	1190	1305	1207	971	626	438	173	7950
	85-86	34	73	376	600	1000	1373	1191	952	803	668	481	183	7734
PUEBLO	AVE	0	0	89	346	744	998	1091	834	756	421	163	23	5465
	84-85	0	0	127	474	713	907	1208	999	664	326	125	9	5552
	85-86	0	0	172	410	1012	1161	783	728	523	346	167	21	5323
RIFLE	AVE	6	24	177	499	876	1249	1321	1002	856	555	298	82	6945
	84-85	0	1	131	622	829	1134	1246	1124	804	472	228	47	6638
	85-86	1	6	232	484	882	1147	1076	769	607	477	287	16	5984
STEAMBOAT SPRINGS	AVE	113	169	390	704	1101	1476	1541	1277	1184	810	533	297	9595
	84-85	82	103	397	834	1047	1419	1611	1433	1077	730			8733
	85-86	57	130	434	729	1144	1554	1495	1097	915	688	533	185	8961
STERLING	AVE	0	6	157	462	876	1163	1274	966	896	528	235	51	6614
	84-85	0	0	189	552	784	1140	1260	1160	678		148	71	5982
	85-86	0	6	230	519	1161	1395	1155	990	594	439	279	22	6790
TELLURIDE	AVE	163	223	396	676	1026	1293	1339	1151	1141	849	589	318	9164
	84-85	99	165	337	867	984	1185	1335	1179	1020	723	550	224	8668
	85-86	121	152	463	648	1023	1270	1130	1011	892	740	585	257	8292
TRINIDAD	AVE	0	0	86	359	738	973	1051	846	781	468	207	35	5544
	84-85	0	0	138	507	652	891	1225	935	658	366	159	25	5556
	85-86	0	0	175	380	772	1046	738	764	529	365	194	32	4995
WALDEN	AVE	198	285	501	822	1170	1457	1535	1313	1277	915	642	351	10466
	84-85	122	184	448	942	1130	1389	1652	1358	1138	810	592	320	10085
	85-86	171	271	578	824	1224	1458	1381	1155	989	836	656	256	9799
WALSEN-BURG	AVE	0	8	102	370	720	924	989	820	781	501	240	49	5504
	84-85	0	0	113	517	621	817	1131	902	669	386	187	32	5375
	85-86	0	0	165	358	770	982	681	734	515	404	221	42	4872

JUNE 1986 CLIMATIC DATA

Eastern Plains*

Name	Temperature Max	Min	Mean	Dep	High	Low	Degree Days Heat	Cool	Grow	Precipitation Total	Dep	%Norm	# days
KAUFFMAN 4SSE	81.7	51.3	66.5	2.1	94	40	35	86	511	3.52	1.02	140.8	7
STERLING	85.6	56.7	71.1	3.0	99	44	22	216	599	2.72	-0.01	99.6	7
FORT MORGAN	86.4	55.2	70.8	2.4	101	43	19	200	585	2.39	0.37	118.3	9
AKRON FAA AP	82.9	55.7	69.3	2.4	99	43	26	164	563	3.71	1.07	140.5	8
HOLYOKE	83.0	57.0	70.0	0.9	97	46	21	180	581	2.36	-1.00	70.2	5
BURLINGTON	84.4	58.2	71.3	1.6	97	47	12	209	618	2.25	-0.07	97.0	8
LIMON WSMO	81.1	51.0	66.0	2.0	95	40	57	97	492	1.95	0.15	108.3	9
CHEYENNE WELLS	85.3	58.1	71.7	2.2	98	46	14	222	621	4.11	1.96	191.2	12
HOLLY	87.8	54.7	71.2	-1.3	104	44	19	213	582	4.71	1.64	153.4	11
SPRINGFIELD 7WSW	85.4	56.6	71.0	0.9	97	47	13	200	600	3.48	1.37	164.9	12

Foothills/Adjacent Plains*

Name	Temperature Max	Min	Mean	Dep	High	Low	Degree Days Heat	Cool	Grow	Precipitation Total	Dep	%Norm	# days
FORT COLLINS	82.6	54.1	68.4	3.0	95	40	22	130	548	1.18	-0.66	64.1	7
GREELEY UNC	84.5	55.8	70.1	2.3	98	43	15	178	577	1.63	-0.18	90.1	5
ESTES PARK	75.1	44.0	59.5	3.0	84	28	165	8	389	1.99	0.23	113.1	16
LONGMONT	83.0	54.7	68.8	2.9	96	42	20	142	551	1.56	-0.44	78.0	5
BOULDER	83.7	54.7	69.2	2.0	94	42	16	151	567	1.68	-0.58	74.3	14
DENVER WSFO AP	84.0	56.6	70.3	3.9	99	45	22	188	590	1.07	-0.80	57.2	11
EVERGREEN	75.5	43.8	59.7	2.0	87	31	157	7	394	1.92	-0.19	91.0	13
LAKE GEORGE 8SW	71.2	41.6	56.4	1.3	84	24	255	1	326	1.13	-0.15	88.3	10
COLORADO SPRINGS	79.2	52.3	65.8	0.6	92	41	49	82	487	2.47	0.15	106.5	13
CANON CITY 2SE	82.0	53.8	67.9	0.2	95	42	40	135	534	1.76	0.46	135.4	8
PUEBLO WSO AP	87.5	54.6	71.1	0.2	101	43	21	212	578	2.21	0.89	167.4	11
WALSENBURG	81.7	51.7	66.7	0.1	92	43	42	100	514	4.20	2.98	344.3	13
TRINIDAD FAA AP	82.5	53.4	67.9	-0.5	96	44	32	129	531	3.60	2.07	235.3	9

Mountains/Interior Valleys*

Name	Temperature Max	Min	Mean	Dep	High	Low	Degree Days Heat	Cool	Grow	Precipitation Total	Dep	%Norm	# days
WALDEN	74.6	37.8	56.2	3.0	85	28	256	0	376	1.66	0.64	162.7	8
LEADVILLE 2SW	67.1	33.0	50.0	1.6	77	25	441	0	268	1.11	0.11	111.0	14
SALIDA	77.0	44.5	60.8	0.3	90	36	135	14	414	1.38	0.47	151.6	8
BUENA VISTA	76.1	43.9	60.0	1.3	85	37	149	7	401	1.33	0.52	164.2	12
SAGUACHE	73.5	44.8	59.1	0.8	83	40	171	2	362	0.51	-0.06	89.5	9
HERMIT 7ESE	70.0	34.4	52.2	2.8	82	26	378	0	307	1.20	0.48	166.7	5
ALAMOSA WSO AP	76.9	43.7	60.3	1.1	87	35	138	3	408	0.67	-0.05	93.1	8
STEAMBOAT SPRINGS	77.7	39.6	58.6	3.8	87	32	185	2	425	1.62	0.17	111.7	7
GRAND LAKE 6SSW	70.2	39.1	54.6	2.7	80	29	304	0	310	1.01	-0.29	77.7	11
DILLON 1E	68.3	35.5	51.9	1.3	80	27	388	0	284	1.89	0.73	162.9	11
CLIMAX	60.3	36.0	48.2	3.1	69	23	496	0	169	1.64	0.16	110.8	16
ASPEN 1SW	73.2	44.3	58.8	3.8	84	35	185	3	353	1.63	0.22	115.6	11
TAYLOR PARK	66.5	26.9	46.7	-0.3	75	19	538	0	255	1.25	0.19	117.9	7
TELLURIDE	73.1	39.3	56.2	2.1	82	29	257	0	355	3.00	1.78	245.9	15
SILVERTON	68.8	31.6	50.2	2.2	78	23	438	0	288	1.53	0.28	122.4	14
WOLF CREEK PASS 1	62.3	34.6	48.4	1.1	69	28	489	0	191	3.19	1.55	194.5	9

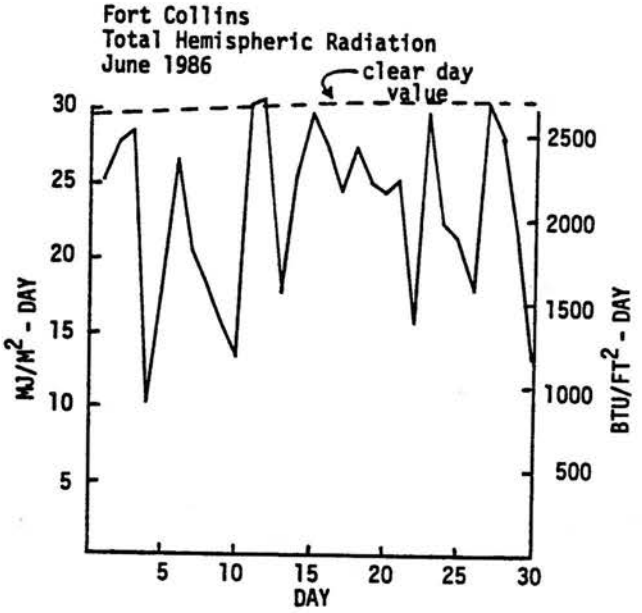
Western Valleys*

Name	Temperature Max	Min	Mean	Dep	High	Low	Degree Days Heat	Cool	Grow	Precipitation Total	Dep	%Norm	# days
CRAIG 4SW	79.3	47.1	63.2	3.8	89	38	76	29	456	1.46	0.11	108.1	7
HAYDEN	80.6	47.3	64.0	4.1	88	39	58	37	481	0.90	-0.32	73.8	7
MEEKER NO. 2	81.7	44.3	63.0	2.0	89	33	75	20	484	0.57	-0.28	67.1	6
EAGLE FAA AP	81.2	43.5	62.3	2.8	92	35	88	15	476	0.77	-0.08	90.6	6
RIFLE	85.5	48.5	67.0	3.4	94	40	16	82	523	0.21	-0.62	25.3	4
GRAND JUNCTION WS	88.7	59.9	74.3	2.3	97	47	3	289	676	0.15	-0.35	30.0	3
CEDAREDGE	85.5	51.6	68.5	3.1	94	41	16	130	551	0.23	-0.50	31.5	5
PAONIA 1SW	85.6	52.6	69.1	3.6	96	44	17	150	552	1.03	0.23	128.7	7
DELTA	89.1	50.3	69.7	1.8	95	41	6	152	562	0.32	-0.23	58.2	8
GUNNISON	76.8	39.0	57.9	2.8	85	30	204	0	411	0.72	0.18	133.3	10
MONTROSE NO. 2	84.8	53.8	69.3	3.4	93	42	24	159	566	0.85	0.24	139.3	7
URAVAN	89.4	53.3	71.3	1.2	101	42	8	209	584	0.11	-0.31	26.2	3
NORWOOD	78.8	45.3	62.0	1.9	89	35	100	17	442	1.45	0.59	168.6	4
YELLOW JACKET 2W	80.7	49.0	64.8	1.6	89	39	56	58	474	2.47	1.98	504.1	7
DURANGO	81.3	45.7	63.5	2.1	91	38	70	31	475	1.34	0.77	235.1	8
IGNACIO 1N	85.8	44.5	65.2	4.0	95	36	42	56	520	0.58	0.05	109.4	4

* Data are received by the Colorado Climate Center for more locations than appear in these tables. Please contact the Colorado Climate Center if additional information is needed.

JUNE 1986 SUNSHINE AND SOLAR RADIATION

Station	Number of Days clear	partly cloudy	cloudy	% of possible sunshine	average % of possible
Colorado Springs	7	9	14	--	--
Denver	6	9	15	68%	71%
Fort Collins	4	13	13	--	--
Grand Junction	14	8	8	77%	79%
Pueblo	9	8	13	75%	79%



New Report on Precipitation Probabilities Available: continued

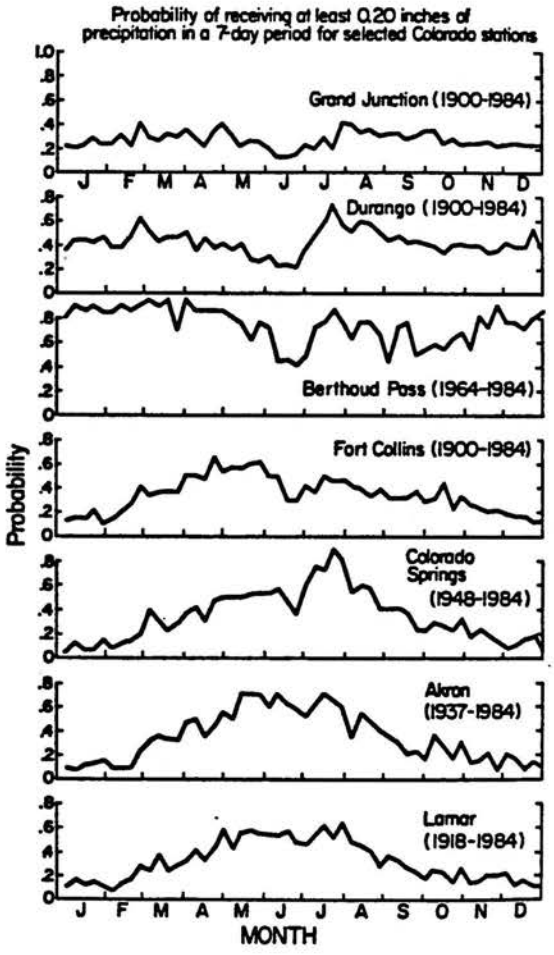
has a greater than 30% chance of receiving at least 0.50" of rain that week, but probabilities range from just 11% at Eagle to 68% at Elbert. Similarly, there is a distinct statewide dry period in late June extending into the first few days of July. That's the best time of the year to plan an outdoor family reunion.

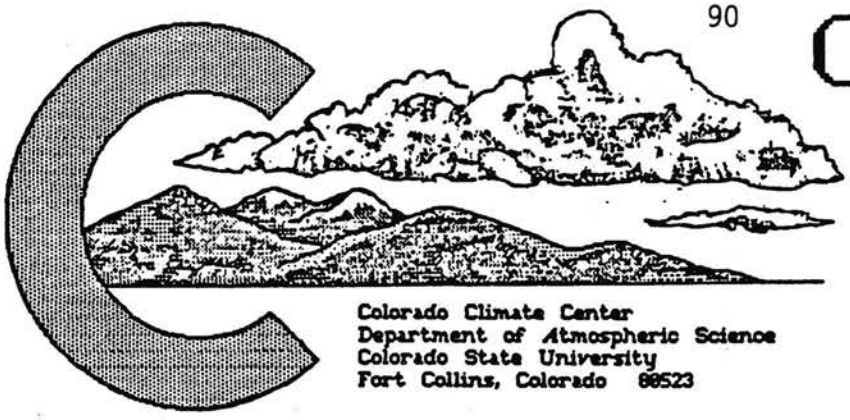
We all tend to think of precipitation in terms of monthly totals and averages. But climate operates on time scales that don't always match our monthly definitions. By looking at shorter time periods and by looking at probabilities, we hope to harvest more information from the many years of computerized precipitation records which we now have at our disposal. Whether the problem is designing an irrigation system, projecting residential water demand, revegetating disturbed areas, planning international conferences or setting the date for an outdoor wedding, this summary should be helpful.

The report is approximately 300 pages long which includes 6 pages of probability tables for each of the 45 stations. Copies will be available from the Colorado Climate Center for $10.00. If you would like to obtain a copy of this report, please promptly call our office at (303) 491-8545 or write us at:

Colorado Climate Center
Department of Atmospheric Science
Colorado State University
Fort Collins, CO 80523

There will be several weeks delay before you receive your copies since the response from this notice will be used to help determine the number of copies to be printed. Thank you for your patience.





COLORADO CLIMATE

JULY 1986

Colorado Climate Center
Department of Atmospheric Science
Colorado State University
Fort Collins, Colorado 80523

July in Review:

July was characterized by a somewhat steady flow of southwesterly monsoon moisture which gave abundant precipitation to most of the state, especially west of the Front Range. The consistent cloud cover and rainfall helped to keep the majority of the state on the cooler than average side.

A Look Ahead -- September 1986:

For three years in a row, much of Colorado has had to deal with abnormally early autumn frosts in September. Last year was particularly rude with frost arriving on the 23rd in some areas followed on the 28-30th by the coldest weather ever to hit Eastern Colorado so early. Several inches of snow and nighttime temperatures in the teens (colder still in the eastern foothills) added insult to injury. But the fact remains: September is normally a beautiful month in Colorado -- not too hot, not too cold, abundant sunshine, very few and rarely severe storms, and fine clear air with excellent visibility. All told it is a lovely month to see Colorado at its best.

Daylength shortens noticeably in September, faster than in any other month. With this change comes steadily cooler temperatures, especially at night. The clear, dry atmosphere often leads to very large day-night temperature differences sometimes 50 degrees Fahrenheit or more in some western slope valleys. Nighttime readings in the 20s or 30s are to be expected by the end of September across practically the entire state. But comfortable daytime temperatures in the 70s and 80s at elevations below 7,500 feet are still likely.

Snow occurred last year in September in parts of Colorado even at low elevations. It is something that can happen, but usually doesn't except in the mountains. Even high up, September snows usually melt quickly with the return of sunshine.

September precipitation can be quite variable. Little or no precipitation has occurred in some years while a few years have been very wet. On the average, September precipitation is surprisingly uniform across the state with the majority of the area receiving between 1.00" and 1.50". Drier areas include the interior San Luis Valley, the Arkansas Valley from Pueblo to La Junta and the extreme western valleys near Grand Junction. The wettest area is the San Juan Mountains where lingering moisture from the Southwest Monsoon and an occasional dying hurricane have brought some very heavy September rains. Wolf Creek Pass averages almost 4.00" and once received 11.25" in September 1970.

Colorado State Fair:

Colorado Climate Center personnel will be representing Colorado State University at the 1986 Colorado State Fair in Pueblo, August 23-September 1. Come to the Fair and stop by the Science and Technology Pavillion. We'll be flying a tethered balloon to measure temperature, humidity, pressure and wind above the Fairgrounds. We'll also be displaying some of our computerized climate information retrieval and processing capabilities. Stop by and see us. We're always ready to talk a little "Colorado Climate."

JULY 1986 DAILY WEATHER

Date	Event
1-4	The majority of the state remained hot and dry. A weak monsoonal flow helped to produce only scattered showers, mainly in the mountains. Many stations on the plains reached the century mark on the 4th for a hot Independence Day celebration.
5-9	An approaching upper-level trough and associated cool front brought wetter and cooler weather to the state. While most of the precipitation remained in the mountains and west, a few isolated storms wetted the plains with up to a half inch of rain in some locations.
10-15	A weak monsoonal circulation persisted producing only scattered showers, with a warming trend through the period.
16-22	A strong upper level trough along with monsoonal moisture triggered the most significant precipitation in the state for the month. Limon had a 1.67" downpour with small hail on the 19th, while Walsenburg received 1.84" on the 20th. Taylor Park had the coolest temperature in the state for the month on the 20th at 20°F.
23-26	Weak monsoonal flow persisted giving scattered showers over the state. Temperatures remained on the cool side but began to rebound by the end of the period.
27-31	A change in the upper level winds brought warmer and drier air into the state. Very little precipitation occurred during this period, with very hot temperatures across the state. The July hot-spot occurred at Holly on the 30th with a 107° reading.

July 1986 Extremes

Highest Temperature	107°F	July 30	Holly
Lowest Temperature	20°F	July 20	Taylor Park
Greatest Total Precipitation	5.95"		Wolf Creek Pass 1E
Least Total Precipitation	0.33"		Akron 4E
Greatest Total Snowfall*	none reported		

* data derived only from those stations with complete daily snowfall records.

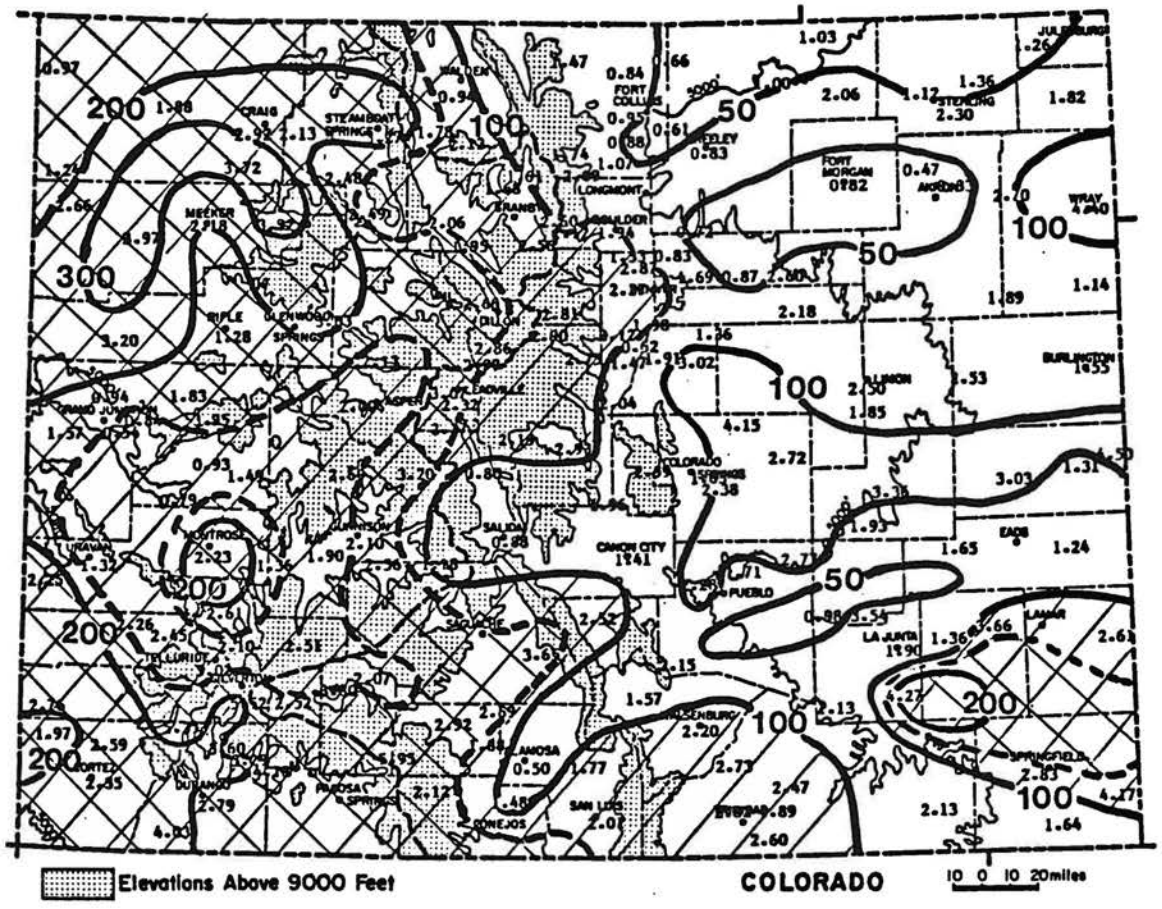
JULY 1986 PRECIPITATION

The strong southwest monsoon flow that developed over the region in July helped to give most of the state above average precipitation. In particular, virtually all of the area west of the divide received greater than average July precipitation.

The southwest and northwest were particularly wet, with areas receiving greater than 200% and 300% of average precipitation, respectively. In the southwest, Cortez received 228% (2.35") of average with Northdale close behind at 226% (2.25"). In the northwest, Little Hills had 361% (3.97") of average while Hamilton received 335% (3.72").

July is one of the wettest months in the eastern plains, and while many regions did receive average or above average precipitation (parts of the southeast), some areas were relatively dry. In particular, the entire northeast corner of the state was rather dry, with Akron at the heart of this area receiving only 13% (0.33") of its average precipitation. The other dry region on the plains was in the Arkansas Valley just north of La Junta. Here, Fowler had only 48% (0.98") of its average July precipitation.

Greatest		Least	
Wolf Creek Pass 1E	5.95"	Akron 4E	0.33"
Silverton	5.52"	Alamosa WSO	0.50"
Rico	5.35"	Kassler	0.52"
Lemon Dam	5.29"	Grand Junction 6E	0.54"



Precipitation amounts (inches) for July 1986 and contours of precipitation as a percent of the 1961-1980 average. The dashed line represents 150% of average.

1986 WATER YEAR PRECIPITATION

Helped by abundant July precipitation, virtually all of western Colorado remains at above average precipitation 10 months into the 1986 water year. Areas which have received greater than 150% of average precipitation increased this month, particularly in the northwest. Mountain precipitation totals remain above average, while the eastern plains continue on the slightly dry side.

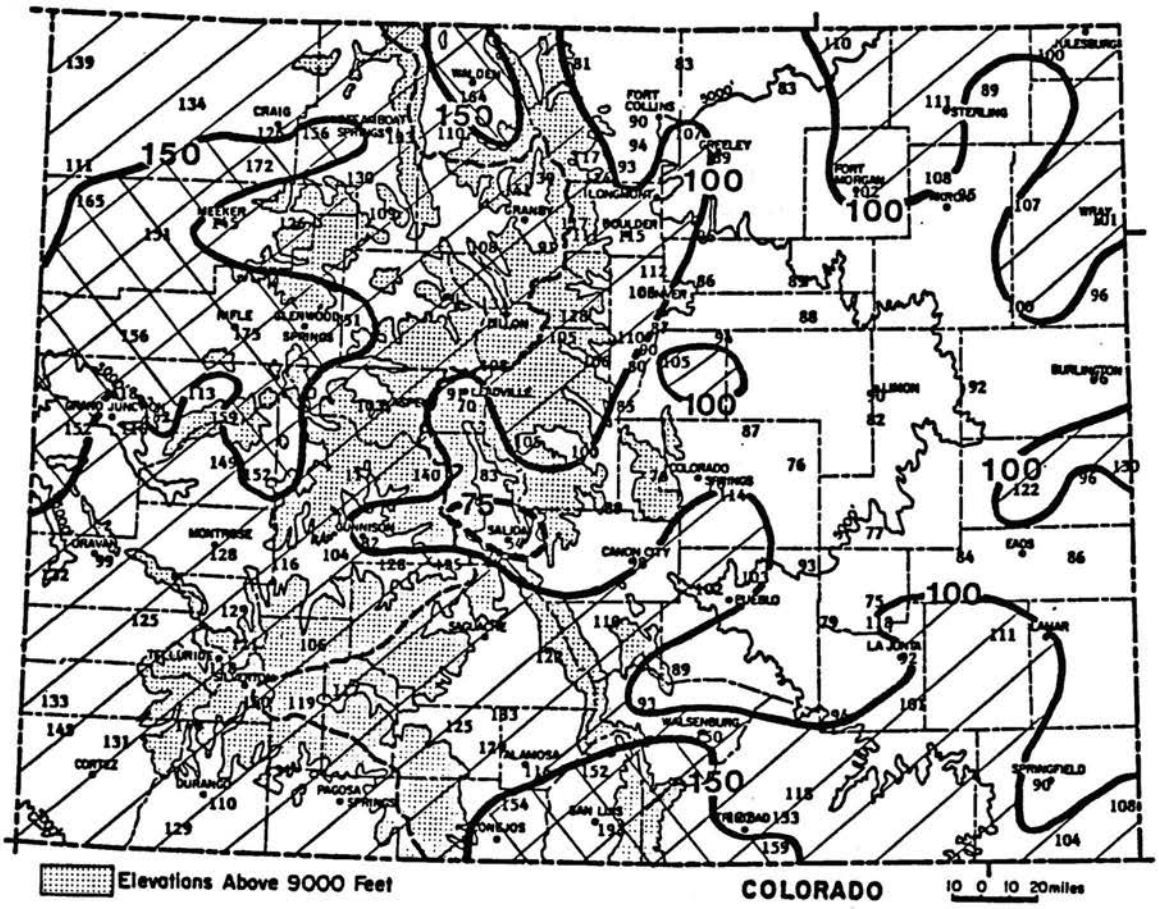
Comparison to Last Year

Last year at this time, virtually the entire state had received above average precipitation except for a few small pockets which were only slightly drier than usual. This year, there are more dry areas, especially east of the divide.

1986 Water Year to Date through July

Wettest (as % of average)			Driest (as % of average)		
San Luis 2SE	193%	10.54"	Salida	54%	4.86"
Rifle	175%	15.41"	Leadville	70%	9.25"
Hamilton	172%	25.36"	Saguache	71%	4.27"

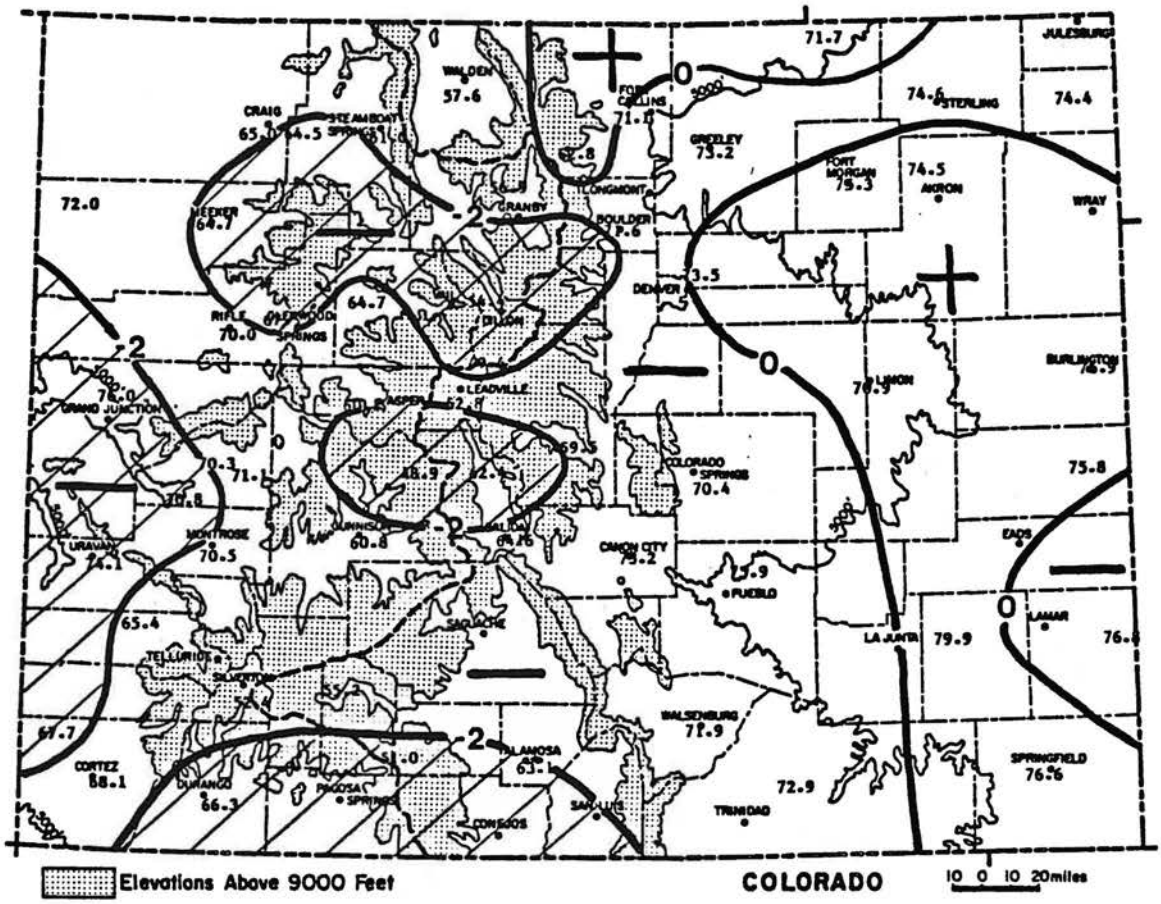
Wettest (total precipitation)			Driest (total precipitation)		
Bonham Reservoir	43.96"	159%	Saguache	4.27"	71%
Mount Evans Research Center	34.61"	136%	Salida	4.86"	54%
Redstone	34.03"	156%	Fowler	5.89"	79%



Precipitation for October 1985 through July 1986 as a percent of the 1961-1980 average.

JULY 1986 TEMPERATURES AND DEGREE DAYS

Unlike last month, most of the state was cooler than average in July. The only regions warmer than normal were in parts of the eastern plains and along the northern foothills east to Kauffman.



July 1986 temperatures (degrees Fahrenheit) and contours of departures from 1961-1980 averages.

JULY 1986 SOIL TEMPERATURES

Soil temperatures in the upper layers (0-12") appear to have reached their summertime peak in late June/early July. Maximum temperatures at the 72" depth generally occur in mid-September.

These soil temperature measurements were taken at Colorado State University beneath sparse unirrigated sod with a flat, open exposure. These data are not representative of all Colorado locations.

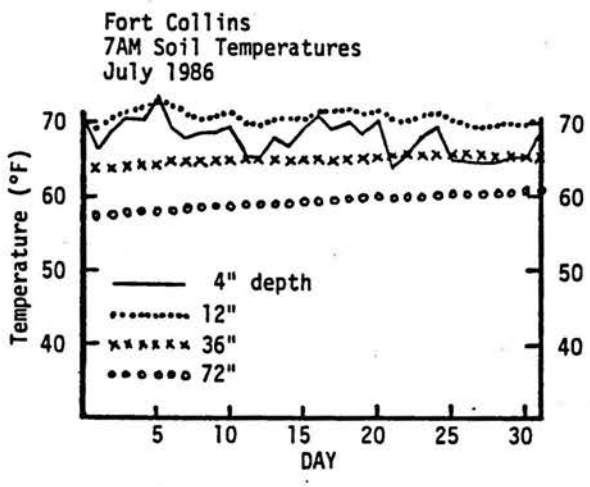


Table 1. Colorado Heating Degree Day Data through July 1986.

Heating Degree Data

STATION		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANN
ALAMOSA	AVE	40	100	303	657	1074	1457	1519	1182	1035	732	453	165	8717
	85-86	30	66	378	634	1045	1472	1231	983	864	638	446	138	7925
	86-87	63												
ASPEN	AVE	95	150	348	651	1029	1339	1376	1162	1116	798	524	262	8850
	85-86	119	107	453	656	1066	1278	1175	1029	848	739	530	185	8185
	86-87	147												
BOULDER	AVE	0	6	130	357	714	908	1004	804	775	483	220	59	5460
	85-86	0	0	222	400	982	1018	674	762	496	423	249	16	5242
	86-87	1												
BUENA VISTA	AVE	47	116	285	577	936	1184	1218	1025	983	720	459	184	7734
	85-86	63	54	405	597	938	1158	972	946	806	661	450	149	7199
	86-87	79												
BURLING-TON	AVE	6	5	108	364	762	1017	1110	871	803	459	200	38	5743
	85-86	0	5	206	405	977	1142	740	820	525	386	163	12	5381
	86-87	0												
CANON CITY	AVE	0	9	81	301	639	831	911	734	707	411	179	33	4836
	85-86	0	6	186	397	886	1036	711	756	507	399	248	40	5172
	86-87	4												
COLORADO SPRINGS	AVE	8	25	162	440	819	1042	1122	910	880	564	296	78	6346
	85-86	5	8	253	487	978	1143	822	840	635	487	315	49	6022
	86-87	4												
CORTEZ	AVE	0	11	115	434	813	1132	1181	921	828	555	292	68	6350
	85-86		4	264	484	884	1081		805	711	572	321		5126
	86-87	10												
CRAIG	AVE	32	58	275	608	996	1342	1479	1193	1094	687	419	193	8376
	85-86	10	42	353	649	1043	1487	1362	1023	780	669	461	76	7955
	86-87	31												
DELTA	AVE	0	0	94	394	813	1135	1197	890	753	429	167	31	5903
	85-86	0		113	335	658			684	530	365	174	6	2865
	86-87	0												
DENVER	AVE	0	0	135	414	789	1004	1101	879	837	528	253	74	6014
	85-86	0	1	241	435	1051	1094	758	802	548	456	260	22	5668
	86-87	0												
DILLON	AVE	273	332	513	806	1167	1435	1516	1305	1296	972	704	435	10754
	85-86	260	300	609	856	1183	1439	1380	1175	1072	915	716	388	10293
	86-87	322												
DURANGO	AVE	9	34	193	493	837	1153	1218	958	862	600	366	125	6848
	85-86	3	8	274	476	916	1159	967	802	686	575	341	70	6277
	86-87	23												
EAGLE	AVE	33	80	288	626	1026	1407	1448	1148	1014	705	431	171	8377
	85-86	19	52	356	605	995	1352	1324	890	736	598	428	88	7443
	86-87	37												
EVER-GREEN	AVE	59	113	327	621	916	1135	1199	1011	1009	730	489	218	7827
	85-86	62	90	387	651	1039	1119	947	927	770	608	532	157	7289
	86-87													
FORT COLLINS	AVE	5	11	171	468	846	1073	1181	930	877	558	281	82	6483
	85-86	1	8	243	499	1078	1199	883	816	568	470	261	22	6048
	86-87	0												
FORT MORGAN	AVE	0	6	140	438	867	1156	1283	969	874	516	224	47	6520
	85-86	0	2	239	548	1165	1425	1160	915	616	401	246	19	6736
	86-87	0												
GRAND JUNCTION	AVE	0	0	65	325	762	1138	1225	882	716	403	148	19	5683
	85-86	0	0	139	351	779	1018	949	685	489	366	168	3	4947
	86-87	0												

Heating Degree Data

STATION		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANN
GRAND LAKE	AVE	214	264	468	775	1128	1473	1593	1369	1318	951	654	384	10591
	85-86	206	265	513	744	1115	1454	1494	1174	1083	896	651	304	9899
	86-87	245												
GREELEY	AVE	0	0	149	450	861	1128	1240	946	856	522	238	52	6442
	85-86	0	6	249	501	1131	1311	1010	845	545	440	232	15	6285
	86-87	0												
GUNNISON	AVE	111	188	393	719	1119	1590	1714	1422	1231	816	543	276	10122
	85-86	84	152	433	678	1058	1648	1712	1084	952	711	517	204	9233
	86-87	123												
LAS ANIMAS	AVE	0	0	45	296	729	998	1101	820	698	348	102	9	5146
	85-86	0	0	134	313	816	1106	737	715	409	220	77		4527
	86-87	0												
LEAD-VILLE	AVE	272	337	522	817	1173	1435	1473	1318	1320	1038	726	439	10870
	85-86	333	359	666	871	1258	1470	1328	1251	1168	994	760	441	10899
	86-87	372												
LIMON	AVE	8	6	144	448	834	1070	1156	960	936	570	299	100	6531
	85-86	1	12	274	544	1078	1233	861	910	662	508	336	57	6476
	86-87	4												
LONGMONT	AVE	0	6	162	453	843	1082	1194	938	874	546	256	78	6432
	85-86	0	6	236	486	1095	1228	869	814	549	469	262	20	6034
	86-87													
MEEKER	AVE	28	56	261	564	927	1240	1345	1086	998	651	394	164	7714
	85-86	6	31	358	599	967	1249	1164	893	742	646	458	75	7188
	86-87	41												
MONTROSE	AVE	0	10	135	437	837	1159	1218	941	818	522	254	69	6400
	85-86	0	0	211	443	803	1106	1032	766	577	453	235	24	5650
	86-87	1												
PAGOSA SPRINGS	AVE	82	113	297	608	981	1305	1380	1123	1026	732	487	233	8367
	85-86	34	73	376	600	1000	1373	1191	952	803	668	481	183	7734
	86-87	98												
PUEBLO	AVE	0	0	89	346	744	998	1091	834	756	421	163	23	5465
	85-86	0	0	172	410	1012	1161	783	728	523	346	167	21	5323
	86-87	0												
RIFLE	AVE	6	24	177	499	876	1249	1321	1002	856	555	298	82	6945
	85-86	1	6	232	484	882	1147	1076	769	607	477	287	16	5984
	86-87	1												
STEAMBOAT SPRINGS	AVE	113	169	390	704	1101	1476	1541	1277	1184	810	533	297	9595
	85-86	57	130	434	729	1144	1554	1495	1097	915	688	533	185	8961
	86-87	120												
STERLING	AVE	0	6	157	462	876	1163	1274	966	896	528	235	51	6614
	85-86	0	6	230	519	1161	1395	1155	990	594	439	279	22	6790
	86-87	0												
TELLURIDE	AVE	163	223	396	676	1026	1293	1339	1151	1141	849	589	318	9164
	85-86	121	152	463	648	1023	1270	1130	1011	892	740	585	257	8292
	86-87	200												
TRINIDAD	AVE	0	0	86	359	738	973	1051	846	781	468	207	35	5544
	85-86	0	0	175	380	772	1046	738	764	529	365	194	32	4995
	86-87	1												
WALDEN	AVE	198	285	501	822	1170	1457	1535	1313	1277	915	642	351	10466
	85-86	171	271	578	824	1224	1458	1381	1155	989	836	656	256	9799
	86-87	225												
WALSEN-BURG	AVE	0	8	102	370	720	924	989	820	781	501	240	49	5504
	85-86	0	0	165	358	770	982	681	734	515	404	221	42	4872
	86-87	0												

JULY 1986 CLIMATIC DATA

Eastern Plains*

Name	Temperature Max	Min	Mean	Dep	High	Low	Degree Days Heat	Cool	Grow	Precipitation Total	Dep	%Norm	# days
KAUFFMAN 4SSE	88.2	55.3	71.7	0.6	97	47	2	220	638	1.03	-1.13	47.7	5
STERLING	89.6	59.5	74.6	-0.1	99	54	0	305	696	1.12	-1.45	43.6	6
FORT MORGAN	92.1	58.5	75.3	0.1	102	53	0	328	689	0.82	-0.88	48.2	7
AKRON FAA AP	89.5	59.5	74.5	0.9	100	52	0	304	700	0.47	-2.16	17.9	8
HOLYOKE	87.7	61.1	74.4	-0.6	98	51	0	297	710	1.82	-0.96	65.5	6
BURLINGTON	91.1	62.7	76.9	1.1	101	57	0	379	753	1.55	-0.42	78.7	5
LIMON WSMO	86.5	55.3	70.9	0.2	97	50	4	196	616	2.50	-0.40	86.2	9
CHEYENNE WELLS	91.0	60.5	75.8	0.4	100	52	1	345	714	1.31	-1.16	53.0	2
LAS ANIMAS	97.5	62.2	79.9	0.6	105	54	0	470	753	1.36	-0.89	60.4	7
HOLLY	95.2	58.4	76.8	-1.9	107	53	0	374	689	2.61	0.54	126.1	9
SPRINGFIELD 7WSW	92.6	60.5	76.6	1.3	102	54	0	366	725	2.83	0.39	116.0	9

Foothills/Adjacent Plains*

Name	Temperature Max	Min	Mean	Dep	High	Low	Degree Days Heat	Cool	Grow	Precipitation Total	Dep	%Norm	# days
FORT COLLINS	85.2	56.9	71.1	-0.4	94	51	0	193	634	0.95	-0.82	53.7	9
GREELEY UNC	88.5	58.0	73.2	-0.3	97	53	0	263	672	0.83	-0.38	68.6	7
ESTES PARK	77.4	48.3	62.8	0.5	85	40	90	29	464	1.74	-0.43	80.2	18
BOULDER	86.3	56.9	71.6	-1.9	95	53	1	213	644	1.94	0.05	102.6	15
DENVER WSFO AP	88.0	59.0	73.5	0.2	98	54	0	271	682	1.69	-0.21	88.9	9
LAKE GEORGE 8SW	73.7	45.2	59.5	-1.8	83	39	169	3	376	2.93	0.40	115.8	13
COLORADO SPRINGS	84.6	56.2	70.4	-0.8	94	52	4	180	619	1.63	-1.27	56.2	15
CANON CITY 2SE	87.3	59.0	73.2	-0.4	95	49	4	269	684	1.41	-0.50	73.8	8
PUEBLO WSO AP	93.5	58.3	75.9	-1.3	102	53	0	347	688	1.71	-0.23	88.1	10
WALSENBURG	86.8	57.1	71.9	-0.3	93	51	0	220	652	2.70	0.30	112.5	13
TRINIDAD FAA AP	88.6	57.3	72.9	-1.1	96	50	1	256	663	2.47	0.30	113.8	10

Mountains/Interior Valleys*

Name	Temperature Max	Min	Mean	Dep	High	Low	Degree Days Heat	Cool	Grow	Precipitation Total	Dep	%Norm	# days
WALDEN	75.3	39.8	57.6	-1.3	84	31	225	1	399	0.94	0.01	101.1	12
LEADVILLE 2SW	68.5	37.0	52.8	-1.7	77	29	372	0	295	2.32	0.02	100.9	17
SALIDA	81.5	47.8	64.6	-1.1	89	39	35	30	504	0.88	-0.81	52.1	7
BUENA VISTA	78.8	46.0	62.4	-2.5	87	42	79	8	455	0.80	-0.77	51.0	8
SAGUACHE	74.9	47.6	61.3	-2.7	83	44	110	3	393	1.78	0.17	110.6	11
HERMIT 7ESE	72.1	38.3	55.2	-0.6	81	30	298	0	352	3.80	1.48	163.8	12
ALAMOSA WSO AP	80.7	45.4	63.1	-2.0	88	35	63	11	485	0.50	-0.84	37.3	11
STEAMBOAT SPRINGS	77.9	44.2	61.0	-0.6	86	34	120	6	443	3.27	1.99	255.5	13
GRAND LAKE 6SSW	71.1	42.6	56.9	-1.2	78	32	245	0	336	1.68	0.33	124.4	16
DILLON 1E	70.1	38.6	54.4	-2.5	80	31	322	0	320	2.65	1.10	171.0	19
AVON	77.4	36.5	56.9	-7.1	85	25	235	1	415	2.75	1.45	211.5	12
CLIMAX	61.0	37.7	49.4	-2.3	70	30	461	0	172	2.99	0.91	143.7	20
ASPEN 1SW	73.9	46.3	60.1	-1.9	82	41	147	2	377	2.00	0.30	117.6	14
TAYLOR PARK	67.6	30.2	48.9	-4.5	75	20	491	0	279	3.20	1.66	207.8	18
TELLURIDE	74.1	42.5	58.3	-1.7	84	35	200	1	381	3.02	0.60	124.8	19
PAGOSA SPRINGS	79.3	45.3	62.3	-1.8	89	35	98	20	464	2.80	1.06	160.9	16
SILVERTON	69.0	35.9	52.4	-1.5	78	25	381	0	302	5.52	2.79	202.2	19
WOLF CREEK PASS 1	63.1	39.0	51.0	-2.1	75	34	424	0	209	5.95	2.72	184.2	19

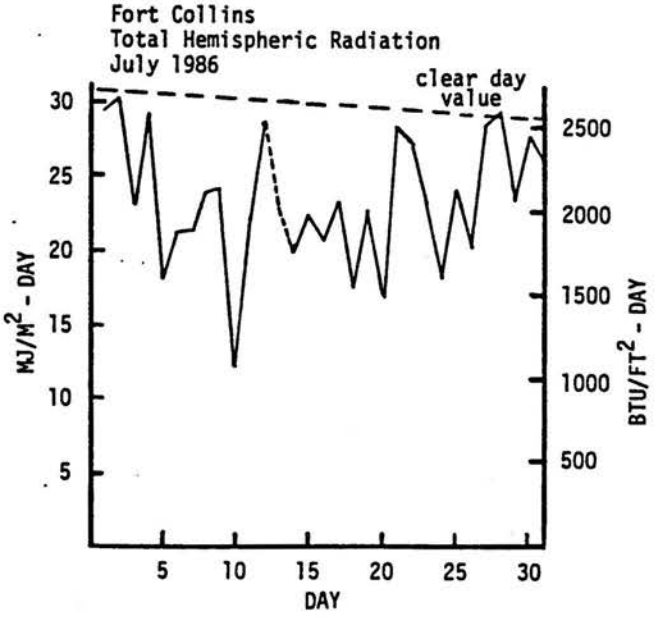
Western Valleys*

Name	Temperature Max	Min	Mean	Dep	High	Low	Degree Days Heat	Cool	Grow	Precipitation Total	Dep	%Norm	# days
CRAIG 4SW	80.5	49.5	65.0	-1.7	89	43	31	38	497	2.92	1.62	224.6	18
HAYDEN	80.1	49.0	64.5	-2.3	89	40	42	36	491	2.13	1.05	197.2	13
MEEKER NO. 2	81.4	48.0	64.7	-2.5	90	30	41	41	501	2.18	1.07	196.4	10
RANGELY 1E	87.3	56.7	72.0	-1.3	96	49	0	225	645	2.66	1.72	283.0	13
EAGLE FAA AP	82.1	47.4	64.7	-1.8	90	38	37	36	510	1.48	0.45	143.7	13
GLENWOOD SPRINGS	82.8	52.2	67.5	-2.4	9999	32	11	82	453	1.43	0.16	112.6	9
RIFLE	86.6	53.4	70.0	-0.3	96	45	1	166	596	1.28	0.59	185.5	10
GRAND JUNCTION WS	89.8	62.1	76.0	-3.1	98	55	0	348	739	0.94	0.38	167.9	11
CEDAREDGE	86.1	54.4	70.3	-1.6	95	49	0	171	603	0.93	0.09	110.7	7
PAONIA 1SW	86.6	55.6	71.1	-1.3	96	51	0	198	625	1.49	0.36	131.9	12
DELTA	89.0	52.5	70.8	-2.9	98	43	0	184	599	0.79	0.13	119.7	9
GUNNISON	79.0	42.6	60.8	-0.4	85	32	123	1	458	2.10	0.79	160.3	9
MONTROSE NO. 2	84.5	56.5	70.5	-1.8	93	50	1	183	619	2.23	1.35	253.4	14
URAVAN	90.6	57.1	73.9	-3.3	102	49	0	284	653	1.32	0.16	113.8	8
NORWOOD	79.8	50.9	65.4	-0.9	93	44	40	60	501	2.26	0.50	128.4	11
YELLOW JACKET 2W	82.5	53.0	67.7	-2.9	92	48	8	102	551	1.97	0.67	151.5	8
CORTEZ	83.4	52.8	68.1	-0.7	92	44	10	113	564	2.35	1.32	228.2	13
DURANGO	83.1	49.4	66.3	-2.5	93	41	23	71	521	2.79	1.28	184.8	14

* Data are received by the Colorado Climate Center for more locations than appear in these tables. Please contact the Colorado Climate Center if additional information is needed.

JULY 1986 SUNSHINE AND SOLAR RADIATION

Station	Number of Days clear	partly cloudy	cloudy	% of possible sunshine	average % of possible
Colorado Springs	5	16	10	--	--
Denver	5	15	11	67%	71%
Fort Collins	6	16	9	--	--
Grand Junction	9	13	9	71%	78%
Pueblo	15	10	6	78%	78%



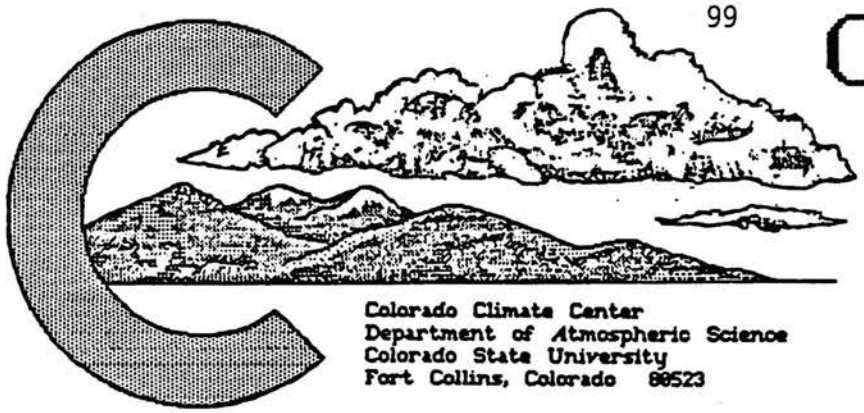
Subscription Reminder:

If you have not responded to the "Subscriber Check" form sent out 2 months ago and wish to continue to receive this publication, please contact us immediately (National Weather Service Cooperative Observers excluded). After the 15th of September, those subscribers who did not return a form to our office, will be removed from the Colorado Climate mailing list. We are evaluating your responses to this questionnaire and will be deciding in a few months if a subscription fee will be imposed. Thank you for your replies.

Autumn Frost Dates:

By popular demand, here is a rerun of some climate information we published a year ago. We've had three years in a row with unusually early freezes across most lower elevation regions of the state. Fortunately, statistics indicate that this has been a normal aspect of our climate variability, not a significant trend toward earlier freezes. For that fact, my watermelons are thankful!

		Probability that the first fall freeze (32°F) will occur on or before this date.				
Station	Elevation	10%	20%	50%	80%	90%
Akron	4663 ft	Sep 17	Sep 21	Oct 1	Oct 10	Oct 15
Alamosa	7536	Aug 27	Aug 31	Sep 7	Sep 14	Sep 18
Boulder	5375	Sep 24	Sep 30	Oct 12	Oct 24	Oct 30
Burlington	4165	Sep 15	Sep 21	Oct 3	Oct 15	Oct 21
Canon City	5355	Sep 26	Oct 2	Oct 14	Oct 26	Nov 1
Colorado Springs	6090	Sep 19	Sep 25	Oct 7	Oct 19	Oct 25
Cortez	6212	Sep 14	Sep 20	Oct 1	Oct 12	Oct 17
Craig	6440	Aug 23	Aug 30	Sep 10	Sep 22	Sep 28
Denver (airport)	5286	Sep 21	Sep 27	Oct 8	Oct 20	Oct 26
Durango	6600	Sep 6	Sep 10	Sep 18	Sep 25	Sep 29
Fort Collins	5004	Sep 17	Sep 21	Sep 30	Oct 9	Oct 14
Fort Morgan	4321	Sep 17	Sep 23	Oct 3	Oct 13	Oct 18
Fraser	8560	Jul 20	Jul 21	Jul 23	Jul 25	Jul 27
Grand Junction	4849	Oct 7	Oct 13	Oct 24	Nov 3	Nov 9
Lamar	3620	Sep 28	Oct 3	Oct 11	Oct 19	Oct 23
Montrose	5785	Sep 20	Sep 25	Oct 7	Oct 18	Oct 23
Pueblo	4640	Sep 27	Oct 3	Oct 13	Oct 23	Oct 28
Rifle	5320	Aug 31	Sep 6	Sep 18	Sep 29	Oct 5
Steamboat Springs	6770	Jul 28	Aug 3	Aug 14	Aug 25	Aug 31
Sterling	3938	Sep 12	Sep 17	Sep 27	Oct 7	Oct 12
Trinidad	5746	Sep 22	Sep 28	Oct 9	Oct 19	Oct 25



COLORADO CLIMATE

AUGUST 1986

Colorado Climate Center
Department of Atmospheric Science
Colorado State University
Fort Collins, Colorado 80523

August in Review:

Temperatures were predominantly above average over Colorado, particularly west of the mountains. Thunderstorms developed somewhere in the State almost every day. Typical of summer, precipitation from these storms was extremely variable.

A Look Ahead -- October 1986:

The basic components of Colorado's October climate are mild sunny days, crisp chilly nights, light winds, low humidity, and just enough cloudy, damp days to mark the progression toward winter. This is an invigorating combination which motivates both outdoor recreation and hard work. Cloud patterns also become noticeably different than during the summer months. Towering cumulus clouds that dot the afternoon skies from May to September give way to flatter altocumulus clouds. Occasionally wave formations appear in these clouds near the mountains as westerly winds aloft begin to strengthen -- a signal of winter's approach. With the change of seasons also comes an increase in air pollution concentrations over the large Front Range cities.

Temperatures normally cool steadily through the month as daylength shortens noticeably. Early in the month lower elevation temperatures remain pleasant with many highs in the 70s and lows above freezing. But by early October, most of the state has experienced the first autumn frost. By the end of the month, lower elevation temperatures struggle to reach 60°F during the day and often drop below freezing at night. Up in the mountains it's beginning to feel a lot like winter. On the mountain passes typical October 31 temperatures range from daily highs in the upper 30s to nighttime lows in the teens. Even a few readings below zero are possible.

October marks the beginning of a new water year. It is the month when high elevation snows (above 10,000 feet) begin to accumulate. The first widespread major mountain snowstorm often strikes in mid-October in time for hunting season. At lower elevations, especially east of the mountains, the first snow of the year has a habit of hitting on or near Halloween. Average precipitation totals for the month range from 0.50"-0.75" across the Eastern Plains to about 1" along the Front Range urban corrider to 1"-2.50" in the northern and central mountains and then back down to about 1" in the western valleys. The San Juan Mountains are the wettest area of the state with an average of 2"-4" of precipitation. October precipitation is often below average, but when it gets wet it really gets wet. October 1972 still comes to mind for the folks in southwest Colorado. Precipitation totals that month were close to 12" in several areas including Durango.

More Research Results on the Variability of Precipitation in Colorado:

The 1980s have been years of plentiful precipitation and abundant surface water supplies in Colorado. But history has shown that drought here in the West is never far away. In fact, as population growth and economic expansion place higher demands on our water resources, water shortages will occur more frequently even if precipitation and water supplies remain the same.

Here in Colorado surface water supplies (reservoirs and rivers) are the dominant source of water for consumption. These supplies are derived directly from precipitation which, of course, varies greatly from place to place and from year to year. The majority of river runoff comes from the melting of high elevation (above 9,000 feet) snow. Hence, high elevation precipitation, particularly winter and spring moisture, is extremely important. But we cannot overlook the lower elevation precipitation. While it

(continued on last page)

AUGUST 1986 DAILY WEATHER

Date	Event
1-3	Northwesterly winds aloft and plenty of low-level moisture east of the mountains. Just a few widely scattered light thundershowers in western Colorado, but major hail-producing storms exploded east of the mountains. Holyoke reported 1.45" on the 1st with hail. Hail pelted Fort Collins, Longmont and many agricultural areas in Weld County on the 2nd causing millions of dollars of property and crop losses. On the 3rd the heaviest storms were in southern Colorado. Hail was reported at Walsenburg, Trinidad and Colorado Springs and a tornado was also sighted from the Colorado Springs airport.
4-14	Typical summer weather with daily scattered thunderstorm activity especially near the mountains. Only minor temperature variations except east of the mountains where the 6th, 11th and 12th were hot. Cooler temperatures were reported on the 7th, 10th and 14th as weak cold fronts crossed the plains. Each of these fronts triggered some heavier storms. Northglenn reported 1.33" of rain with hail and high winds on the 7th. Several heavy storms erupted in western Colorado on the 8th. Altenbern Ranch north of Grand Junction was flooded with 1.70" of rain in two hours. Little Hills reported 2.30" with some road damage. Heavy storms were also reported in southern Colorado near Trinidad and Walsenburg.
15-19	The only real heatwave of the month. Mostly sunny and dry over the state with just a few scattered light afternoon thundershowers mostly 17-19th. Extreme heat on the 18th as many new records were set. Examples of hot temperatures included 75° at Climax, 90° at Steamboat Springs, 92° at Vail, 95° at Durango and Colorado Springs, 100° at Byers, 103° at Pueblo, and 105° at Holly and Las Animas -- the hottest in the state.
20-26	A strong cold front for August ended the heatwave abruptly and with the help of monsoon moisture initiated a week of cool and stormy weather. Thunderstorms each day with the heaviest and most widespread activity across the mountains and the southern half of Colorado. On the 21st 1.47" of rain and hail fell near Pueblo. Late on the 22nd southeastern Colorado was inundated by heavy rains continuing into the 23rd. Springfield's 3.16" total was the greatest official 24-hour report. Southwestern Colorado also got their share. On the 26th Wolf Creek Pass reported 1.00" and Buena Vista 0.81", respectively.
27-31	Drying out 27-28th as a large unusually cool airmass moved down into the central U.S. but only nipped northeastern Colorado. Then a return to southwesterly flow and monsoon moisture as the month ended. Leadville was deluged with 1.20" of rain on the 31st.

August 1986 Extremes

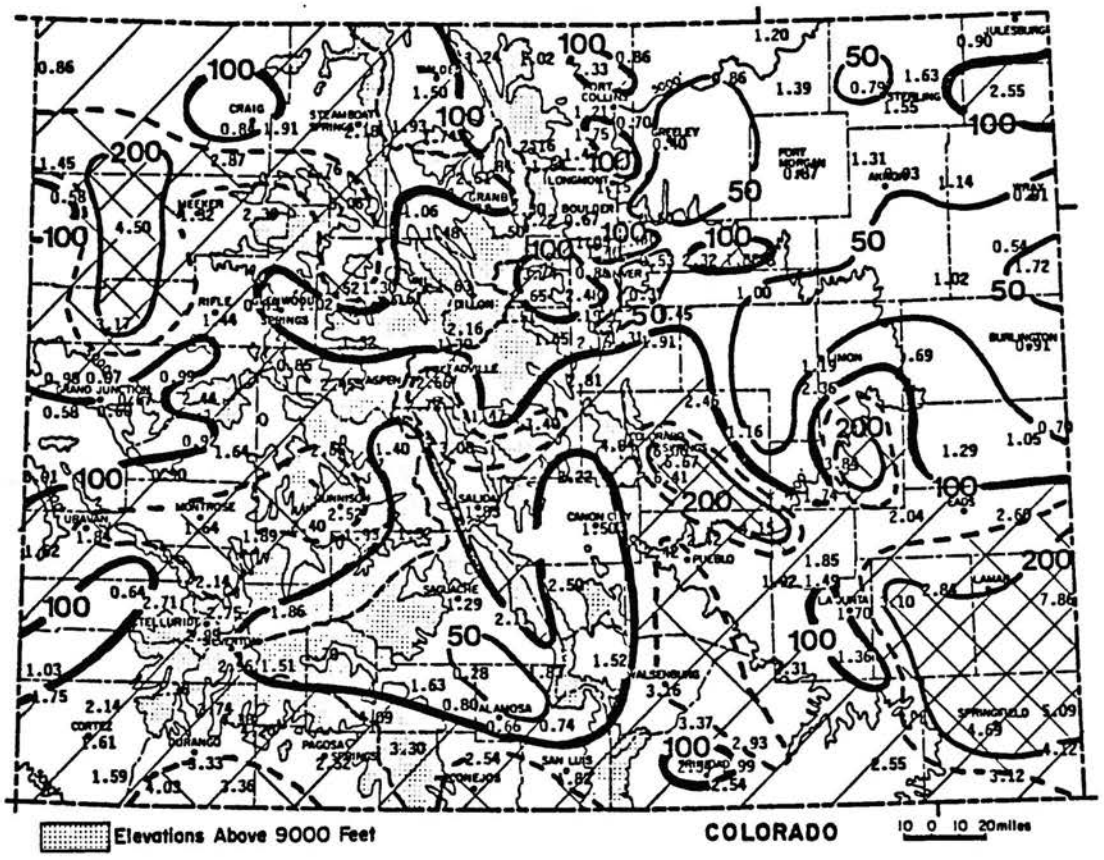
Highest Temperature	105°F	Aug 18	Holly, Las Animas
Lowest Temperature	21°F	Aug 15	Taylor Park Resvr
Greatest Total Precipitation	7.86"		Holly
Least Total Precipitation	0.28"		Center 4SSW
Greatest Total Snowfall*	none reported		

* data derived only from those stations with complete daily snowfall records.

AUGUST 1986 PRECIPITATION

The August precipitation pattern took on a typical chaotic summer appearance with extreme local variations. In general, most areas west of the Continental Divide were wetter than average as was the Arkansas Valley in southeastern Colorado. Local areas were extremely wet such as the Piceance Basin, the Gunnison Valley near Gunnison, the Colorado Springs area and extreme southeast Colorado. But several very dry areas were also noted. Much of northeastern Colorado including the Denver area was much below average. Other local dry areas included parts of the San Luis Valley, Craig and Colorado National Monument. An interesting contrast occurred in the Leadville area. Leadville totalled 2.66" for the month, 156% of average. Meanwhile, up at Fremont Pass just a few miles northeast, Climax received only 1.30", 56% of average.

Greatest		Least	
Holly	7.86"	Center 4SSW	0.28"
Fountain	6.67"	Cherry Creek Dam	0.37"
Fort Carson	6.41"	Kassler	0.37"
Colorado Springs	6.06"	Greeley	0.40"
Walsh 1W	5.09"	Brighton	0.50"



Precipitation amounts (inches) for August 1986 and contours of precipitation as a percent of the 1961-1980 average. The dashed line represents 150% of average.

1986 WATER YEAR PRECIPITATION

Above average summer precipitation in western Colorado continues to keep water year totals above average as the end of the 1986 water year approaches. Much of the Eastern Plains are drier than average but heavy summer precipitation has helped alleviate dry conditions in the southeast.

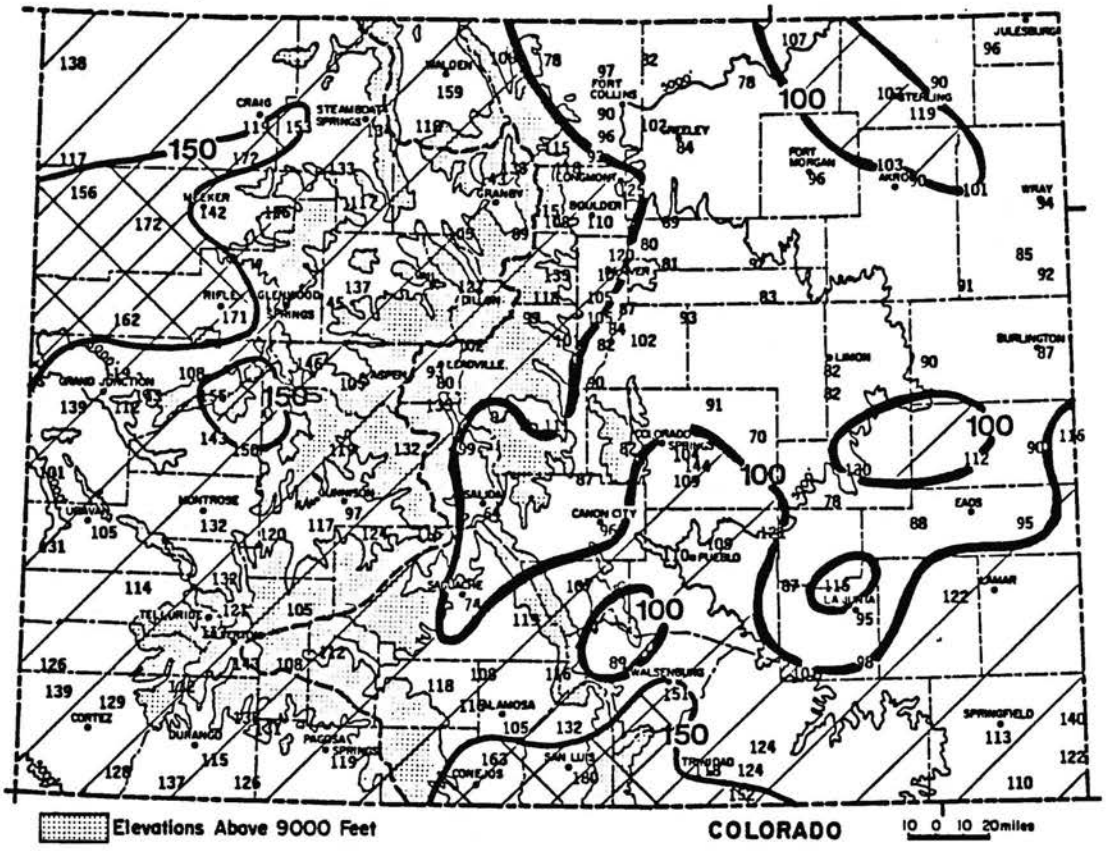
Comparison to Last Year

The moisture pattern actually bears considerable resemblance to the pattern a year ago. The primary difference is the east central plains and the Palmer Ridge which are considerably drier than last year.

1986 Water Year to Date through August

Wettest (as % of average)			Driest (as % of average)		
San Luis 2SE	180%	12.36"	Salida	64%	6.69"
Little Hills	172%	20.66"	Rush 4N	70%	8.33"
Rifle	171%	16.85"	Saguache	74%	5.56"

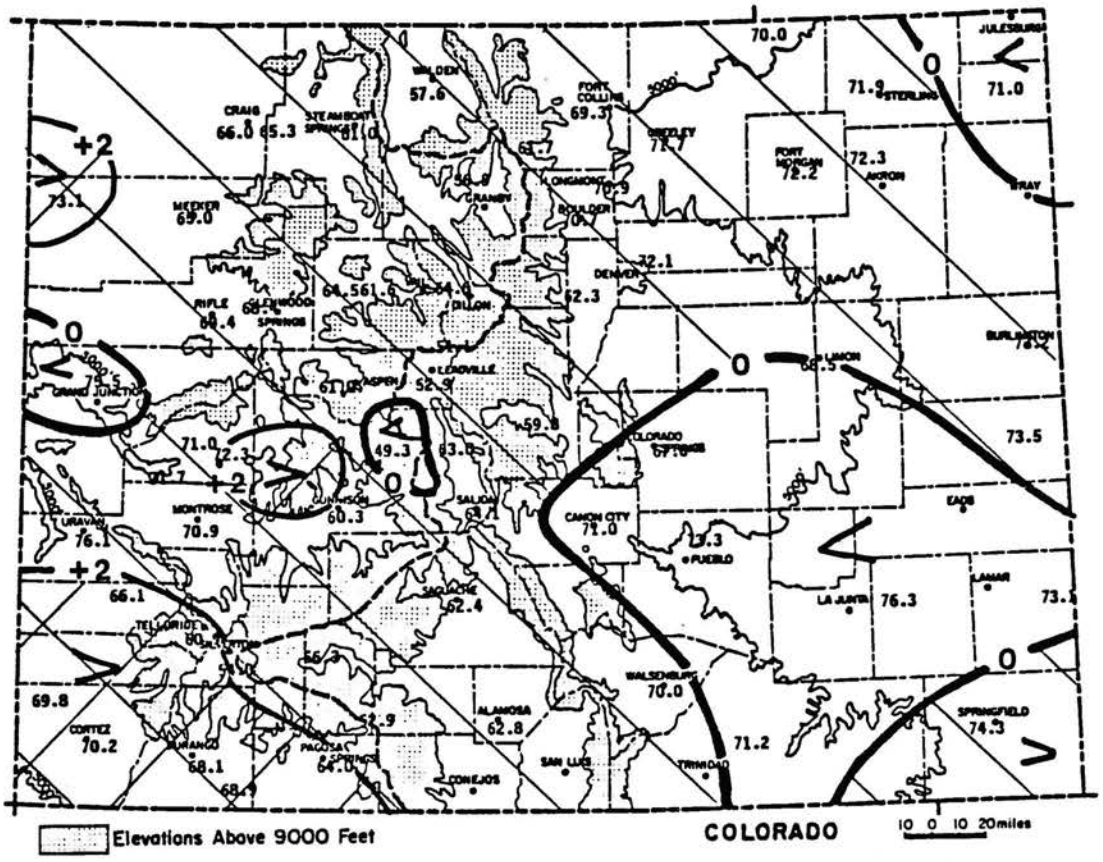
Wettest (total precipitation)			Driest (total precipitation)		
Bonham Reservoir	46.40"	155%	Saguache	5.56"	74%
Mount Evans Research Center	38.35"	135%	Center 4SSW	6.51"	108%
Redstone 4W	34.88"	146%	Salida	6.69"	64%



Precipitation for October 1985 through August 1986 as a percent of the 1961-1980 average.

AUGUST 1986 TEMPERATURES AND DEGREE DAYS

August temperatures were slightly above average over most of the state. Only in southwest Colorado did most temperatures exceed the long term average by more than two degrees Fahrenheit. Southeastern Colorado was slightly cooler than average.



August 1986 temperatures (degrees Fahrenheit) and contours of departures from 1961-1980 averages.

AUGUST 1986 SOIL TEMPERATURES

Soil temperatures near the surface remained fairly steady through August. Deep soil temperatures continued their typical slow late-summer warm up.

These soil temperature measurements were taken at Colorado State University beneath sparse unirrigated sod with a flat, open exposure. These data are not representative of all Colorado locations.

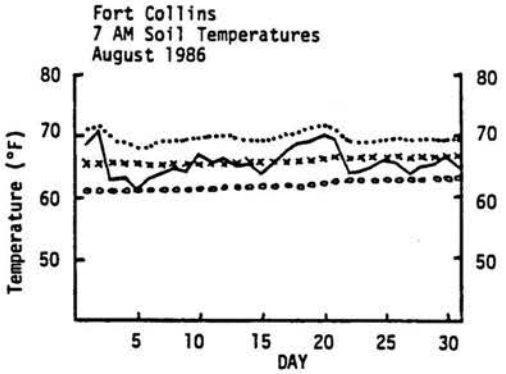


Table 1. Colorado Heating Degree Day Data through August 1986.

Heating Degree Data

STATION		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANN
ALAMOSA	AVE	40	100	303	657	1074	1457	1519	1182	1035	732	453	165	8717
	85-86	30	66	378	634	1045	1472	1231	983	864	638	446	138	7925
	86-87	63	75											138
ASPEN	AVE	95	150	348	651	1029	1339	1376	1162	1116	798	524	262	8850
	85-86	119	107	453	656	1066	1278	1175	1029	848	739	530	185	8185
	86-87	147	132											279
BOULDER	AVE	0	6	130	357	714	908	1004	804	775	483	220	59	5460
	85-86	0	0	222	400	982	1018	674	762	496	423	249	16	5242
	86-87	1	0											1
BUENA VISTA	AVE	47	116	285	577	936	1184	1218	1025	983	720	459	184	7734
	85-86	63	54	405	597	938	1158	972	946	806	661	450	149	7199
	86-87	79	69											148
BURLING-TON	AVE	6	5	108	364	762	1017	1110	871	803	459	200	38	5743
	85-86	0	5	206	405	977	1142	740	820	525	386	163	12	5381
	86-87	0	0											0
CANON CITY	AVE	0	9	81	301	639	831	911	734	707	411	179	33	4836
	85-86	0	6	186	397	886	1036	711	756	507	399	248	40	5172
	86-87	4	2											6
COLORADO SPRINGS	AVE	8	25	162	440	819	1042	1122	910	880	564	296	78	6346
	85-86	5	8	253	487	978	1143	822	840	635	487	315	49	6022
	86-87	4	14											18
CORTEZ	AVE	0	11	115	434	813	1132	1181	921	828	555	292	68	6350
	85-86		4	264	484	884	1081		805	711	572	321		5126
	86-87	10	6											16
CRAIG	AVE	32	58	275	608	996	1342	1479	1193	1094	687	419	193	8376
	85-86	10	42	353	649	1043	1487	1362	1023	780	669	461	76	7955
	86-87	31	15											46
DELTA	AVE	0	0	94	394	813	1135	1197	890	753	429	167	31	5903
	85-86	0		113	335	658			684	530	365	174	6	2865
	86-87	0	0											0
DENVER	AVE	0	0	135	414	789	1004	1101	879	837	528	253	74	6014
	85-86		1	241	435	1051	1094	758	802	548	456	260	22	5668
	86-87	0	0											0
DILLON	AVE	273	332	513	806	1167	1435	1516	1305	1296	972	704	435	10754
	85-86	260	300	609	856	1183	1439	1380	1175	1072	915	716	388	10293
	86-87	322	318											640
DURANGO	AVE	9	34	193	493	837	1153	1218	958	862	600	366	125	6848
	85-86	3	8	274	476	916	1159	967	802	686	575	341	70	6277
	86-87	23	9											32
EAGLE	AVE	33	80	288	626	1026	1407	1448	1148	1014	705	431	171	8377
	85-86	19	52	356	605	995	1352	1324	890	736	598	428	88	7443
	86-87	37												37
EVER-GREEN	AVE	59	113	327	621	916	1135	1199	1011	1009	730	489	218	7827
	85-86	62	90	387	651	1039	1119	947	927	770	608	532	157	7289
	86-87		90											90
FORT COLLINS	AVE	5	11	171	468	846	1073	1181	930	877	558	281	82	6483
	85-86	1	8	243	499	1078	1199	883	816	568	470	261	22	6048
	86-87	0	0											0
FORT MORGAN	AVE	0	6	140	438	867	1156	1283	969	874	516	224	47	6520
	85-86	0	2	239	548	1165	1425	1160	915	616	401	246	19	6736
	86-87	0	4											4
GRAND JUNCTION	AVE	0	0	65	325	762	1138	1225	882	716	403	148	19	5683
	85-86	0	0	139	351	779	1018	949	685	489	366	168	3	4947
	86-87	0	0											0

Heating Degree Data

STATION		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANN
GRAND LAKE	AVE	214	264	468	775	1128	1473	1593	1369	1318	951	654	384	10591
	85-86	206	265	513	744	1115	1454	1494	1174	1083	896	651	304	9899
	86-87	245	242											487
GREELEY	AVE	0	0	149	450	861	1128	1240	946	856	522	238	52	6442
	85-86	0	6	249	501	1131	1311	1010	845	545	440	232	15	6285
	86-87	0	0											0
GUNNISON	AVE	111	188	393	719	1119	1590	1714	1422	1231	816	543	276	10122
	85-86	84	152	433	678	1058	1648	1712	1084	952	711	517	204	9233
	86-87	123	146											269
LAS ANIMAS	AVE	0	0	45	296	729	998	1101	820	698	348	102	9	5146
	85-86	0	0	134	313	816	1106	737	715	409	220	77		4527
	86-87	0	0											0
LEAD-VILLE	AVE	272	337	522	817	1173	1435	1473	1318	1320	1038	726	439	10870
	85-86	333	359	666	871	1258	1470	1328	1251	1168	994	760	441	10899
	86-87	372	369											741
LIMON	AVE	8	6	144	448	834	1070	1156	960	936	570	299	100	6531
	85-86	1	12	274	544	1078	1233	861	910	662	508	336	57	6476
	86-87	4	8											12
LONGMONT	AVE	0	6	162	453	843	1082	1194	938	874	546	256	78	6432
	85-86	0	6	236	486	1095	1228	869	814	549	469	262	20	6034
	86-87		0											0
MEEKER	AVE	28	56	261	564	927	1240	1345	1086	998	651	394	164	7714
	85-86	6	31	358	599	967	1249	1164	893	742	646	458	75	7188
	86-87	41	28											69
MONTROSE	AVE	0	10	135	437	837	1159	1218	941	818	522	254	69	6400
	85-86	0	0	211	443	803	1106	1032	766	577	453	235	24	5650
	86-87	1	6											7
PAGOSA SPRINGS	AVE	82	113	297	608	981	1305	1380	1123	1026	732	487	233	8367
	85-86	34	73	376	600	1000	1373	1191	952	803	668	481	183	7734
	86-87	98	45											143
PUEBLO	AVE	0	0	89	346	744	998	1091	834	756	421	163	23	5465
	85-86	0	0	172	410	1012	1161	783	728	523	346	167	21	5323
	86-87	0	0											0
RIFLE	AVE	6	24	177	499	876	1249	1321	1002	856	555	298	82	6945
	85-86	1	6	232	484	882	1147	1076	769	607	477	287	16	5984
	86-87	1	3											4
STEAMBOAT SPRINGS	AVE	113	169	390	704	1101	1476	1541	1277	1184	810	533	297	9595
	85-86	57	130	434	729	1144	1554	1495	1097	915	688	533	185	8961
	86-87	120	119											
STERLING	AVE	0	6	157	462	876	1163	1274	966	896	528	235	51	6614
	85-86	0	6	230	519	1161	1395	1155	990	594	439	279	22	6790
	86-87	0	4											4
TELLURIDE	AVE	163	223	396	676	1026	1293	1339	1151	1141	849	589	318	9164
	85-86	121	152	463	648	1023	1270	1130	1011	892	740	585	257	8292
	86-87	200	129											329
TRINIDAD	AVE	0	0	86	359	738	973	1051	846	781	468	207	35	5544
	85-86	0	0	175	380	772	1046	738	764	529	365	194	32	4995
	86-87	1	0											1
WALDEN	AVE	198	285	501	822	1170	1457	1535	1313	1277	915	642	351	10466
	85-86	171	271	578	824	1224	1458	1381	1155	989	836	656	256	9799
	86-87	225	224											449
WALSEN-BURG	AVE	0	8	102	370	720	924	989	820	781	501	240	49	5504
	85-86	0	0	165	358	770	982	681	734	515	404	221	42	4872
	86-87	0	0											0

AUGUST 1986 CLIMATIC DATA

Eastern Plains*

Name	Temperature Max	Min	Mean	Dep	High	Low	Degree Days Heat	Cool	Grow	Precipitation Total	Dep	%Norm	# days
KAUFFMAN 4SSE	86.6	53.3	70.0	1.4	96	46	6	165	595	1.20	-0.26	82.2	8
STERLING	86.9	57.0	71.9	0.4	97	49	4	224	648	0.79	-1.04	43.2	3
FORT MORGAN	89.9	54.5	72.2	0.3	102	48	4	236	621	0.87	-0.63	58.0	8
AKRON FAA AP	87.7	56.8	72.3	1.2	97	47	4	236	646	1.31	-0.47	73.6	8
HOLYOKE	84.3	57.6	71.0	-1.4	100	49	5	197	629	2.55	0.62	132.1	3
BURLINGTON	86.5	59.8	73.2	0.5	99	50	0	262	686	0.91	-1.28	41.6	6
LIMON WSMO	83.4	53.5	68.5	-0.0	98	48	8	126	563	1.19	-1.26	48.6	12
CHEYENNE WELLS	88.7	58.2	73.5	0.8	100	48	0	269	676	1.05	-0.87	54.7	3
LAS ANIMAS	92.9	59.7	76.3	0.3	105	53	0	359	713	3.10	1.67	216.8	9
HOLLY	90.1	56.2	73.1	-2.1	105	50	0	259	645	7.86	5.99	420.3	15
SPRINGFIELD 7WSW	89.1	59.4	74.3	1.5	101	55	0	296	691	4.69	3.01	279.2	13

Foothills/Adjacent Plains*

Name	Temperature Max	Min	Mean	Dep	High	Low	Degree Days Heat	Cool	Grow	Precipitation Total	Dep	%Norm	# days
FORT COLLINS	83.1	55.5	69.3	0.6	98	49	0	138	588	1.21	-0.16	88.3	11
GREELEY UNC	87.2	56.3	71.7	0.8	99	50	0	216	641	0.40	-0.75	34.8	1
ESTES PARK	76.1	47.3	61.7	1.5	88	38	105	10	430	2.16	0.10	104.9	19
LONGMONT	87.0	54.7	70.9	1.2	98	49	0	190	615	1.15	-0.02	98.3	8
BOULDER	84.9	56.5	70.7	-0.3	97	50	0	183	624	0.67	-0.59	53.2	11
DENVER WSFO AP	86.7	57.6	72.1	1.1	98	53	0	227	655	0.53	-1.00	34.6	12
EVERGREEN	79.4	45.3	62.3	0.8	90	37	90	14	462	2.48	0.48	124.0	13
LAKE GEORGE 8SW	74.2	45.4	59.8	1.0	81	39	155	1	384	3.60	1.41	164.4	17
COLORADO SPRINGS	80.4	54.8	67.6	-1.0	95	50	14	102	544	6.06	3.25	215.7	14
CANON CITY 2SE	84.3	57.7	71.0	-0.1	96	51	2	196	637	1.50	-0.21	87.7	14
PUEBLO WSO AP	89.7	56.8	73.3	-0.9	103	50	0	264	654	2.42	0.62	134.4	11
WALSENBURG	84.8	55.1	70.0	0.6	93	49	0	162	610	3.16	1.13	155.7	13
TRINIDAD FAA AP	86.6	55.7	71.2	-0.3	96	50	0	199	627	2.93	1.08	158.4	13

Mountains/Interior Valleys*

Name	Temperature Max	Min	Mean	Dep	High	Low	Degree Days Heat	Cool	Grow	Precipitation Total	Dep	%Norm	# days
WALDEN	77.2	37.9	57.6	1.7	90	31	224	0	428	1.50	0.30	125.0	11
LEADVILLE 2SW	69.3	36.5	52.9	0.4	79	29	369	0	307	2.66	0.66	133.0	19
SALIDA	81.1	47.2	64.1	0.1	89	40	50	31	496	1.83	0.31	120.4	12
BUENA VISTA	79.7	46.2	63.0	0.9	87	39	69	14	472	3.08	1.10	155.6	14
SAGUACHE	77.4	47.4	62.4	1.1	85	42	84	13	435	1.29	-0.25	83.8	10
HERMIT 7ESE	74.2	38.4	56.3	2.5	85	32	263	0	382	1.70	-0.42	80.2	7
ALAMOSA WSO AP	80.8	44.7	62.8	0.5	88	38	75	14	484	0.66	-0.58	53.2	10
STEAMBOAT SPRINGS	79.9	42.2	61.0	1.4	90	36	119	4	469	2.18	0.68	145.3	10
GRAND LAKE 6SSW	71.6	42.2	56.9	0.7	81	37	242	0	341	2.51	0.92	157.9	13
DILLON 1E	71.5	37.7	54.6	-0.1	82	32	318	1	339	1.63	-0.01	99.4	13
AVON	79.7	43.5	61.6	0.6	89	35	111	15	464	1.28	0.08	106.7	14
CLIMAX	64.4	37.9	51.1	1.8	75	31	422	0	232	1.30	-1.01	56.3	14
ASPEN 1SW	75.9	46.0	61.0	1.5	84	39	132	12	413	2.45	0.55	128.9	14
TAYLOR PARK	69.4	29.2	49.3	-2.1	79	21	478	0	310	1.40	-0.45	75.7	10
TELLURIDE	77.4	44.3	60.9	3.0	84	36	129	7	436	2.99	0.29	110.7	17
PAGOSA SPRINGS	82.6	45.3	64.0	2.1	92	38	45	21	506	2.52	0.03	101.2	14
SILVERTON	72.0	36.0	54.0	1.5	80	28	333	0	348	2.96	-0.02	99.3	20
WOLF CREEK PASS 1	65.9	39.9	52.9	1.7	75	32	370	0	255	4.09	0.17	104.3	16

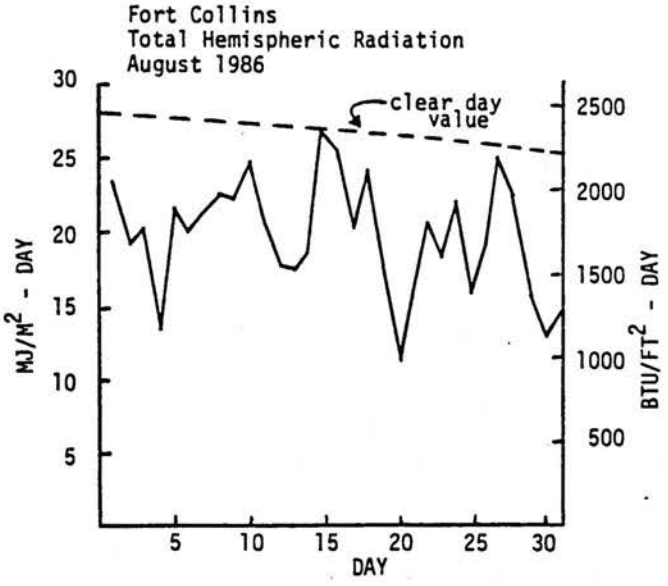
Western Valleys*

Name	Temperature Max	Min	Mean	Dep	High	Low	Degree Days Heat	Cool	Grow	Precipitation Total	Dep	%Norm	# days
CRAIG 4SW	83.3	48.8	66.0	1.1	93	44	15	54	526	0.84	-0.76	52.5	9
HAYDEN	82.4	48.2	65.3	1.1	92	42	21	34	510	1.91	0.42	128.2	9
MEEKER NO. 2	83.0	47.0	65.0	0.2	90	43	28	35	513	1.32	0.16	113.8	5
RANGELY 1E	89.9	56.3	73.1	3.1	99	51	0	253	638	0.58	-0.23	71.6	3
EAGLE FAA AP	83.5	45.5	64.5	0.7	94	38	39	32	514	1.52	0.64	172.7	9
GLENWOOD SPRINGS	85.5	51.4	68.4	1.1	96	42	3	118	566	0.85	-0.48	63.9	9
RIFLE	87.7	51.2	69.4	1.4	98	45	3	148	577	1.44	0.40	138.5	11
GRAND JUNCTION WS	89.9	61.2	75.5	-0.5	99	53	0	334	726	0.97	0.21	127.6	7
CEDAREDGE	87.5	54.5	71.0	1.6	97	47	3	197	617	0.92	-0.15	86.0	5
PAONIA 1SW	89.2	55.4	72.3	2.4	98	51	3	237	631	1.64	0.42	134.4	12
DELTA	91.4	52.1	71.7	0.7	100	44	0	215	603	0.90	0.04	104.7	12
GUNNISON	78.3	42.3	60.3	1.9	88	34	146	7	445	2.52	1.08	175.0	12
MONTROSE NO. 2	86.2	55.6	70.9	1.3	96	48	6	197	619	1.64	0.60	157.7	10
URAVAN	93.0	59.1	76.1	1.5	102	51	3	357	691	1.84	0.65	154.6	6
NORWOOD	81.9	50.4	66.1	2.1	94	44	32	73	515	0.64	-0.99	39.3	4
YELLOW JACKET 2W	84.2	55.4	69.8	2.0	95	49	9	167	596	1.75	0.05	102.9	9
CORTEZ	86.8	53.5	70.2	2.8	94	47	6	176	599	1.61	0.26	119.3	14
DURANGO	85.3	51.0	68.1	2.0	95	43	9	115	551	3.33	1.02	144.2	19
IGNACIO 1N	88.0	49.9	68.9	3.2	96	42	7	138	558	3.36	1.66	197.6	13

* Data are received by the Colorado Climate Center for more locations than appear in these tables. Please contact the Colorado Climate Center if additional information is needed.

AUGUST 1986 SUNSHINE AND SOLAR RADIATION

Station	Number of Days clear	partly cloudy	cloudy	% of possible sunshine	average % of possible
Colorado Springs	2	21	8	--	--
Denver	6	17	8	69%	73%
Fort Collins	4	18	9	--	--
Grand Junction	7	17	7	76%	76%
Pueblo	7	15	9	74%	78%



More Research Results on the Variability of Precipitation in Colorado:

typically contributes very little to reservoirs and streamflow, it does have a substantial impact on how much water is needed for irrigation and lawn watering. When analyzing characteristics of precipitation and precipitation variability all areas of the state must be included -- not just the high mountains.

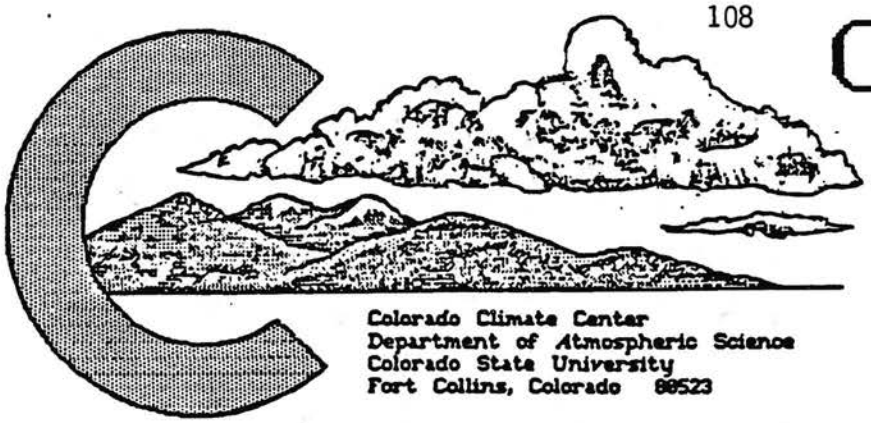
The nature of precipitation variability in Colorado has been an important research topic for some time and will be even more important in the future. James Cowie, a graduate student in the CSU Department of Atmospheric Science recently completed a 3-year study of precipitation variability. The project, supported by the Colorado Agricultural Experiment Station, examined daily precipitation characteristics over a 30-year period in eleven climatically distinct subregions of Colorado. The following are some of the conclusions from the study. The average annual precipitation for the entire state as a whole is 17 inches (for what it's worth). Relative year to year variability in precipitation is greatest in the San Luis Valley and least in the Northern and Central Mountains. In general, precipitation variability tends to increase from north to south due to a more frequent and reliable storm track in the northern part of the state. The single wettest day for the state as a whole was June 17, 1965 with a statewide average of 0.96 inches. Year to year variability in total precipitation is primarily a result of variations in size and number of large events (storms). Large events are responsible for 59% of the difference in total precipitation between wet and dry years. This implies that drought periods may not be characterized by a decrease in total number of precipitation events but will be characterized by a distinct decrease in large events.

The final report for this project is entitled Colorado Precipitation Event and Variability Analysis, Climatology Report 86-3. The report contains many different precipitation analyses for each of the 11 subregions of Colorado. Copies of this 102 page publication may be obtained for $5. To order, please send payment along with a written request to:

Colorado Climate Center
Department of Atmospheric Science
Colorado State University
Fort Collins, CO 80523

Climate Trivia for the home, school and office:

The hottest temperature ever officially reported at a weather station in Colorado which is still in existence was 98°F at Las Animas on October 1, 1947. That same temperature was also reached in early October 1931. The highest October temperature on Berthoud Pass was 63° on October 8, 1980.



COLORADO CLIMATE

Colorado Climate Center
Department of Atmospheric Science
Colorado State University
Fort Collins, Colorado 80523

SEPTEMBER 1986

September in Review:

It was an unusually cloudy September. Daytime temperatures were cooler than average but nighttime temperatures were normal for the season. No early freezes struck agricultural areas. Precipitation was extremely heavy over western Colorado, but most areas east of the mountains were dry.

A Look Ahead -- November 1986:

It's never easy to get excited about November. The sun sets early and rises late. Average daily temperatures in Colorado from the first to the last part of the month drop more quickly than during any other month of the year. The chances of getting some snow become great. Downslope windstorms begin to occur more frequently along the Front Range. Air pollution problems sometimes develop over some Colorado cities. To put it nicely, it's a good month to get started on your indoor projects.

Actually Colorado's November climate isn't all that bad. (For example, the Front Range gets about twice as much sunshine in November as Detroit or Chicago.) The weather patterns we experience are quite interesting. The Continental Divide becomes a distinct line of demarkation. The strengthening jet stream carries Pacific moisture into western Colorado which often forms clouds and snow along and west of the mountains. But areas east of the mountains are typically shielded. November average precipitation ranges from 1-2" in most areas west of the Divide, increases to 2-4" in the preferred mountain locations, and then drops off drastically east of the Divide to less than 1" in most locations and less than 0.50" from Colorado Springs and Limon southeastward to the Lamar area. Occasional eastern Colorado blizzards are possible in November, and we've had our share in recent years. Large snowstorms east of the mountains are actually more likely in November than during December, January or February. Fortunately, they are not an every year occurrence. One breed of humans is especially enthused about November climate -- the Colorado skier. Mountain snowpack begins to accumulate at a significant rate and by the end of the month most ski areas are open with 2 to 4 feet of natural snow on the ground in undisturbed high mountain areas.

November temperatures aren't too bad most years. Last year's prolonged cold wave east of the mountains was a notable exception. Daily highs still average in the 50s in early November at the lower elevations and some 60s and even 70s are possible. Denver's hottest November temperature was 79°F in 1941. But by the end of the month 30s and 40s are more common. Nighttime temperatures typically begin in the 20s and end up in the teens. There is only a 1 in 3 chance that a cold wave will drop temperatures below zero anytime during November east of the mountains. Of course, subzero nighttime temperatures in the mountains are common. Fraser's -37°F on November 22, 1957 is an example of how cold it can get in high mountain valleys.

1986 Water Year Wrap-Up:

(Special Feature)

See pages 4 and 5 for a summary of Colorado's climate for the water year, October 1, 1985 - September 30, 1986.

SEPTEMBER 1986 DAILY WEATHER

Date	Event
1-2	An upper level low pressure trough drifted across the state. Bountiful thunderstorm activity statewide on the 1st continued on the 2nd in southern and eastern Colorado. Storm near Trinidad closed Interstate 25 on the 1st because of deep hail accumulation. Wooton Ranch totalled 1.88" of rain from the storm. Fleming in NE Colorado received 1.80" on the 1st. Las Animas received 1.48" of rain and hail late on the 2nd.
3-5	Sunny and dry. Lovely mild late summer weather with warm days and cool nights. A few thunderstorms erupted on the 4th in south-central Colorado. Canon City was washed with 1.09" of rain and small hail.
6-7	Large high pressure area slid southward from Canada onto the Great Plains. Damp upslope winds, light rain and drizzle fell east of the mountains. Temperatures remained warm west of the mountains. Some thunderstorms developed over the mountains, where the two airmasses clashed, and moved southeastward late on the 7th. One-fourth to one-half inch of rain fell along much of the Front Range.
8-11	Major storm system rolled across Colorado from the west clobbering much of the Western Slope but leaving eastern Colorado mild and dry. Strong southwesterly winds. Widespread thunderstorm activity 8-9th from the mountains westward. Some local flash flooding in parts of southwestern Colorado on the 9th. More than 1" of rain fell at Dolores, Rico, Telluride and Wolf Creek Pass on the 9th. Snow developed in the mountains on the 10th as temperatures fell well below average. Clearing but nippy on the 11th. Taylor Park recorded +15°F on the morning of the 11th.
12-21	Nearly stationary storm system over the Pacific Northwest brought steady southwesterly winds aloft over Colorado with frequent high cloudiness and a few widely scattered light thundershowers. Cool, moist air flirted with northeastern Colorado on several occasions producing periods of fog and low clouds. On the 18th, this moist air helped trigger a huge thunderstorm over the northeastern plains that spawned a large tornado that just missed the town of New Raymer. Hot over southeastern Colorado 20-21st as storm system drew closer to the state. Las Animas hit 98° on the 20th, the hottest in the state for the month.
22-23	Moist southwesterly flow triggered rains in western Colorado 22-23rd.
24-25	Low pressure area developed explosively over Colorado and Wyoming. Heavy precipitation in western Colorado and rains turned to heavy snow in the mountains. Wolf Creek Pass received 12" of snow on the 24th alone. Strong winds buffeted much of the state but focused on the Central Mountains and Front Range. A maximum gust of 131 mph occurred near Boulder late on the 24th. Damage was also reported at Lake Dillon.
25-30	Cloudy, damp and unseasonably cold in western Colorado. Heavy mountain snows continued 25-26th with more than 1 foot accumulating in some areas. Rain showers continued at lower elevations with many Western Slope areas totalling 1 inch or more for the period. Meanwhile east of the mountains, it was partly cloudy, cool, but fairly pleasant. Some areas experienced their first frost of the autumn on the 27th or the 30th.

September 1986 Extremes

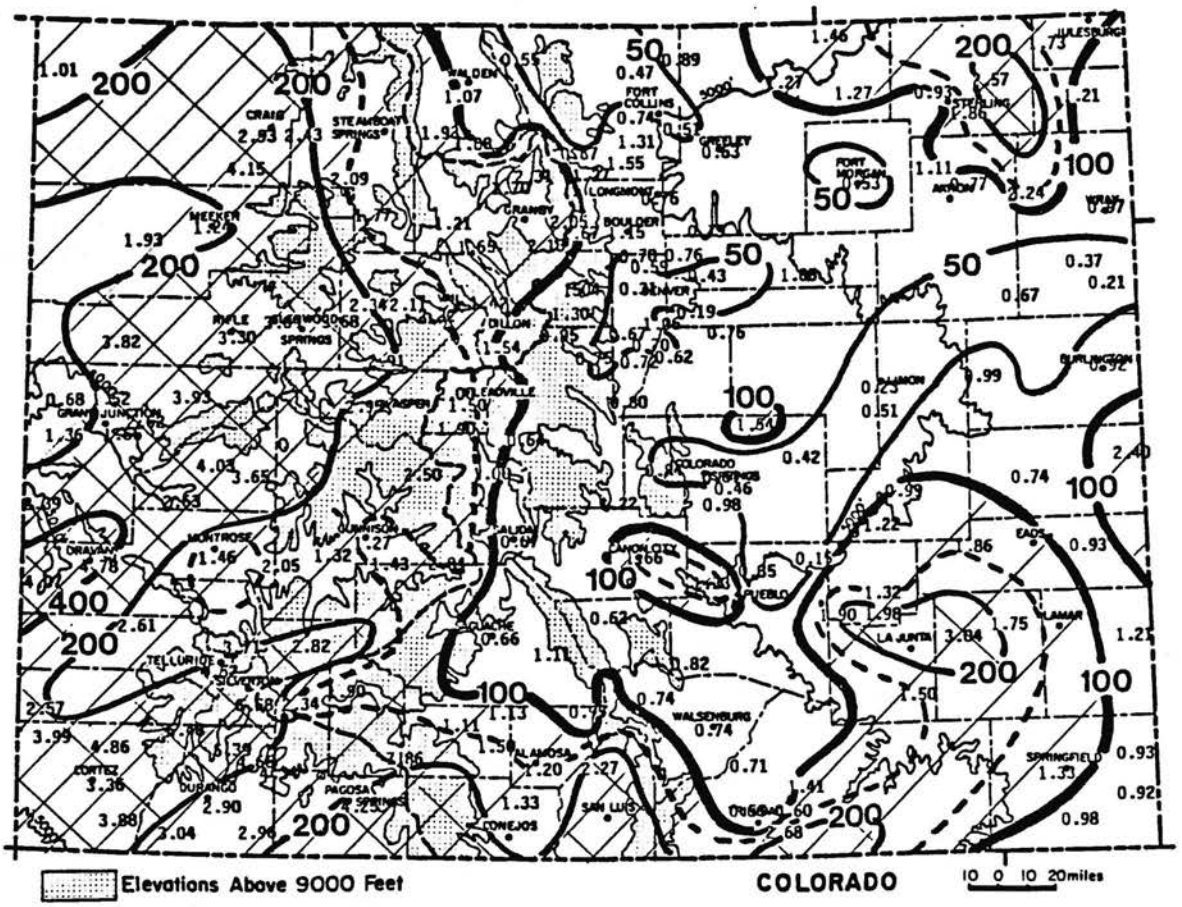
Highest Temperature	98°F	Sept 20	Las Animas
Lowest Temperature	13°F	Sept 27	Taylor Park Resvr
Greatest Total Precipitation	7.86"		Wolf Creek Pass 1E
Least Total Precipitation	0.15"		Tacony 10SE
Greatest Total Snowfall*	42"		Wolf Creek Pass 1E

* data derived only from those stations with complete daily snowfall records.

SEPTEMBER 1986 PRECIPITATION

For the 2nd year in a row, September brought heavy precipitation to western Colorado. Many areas had more than double their average moisture for the month. Areas receiving at least 3 times their average included Altenbern Ranch (303%), Hamilton (305%), Rifle (306%), Dolores (311%), Cedaredge (339%), Bonham Reservoir (Grand Mesa) (360%), Uravan (447%) and Paradox (452%). But despite high humidity and one of the cloudiest Septembers in recent years, most areas east of the mountains remained dry. The driest areas were located in the Denver area, Larimer County and in a band northeastward from Pueblo and Colorado Springs through Limon to just north of Burlington. In these areas, rainfall was less than 50% of average. A few wet areas were noted east of the mountains. These were a result of localized heavy rains which fell early in the month.

Greatest		Least	
Wolf Creek Pass 1E	7.86"	Tacony 10SE	0.15"
Bonham Reservoir	6.76"	Cherry Creek Dam	0.19"
Silverson	6.68"	Bonny Lake	0.21"
Rico	6.48"	Limon	0.23"
Tacoma	5.39"	Stratton	0.25"

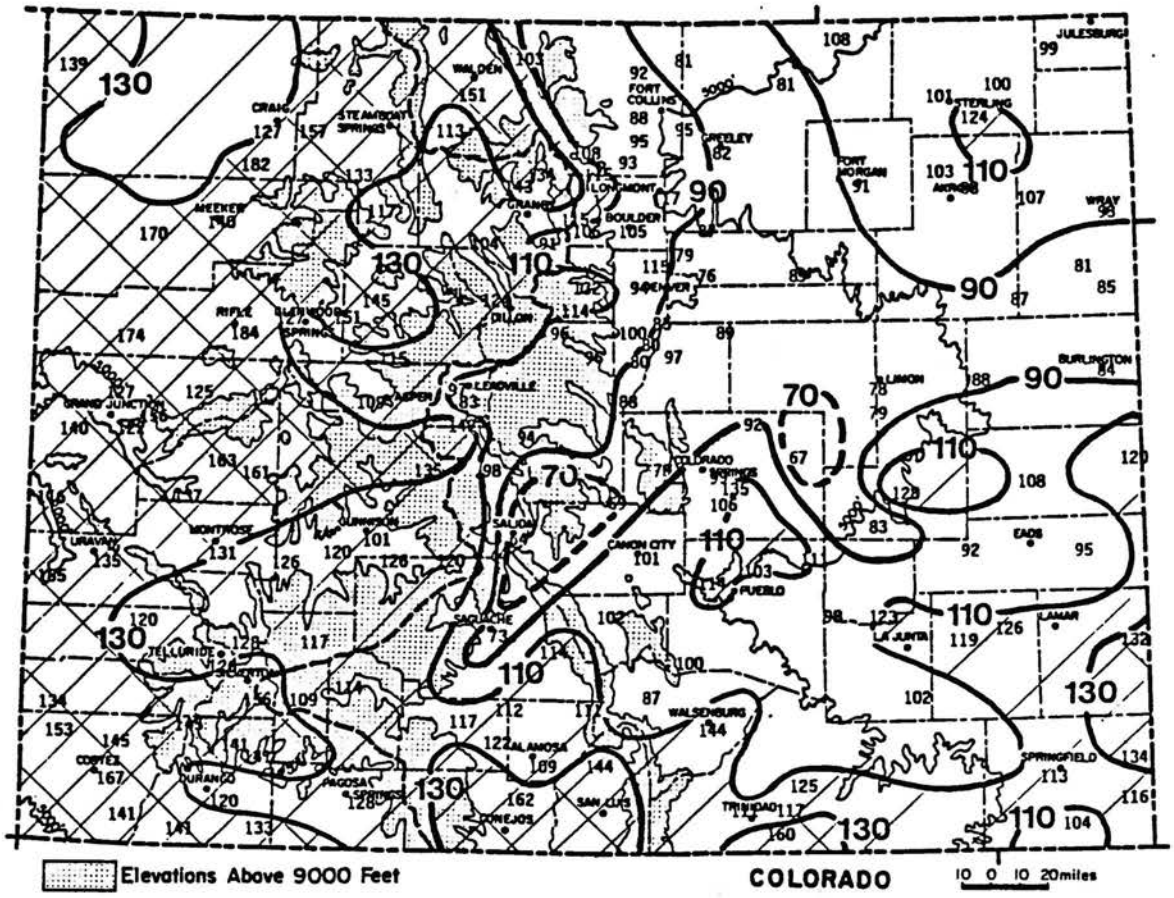


Precipitation amounts (inches) for September 1986 and contours of precipitation as a percent of the 1961-1980 average. The dashed line represents 150% of average.

1986 WATER YEAR WRAP-UP

The 1986 water year brought the fifth consecutive wet year (and 7 years out of the past 8) to Colorado. This is now the longest wet period that the State has enjoyed at any time since before the famous drought decade of the 1930s. Near and below average precipitation areas were more widespread this year than during the past few years and covered much of the state east of the Continental Divide. Few areas, however, had less than 90% of their average annual precipitation. The abundant surface water supplies from streamflow and reservoir storage easily offset these shortfalls in some of the drier areas such as Weld, Adams and Fremont counties.

Very wet conditions (130% or more of average) were widespread across western Colorado. There were even areas with more than 150% of average scattered across all of the Western Slope and included Cortez, Silverton, Paonia, Rifle, Rangely and Hayden. The only areas west of the Divide fairly close to their annual averages were the Upper Gunnison Valley, the Roaring Fork/Fryingpan basins and the Upper Colorado River Basin where precipitation was about 120% of average. The most consistently wet area during these 5 wet years has been west central Colorado including Garfield and Mesa counties. Rifle, for example, has received 89.36" of precipitation since October 1981, 34.56" above average.

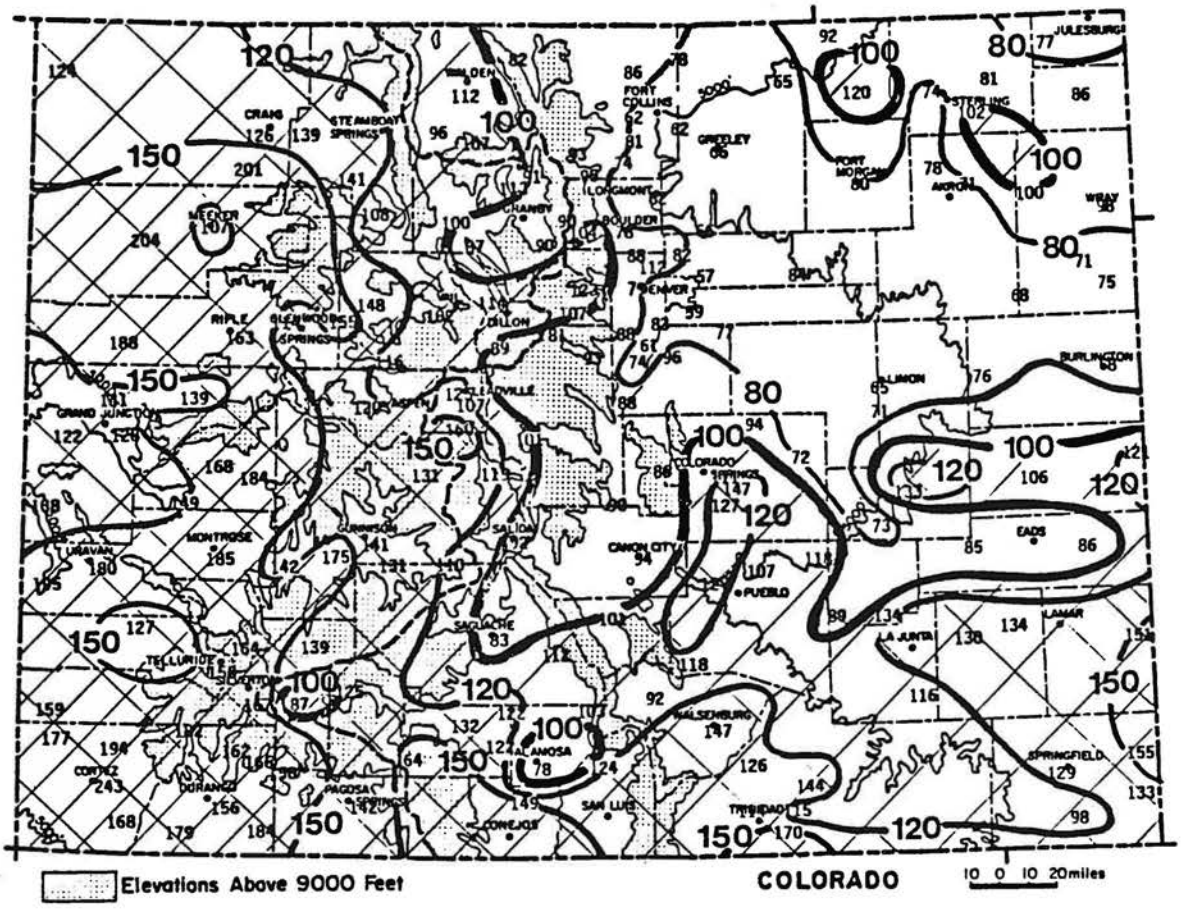


Precipitation for Water Year (October 1985 through September 1986) as a percent of the 1961-1980 average.

1986 Water Year Wrap-Up (continued)

The 1986 water year got off to a wintry start with a week of cold and stormy weather in early October followed by very heavy mountain snows and record cold on the Eastern Plains in November. The cold and snow loosened its grip in mid-December and Colorado proceeded to have an incredibly warm and pleasant winter. Many record warm temperatures were set in January, February and March. It would have been a very dry winter as well except for one stormy week in February. Enough mountain snows fell February 12-20th to last much of the winter. The spring months, April and May, were quite normal except that May did not bring the heavy rains to the Eastern Plains that it often does. There is almost always a raucous blizzard sometime during the spring, and the 1986 edition was a whopper (April 3-4). It was a comfortable summer in Colorado with fairly low humidity east of the mountains. Temperatures were quite typical with few extremes of hot or cold. Rainfall from the "Southwest Monsoon" began earlier than usual and continued to bring clouds and moisture to Colorado throughout the summer. A fairly normal dose of severe thunderstorms, hail and tornadoes were reported.

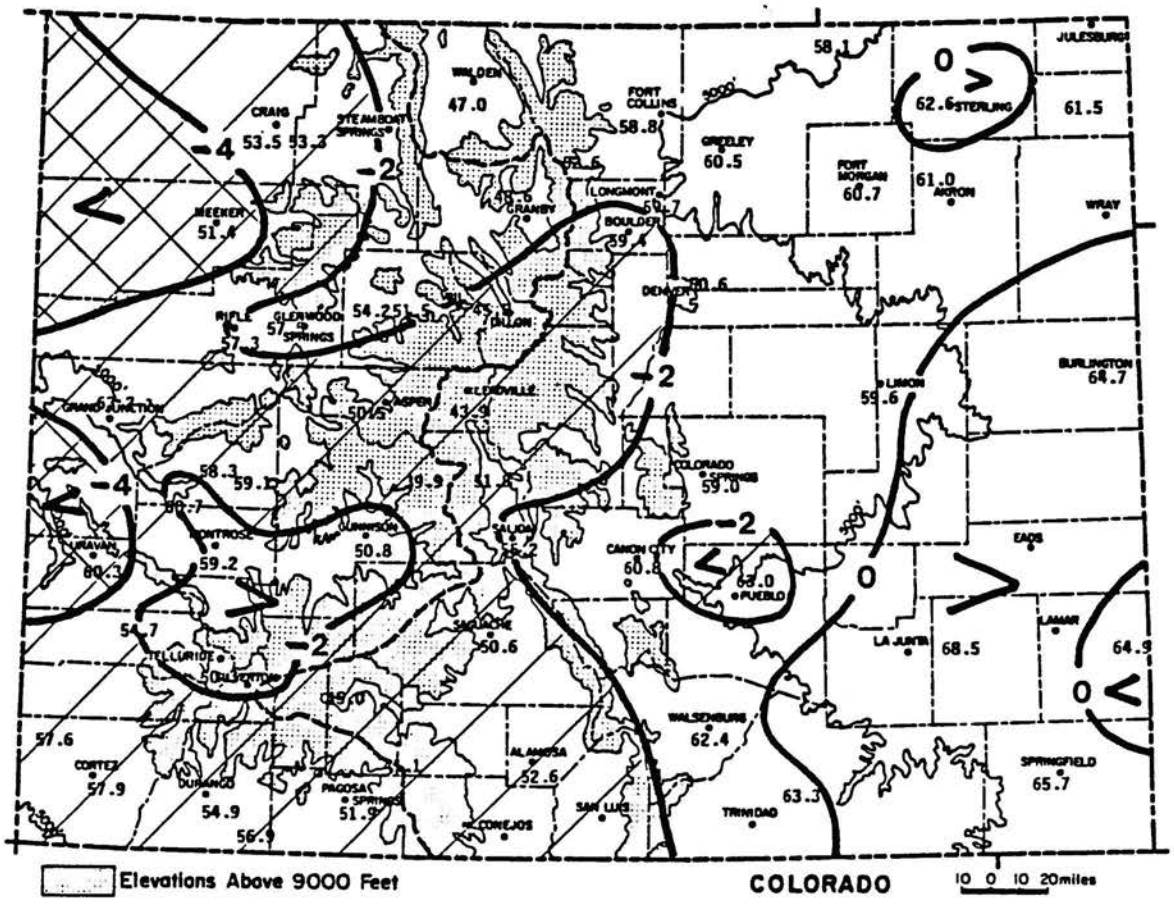
The precipitation pattern for the 1986 growing season (May-September) showed the effect of a predominant moist southwesterly flow. It was an extremely wet summer in southwestern and west central Colorado, about average in the center of the state, and quite dry in northeastern Colorado. The Denver area was the driest in the state receiving less than 60% of average. The southeastern plains rebounded from a very dry winter and spring to a wet summer. Wet summers have been occurring consistently this decade, especially in western Colorado. Rico, for example, has averaged 6.28" (57%) more May-September precipitation during the past 5 years than during the previous 2 decades.



Growing season (May-September 1986) precipitation as a percent of the 1961-1980 average.

SEPTEMBER 1986 TEMPERATURES AND DEGREE DAYS

Unusually cool daytime temperatures but normal nighttime temperatures characterized September conditions in Colorado. At Grand Junction, for example, daily high temperatures were nearly 7 degrees below average while low temperatures were average. Cloud cover and high humidity was responsible for this tendency. Statewide, temperatures were generally near average in southeast Colorado, slightly below average in northeast Colorado and two to four degrees Fahrenheit below average over most of western Colorado.

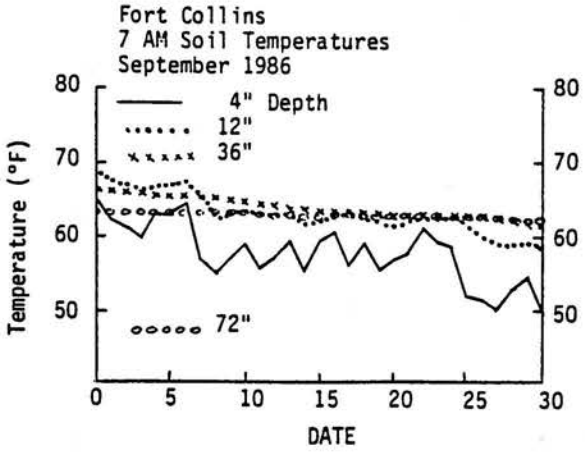


September 1986 temperatures (degrees Fahrenheit) and contours of departures from 1961-1980 averages.

SEPTEMBER 1986 SOIL TEMPERATURES

The normal autumn decline of near-surface soil temperatures began during September.

These soil temperature measurements were taken at Colorado State University beneath sparse unirrigated sod with a flat, open exposure. These data are not representative of all Colorado locations.



Heating Degree Day Data through September 1986.

Heating Degree Data — **Colorado Climate Center (303) 491-8545**

STATION		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANN
ALAMOSA	AVE	40	100	303	657	1074	1457	1519	1182	1035	732	453	165	8717
	85-86	30	66	378	634	1045	1472	1231	983	864	638	446	138	7925
	86-87	63	75	366										504
ASPEN	AVE	95	150	348	651	1029	1339	1376	1162	1116	798	524	262	8850
	85-86	119	107	453	656	1066	1278	1175	1029	848	739	530	185	8185
	86-87	147	132	428										707
BOULDER	AVE	0	6	130	357	714	908	1004	804	775	483	220	59	5460
	85-86	0	0	222	400	982	1018	674	762	496	423	249	16	5242
	86-87	1	0	175										176
BUENA VISTA	AVE	47	116	285	577	936	1184	1218	1025	983	720	459	184	7734
	85-86	63	54	405	597	938	1158	972	946	806	661	450	149	7199
	86-87	79	69	388										536
BURLING-TON	AVE	6	5	108	364	762	1017	1110	871	803	459	200	38	5743
	85-86	0	5	206	405	977	1142	740	820	525	386	163	12	5381
	86-87	0	0	76										76
CANON CITY	AVE	0	9	81	301	639	831	911	734	707	411	179	33	4836.
	85-86	0	6	186	397	886	1036	711	756	507	399	248	40	5172
	86-87	4	2	132										138
COLORADO SPRINGS	AVE	8	25	162	440	819	1042	1122	910	880	564	296	78	6346
	85-86	5	8	253	487	978	1143	822	840	635	487	315	49	6022
	86-87	4	14	174										192
CORTEZ	AVE	0	11	115	434	813	1132	1181	921	828	555	292	68	6350
	85-86		4	264	484	884	1081		805	711	572	321		5126
	86-87	10	6	214										230
CRAIG	AVE	32	58	275	608	996	1342	1479	1193	1094	687	419	193	8376
	85-86	10	42	353	649	1043	1487	1362	1023	780	669	461	76	7955
	86-87	31	15	338										384
DELTA	AVE	0	0	94	394	813	1135	1197	890	753	429	167	31	5903
	85-86	0		113	335	658			684	530	365	174	6	2865
	86-87	0	0	145										145
DENVER	AVE	0	0	135	414	789	1004	1101	879	837	528	253	74	6014
	85-86		1	241	435	1051	1094	758	802	548	456	260	22	5668
	86-87	0	0	145										145
DILLON	AVE	273	332	513	806	1167	1435	1516	1305	1296	972	704	435	10754
	85-86	260	300	609	856	1183	1439	1380	1175	1072	915	716	388	10293
	86-87	322	318	580										1220
DURANGO	AVE	9	34	193	493	837	1153	1218	958	862	600	366	125	6848
	85-86	3	8	274	476	916	1159	967	802	686	575	341	70	6277
	86-87	23	9	295										327
EAGLE	AVE	33	80	288	626	1026	1407	1448	1148	1014	705	431	171	8377
	85-86	19	52	356	605	995	1352	1324	890	736	598	428	88	7443
	86-87	37		314										351
EVER-GREEN	AVE	59	113	327	621	916	1135	1199	1011	1009	730	489	218	7827
	85-86	62	90	387	651	1039	1119	947	927	770	608	532	157	7289
	86-87		90											90
FORT COLLINS	AVE	5	11	171	468	846	1073	1181	930	877	558	281	82	6483
	85-86	1	8	243	499	1078	1199	883	816	568	470	261	22	6048
	86-87	0	0	178										178
FORT MORGAN	AVE	0	6	140	438	867	1156	1283	969	874	516	224	47	6520
	85-86	0	2	239	548	1165	1425	1160	915	616	401	246	19	6736
	86-87	0	4	138										142
GRAND JUNCTION	AVE	0	0	65	325	762	1138	1225	882	716	403	148	19	5683
	85-86	0	0	139	351	779	1018	949	685	489	366	168	3	4947
	86-87	0	0	130										130

Heating Degree Data — **Colorado Climate Center (303) 491-8545**

STATION		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANN
GRAND LAKE	AVE	214	264	468	775	1128	1473	1593	1369	1318	951	654	384	10591
	85-86	206	265	513	744	1115	1454	1494	1174	1083	896	651	304	9899
	86-87	245	242	488										975
GREELEY	AVE	0	0	149	450	861	1128	1240	946	856	522	238	52	6442
	85-86	0	6	249	501	1131	1311	1010	845	545	440	232	15	6285
	86-87	0	0	142										142
GUNNISON	AVE	111	188	393	719	1119	1590	1714	1422	1231	816	543	276	10122
	85-86	84	152	433	678	1058	1648	1712	1084	952	711	517	204	9233
	86-87	123	146	420										689
LAS ANIMAS	AVE	0	0	45	296	729	998	1101	820	698	348	102	9	5146
	85-86	0	0	134	313	816	1106	737	715	409	220	77		4527
	86-87	0	0	32										32
LEAD-VILLE	AVE	272	337	522	817	1173	1435	1473	1318	1320	1038	726	439	10870
	85-86	333	359	666	871	1258	1470	1328	1251	1168	994	760	441	10899
	86-87	372	369	626										1367
LIMON	AVE	8	6	144	448	834	1070	1156	960	936	570	299	100	6531
	85-86	1	12	274	544	1078	1233	861	910	662	508	336	57	6476
	86-87	4	8	171										183
LONGMONT	AVE	0	6	162	453	843	1082	1194	938	874	546	256	78	6432
	85-86	0	6	236	486	1095	1228	869	814	549	469	262	20	6034
	86-87		0	154										154
MEEKER	AVE	28	56	261	564	927	1240	1345	1086	998	651	394	164	7714
	85-86	6	31	358	599	967	1249	1164	893	742	646	458	75	7188
	86-87	41	28	402										471
MONTROSE	AVE	0	10	135	437	837	1159	1218	941	818	522	254	69	6400
	85-86	0	0	211	443	803	1106	1032	766	577	453	235	24	5650.
	86-87	1	6	183										190
PAGOSA SPRINGS	AVE	82	113	297	608	981	1305	1380	1123	1026	732	487	233	8367
	85-86	34	73	376	600	1000	1373	1191	952	803	668	481	183	7734
	86-87	98	45	385										528
PUEBLO	AVE	0	0	89	346	744	998	1091	834	756	421	163	23	5465
	85-86	0	0	172	410	1012	1161	783	728	523	346	167	21	5323
	86-87	0	0	94										94
RIFLE	AVE	6	24	177	499	876	1249	1321	1002	856	555	298	82	6945
	85-86	1	6	232	484	882	1147	1076	769	607	477	287	16	5984
	86-87	1	3	226										230
STEAMBOAT SPRINGS	AVE	113	169	390	704	1101	1476	1541	1277	1184	810	533	297	9595
	85-86	57	130	434	729	1144	1554	1495	1097	915	688	533	185	8961
	86-87	120	119											
STERLING	AVE	0	6	157	462	876	1163	1274	966	896	528	235	51	6614
	85-86	0	6	230	519	1161	1395	1155	990	594	439	279	22	6790
	86-87	0	4	105										109
TELLURIDE	AVE	163	223	396	676	1026	1293	1339	1151	1141	849	589	318	9164
	85-86	121	152	463	648	1023	1270	1130	1011	892	740	585	257	8292
	86-87	200	129	434										763
TRINIDAD	AVE	0	0	86	359	738	973	1051	846	781	468	207	35	5544
	85-86	0	0	175	380	772	1046	738	764	529	365	194	32	4995
	86-87	1	0	90										91
WALDEN	AVE	198	285	501	822	1170	1457	1535	1313	1277	915	642	351	10466
	85-86	171	271	578	824	1224	1458	1381	1155	989	836	656	256	9799
	86-87	225	224	530										979
WALSEN-BURG	AVE	0	8	102	370	720	924	989	820	781	501	240	49	5504
	85-86	0	0	165	358	770	982	681	734	515	404	221	42	4872
	86-87	0	0	84										84

SEPTEMBER 1986 CLIMATIC DATA

Eastern Plains*

	Temperature						Degree Days			Precipitation			
Name	Max	Min	Mean	Dep	High	Low	Heat	Cool	Grow	Total	Dep	%Norm	# days
KAUFFMAN 4SSE	72.0	44.1	58.1	-1 4	84	27	202	2	345	1.46	0.29	124.8	5
STERLING	76.8	48.3	62.6	1.5	88	34	105	38	433	0.93	-0.17	84.5	10
FORT MORGAN	76.9	44.5	60.7	-1.5	89	29	138	18	412	0.53	-0.65	44.9	7
AKRON FAA AP	73.9	48.1	61.0	-0.7	84	36	129	16	386	1.11	0.03	102.8	8
HOLYOKE	74.1	49.0	61.5	-1.3	86	37	122	26	404	1.21	-0.08	93.8	10
BURLINGTON	77.6	51.9	64.7	0.6	92	39	76	75	475	0.92	-0.58	61.3	2
LIMON WSMO	75.4	43.8	59.6	-0.1	87	29	171	13	390	0.23	-0.67	25.6	4
LAS ANIMAS	84.8	52.1	68.5	1.2	98	34	32	143	558	3.05	2.01	293.3	5
HOLLY	84.9	44.9	64.9	-0.5	97	32	53	56	510	1.21	-0.34	78.1	6
SPRINGFIELD 7WSW	80.3	51.2	65.7	0.5	90	34	50	83	509	1.33	0.16	113.7	6

Foothills/Adjacent Plains*

	Temperature						Degree Days			Precipitation			
Name	Max	Min	Mean	Dep	High	Low	Heat	Cool	Grow	Total	Dep	%Norm	# days
FORT COLLINS	71.2	46.4	58.8	-1.2	81	35	178	1	334	0.74	-0.50	59.7	7
GREELEY UNC	74.5	46.6	60.5	-1.7	87	33	142	14	386	0.63	-0.50	55.8	7
ESTES PARK	66.3	38.9	52.6	-0.7	75	22	368	0	256	0.67	-0.68	49.6	14
LONGMONT	74.6	44.9	59.7	-0.8	85	35	154	5	383	0.76	-0.67	53.1	6
BOULDER	72.6	46.3	59.4	-3.1	84	34	175	16	357	1.15	-0.71	61.8	10
DENVER WSFO AP	74.6	46.7	60.6	-1.3	86	32	145	20	387	0.43	-0.95	31.2	7
COLORADO SPRINGS	71.9	46.2	59.0	-1.3	82	34	174	3	341	0.61	-0.75	44.9	7
CANON CITY 2SE	75.1	46.6	60.8	-1.9	83	33	132	13	396	1.66	0.57	152.3	6
PUEBLO WSO AP	79.0	47.1	63.0	-2.5	91	30	94	45	449	0.35	-0.54	39.3	6
WALSENBURG	76.5	48.3	62.4	-0.1	84	33	84	14	424	0.74	-0.48	60.7	5
TRINIDAD FAA AP	79.2	47.5	63.3	-0.3	88	33	90	46	459	1.41	0.34	131.8	6

Mountains/Interior Valleys*

	Temperature						Degree Days			Precipitation			
Name	Max	Min	Mean	Dep	High	Low	Heat	Cool	Grow	Total	Dep	%Norm	# days
WALDEN	62.3	31.6	47.0	-1.1	73	21	530	0	197	1.07	-0.05	95.5	12
LEADVILLE 2SW	57.7	30.1	43.9	-2.6	70	22	626	0	133	1.50	0.10	107.1	12
SALIDA	69.9	40.5	55.2	-1.7	79	26	285	0	308	0.67	-0.25	72.8	5
BUENA VISTA	66.6	37.0	51.8	-3.3	77	27	388	0	260	1.00	-0.05	95.2	9
SAGUACHE	66.0	35.3	50.6	-3.5	78	23	423	0	248	0.66	-0.29	69.5	7
HERMIT 7ESE	60.6	29.4	45.0	-2.4	76	19	594	0	176	1.90	0.47	132.9	9
ALAMOSA WSO AP	69.1	36.1	52.6	-2.1	80	26	366	0	292	1.20	0.37	144.6	10
GRAND LAKE 6SSW	61.4	35.7	48.6	-0.4	70	26	488	0	185	1.70	0.46	137.1	14
DILLON 1E	60.4	30.5	45.5	-2.4	70	21	580	0	175	1.42	0.08	106.0	14
AVON	66.5	36.1	51.5	-2.0	80	28	354	0	238	2.11	0.91	175.8	12
ASPEN 1SW	62.8	38.3	50.5	-2.0	78	30	428	0	206	0.00	-1.80	0.0	0
TAYLOR PARK	57.5	22.4	39.9	-3.9	70	13	745	0	130	2.50	0.96	162.3	12
TELLURIDE	63.7	36.8	50.3	-1.2	80	27	434	0	216	4.52	2.38	211.2	15
PAGOSA SPRINGS	68.1	35.8	51.9	-2.7	82	29	385	0	279	4.25	2.15	202.4	16
WOLF CREEK PASS 1	51.0	31.2	41.1	-4.1	65	21	709	0	61	7.86	3.87	197.0	13

Western Valleys*

Name	Temperature Max	Min	Mean	Dep	High	Low	Degree Days Heat	Cool	Grow	Precipitation Total	Dep	%Norm	# days
CRAIG 4SW	67.8	39.2	53.5	-2.6	81	28	338	0	281	2.93	1.63	225.4	16
HAYDEN	67.7	38.9	53.3	-2.3	80	31	345	0	277	2.43	1.22	200.8	13
MEEKER NO. 2	68.1	34.7	51.4	-5.6	82	20	402	0	280	1.24	0.22	121.6	9
EAGLE FAA AP	69.7	38.7	54.2	-1.1	84	28	314	0	304	2.34	1.16	198.3	10
GLENWOOD SPRINGS	71.2	43.8	57.5	-1.2	86	35	224	3	326	3.09	1.50	194.3	14
RIFLE	72.5	42.2	57.3	-1.8	88	31	226	5	343	3.30	2.22	305.6	16
GRAND JUNCTION WS	74.4	52.0	63.2	-3.5	92	40	130	82	429	1.52	0.80	211.1	11
CEDAREDGE	71.4	45.3	58.3	-2.9	88	35	205	12	332	4.03	2.84	338.7	11
PAONIA 1SW	71.9	46.4	59.1	-2.8	88	38	191	24	347	3.65	2.30	270.4	14
DELTA	77.3	44.2	60.7	-1.5	93	35	145	24	415	2.63	1.64	265.7	13
GUNNISON	67.3	34.2	50.8	-0.5	78	21	420	0	267	1.27	0.36	139.6	11
MONTROSE NO. 2	72.6	45.8	59.2	-1.9	88	34	183	18	355	1.46	0.29	124.8	10
URAVAN	75.3	45.3	60.3	-5.4	93	27	181	48	397	4.78	3.71	446.7	9
NORWOOD	67.5	41.9	54.7	-1.8	87	31	309	7	275	2.61	1.01	163.1	8
YELLOW JACKET 2W	70.3	44.9	57.6	-2.7	84	34	218	5	320	3.99	2.61	289.1	8
CORTEZ	71.5	44.4	57.9	-2.3	86	32	214	8	335	3.36	2.16	280.0	8
DURANGO	69.7	40.1	54.9	-3.6	86	31	295	0	301	2.90	1 17	167.6	12
IGNACIO 1N	73.8	39.9	56.9	-0.9	87	30	244	7	366	2.96	1.43	193.5	11

* Data are received by the Colorado Climate Center for more locations than appear in these tables. Please contact the Colorado Climate Center if additional information is needed.

SEPTEMBER 1986 SUNSHINE AND SOLAR RADIATION

Station	Number of Days clear	partly cloudy	cloudy	% of possible sunshine	average % of possible
Colorado Springs	8	9	13	--	--
Denver	8	7	15	54%	75%
Fort Collins	6	9	15	--	--
Grand Junction	7	8	15	58%	76%
Pueblo	10	5	15	69%	80%