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COLORADO CLIMATE SUMMARY

~~NON CIRCULATING~~ WATER-YEAR SERIES

(October 1981-September 1982)

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Nolan J. Doesken

Thomas B. McKee

Climatology Report No. 82-3



**DEPARTMENT OF ATMOSPHERIC SCIENCE
COLORADO STATE UNIVERSITY
FORT COLLINS, COLORADO**

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Fort Collins, Colorado 80523

December 1982

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I. INTRODUCTION

This report is the fifth in an ongoing series of water-year climate summaries prepared by the Colorado Climate Center. This annual summary is simply a collection of twelve monthly summaries with some additional narrative and explanations.

The Colorado Climate Center first began preparing these monthly climate summaries in January 1977 in the midst of the State's severe winter drought. Since then, the reports have evolved into brief but comprehensive narrative and map descriptions of each month's climate compared to long-term average conditions. A narrative of daily weather events and extremes has also been developed and expanded.

The water year is defined as the 12-month period from October 1 through September 30. That period is much more practical than the calendar year for discussing water in Colorado because it is well 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 up. This snow is the frozen reservoir which not only supports the huge ski industry but, more importantly, eventually supplies much of the water for human consumption, for extensive irrigation, for industry, and to satisfy long-standing stream flow 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.

Monthly average temperature information is also presented for several locations and compared to long-term averages. This is supplemented by heating degree day information for parts of the state (an introduction to heating degree days is given in Section II which follows). Comparisons are made with long-term averages as well as with the previous year's data. This provides a simple way of comparing energy consumption for space heating with actual climatic conditions. This year during the summer months cooling degree day data were also compiled.

Specific daily temperature and precipitation data are not listed here. However, for each month, significant highlights are outlined including temperature variations and extremes, precipitation events, and major storms. In an abbreviated form, this gives a general narrative description of the daily weather patterns throughout the year.

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. Snowpack data collected by the U.S. Department of Agriculture Soil Conservation

Service are added during winter and early spring to provide some information for the data-sparse mountainous areas.

Not all of the data collected in Colorado are presented in these monthly summaries. In general, only the weather stations which have been in existence at or very near to their present locations since at least 1951 are included. Averages for both temperatures and precipitation based on 1951-1970 data have been calculated and are used in most instances. Heating and cooling degree day normals are based on 1941-1970 data. This allows representative comparisons with long-term climatic averages using consistent standards.

The written descriptions give a good general accounting of each month's weather, but the majority of information is contained on the maps which accompany each report. For most months, actual precipitation amounts, monthly precipitation compared to average, water-year accumulated precipitation compared to average, and temperatures compared to average, are displayed on maps. For each month during the winter, maps are shown which contain heating degree days and the departure from average and heating degree days compared with the previous year. A table of heating degree day information is presented each month. During the summer months, tables of cooling degree days are given. The accuracy of all of these maps and tables is usually 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 and cooling degree day values may differ slightly from what was later published by the National Climatic Center.

II. EXPLANATION OF HEATING DEGREE DAYS

Many climatic factors affect fuel consumption for heating. 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.

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 that 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.

III. 1982 Water Year

This is the month-by-month summarization of the climate in Colorado during the 1982 water year. Temperatures throughout the year were quite typical with several warmer and colder than average months. As usual, precipitation was extremely variable, but the majority of the state ended up considerably wetter than average for the year.

The year began with a very wet October west of the Continental Divide and very dry conditions east of the mountains. This general pattern persisted for most of the winter.

Cooler than average temperatures in October gave way to a mild November with substantially below average precipitation. Several consecutive days of clear warm weather in mid month melted most mountain snow and frightened many skiers and ski area operators. Fortunately, a late month major storm arrived in time for the Thanksgiving weekend and got the traditional ski season off to a good start.

December reverted back to a warm and dry weather pattern until the second half of the month. A major snowstorm hit most of the state a few days before Christmas and marked the beginning of several weeks of cold, stormy weather. For some areas east of the mountains, that was the only significant snowfall of the winter. Snow continued to fall abundantly in most of the Colorado Rockies for the last 10 days of the month, while the Eastern Plains remained dry.

The mountain snows continued in January accompanied by very cold temperatures statewide. Warm weather returned later in the month but there was a price to pay. Severe downslope windstorms preceded the

warm weather and caused considerable damage in various Front Range locations.

Rapidly moving and changing weather patterns brought Colorado some of its coldest weather in several years in the first two weeks of February. That was immediately followed by unusually warm weather later in the month. Except for the southern counties of the state, February precipitation was well below average.

Warmer than average temperatures persisted throughout most of March accompanied by above average precipitation west of the Divide and below average precipitation in most areas east of the mountains. Several nasty windstorms began to produce blowing dust on the plains as soil moisture conditions deteriorated.

More high winds and blowing dust occurred in April raising fears of drought across much of the plains. Temperatures in April were generally cooler than normal. A hard freeze in the latter portion of the month caused much damage in the Western Slope fruit growing areas. Precipitation was well below average statewide, but by this time the high mountain snowpack was already substantially above average.

May brought more icing for the cake as plenty of rain and snow fell in the mountains, assuring the state abundant water in the rivers for the approaching summer. Cooler than average temperatures accompanied the wet weather. A huge slow-moving storm in mid-May dropped heavy rains on much of the Eastern Plains just in time to avert a possible winter wheat disaster. This began a wetter than average trend that continued all summer.

The same pattern continued into June east of the mountains with double the average monthly precipitation in many areas. The rain helped

dryland crops and reduced irrigation water demands, but local flooding and lots of hail caused substantial crop damage in some areas. Meanwhile, the western half of the state enjoyed a month of delightfully dry and cool early summer weather.

July was a typical summer month with near average temperatures and precipitation statewide. However, the tendency towards heavy precipitation continued east of the mountains. Many locations received daily rainfall totals from 1 to as much as 3.5 inches late in the month.

During August a pattern of moist southwesterly flow referred to as the "Southwest Monsoon" became well established and produced record-breaking rainfalls in southwestern Colorado. Even in those areas of the state where rainfall was below average (southeast plains, northern mountains and the northern Front Range), humidity and cloud cover were unusual great and nighttime temperatures were unusually warm.

The water year ended with near normal temperatures in September but again plenty of precipitation. At least half the state received more than double the average monthly precipitation.

Summarizing the entire water year, it was an excellent one for Colorado. The runoff from the winter snowpack was well above average. Cool temperatures in early summer helped delay the peak runoff period and spread it over several weeks. The cool early summer temperatures and the abundant summer rainfall also reduced the demand for irrigation water. This permitted a full recharge of most reservoir systems with plenty of water left over to flow out of the state.

Despite a very dry winter season, most of the Eastern Plains ended up near or wetter than average for the year as a whole. Areas along the eastern foothills, with the exception of Denver, experienced one

of the wettest summers on record with several locations reporting nearly double the average growing season (May through September) precipitation.

In terms of overall state water resources, Colorado has thoroughly recovered from the 1980-81 winter drought. Streamflow and reservoir storage at the end of the 1982 water year were in better shape than they have been in many years, with the entire state enjoying better than average surface water supplies. Soil moisture in the Eastern Plains agricultural areas was also restored to good condition, although local areas in southeastern Colorado have remained quite dry.

Economically, it was not a great year for Colorado. Ski business was down in 1982 and the state's farmers and ranchers had a tough year. The climate had little to do with these woes, however, as Colorado's economic problems were closely tied to a nationwide economic recession. The state agricultural production was comparable or better than 1981 except for fruit crops which were adversely impacted by spring freezes. Good skiing conditions existed throughout the bulk of the winter season, but out of state's were reluctant to spend big money on Colorado ski vacations.

Weather related damage was caused by several winter and spring severe downslope windstorms east of the mountains. Aircraft, mobile home, roof and window damage occurred in several Front Range cities on at least four separate occasions. Colorado experienced an unusually high frequency of these windstorms in 1982. This was accentuated by the fact that the windstorm frequency has been quite low during the previous four years.

Hail and flood damage was substantial during the 1982 summer season. Portions of Colorado Springs, Pueblo, and Denver were struck by major

hailstorms. Agricultural crop damage from hail was also substantial. There were many, many occurrences of local flooding at scattered locations all around the state from May through September. A large number of storms produced intense rainfall rates. There were at least 30 individual reports of daily rainfalls in excess of 2.00 inches at official reporting stations--a very large number for Colorado. Rock and mudslides closed roads in western and southwestern Colorado in August and September. Street and basement flooding occurred in parts of most Front Range cities from several different storms.

Urban snow removal problems were minimal in Colorado's major metropolitan areas. Denver officially received only 26.7 inches of snow for the winter, the 2nd lowest snowfall total this century. Mountain area snow removal was another story, however, as considerably above average high elevation snowfall was accompanied by lots of wind.

Energy consumption for space heating was up significantly over the 1980-1981 heating season (determined by heating degree days). This climate-related increase (more than 10%) coupled with considerably higher rates for electricity and natural gas, meant that the average consumer spent much more for energy in 1981-1982. Seasonal heating degree day totals, for the state as a whole, were still less than average.

COLORADO CLIMATE -- OCTOBER 1981

Colorado Climate Center
Department of Atmospheric Science
Colorado State University

October was the first month of the new 1982 water year. The water year is used instead of the calendar year here in Colorado because it corresponds to the 12-month water storage--water usage cycle. Winter (October-April) is the accumulation period when the mountain snowpack becomes Colorado's great frozen reservoir. During the summer this water is then used extensively for irrigation. As the growing season ends in September, water consumption tapers off again and the cycle is completed.

Colorado received its first good taste of winter in October. Significant snowfall occurred in the mountains and temperatures for the month were a little below average across much of the state.

Significant Highlights -- October

Date	Event
1 -12	Predominant southwesterly flow aloft, temperatures above average, especially east of mountains. Hottest temperatures on 1st and 2nd. LaJunta, 89° F on 2nd, hottest in state.
2 -5	Subtropical storm system pumped moisture into western Colorado. 1-2 inches of rain common in western valleys. Some precipitation Eastern Plains.
8 -9	Minor storm system, scattered precipitation--mostly central and north.
11-16	Large, slow moving storm system over western states. Heavy precipitation western Colorado (1-2 inches) cooling statewide. Snow in mountains. Only light and scattered showers east of mountains. Wolf Creek Pass >5 inches precipitation. Redstone--1.49 inches on Oct. 12.
17-23	Dry period. High pressure ridge West Coast. Mild 19-20, then turning much colder especially eastern half. First freezing temperatures of season in some areas.
24	Brief surprise storm moved down from northwest. Mountain snow especially north and central (4-12 inches). First snow of season Front Range and northeast plains (1-3 inches).

- 26-28 Mostly dry and unusually warm. Daytime temperatures in 70's lower elevations.
- 29-31 Storm system moved across area and then stalled east of Colorado in early Nov. Some heavy precipitation in mountains and northwest valleys. Meeker received 10 inches of snow 29-30th. Berthoud Pass totalled 12 inches. Coldest temperatures so far this fall followed the storm. Examples: Meeker, 3° F and Saguache 6° F, on 31st.

Precipitation Summary

Precipitation totals and percents of average for October are shown in Figures 1 and 2, respectively. Across the Eastern Plains dry conditions were noted, particularly in the Arkansas Valley. Kit Carson received just .05 inches for the month, 5 percent of average. The San Luis Valley was also quite dry. However, precipitation increased dramatically from the foothills westward. All of the areas along and west of the Continental Divide were considerably wetter than average. Northwestern Colorado was especially wet with many stations receiving more than 3 times their October average. Lower valleys received as much or more precipitation as the higher mountains. Rangely, for example, totalled 4.35 inches of precipitation (524 percent of average) while Berthoud Pass received 2.98 inches (139 percent of average). The wettest place in the state appeared to be Wolf Creek Pass. Their data indicated a monthly total of 10.88 inches although the observations were not complete.

The heavy mountain precipitation means a good start for the 1982 water year.

Temperature Summary

Seasonal temperatures were observed over most of Colorado in October. West of the Continental Divide monthly temperatures ranged from near average to as much as 4 degrees Fahrenheit cooler than average at Grand Junction (Figure 3). East of the mountains, temperatures ranged from about 1 degree below average at Fort Collins and Burlington to about 2 degrees above average at Pueblo and Cheyenne Wells.

Heating Degree Days*

A detailed tabulation of monthly heating degree day totals for many Colorado cities is shown in Table 1 with additional information appearing in Figures 4 and 5. Compared to average, degree day totals ranged from 19 percent fewer than normal at Pueblo to 35 percent more than usual at Grand Junction. For the most part, totals were above average (cooler than average) in western Colorado and below average (warmer than average) east of the mountains. However, there was considerable local variability.

Comparing to last year, heating degree day totals in October were quite similar at many locations around the state. The major exception was south central Colorado where totals this October were 10 to 30 percent less than last year. Grand Junction was a cold anomaly with 22 percent more heating degree days than last year. This means that energy demand for heating homes, schools, and businesses was probably about the same this year as last except in those local areas described above.

*Heating degree day information is included to help consumers determine the effects of climate on their heating bills. Many climatic factors affect fuel consumption for heating. 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. To quantify this simple concept the heating degree day unit was devised. Heating degree days are calculated by subtracting the mean daily temperature (the average of the daily maximum and minimum temperature) from 65 degrees Fahrenheit. Sixty-five is used as a base because at that temperature the typical buildings will not require additional heat to maintain comfortable inside temperatures. The difference (65° minus the mean daily temperature) is the number of heating degrees for that day, and they are accumulated throughout the heating season.

The heating degree day total 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. If you know how much energy you have used for heating during a certain period and if you know the heating degree day total for that period, you

can establish a base from which to estimate future energy consumption or check the success of energy conservation practices such as insulation or lowering the thermostat.

Figure 1. October 1981 precipitation amounts (inches).

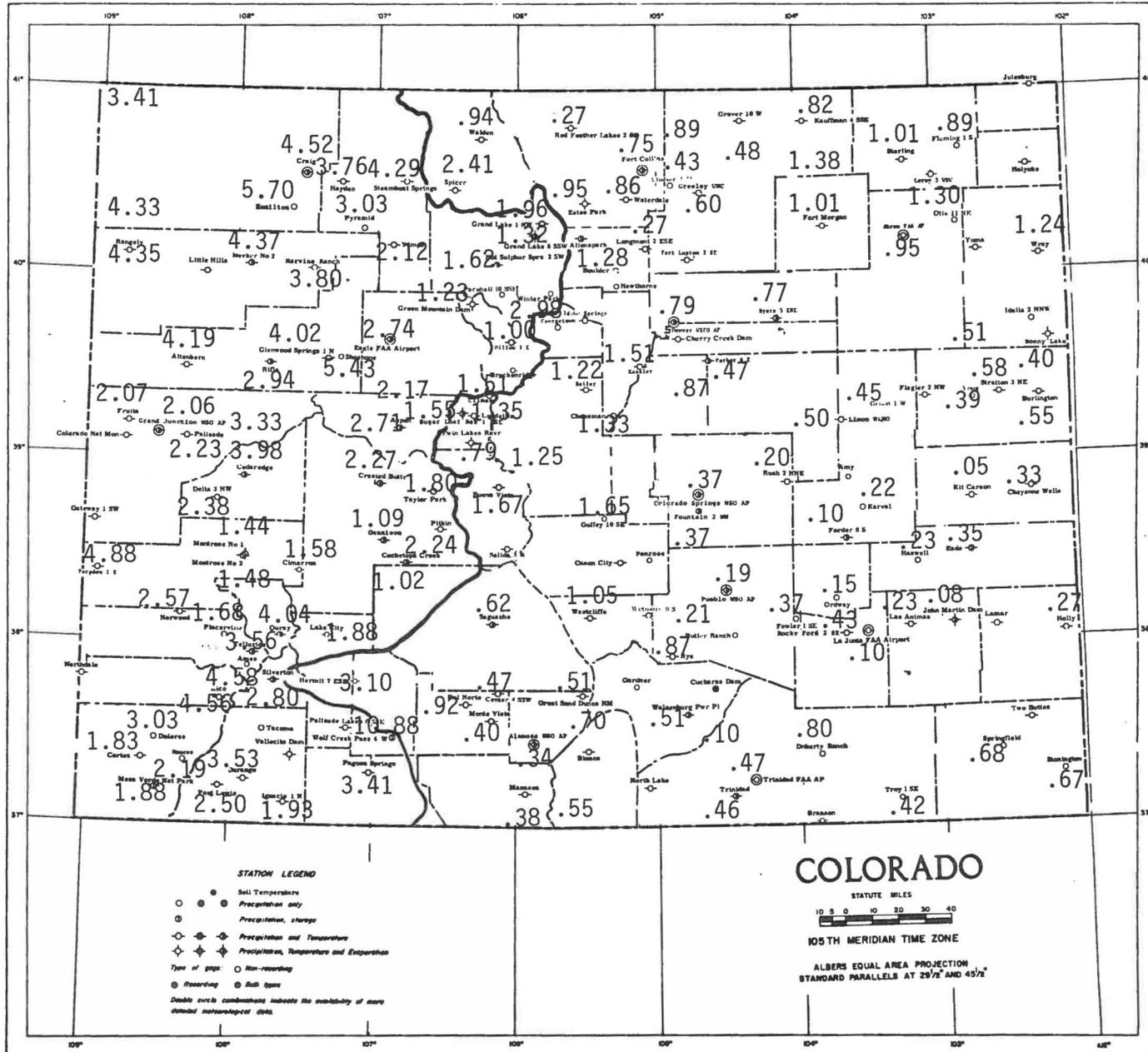


Figure 2. Precipitation for October 1981 as a percent of the 1951-1970 average.

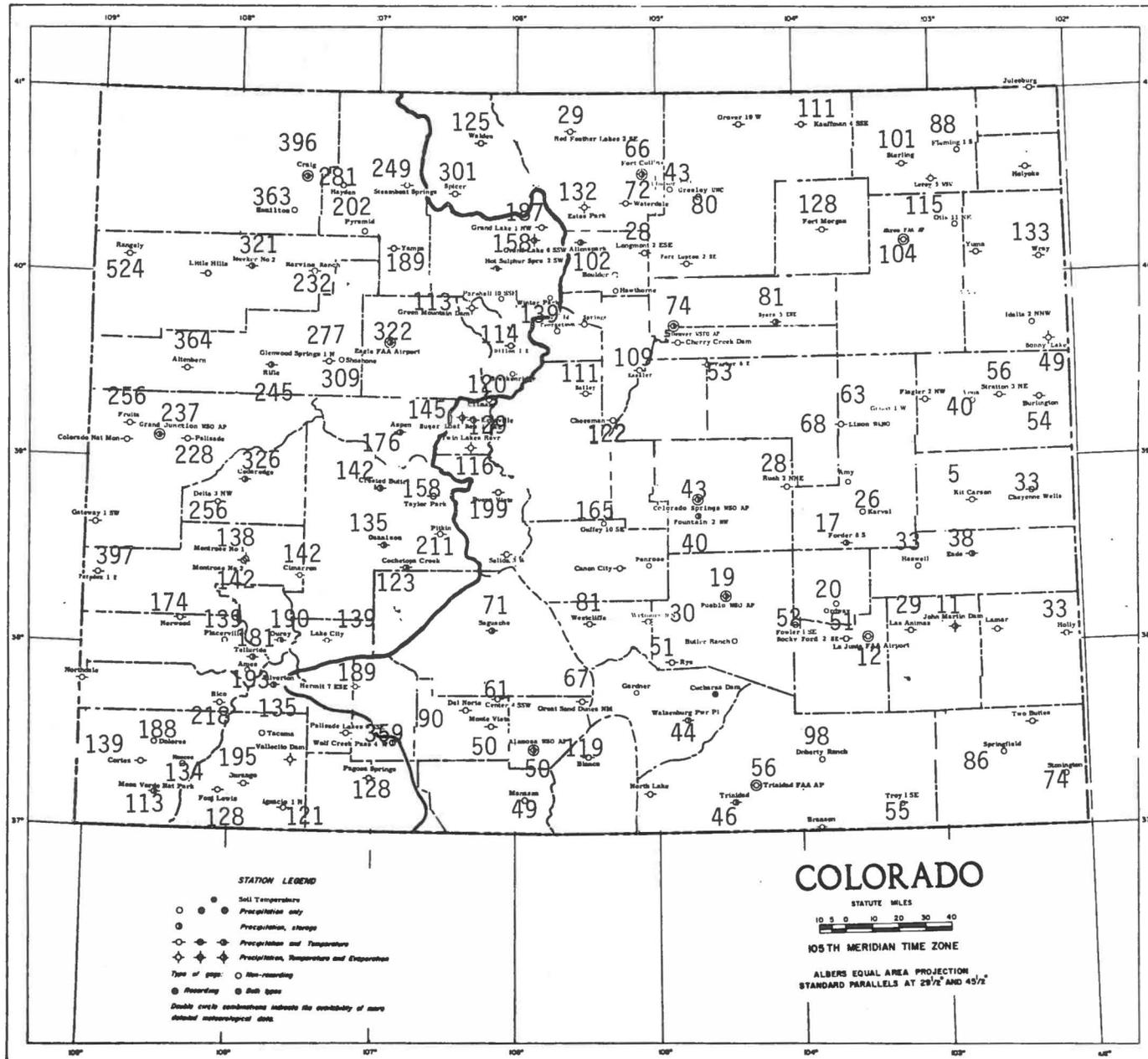


Figure 5. October 1981 Heating Degree Days as a percent above or below October 1980.

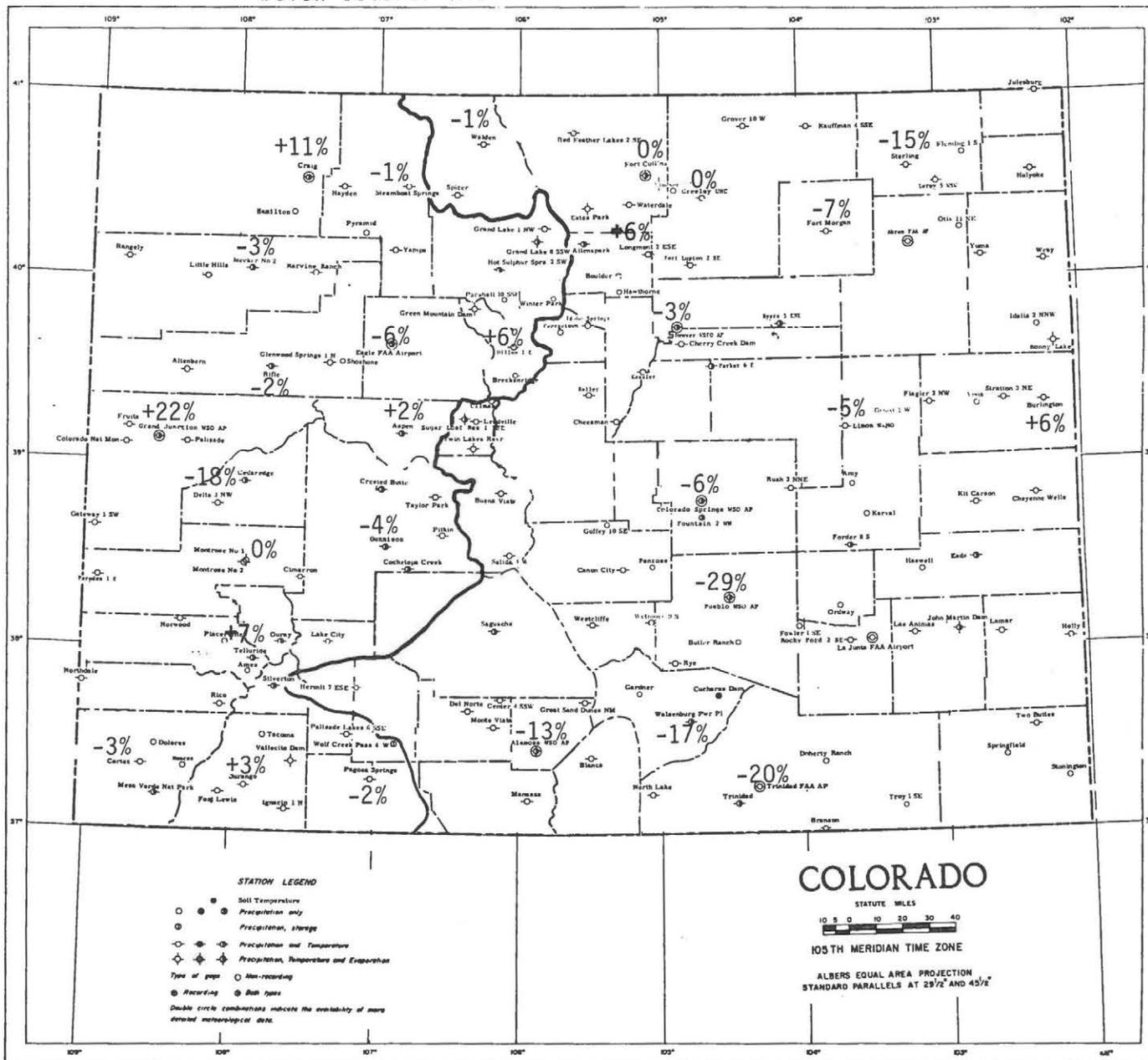


Table 1. Colorado heating degree day data through October 1981.

		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANNUAL															
Atamosa	average	55	96	294	648	1053	1420	1482	1182	1054	714	440	171	8609	Greeley	average	0	5	153	465	870	1147	1256	991	911	528	253	60	6639
	1980-81	5	102	263	757	1031	1136	1274	1097	979	576	458	102	7780		1980-81	0	4	57	457	762	845	964	872	749	304	273	23	5310
	1981-82	14	108	254	656											1981-82	5	9	31	459									
Aspen	average	113	161	345	654	1026	1324	1392	1176	1144	792	530	291	8948	Gunnison	average	103	169	384	704	1110	1538	1686	1397	1246	789	533	282	9941
	1980-81	59	159	305	705	1004	1005	1164	1094	1066	656	574	208	7999		1980-81	106	191	358	738	1037	1159	1331	1117	994	640	509	158	8338
	1981-82	98	147	298	721											1981-82	63	165	328	709									
Boulder	average	6	0	139	367	690	905	992	826	809	482	236	88	5540	Lamar	average	0	0	57	320	741	1032	1107	854	766	377	129	19	5402
	1980-81	1	61	384	630	644	800	714	702	252	306	27	4521	1980-81		0	0	28	349	735	823	910	766	604	171	166	3	4555	
	1981-82	4	14	444												1981-82	0	0	27										
Burlington	average	0	0	102	363	741	1011	1085	882	828	462	210	54	5738	Limon	average	8	6	144	448	834	1070	1156	960	936	570	299	100	6531
	1980-81	0	0	49	356	763	866	907	804	734	256	265	18	5018		1980-81	0	12	139	542	831	859	1014	927	917	403	400	60	6104
	1981-82	10	7	25	377											1981-82	6	26	83	516									
Canon City	average	0	0	57	285	600	806	877	728	713	402	158	34	4660	Longmont	average	0	7	155	457	828	1076	1184	952	902	537	269	92	6459
	1980-81	0	0	50	313	603	590	679	651	652	228	203	2	3971		1980-81	0	4	77	455	744	806	952	902	767	317	277	21	5333
	1981-82	2	9	35												1981-82	5	12	38	481									
Colorado Springs	average	9	13	155	456	825	1054	1128	944	921	564	301	103	6473	Meeker	average	28	56	261	564	927	1240	1345	1086	998	651	394	164	7714
	1980-81	0	7	113	463	759	776	928	850	789	335	321	38	5379		1980-81	5	60	211	589	861	912	1044	958	901	573	427	86	6627
	1981-82	5	30	70	433											1981-82	8	72	160	572									
Cortez	average	0	10	110	425	807	1104	1156	904	834	534	274	81	6239	Montrose	average	0	9	129	435	828	1132	1197	935	834	510	245	71	6325
	1980-81	2	29	131	514	780	882	986	901	849	465	326	68	5933		1980-81	0	17	82	467	779	862	948	851	755	327	247	45	5380
	1981-82	2	7	83	499											1981-82	0	8	38	466									
Craig	average	32	58	275	608	996	1342	1479	1193	1094	687	419	193	8376	Pagosa Springs	average	95	114	291	611	981	1311	1401	1140	1048	711	481	233	8417
	1980-81	7	68	228	626	914	1034	1091	1076	919	545	460	110	7078		1980-81	24	109	294	654	932	1029	1088	971	932	588	489	163	7273
	1981-82	19	35	149	697											1981-82	19	102	244	642									
Delta	average	0	0	94	394	813	1135	1197	890	753	429	167	31	5903	Pueblo	average	0	0	55	335	726	992	1082	848	775	405	148	28	5394
	1980-81	0	1	48	456	761	820	934	826	686	256	177	26	4991		1980-81	0	0	46	383	717	731	871	697	584	175	119	3	4326
	1981-82	0	1	17	375											1981-82	0	0	22	272									
Denver	average	0	0	120	408	768	1004	1088	902	868	525	253	80	6016	Rifle	average	7	22	167	481	861	1200	1296	997	859	537	283	85	5394
	1980-81	0	4	56	386	683	731	853	801	727	260	243	26	4770		1980-81	27	139	521	836	910	1052	910	771	416	302	49	5933	
	1981-82	0	12	19	375											1981-82	0		42	513									
Dillon	average	291	341	519	809	1173	1442	1519	1319	1321	966	701	453	10854	Salida	average	28	69	240	536	854	1094	1132	958	905	588	369	139	6910
	1980-81	227	315	480	893	1106	1113	1302	1230	1219	819	713	331	9748		1980-81	0	39	200	581	838	780	1067	837	892	457	421		
	1981-82	243	302	448	835											1981-82	22	67											
Durango	average	20	37	198	502	843	1147	1212	958	880	597	375	161	6930	Steamboat Springs	average	116	159	384	691	1086	1451	1553	1277	1190	789	521	306	9523
	1980-81	3	39	150	516	815	910	968	842	891	478	409	81	6102		1980-81	61	165	343	743	1004	1101	1159	1152	983	625	546	227	8109
	1981-82	9	22	125	531											1981-82	83	141	257	734									
Eagle	average	43	79	285	626	1023	1386	1457	1168	1051	693	425	190	8426	Sterling	average	0	6	158	459	849	1150	1249	986	927	522	256	76	6638
	1980-81	8	89	230	674	967	1014	1165	1008	916	541	412	84	7108		1980-81	0	5	106	529	814	931	1038	963	835	359	391	33	6004
	1981-82	6	54	155	632											1981-82	8	20	79										
Fort Collins	average	7	12	175	477	834	1076	1184	960	918	558	297	101	6599	Telluride	average	185	229	399	676	1017	1290	1333	1140	1147	825	583	345	9169
	1980-81	1	14	88	486	764	810	960	848	760	318	314	39	5421		1980-81	78	162	301	662	925	1003	1132	1038	1098	621	576	187	7783
	1981-82	8	8	42	487											1981-82	117	177	320	707									
Fort Morgan	average	0	0	132	439	849	1141	1262	986	899	509	233	61	6511	Trinidad	average	0	0	81	364	732	980	1054	868	822	471	212	58	5642
	1980-81	0	8	74	455	773	894	993	912	813	291	259	15	5487		1980-81	0	0	57	394	679	689	860	720	712	240	212	14	4615
	1981-82	3	11	37	421											1981-82	0	15	39	316									
Grand Junction	average	0	0	60	324	756	1101	1190	879	738	404	133	20	5606	Walden	average	197	270	489	803	1149	1438	1538	1313	1280	891	626	363	10357
	1980-81	0	2	21	359	674	765	864	754	645	247	153	15	4499		1980-81	142	284	439	840	1123	1073	1281	1158	1111	727	663	248	9089
	1981-82	0	0	12	439											1981-82	143	241	357	831									
Walsenberg	average	6	12	93	364	690	911	977	820	806	489	230	62	5460	Walsenberg	average	6	12	93	364	690	911	977	820	806	489	230	62	5460
	1980-81	0	0	52	391	678	628	818	745	746	298	220	16	4592		1980-81	0	0	52	391	678	628	818	745					

COLORADO CLIMATE -- NOVEMBER 1981

Colorado Climate Center
Department of Atmospheric Science
Colorado State University

Warm and relatively dry weather prevailed across Colorado in November. For the state as a whole, 14 of the past 18 months have experienced warmer than average temperatures with many of those months substantially warmer than usual.

Significant Highlights -- November 1981

<u>Date</u>	<u>Event</u>
1-4	Stationary low pressure area over Kansas. Clouds and rain east and southeast Colorado. Remainder of state mild. Troy: 0.83" rain 2-3.
5	Cool and clear east, mild west.
6-9	Fairly weak upper-level storm system crossed Southwest states. Low elevation rain, high elevation snow 7th and 8th in mountains and western valleys. Alamosa: 0.71" precip. on 7th. Cooler temperatures 8th and 9th.
10-13	Dry period. Warm east, seasonal west.
14-17	Unseasonally warm statewide. Lower elevation daytime temperatures 60's and 70's. Some snow Northern Mountains on 14th and 17th. 16th and 17th, warmest days of month for most of state. e.g. Steamboat Springs 61°F on 16th Eagle 66°F on 16th Denver 74°F on 17th La Junta & John Martin Dam 80°F on 17th (warmest in state)
18-20	Fast moving storm system crossed state 18th. Mountain snows, 2-10". Strong winds. Skiff of snow NE plains. Briefly colder temps 19th-20th. Lamar, 15°F on 20th. Dillon, -1°F on 20th.
21-24	Dry and unusually warm. Some new records set. Alamosa, 65°F and Gunnison, 62°F on 24th. Brief heavy snow Northern Mountains 22-23rd. Berthoud Pass, 10".

<u>Date</u>	<u>Event</u>
25-30	Cold, stormy period. Coldest temps so far this winter 26th and 27th. Rio Grande Reservoir, -14°F on 27th coldest in state. Good mountain snows for Thanksgiving ski weekend. Major storm system crossed southern Colorado 29-30th. Telluride, 12" snow. Vallecito Dam, 1.18" precip. on 29th. Scattered snows, mostly light, east of mountains.

Precipitation Summary

Precipitation totals and percents of average for November are shown in Figures 1 and 2, respectively. Most of Colorado experienced drier than average conditions for the month. The Northern and Central Mountains and the western valley areas generally received from 40 to 80 percent of their November average. Moisture was more variable in the San Juans where totals ranged from 44 percent of average at Rico to 135 percent of average near Hermit. Most areas there were near average.

East of the Continental Divide, November precipitation was also variable ranging from only a trace at Fort Morgan, Rush, and Pueblo Reservoir to more than an inch at Burlington, Cheyenne Wells, and Crowder Ranch. Above average precipitation was generally noted in the extreme eastern and southeastern counties of Colorado and in parts of the San Luis Valley. The remainder of the plains and Front Range areas were very dry with many stations recording less than 0.20 inches of water-equivalent precipitation for the month.

Water-Year Precipitation to date

Precipitation as a percent of average for the first two months of the 1982 water year is shown in Figure 3. With only a few exceptions, the Continental Divide marks the boundary between wet and dry. Despite a dry November, the western portion of Colorado remains wetter than average for this time of year with portions of northwest Colorado showing 200 percent of average. East of the Divide the situation varies from near average in the extreme east to less than half of average in much of the Arkansas Valley and along the Front Range from Colorado Springs to Fort Collins.

In terms of the state's overall water supply, these numbers based on the first 2 months of the water year are not terribly significant. The mid-winter period is typically very dry east of the mountains and winter precipitation contributes little to the overall moisture situation. In the mountains, the next three or four months are most critical for establishing good mountain snowpack.

Temperature Summary

Figure 4 shows November 1981 temperature and departures from average. The entire state was warmer than average once again which has been the general rule for the past 18 months. West of the Continental Divide temperatures for the month as a whole ended up about 2 to 4 degrees Fahrenheit warmer than average. East of the Divide monthly temperatures ranged from about 3 degrees warmer than average at Sterling and Holyoke to nearly 8 degrees above average at Greeley.

Heating Degree Days

A detailed tabulation of heating degree days for many Colorado cities is shown in Table 1 with additional information appearing in Figures 5 and 6. East of the Continental Divide, monthly heating degree day totals were considerably less than usual (reflecting the warm November temperature) ranging from 11 percent fewer than normal at Sterling to 28 percent less than average at Trinidad. West of the Divide totals were mostly about 10 percent below average.

Heating degree day totals in November 1981 were less than November 1980 over most of Colorado. All other conditions being equal, this means that less energy should have been required this year to heat homes, schools, and businesses. This November's heating degree day totals east of the Divide ranged from 7 to 23 percent less than last year. West of the Divide totals varied from 12 percent less to 3 percent more heating degree days than in November 1980.

Figure 1. November 1981 precipitation amounts (inches).

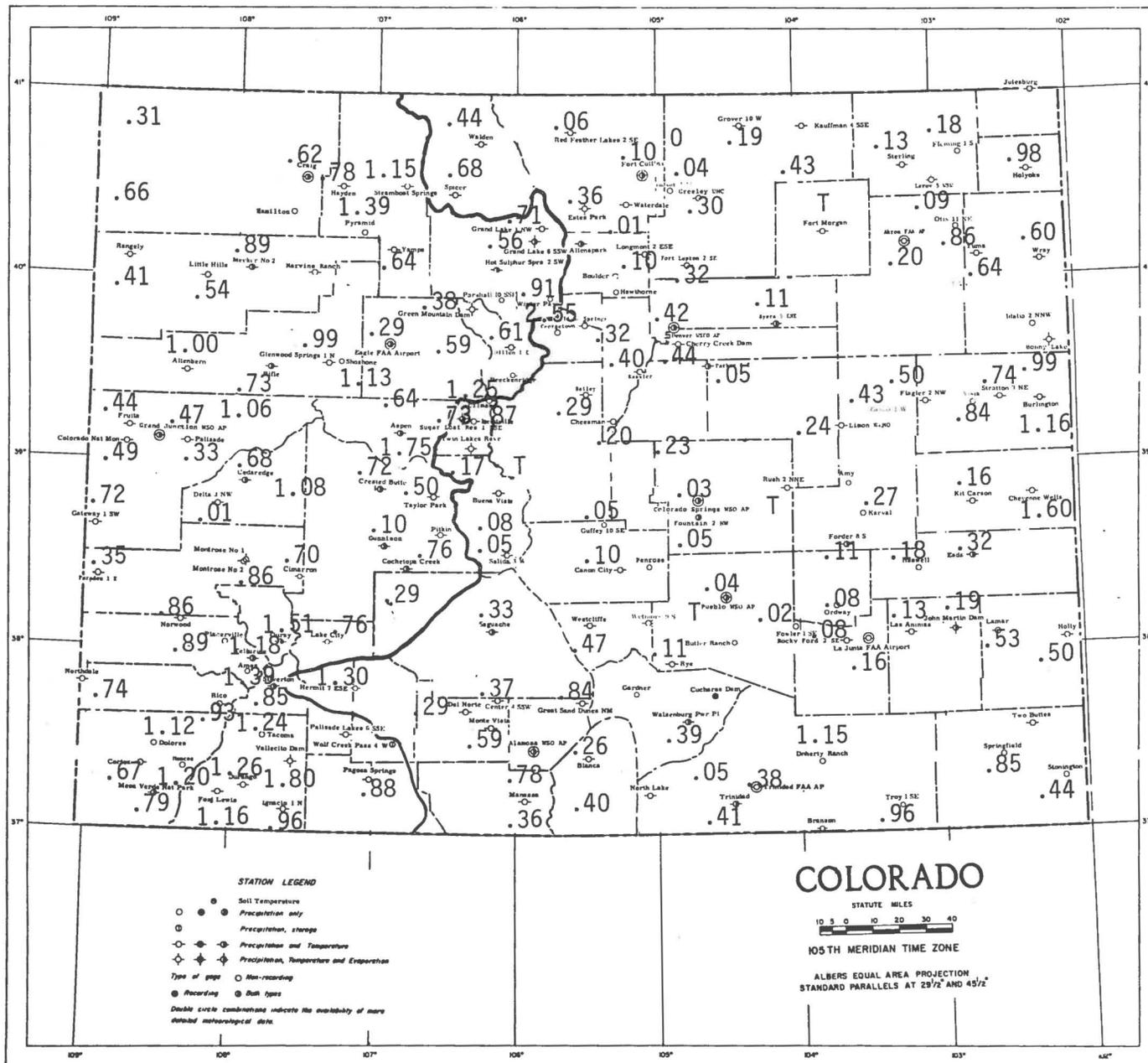


Figure 3. Precipitation for October 1981 through November 1981 as a percent of the 1951-1970 average.

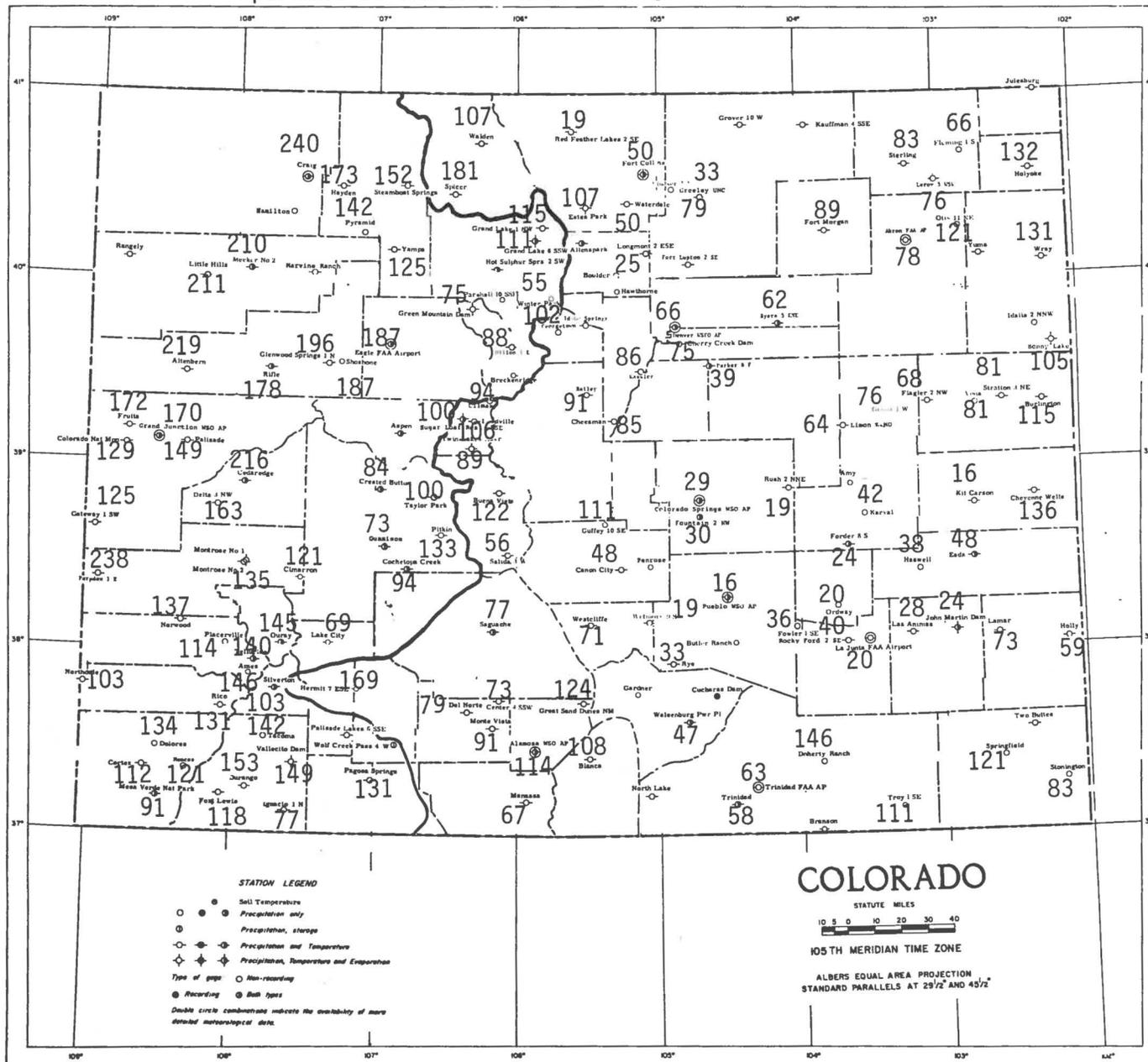


Figure 4. Temperatures for November 1981 in degrees Fahrenheit (in parentheses) and departures from the 1951-1970 average.

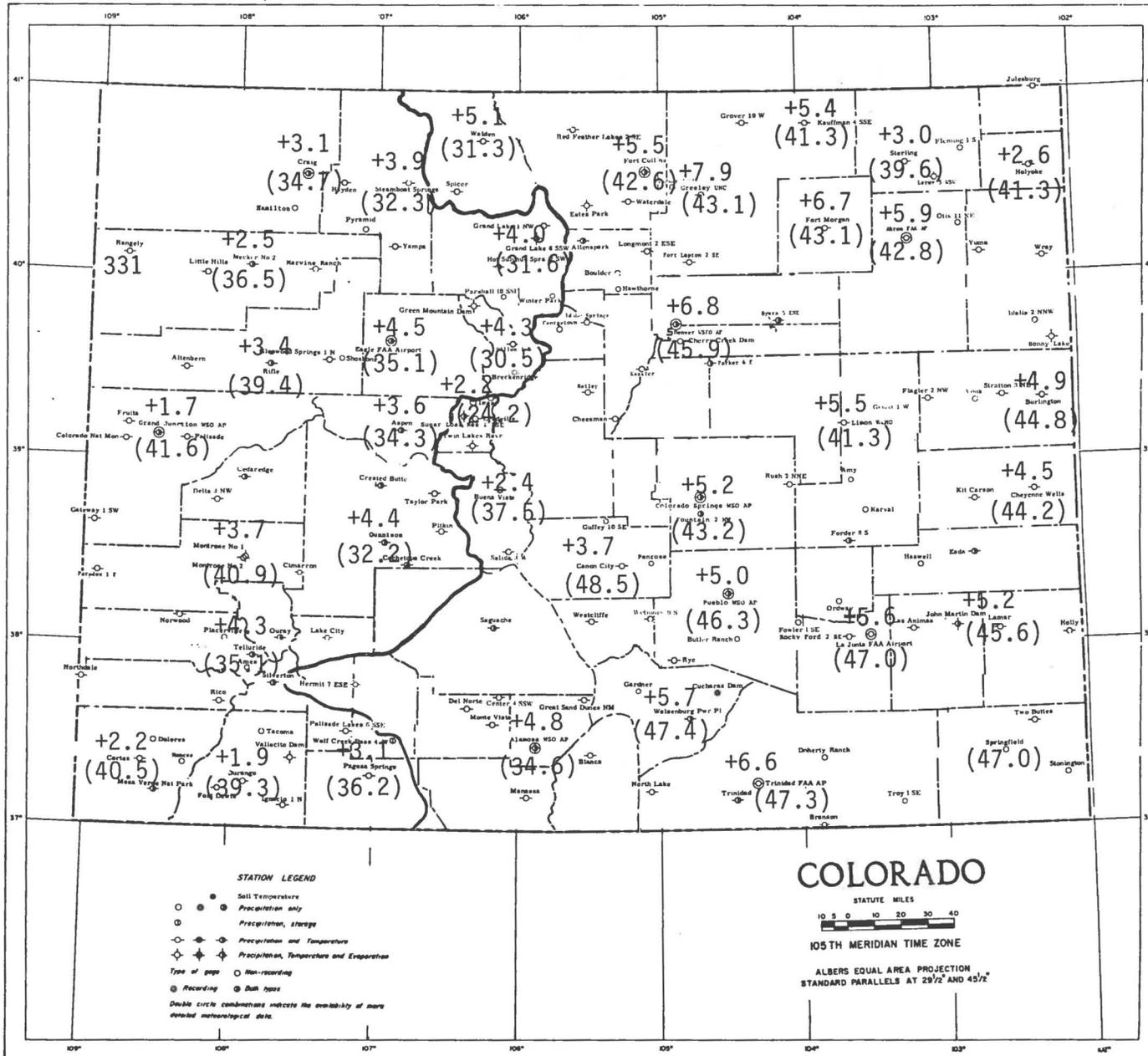


Figure 6. November 1981 Heating Degree Days as a percent above or below November 1981.

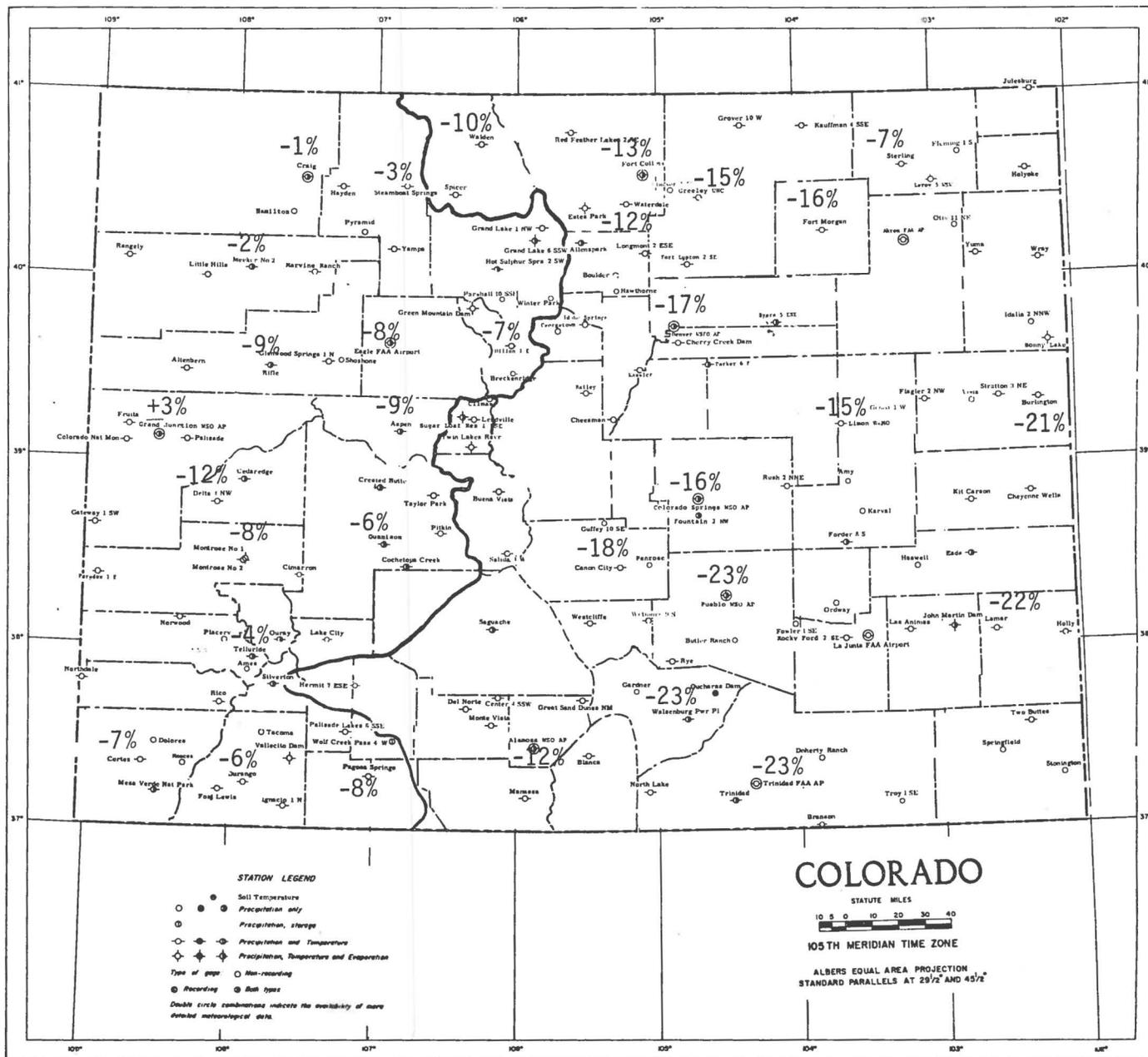


Table 1. Colorado Heating Degree Day Data through November 1981.

		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANNUAL		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANNUAL	
Alamosa	average	55	96	294	648	1053	1420	1482	1182	1054	714	440	171	8609	Greeley	average	0	5	153	465	870	1147	1256	991	911	528	253	60	6639
	1980-81	5	102	263	757	1031	1136	1274	1097	979	576	458	102	7780		1980-81	0	4	57	457	762	845	964	872	749	304	273	23	5310
	1981-82	14	108	254	656	904										1981-82	5	9	31	459	651								
Aspen	average	113	161	345	654	1026	1324	1392	1176	1144	792	530	291	8948	Gunnison	average	103	169	384	704	1110	1538	1686	1397	1246	789	533	282	9941
	1980-81	59	159	305	705	1004	1005	1164	1094	1066	656	574	208	7999		1980-81	106	191	358	738	1037	1159	1331	1117	994	640	509	158	8338
	1981-82	98	147	298	721	916										1981-82	63	165	328	709	977								
Boulder	average	6	0	139	367	690	905	992	826	809	482	236	88	5540	Lamar	average	0	0	57	320	741	1032	1107	854	766	377	129	19	5402
	1980-81	1	61	384	630	644	800	714	702	252	306	27	4521	1980-81		0	0	28	349	735	823	910	766	604	171	166	3	4555	
	1981-82	4	14	444												1981-82	0	0	27	287	575								
Burlington	average	0	0	102	363	741	1011	1085	882	828	462	210	54	5738	Limon	average	8	6	144	448	834	1070	1156	960	936	570	299	100	6531
	1980-81	0	0	49	356	763	866	907	804	734	256	265	18	5018		1980-81	0	12	139	542	831	859	1014	927	917	403	400	60	6104
	1981-82	10	7	25	377	601										1981-82	6	26	83	516	704								
Canon City	average	0	0	57	285	600	806	877	728	713	402	158	34	4660	Longmont	average	0	7	155	457	828	1076	1184	952	902	537	269	92	6459
	1980-81	0	0	50	313	603	590	679	651	652	228	203	2	3971		1980-81	0	4	77	455	744	806	952	902	767	317	277	21	5333
	1981-82	2	9	35	495											1981-82	5	12	38	481	652								
Colorado Springs	average	9	13	155	456	825	1054	1128	944	921	564	301	103	6473	Meeker	average	28	56	261	564	927	1240	1345	1086	998	651	394	164	7714
	1980-81	0	7	113	463	759	776	928	850	789	335	321	38	5379		1980-81	5	60	211	589	861	912	1044	958	901	573	427	86	6627
	1981-82	5	30	70	433	640										1981-82	8	72	160	572	847								
Cortez	average	0	10	110	425	807	1104	1156	904	834	534	274	81	6239	Montrose	average	0	9	129	435	828	1132	1197	935	834	510	245	71	6325
	1980-81	2	29	131	514	780	882	986	901	849	465	326	68	5933		1980-81	0	17	82	467	779	862	948	851	755	327	247	45	5380
	1981-82	2	7	83	499	726										1981-82	0	8	38	466	714								
Craig	average	32	58	275	608	996	1342	1479	1193	1094	687	419	193	8376	Pagosa Springs	average	95	114	291	611	981	1311	1401	1140	1048	711	481	233	8417
	1980-81	7	68	228	626	914	1034	1091	1076	919	545	460	110	7078		1980-81	24	109	294	654	932	1029	1088	971	932	588	489	163	7273
	1981-82	19	35	149	697	901										1981-82	19	102	244	642	856								
Delta	average	0	0	94	394	813	1135	1197	890	753	429	167	31	5903	Pueblo	average	0	0	55	335	726	992	1082	848	775	405	148	28	5394
	1980-81	0	1	48	456	761	820	934	826	686	256	177	26	4991		1980-81	0	0	46	383	717	731	871	697	584	175	119	3	4326
	1981-82	0	1	17	375	673										1981-82	0	0	22	272	554								
Denver	average	0	0	120	408	768	1004	1088	902	868	525	253	80	6016	Rifle	average	7	22	167	481	861	1200	1296	997	859	537	283	85	5394
	1980-81	0	4	56	386	683	731	853	801	727	260	243	26	4770		1980-81	27	139	521	836	910	1052	910	771	416	302	49	5933	
	1981-82	0	12	19	375	570										1981-82	0		42	513	760								
Dillon	average	291	341	519	809	1173	1442	1519	1319	1321	966	701	453	10854	Salida	average	28	69	240	536	854	1094	1132	958	905	588	369	139	6910
	1980-81	227	315	480	893	1106	1113	1302	1230	1219	819	713	331	9748		1980-81	0	39	200	581	838	780	1067	837	892	457	421		
	1981-82	243	302	448	835	1027										1981-82	22	67		537									
Durango	average	20	37	198	502	843	1147	1212	958	880	597	375	161	6930	Steamboat Springs	average	116	159	384	691	1086	1451	1553	1277	1190	789	521	306	9523
	1980-81	3	39	150	516	815	910	968	842	891	478	409	81	6102		1980-81	61	165	343	743	1004	1101	1159	1152	983	625	546	227	8109
	1981-82	9	22	125	531	764										1981-82	83	141	257	734	973								
Eagle	average	43	79	285	626	1023	1386	1457	1168	1051	693	425	190	8426	Sterling	average	0	6	158	459	849	1150	1249	986	927	522	256	76	6638
	1980-81	8	89	230	674	967	1014	1165	1008	916	541	412	84	7108		1980-81	0	5	106	529	814	931	1038	963	835	359	391	33	6004
	1981-82	6	54	155	632	889										1981-82	8	20	79	448	755								
Fort Collins	average	7	12	175	477	834	1076	1184	960	918	558	297	101	6599	Telluride	average	185	229	399	676	1017	1290	1333	1140	1147	825	583	345	9169
	1980-81	1	14	88	486	764	810	960	848	760	318	314	39	5421		1980-81	78	162	301	662	925	1003	1132	1038	1098	621	576	187	7783
	1981-82	8	8	42	487	661										1981-82	117	177	320	707	891								
Fort Morgan	average	0	0	132	439	849	1141	1262	986	899	509	233	61	6511	Trinidad	average	0	0	81	364	732	980	1054	868	822	471	212	58	5642
	1980-81	0	8	74	455	773	894	993	912	813	291	259	15	5487		1980-81	0	0	57	394	679	689	860	720	712	240	212	14	4615
	1981-82	3	11	37	421	650										1981-82	0	15	39	316	524								
Grand Junction	average	0	0	60	324	756	1101	1190	879	738	404	133	20	5606	Walden	average	197	270	489	803	1149	1438	1538	1313	1280	891	626	363	10357
	1980-81	0	2	21	359	674	765	864	754	645	247	153	15	4499		1980-81	142	284	439	840	1123	1073	1281	1158	1111	727	663	248	9089
	1981-82	0	0	12	439	696										1981-82	143	241	357	831	1007								
															Walsenberg	average	6	12	93	364	690	911	977	820	806	489	230	62	5460
														1980-81		0	0	52	391										

COLORADO CLIMATE -- DECEMBER 1981

Colorado Climate Center
Department of Atmospheric Science
Colorado State University

December presented an excellent example of the huge variations and diversity in climate which are possible in the state. Monthly precipitation totals ranged from 0 to more than 7 inches of liquid water equivalent. Daily temperatures varied between -40° F and $+77^{\circ}$ F. On the whole, most of the state was warmer and snowier than average for the month, but conditions varied greatly.

Significant Highlights -- December 1981

<u>Date</u>	<u>Event</u>
1	Large storm system moved east, out of state. Few mountain snowshowers remained. Cool temperatures.
2-3	Warming, then minor cold front crossed state. No precipitation.
4-10	Large stationary high pressure ridge aloft. Very warm statewide, especially 6-10. 40's and 50's in mountains and western valleys, 60's and 70's east. No precipitation.
11	Pacific cold front passed. Slight precipitation mountains and southwest. Still warm.
12-14	Unsettled. Still warm but cooling gradually. Some snow, mostly Northern and Central mountains.
15-16	Strong fast-moving storm system crossed state. Heavy snows Northern and Central mountains. Much colder.
16	Light snows developed eastern foothills. Trace snows Eastern plains.
17-18	Quite cold statewide.
19-20	Rapid warming as storm moved toward Colorado from the West Coast. Very warm east of mountains on 20th, Limon, 68° F, Pueblo, 75° F, Springfield, 77° F.

<u>Date</u>	<u>Event</u>
21-22	Major winter storm affected most of Colorado except NE and SW. Heavy wet snows: Berthoud Pass.--21", Canon City.--1.50" water equivalent, Palmer Lake.--14", Wheat Ridge.--12", Lamar.--4".
23-29	Strong NW windflow aloft. Considerable mountain snowfall Northern and Central mountains and NW slopes of San Juans. 20" snow at Steamboat Springs 25-27th. Little precipitation away from the mountains. Cold temperatures. Subzero much of the state 23rd and 24th. Antero Reservoir, -40° F on 23rd. A white chilly Christmas for most of state.
30-31	Strong Pacific storm system moved into Colorado with warmer temperatures. Considerable snowfall in mountains and west of Continental Divide.

Precipitation Summary

Precipitation totals and percents of average for December are shown in Figures 1 and 2, respectively. Total precipitation for December was extremely variable throughout Colorado. East of the mountains totals ranged from trace amounts on the northeast plains to 2.00 inches at Canon City. Some areas of southeastern Colorado that typically receive very little winter precipitation recorded anywhere from 2 to 6 times their December average. Most of this precipitation fell from one storm on the 21st and 22nd.

Mountain precipitation was also extremely variable. Much of the Northern and Central Mountains and northern portions of the San Juans were considerably wetter than usual. Marvine Ranch totalled 7.21 inches for the month while Berthoud Pass received 6.24 inches (182 percent of average). Meanwhile, some of the lower elevation stations were drier than average. Craig received 77 percent of their December average, while Hayden and Steamboat Springs were well above average. December was particularly dry in southwestern Colorado and in parts of the San Luis Valley. Dolores, Durango, and Ignacio all received less than 25 percent of average. Center and Monte Vista got less than 10 percent of their December averages.

Water-Year Precipitation to date

Precipitation as a percent of average for the first three months of the 1982 water year is shown in Figure 3. Generally areas along and west of the Continental Divide continue to show near average or above average moisture while most of eastern Colorado remains dry. These dry conditions are a concern for dryland farmers and ranchers but the situation is not serious at this time. Winters on the Eastern Plains are frequently dry, and spring moisture can quickly offset winter deficits. The situation in the mountains is very optimistic. After last winter's drought, snowpack is off to an excellent start leading to favorable preliminary water supply forecasts for next summer.

Temperature Summary

Despite cold weather during the last half of December, the month ended up warmer than average across the state. Colorado as a whole has now experienced 15 months out of the past 19 with above average temperatures.

December temperatures and departures from average are shown in Figure 4. East of the mountains, temperatures for the month generally ranged from 1 to 4 degrees Fahrenheit warmer than average. Conditions were more variable in the mountains where December temperatures ranged from 1.5 degrees below average at Climax to nearly 7 degrees warmer than usual at Gunnison.

Heating Degree Days

Heating degree day information, which is very helpful for comparing outdoor temperatures with fuel consumption for heating, is shown in Figures 5 and 6 and also in Table 1. Because of the warmer than average temperatures in December, heating degree totals (which are directly proportional to the amount of energy required for heating buildings) were below average across Colorado. Most locations totalled 4 to 8 percent fewer degree days than usual, but a few sites such as Greeley and Gunnison were as much as 12% below average.

Although totals were less than average, they were considerably higher than December 1980 (Figure 6). For most of the state, heating

degree day totals this month were about 20% more than last year. Walsenburg, Boulder, and Grand Junction, however, totalled more than 30% more than a year ago. This means considerably more energy was probably needed this year to heat schools, businesses and homes. That translates directly to higher energy costs for the average consumer.

Figure 1. December 1981 precipitation amounts.

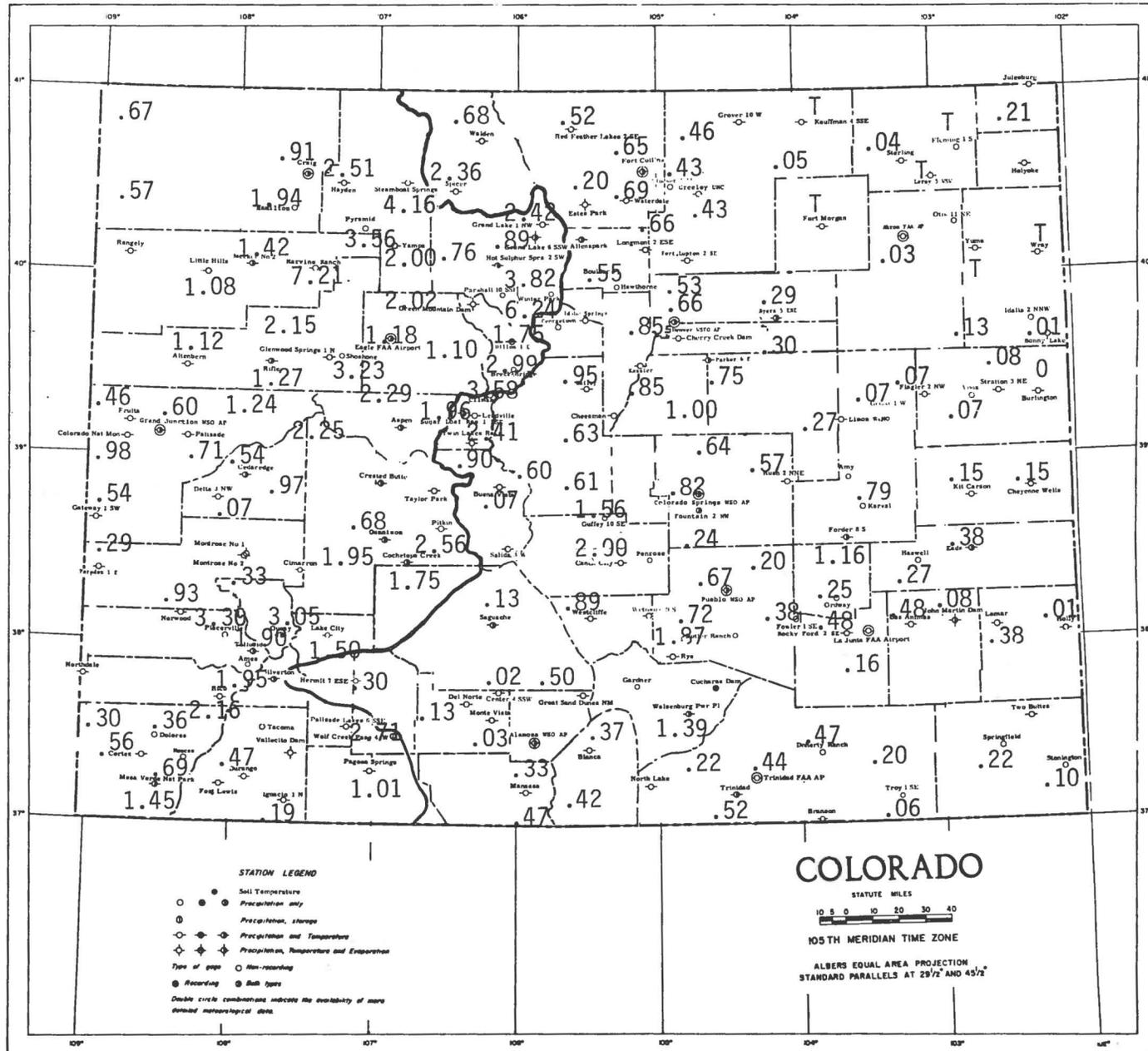


Figure 2. Precipitation for December 1981 as a percent of the 1951-1970 average.

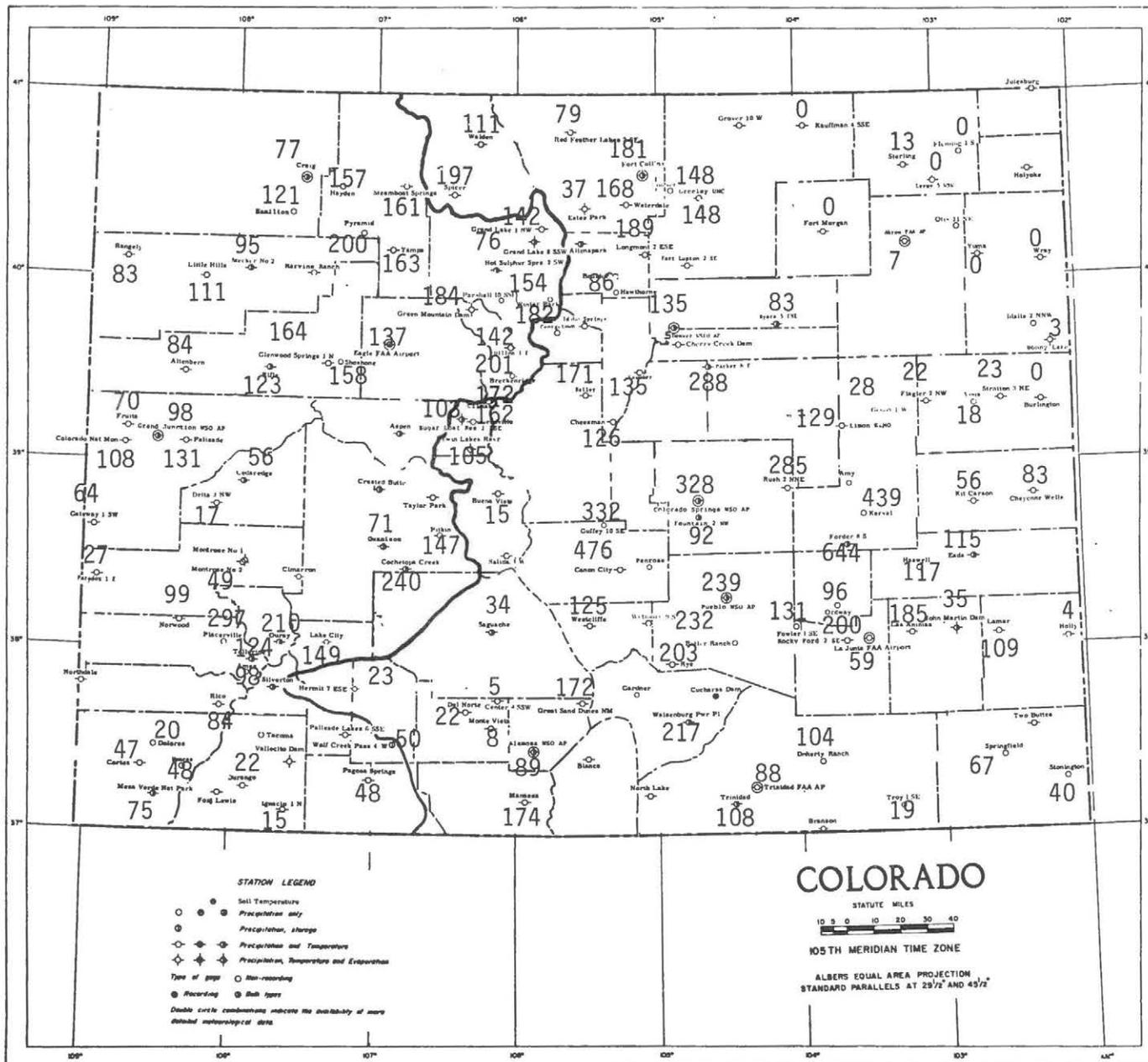


Figure 3. Precipitation for October 1981 through December 1981 as a percent of the 1951-1970 average.

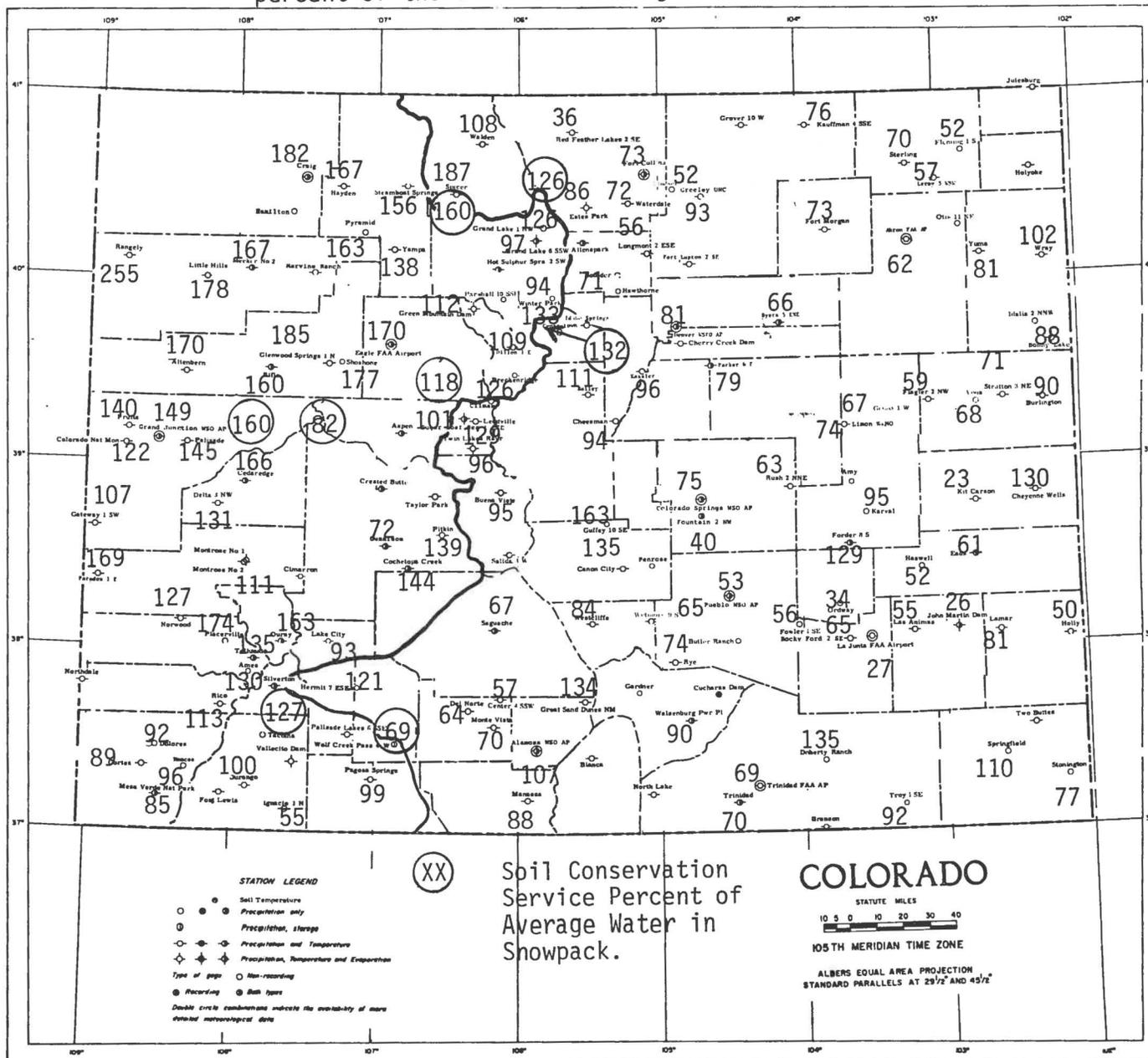


Figure 4. Temperatures for December 1981 in degrees Fahrenheit (in parentheses) and departures from the 1951-1970 average.

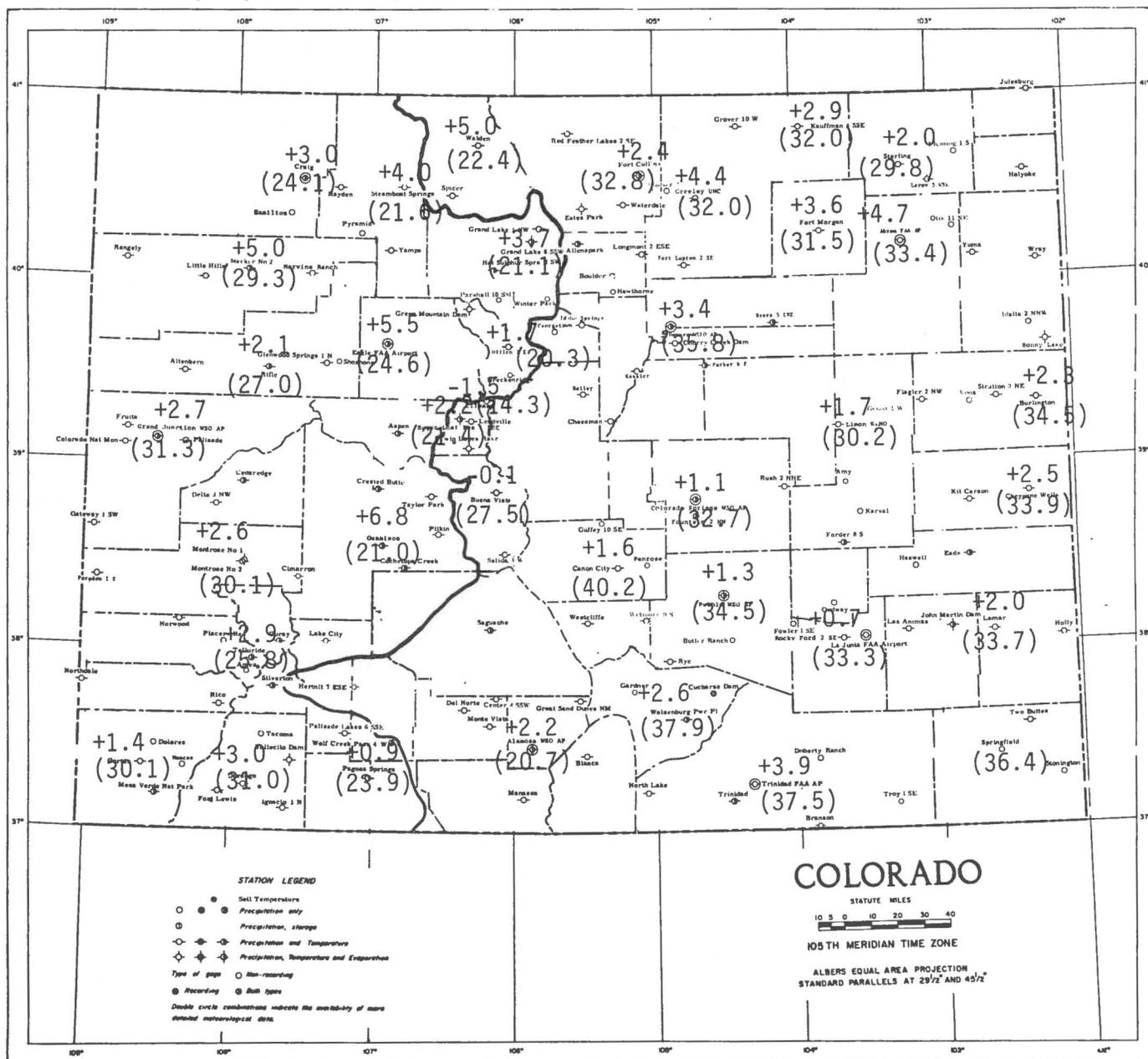


Figure 5. December 1981 Heating Degree Days (in parentheses) and percent above or below the 1941-1970 average.

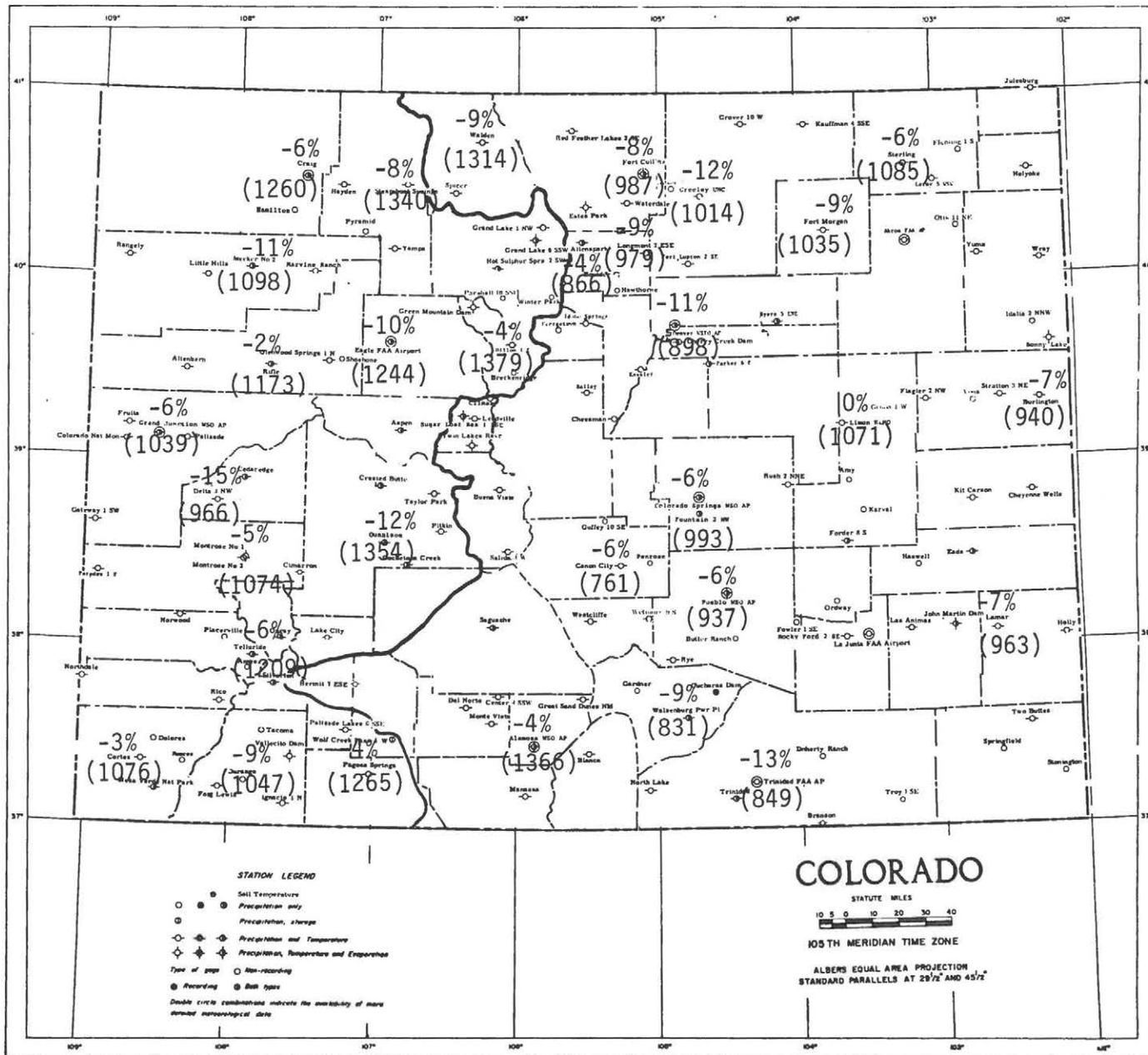


Figure 6. December 1981 Heating Degree Days as a percent above or below December 1980.

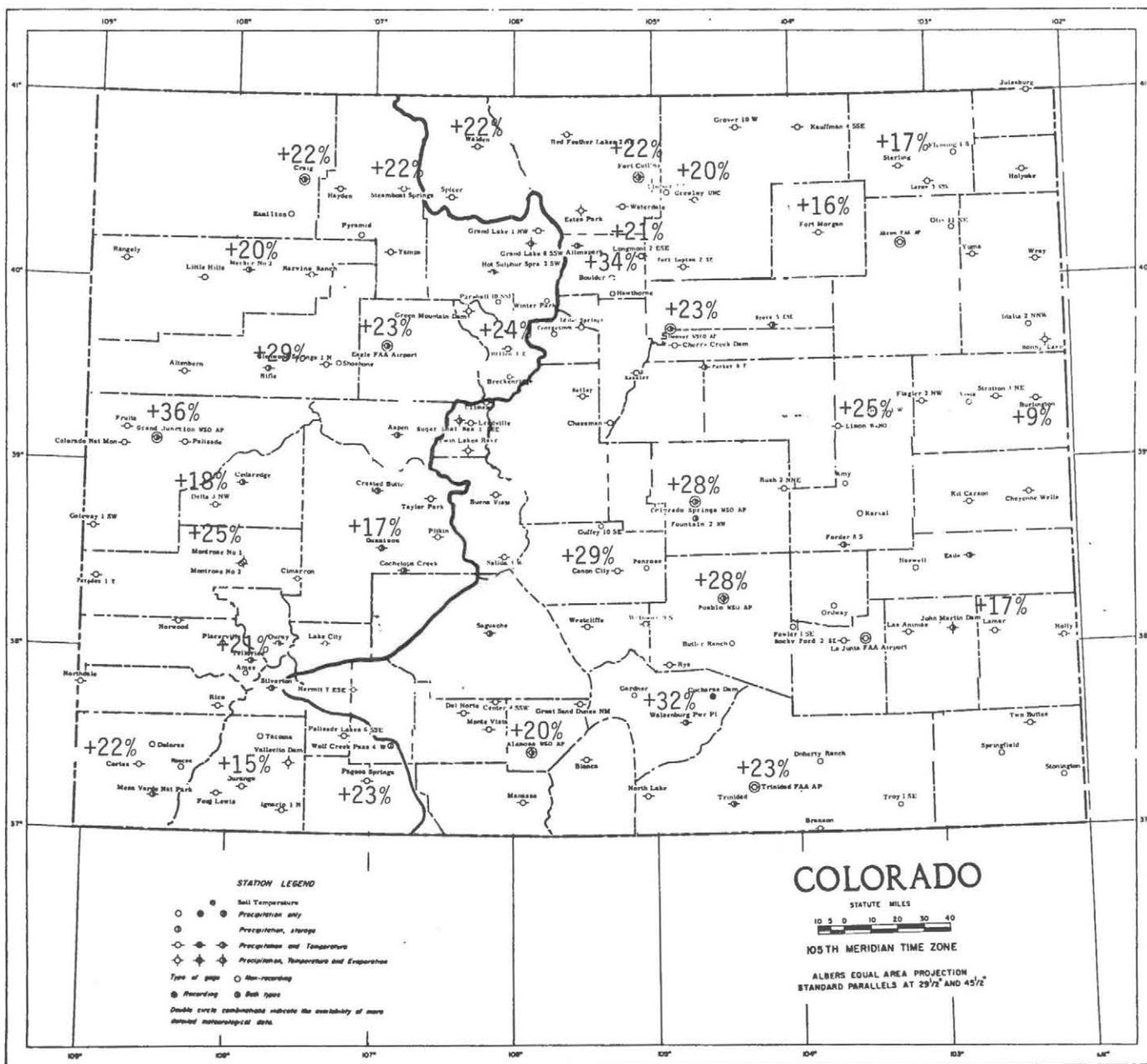


Table 1. Colorado Heating Degree Day Data through December 1981.

		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANNUAL			JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANNUAL
Alamosa	average	55	96	294	648	1053	1420	1482	1182	1054	714	440	171	8609	Greeley	average	0	5	153	465	870	1147	1256	991	911	528	253	60	6639
	1980-81	5	102	263	757	1031	1136	1274	1097	979	576	458	102	7780		1980-81	0	4	57	457	762	845	964	872	749	304	273	23	5310
	1981-82	14	108	254	656	904	1366									1981-82	5	9	31	459	651	1014							
Aspen	average	113	161	345	654	1026	1324	1392	1176	1144	792	530	291	8948	Gunnison	average	103	169	384	704	1110	1538	1686	1397	1246	789	533	282	9941
	1980-81	59	159	305	705	1004	1005	1164	1094	1066	656	574	208	7999		1980-81	106	191	358	738	1037	1159	1331	1117	994	640	509	158	8338
	1981-82	98	147	298	721	916										1981-82	63	165	328	709	977	1354							
Boulder	average	6	0	139	367	690	905	992	826	809	482	236	88	5540	Lamar	average	0	0	57	320	741	1032	1107	854	766	377	129	19	5402
	1980-81	1	61	384	630	644	800	714	702	252	306	27	4521	1980-81		0	0	28	349	735	823	910	766	604	171	166	3	4555	
	1981-82	4	14	444	562	866										1981-82	0	0	27	287	575	963							
Burlington	average	0	0	102	363	741	1011	1085	882	828	462	210	54	5738	Limon	average	8	6	144	448	834	1070	1156	960	936	570	299	100	6531
	1980-81	0	0	49	356	763	866	907	804	734	256	265	18	5018		1980-81	0	12	139	542	831	859	1014	927	917	403	400	60	6104
	1981-82	10	7	25	377	601	940									1981-82	6	26	83	516	704	1071							
Canon City	average	0	0	57	285	600	806	877	728	713	402	158	34	4660	Longmont	average	0	7	155	457	828	1076	1184	952	902	537	269	92	6459
	1980-81	0	0	50	313	603	590	679	651	652	228	203	2	3971		1980-81	0	4	77	455	744	806	952	902	767	317	277	21	5333
	1981-82	2	9	35	495	761										1981-82	5	12	38	481	652	979							
Colorado Springs	average	9	13	155	456	825	1054	1128	944	921	564	301	103	6473	Meeker	average	28	56	261	564	927	1240	1345	1086	998	651	394	164	7714
	1980-81	0	7	113	463	759	776	928	850	789	335	321	38	5379		1980-81	8	60	211	589	861	912	1044	958	901	573	427	86	6627
	1981-82	5	30	70	433	640	993									1981-82	8	72	160	572	847	1098							
Cortez	average	0	10	110	425	807	1104	1156	904	834	534	274	81	6239	Montrose	average	0	9	129	435	828	1132	1197	935	834	510	245	71	6325
	1980-81	2	29	131	514	780	882	986	901	849	465	326	68	5933		1980-81	0	17	82	467	779	862	948	851	755	327	247	45	5380
	1981-82	2	7	83	499	726	1076									1981-82	0	8	38	466	714	1074							
Craig	average	32	58	275	608	996	1342	1479	1193	1094	687	419	193	8376	Pagosa Springs	average	95	114	291	611	981	1311	1401	1140	1048	711	481	233	8417
	1980-81	7	68	228	626	914	1034	1091	1076	919	545	460	110	7078		1980-81	24	109	294	654	932	1029	1088	971	932	588	489	163	7273
	1981-82	19	35	149	697	901	1260									1981-82	19	102	244	642	856	1265							
Delta	average	0	0	94	394	813	1135	1197	890	753	429	167	31	5903	Pueblo	average	0	0	55	335	726	992	1082	848	775	405	148	28	5394
	1980-81	0	1	48	456	761	820	934	826	686	256	177	26	4991		1980-81	0	0	46	383	717	731	871	697	584	175	119	3	4326
	1981-82	0	1	17	375	673	966									1981-82	0	0	22	272	554	937							
Denver	average	0	0	120	408	768	1004	1088	902	868	525	253	80	6016	Rifle	average	7	22	167	481	861	1200	1296	997	859	537	283	85	5394
	1980-81	0	4	56	386	683	731	853	801	727	260	243	26	4770		1980-81	27	139	521	836	910	1052	910	771	416	302	49	5933	
	1981-82	0	12	19	375	570	898									1981-82	0		42	513	760	1173							
Dillon	average	291	341	519	809	1173	1442	1519	1319	1321	966	701	453	10854	Salida	average	28	69	240	536	854	1094	1132	958	905	588	369	139	6910
	1980-81	227	315	480	893	1106	1113	1302	1230	1219	819	713	331	9748		1980-81	0	39	200	581	838	780	1067	837	692	457	421		
	1981-82	243	302	448	835	1027	1379									1981-82	22	67		537									
Durango	average	20	37	198	502	843	1147	1212	958	880	597	375	161	6930	Steamboat Springs	average	116	159	384	691	1086	1451	1553	1277	1190	789	521	306	9523
	1980-81	3	39	150	516	815	910	968	842	891	478	409	81	6102		1980-81	61	165	343	743	1004	1101	1159	1152	983	625	546	227	8109
	1981-82	9	22	125	531	764	1047									1981-82	83	141	257	734	973	1340							
Eagle	average	43	79	285	626	1023	1386	1457	1168	1051	693	425	190	8426	Sterling	average	0	6	158	459	849	1150	1249	986	927	522	256	76	6638
	1980-81	8	89	230	674	967	1014	1165	1008	916	541	412	84	7108		1980-81	0	5	106	529	814	931	1038	963	835	359	391	33	6004
	1981-82	6	54	155	632	889	1244									1981-82	8	20	79	448	755	1085							
Fort Collins	average	7	12	175	477	834	1076	1184	960	918	558	297	101	6599	Telluride	average	185	229	399	676	1017	1290	1333	1140	1147	825	583	345	9169
	1980-81	1	14	82	486	764	810	960	848	760	318	314	39	5421		1980-81	78	162	301	662	925	1003	1132	1038	1098	621	576	187	7783
	1981-82	8	8	42	487	661	987									1981-82	117	177	320	707	891	1209							
Fort Morgan	average	0	0	132	439	849	1141	1262	986	899	509	233	61	6511	Trinidad	average	0	0	81	364	732	980	1054	868	822	471	212	58	5642
	1980-81	0	8	74	455	773	894	993	912	813	291	259	15	5487		1980-81	0	0	57	394	679	689	860	720	712	240	212	14	4615
	1981-82	3	11	37	421	650	1035									1981-82	0	15	39	316	524	849							
Grand Junction	average	0	0	60	324	756	1101	1190	879	738	404	133	20	5606	Walden	average	197	270	489	803	1149	1438	1538	1313	1280	891	626	363	10357
	1980-81	0	2	21	359	674	765	864	754	645	247	153	15	4499		1980-81	142	284	439	840	1123	1073	1281	1158	1111	727	663	248	9089
	1981-82	0	0	12	439	696	1039									1981-82	143	241	357	831	1007	1314							
															Walsenberg	average	6	12	93	364	690	911	977	820	806	489	230	62	5460
														1980-81		0	0	52	391	678	628	818	745	746	298	220	16	4592	
														1981-82		0	15		324	522	831								

COLORADO CLIMATE -- JANUARY 1982

Colorado Climate Center
 Department of Atmospheric Science
 Colorado State University

January was very typical for a midwinter month in Colorado. A few major storms brought abundant mountain precipitation, while most of the lower elevation areas were quite dry. Daily temperature variations were large, but the month as a whole ended up close to average.

Significant Highlights -- January 1982

<u>Date</u>	<u>Event</u>
1	Major Pacific storm system brought heavy snows to all Colorado mountains and some western valleys. Eagle, 10" snow. Dry east. Mild temperatures.
2-3	Cooler temperatures statewide. Snow continued mountains and west. Widely scattered very light snow east.
4-6	Large Pacific storm system approached from northwest. Considerable mountain snowfall. Wolf Creek Pass, 40" snow. Light snow across all of eastern Colorado on the 6th as polar air mass dropped southward into Colorado.
7-8	Very cold statewide, warming east of mountains on 8th. Sterling, -13°F, Denver, -3°F, Steamboat Springs, -36°F on 7th. Gunnison -36°F, Bonham Reservoir and Taylor Park Dam, -42°F on 8th -- coldest in the state.
9-13	Bitterly cold air moved into central U.S. and slipped into eastern Colorado. Relatively mild temperatures in mountains. Easterly upslope flow 10-12th produced from a trace to as much as 4 inches of snow east of the mountains. Heavier snows mountains and southern portions of state on 12th from weak storm system.
14-16	Strong NW flow aloft. Daily light snowfall Northern and Central Mountains. Remainder of state dry. Warmer east of mountains on 14th followed by sharply colder 15-16th as another strong polar surge drove into central U.S.
17	Severe morning chinook windstorm northern Front Range. Sharply warmer. Boulder area wind speeds peaked near 140 mph in wind prone areas. Significant damage done.
18-20	Warm statewide. Mountain snowfall began in advance of large Pacific storm system.

<u>Date</u>	<u>Event</u>
21-23	Pacific storm dropped south of Colorado as cold air slipped southward into state. Storm developed into rapidly moving blizzard as it moved northeast away from Colorado. Most of state received some snow, but mostly light. Craig, Aspen, Crested Butte, 5" snow.
24	Another severe northern Front Range downslope windstorm. Local gusts in excess of 100 mph near Fort Collins caused considerable damage. Warm temperatures.
25-26	Dry and very warm. Record high temperatures many areas, generally in the 70's east of mountains on the 26th. Denver, 73°F, Akron 74°F, Trinidad, 76°F, La Junta, 78°F, Bonny Reservoir and John Martin Dam, 79°F (warmest in the state).
27	Mild temperatures. Very fast moving upper-level disturbance produced some precipitation -- mostly Northern and Central Mountains. Berthoud Pass, 9" snow.
28	Fair and mild.
29-31	Unsettled. Weather systems moving rapidly. Seasonal temperatures with some scattered precipitation. Local heavy snows southern Colorado on 29th. Wolf Creek Pass, 12". Walsenburg, 6".

Precipitation Summary

Precipitation totals and percents of average for January are shown in Figures 1 and 2, respectively. Totals were variable ranging from none at Kit Carson and a trace at Las Animas to more than 5 inches water equivalent at Marvine Ranch, Berthoud Pass, and Wolf Creek Pass.

Generally, precipitation was above average across most of the mountains and western valleys of Colorado. The heaviest precipitation compared to average was observed in northwestern Colorado. Green Mountain Dam's 2.24 inch total was 196 percent of average. Hamilton and Dillon were each 179 percent of their respective January averages. At the same time, most areas east of the mountains (which are typically dry in January) were considerably drier than average. Totals were less than 0.05 inches in southeastern Colorado (less than 10 percent of average). In northeastern Colorado totals were mostly 20 to 80 percent of average. One small area in the eastern foothills from Colorado Springs southward to near Trinidad, which received significant snowfall on the 29th, ended up wetter than usual.

Water-Year Precipitation to date

Precipitation as a percent of average for the first four months of the 1982 water year is shown in Figure 3. The mountains and western valleys continue to show near or above average precipitation for the winter, and water supply outlooks for next summer are very optimistic. Many locations, particularly in northwest Colorado have received more than 150 percent of average. The situation is considerably different in the San Luis Valley and everywhere east of the mountains. Nearly all of these areas are drier than average. Parts of the Arkansas Valley have totalled less than 0.50 inches of precipitation since October 1.

Temperature Summary

January temperatures and departures from average are shown in Figure 4. The state as a whole was near average for the month, but there was considerable local variation. Southeastern Colorado was as much as 3 degrees Fahrenheit warmer than average. Fort Collins, Fort Morgan, and Greeley were also above average while the remainder of eastern Colorado was a bit colder than usual. The mountains and western valleys ended up generally within 2 degrees of average. Southwestern Colorado was the exception where unusually cold temperatures prevailed. Pagosa Springs ended the month more than 5 degrees below their January average.

Heating Degree Days

Heating degree day information, which provides a simple way to compare outdoor temperatures with fuel consumption for heating, is shown in Figures 5 and 6, and also in Table 1. Heating degree day totals for January were generally close to average but ranged from 11 percent below average (less energy demand) at Trinidad to 9 percent above average at Pagosa Springs (more energy demand than usual). Actual totals ranged from 932 at Walsenburg to 1693 at Gunnison.

Compared to January 1981 (Figure 6) degree day totals this year were considerably higher. East of the mountains totals ranged from 9% more at Trinidad to 27% more at Burlington and Sterling. West of the Continental Divide the differences were even greater. Dillon and Telluride totalled 17% more heating degree days this January but this increased to 39 percent

more at Grand Junction and 40 percent more at Craig and Pagosa Springs. This means considerably more energy was probably needed to heat schools, businesses, and homes. This translates directly to higher energy costs for the average consumer.

Figure 2. Precipitation for January 1982 as a percent of the 1951-1970 average.

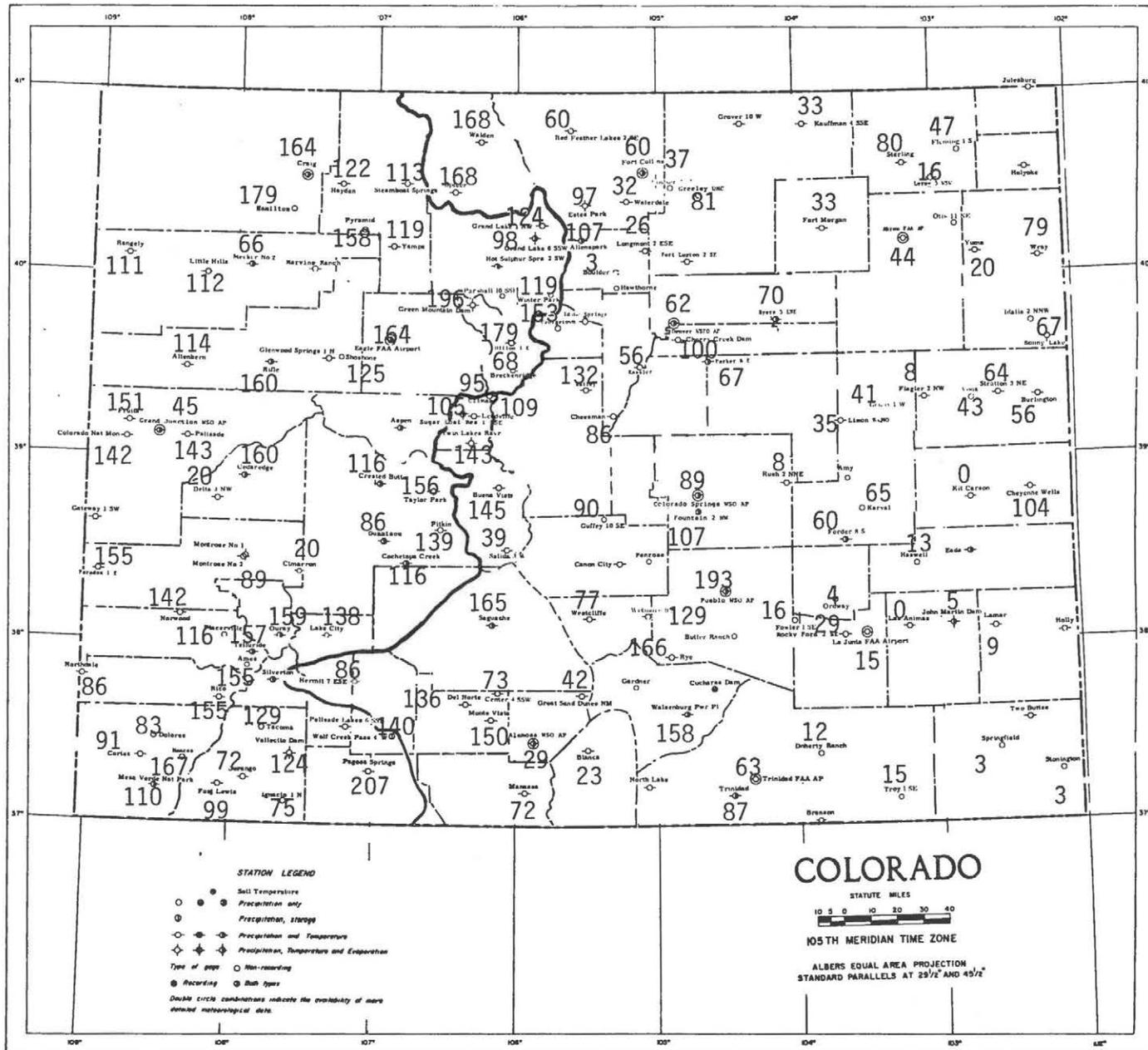


Figure 3. Precipitation for October 1981 through January 1982 as a percent of the 1951-1970 average.

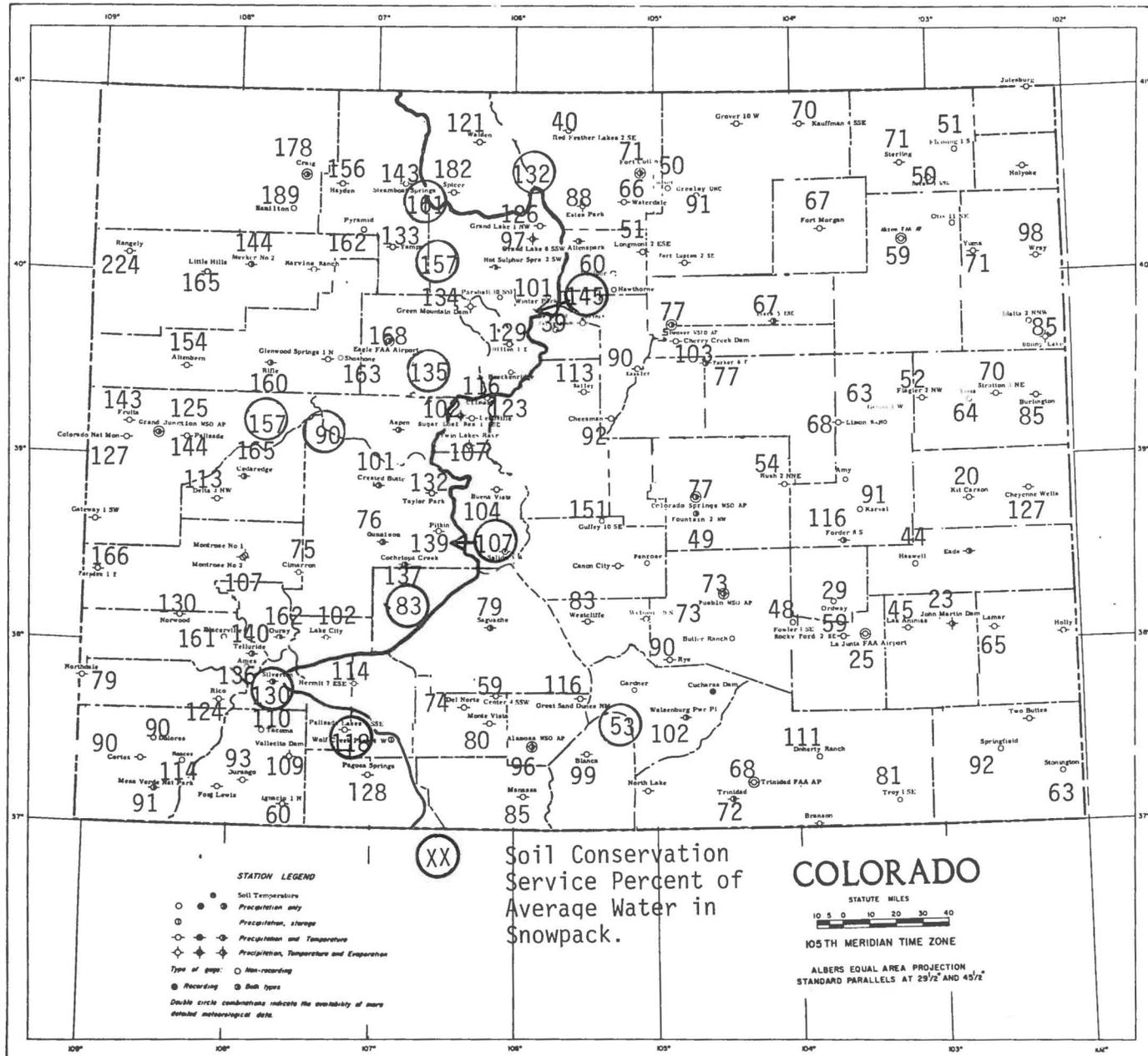


Figure 4. Temperatures for January 1982 in degrees Fahrenheit (in parentheses) and departures from the 1951-1970 averages.

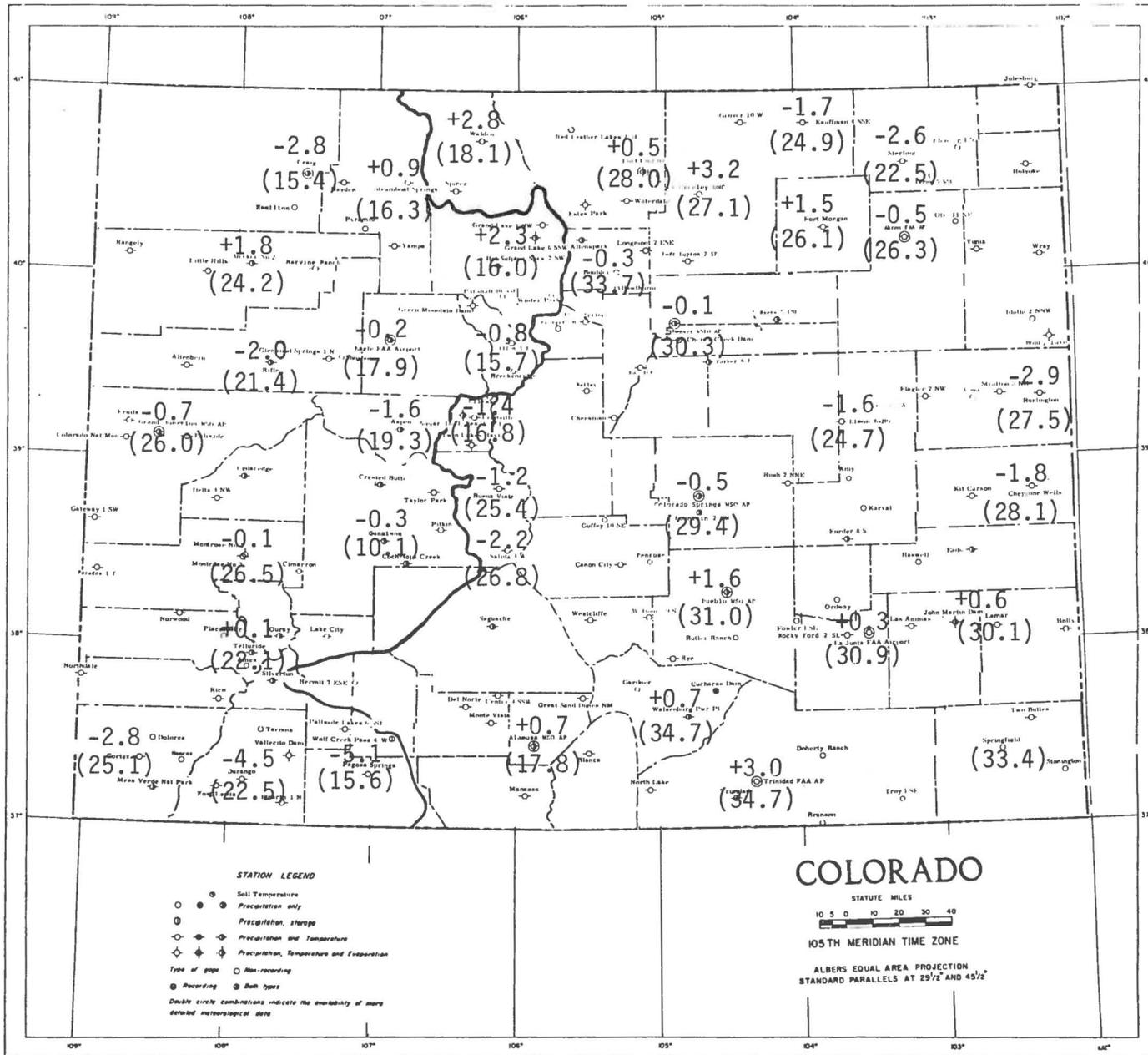


Figure 5. January 1982 Heating Degree Days (in parentheses) and percent above or below the 1941-1970 average.

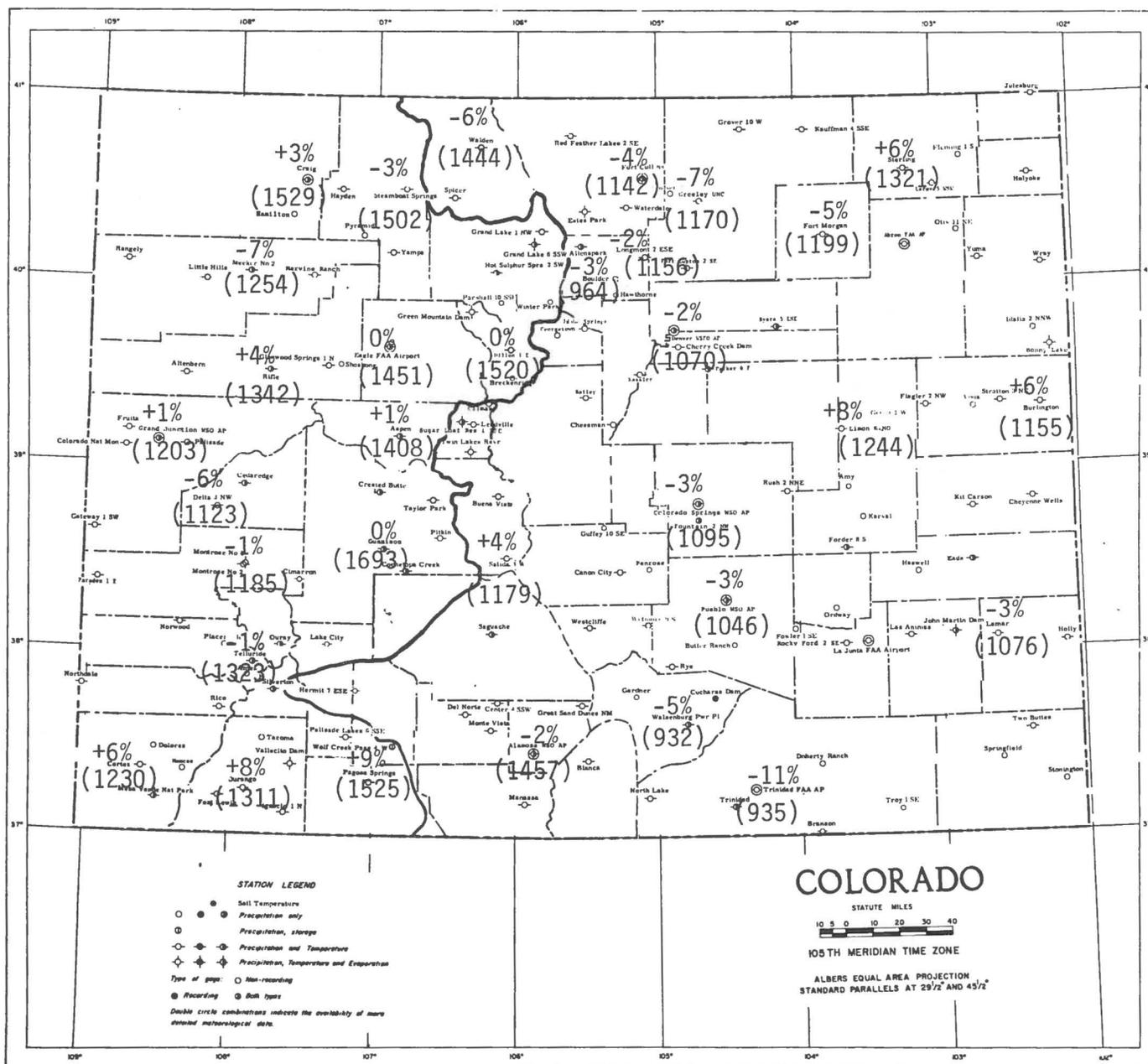


Figure 6. January 1982 Heating Degree Days as a percent above or below January 1981.

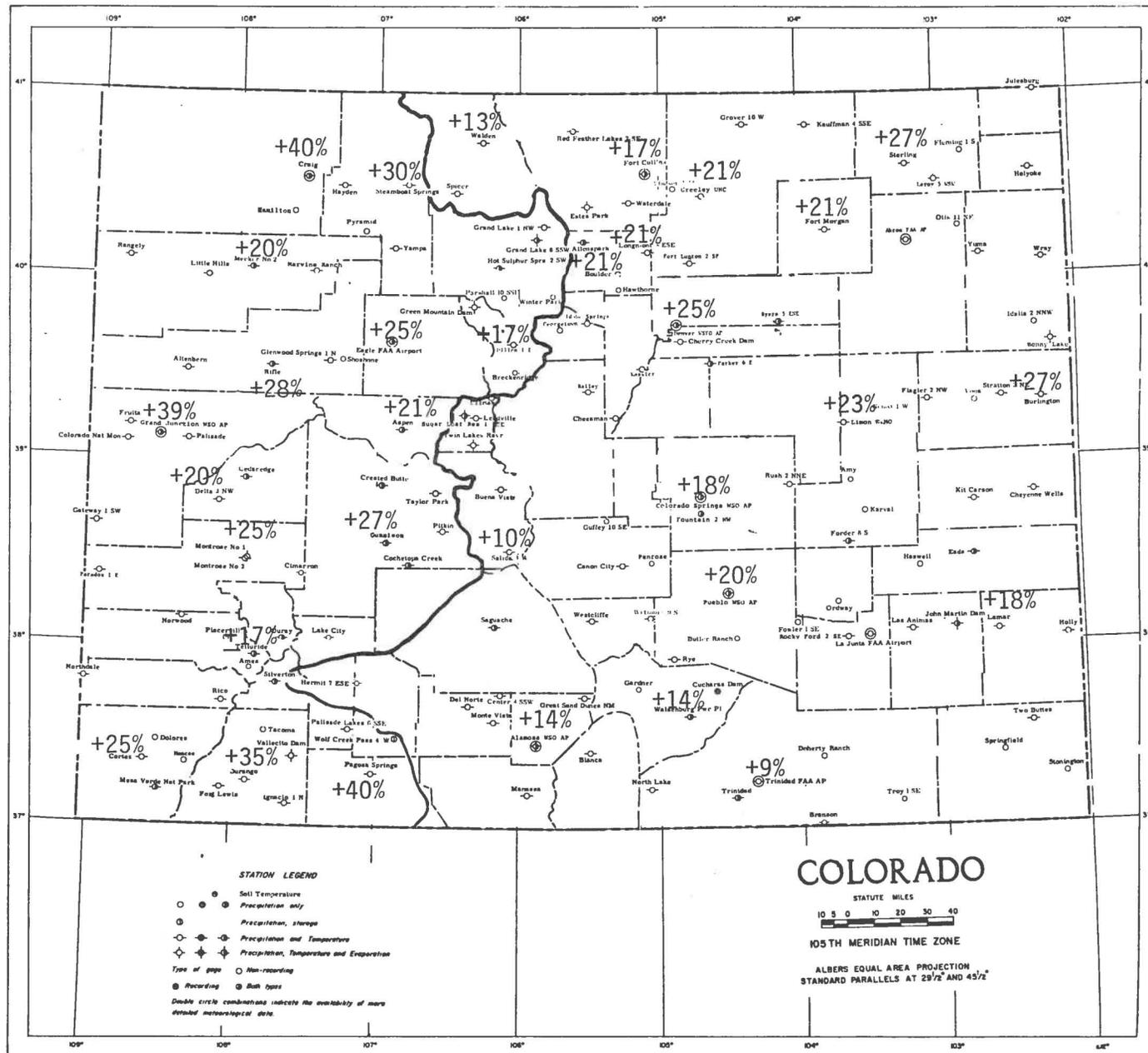


Table 1. Colorado Heating Degree Day Data through January 1982.

		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANNUAL															
		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANNUAL	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANNUAL		
Alamosa	average	55	96	294	648	1053	1420	1482	1182	1054	714	440	171	8609	Greeley	average	0	5	153	465	870	1147	1256	991	911	528	253	60	6639
	1980-81	5	102	263	757	1031	1136	1274	1097	979	576	458	102	7780		1980-81	0	4	57	457	762	845	964	872	749	304	273	60	6639
	1981-82	14	108	254	656	904	1366	1457								1981-82	5	9	31	459	651	1014	1170					23	5310
Aspen	average	113	161	345	654	1026	1324	1392	1176	1144	792	530	291	8948	Gunnison	average	103	169	384	704	1110	1538	1686	1397	1246	789	533	282	9941
	1980-81	59	159	305	705	1004	1005	1164	1094	1066	656	574	208	7999		1980-81	106	191	358	738	1037	1159	1331	1117	994	640	509	158	8338
	1981-82	98	147	298	721	916	1279	1408								1981-82	63	165	328	709	977	1354	1693						
Boulder	average	6	0	139	367	690	905	992	826	809	482	236	88	5540	Lamar	average	0	0	57	320	741	1032	1107	854	766	377	129	19	5402
	1980-81			1	61	384	630	644	800	714	702	252	306	4521		1980-81	0	0	28	349	735	823	910	766	604	171	166	3	4555
	1981-82	4	14		444	562	866	964								1981-82	0	0	27	287	575	963	1076						
Burlington	average	0	0	102	363	741	1011	1085	882	828	462	210	54	5738	Limon	average	8	6	144	448	834	1070	1156	960	936	570	299	100	6531
	1980-81	0	0	49	356	763	866	907	804	734	256	265	18	5018		1980-81	0	12	139	542	831	859	1014	927	917	403	400	60	6104
	1981-82	10	7	25	377	601	940	1155								1981-82	6	26	83	516	704	1071	1244						
Canon City	average	0	0	57	285	600	806	877	728	713	402	158	34	4660	Longmont	average	0	7	155	457	828	1076	1184	952	902	537	269	92	6459
	1980-81	0	0	50	313	603	590	679	651	652	228	203	2	3971		1980-81	0	4	77	455	744	806	952	902	767	317	277	21	5333
	1981-82	2	9	35		495	761									1981-82	5	12	38	481	652	979	1156						
Colorado Springs	average	9	13	155	456	825	1054	1128	944	921	564	301	103	6473	Meeker	average	28	56	261	564	927	1240	1345	1086	998	651	394	164	7714
	1980-81	0	7	113	463	759	776	928	850	789	335	321	38	5379		1980-81	5	60	211	589	861	912	1044	958	901	573	427	86	6627
	1981-82	5	30	70	433	640	993	1095								1981-82	8	72	160	572	847	1098	1254						
Cortez	average	0	10	110	425	807	1104	1156	904	834	534	274	81	6239	Montrose	average	0	9	129	435	828	1132	1197	935	834	510	245	71	6325
	1980-81	2	29	131	514	780	882	986	901	849	465	326	68	5933		1980-81	0	17	82	467	779	862	948	851	755	327	247	45	5380
	1981-82	2	7	83	499	726	1076	1230								1981-82	0	8	38	466	714	1074	1185						
Craig	average	32	58	275	608	996	1342	1479	1193	1094	687	419	193	8376	Pagosa Springs	average	95	114	291	611	981	1311	1401	1140	1048	711	481	233	8417
	1980-81	7	68	228	626	914	1034	1091	1076	919	545	460	110	7078		1980-81	24	109	294	654	932	1029	1088	971	932	588	489	163	7273
	1981-82	19	35	149	697	901	1260	1529								1981-82	19	102	244	642	856	1265	1525						
Delta	average	0	0	94	394	813	1135	1197	890	753	429	167	31	5903	Pueblo	average	0	0	55	335	726	992	1082	848	775	405	148	28	5394
	1980-81	0	1	48	456	761	820	934	826	686	256	177	26	4991		1980-81	0	0	46	383	717	731	871	697	584	175	119	3	4326
	1981-82	0	1	17	375	673	966	1123								1981-82	0	0	22	272	554	937	1046						
Denver	average	0	0	120	408	768	1004	1088	902	868	525	253	80	6016	Rifle	average	7	22	167	481	861	1200	1296	997	859	537	283	85	5394
	1980-81	0	4	56	386	683	731	853	801	727	260	243	26	4770		1980-81	0	27	139	521	836	910	1052	910	771	416	302	49	5933
	1981-82	0	12	19	375	570	898	1070								1981-82	0		42	513	760	1173	1342						
Dillon	average	291	341	519	809	1173	1442	1519	1319	1321	985	701	453	10854	Salida	average	28	69	240	536	854	1094	1132	958	905	588	369	139	6910
	1980-81	227	315	480	893	1106	1113	1302	1230	1219	819	713	331	9748		1980-81	0	39	200	581	838	780	1067	837	892	457	421		
	1981-82	243	302	448	835	1027	1379	1520								1981-82	22	67	168	537		1033	1179						
Durango	average	20	37	198	502	843	1147	1212	958	880	597	375	161	6930	Steamboat Springs	average	116	159	384	691	1086	1451	1553	1277	1190	789	521	306	9523
	1980-81	3	39	150	516	815	910	968	842	891	478	409	81	6102		1980-81	61	165	343	743	1004	1101	1159	1152	983	625	546	227	8109
	1981-82	9	22	125	531	764	1047	1311								1981-82	83	141	257	734	973	1340	1502						
Eagle	average	43	79	285	626	1023	1386	1457	1168	1051	693	425	190	8426	Sterling	average	0	6	158	459	849	1150	1249	986	927	522	256	76	6638
	1980-81	8	89	230	674	967	1014	1165	1008	916	541	412	84	7108		1980-81	0	5	106	529	814	931	1038	963	835	359	391	33	6004
	1981-82	6	54	155	632	889	1244	1451								1981-82	8	20	79	448	755	1085	1321						
Fort Collins	average	7	12	175	477	834	1076	1184	960	918	558	297	101	6599	Telluride	average	185	229	399	676	1017	1290	1333	1140	1147	825	583	345	9169
	1980-81	1	14	88	486	764	810	980	848	760	318	314	39	5421		1980-81	78	162	301	662	925	1003	1132	1038	1098	621	576	187	7783
	1981-82	8	8	42	487	661	987	1142								1981-82	117	177	320	707	891	1209	1323						
Fort Morgan	average	0	0	132	439	849	1141	1262	986	899	509	233	61	6511	Trinidad	average	0	0	81	364	732	980	1054	868	822	471	212	58	5642
	1980-81	0	8	74	455	773	894	993	912	813	291	259	15	5487		1980-81	0	0	57	394	679	689	860	720	712	240	212	14	4615
	1981-82	3	11	37	421	650	1035	1199								1981-82	0	15	39	316	524	849	935						
Grand Junction	average	0	0	60	324	756	1101	1190	879	738	404	133	20	5606	Walden	average	197	270	489	803	1149	1438	1538	1313	1280	891	626	363	10357
	1980-81	0	2	21	359	674	765	864	754	645	247	153	15	4499		1980-81	142	284	439	840	1123	1073	1281	1158	1111	727	663	248	9089
	1981-82																												

COLORADO CLIMATE -- FEBRUARY 1982

Colorado Climate Center
 Department of Atmospheric Science
 Colorado State University

Very cold weather with frequent light snow occurred across Colorado during the first 12 days of February. This pattern suddenly gave way to warm conditions with little precipitation for the remainder of the month.

Significant Highlights -- February

<u>Date</u>	<u>Event</u>
1-2	Storm system passed south of Colorado. Turning colder with scattered snows most of state, especially mountains and southeast. Trinidad, 7" snow. Ouray, 8.6" snow.
3-6	Frigid Arctic cold air mass moved into Colorado. Light, dry snow statewide, especially 3-4. Daytime temperatures stayed near zero (Fahrenheit) east of the mountains 4-5. Coldest temperatures of the winter on mornings of 4-6. East of mountains coldest weather in more than 10 years. Burlington -23° F, Colorado Springs -19° F, Fort Morgan -25° F, Meeker -35° F, on the 5th. Dillon -27° F, Montrose -10° F, Steamboat Springs -41° F, on the 6th. Taylor Park Dam -54° F on the 6th, coldest in the state. //
7-11	Briefly warmer on the 7th. Then another Arctic air mass dropped southward out of Canada keeping temperatures much below average statewide. More light snow across most of the state, especially 8th and 11th as weak storm passed south of Colorado. 2-4" snow southeastern plains on 11th. Durango 13.5" snow 7-11.
12-14	Dry and much warmer with change to westerly winds aloft. Remained very cold in snow covered mountain valleys. Gunnison -20° F on 12th.
15-17	Mild and unsettled. Moderate but very widely scattered rain and snow 16-17, mostly southern Colorado. Ouray, 0.66" water-equivalent precipitation. La Junta, 0.42" rain.
18-23	High pressure ridge aloft over Colorado. Dry and unseasonably warm. Warmest temperatures for the month 21-22 statewide. Berthoud Pass 45° F, Craig 56° F, Grand Junction 62° F, Fort Collins 73° F, Sterling 76° F, on the 22nd. Springfield hit 83° F that same day, warmest in the state.

<u>Date</u>	<u>Event</u>
24-26	Seasonably cold east of mountains as cold high pressure dropped southward across the Great Plains. Some "upslope" snows southeast Colorado and locally heavy precipitation southwest from disorganized storm system which formed over Arizona and moved eastward. Durango, 0.79" precipitation (4" snow) from the storm.
27-28	Mild statewide. Light snows Northern and Central Mountains as weak Pacific front and upper air disturbance passed over.

Precipitation Summary

Precipitation totals and percents of average for February are shown in Figures 1 and 2. Precipitation was considerably less than average across the northern two-thirds of Colorado including the mountains. Breckenridge, for example, totalled just 0.26 inches of water-equivalent precipitation for the month, 20 percent of average. The wettest reporting station in the state, Wolf Creek Pass, received 2.88 inches, but that was only 67 percent of the February average. The Front Range, northeastern plains and the upper Arkansas Valley were the driest parts of Colorado. Fort Morgan and Windsor each totalled 0.01 inches for the month, 4 percent of average. Buena Vista and Twin Lakes Reservoir, in the upper Arkansas Valley each totalled 0.06 inches.

Limited areas were wetter than average. The lower elevations of the San Juan Mountain region, parts of the San Luis Valley, and much of the southeastern Colorado were considerably wetter than usual. Ouray, for example, totalled 2.64 inches, 157 percent of average. The 0.82 inches which fell at typically dry Blanca in the San Luis Valley was 390 percent of average. At La Junta, where 0.68 inches of precipitation fell (262 percent of average) this was only the 3rd month since the spring of 1980 with above average precipitation.

Water-Year Precipitation to Date

Precipitation as a percent of average for the first five months of the 1982 water year is shown in Figure 3. Most of western Colorado continues to be wetter than average, although the dry February weather helped drop totals closer to average. Moisture conditions improved somewhat in southeastern Colorado but most areas east of the mountains

are still drier than usual. Spring moisture now becomes critical to help winter wheat crop and also to reduce soil erosion from strong springtime winds.

Temperature Summary

February temperatures and departures from average are shown in Figure 4. Despite very warm weather in the last half of the month, most of the state still ended up colder than usual for the month as a whole. The coldest areas in the state, compared to average, were southeastern Colorado (La Junta, 5.6 degrees Fahrenheit below average, Cheyenne Wells, 5.8 degrees below average) and some western valleys (Gunnison, 4.2 degrees below average). The Greeley - Fort Collins area, Leadville - Climax, Walden and North Park, and local areas around Grand Junction and Telluride were all slightly warmer than usual.

Heating Degree Days

Heating degree day information, which provides a simple way to compare outdoor temperatures with fuel consumption for heating, is shown in Figures 5 and 6 and also in Table 1. February totals were mostly higher than average, indicating the colder than normal conditions, although there were considerable local variations. East of the Continental Divide totals ranged from 5% less than average at Greeley to 16% more than usual at Lamar. Similar variations were noted west of the Divide where totals ranged from 4% less than average at Grand Junction to 9% and 15% more than usual at Gunnison and Cortez, respectively. Actual totals ranged between 818 at Boulder and 1517 at Gunnison.

Heating degree day totals for February 1982 were considerably higher than February 1981 across the entire state (Figure 6). West of the Divide totals were mostly 8 to 20% greater than last year. Gunnison, however, had 36% more heating degree days than last February. East of the Divide, totals were anywhere from 6% more than last February at Longmont to 29% more at Lamar. This means that considerably more energy was needed this year to heat homes, businesses, and schools. This translates directly to higher energy bills for the average consumer.

Figure 2. Precipitation for February 1982 as a percent of the 1951-1970 average.

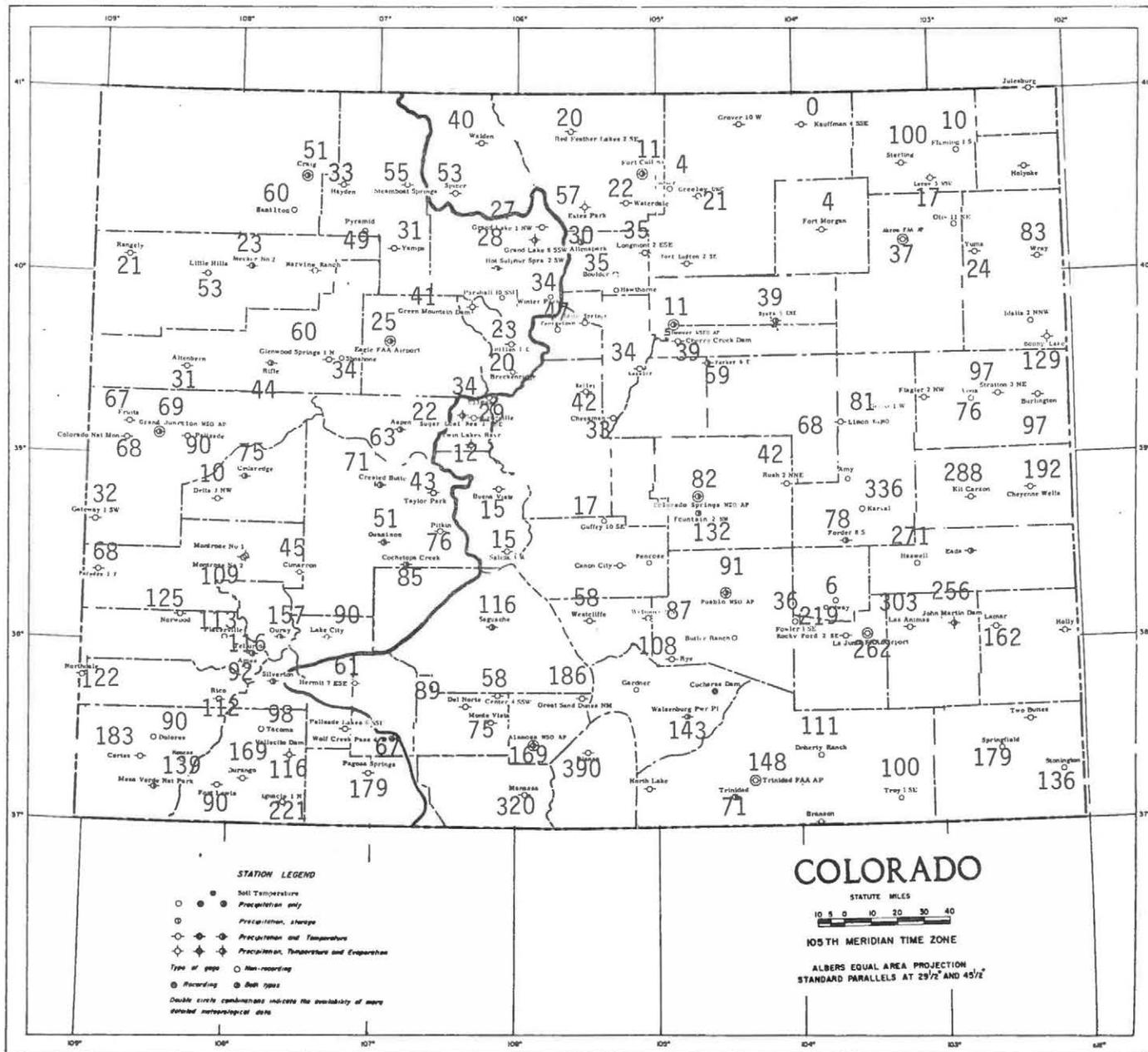


Figure 3. Precipitation for October 1981 through February 1982 as a percent of the 1951-1970 average.

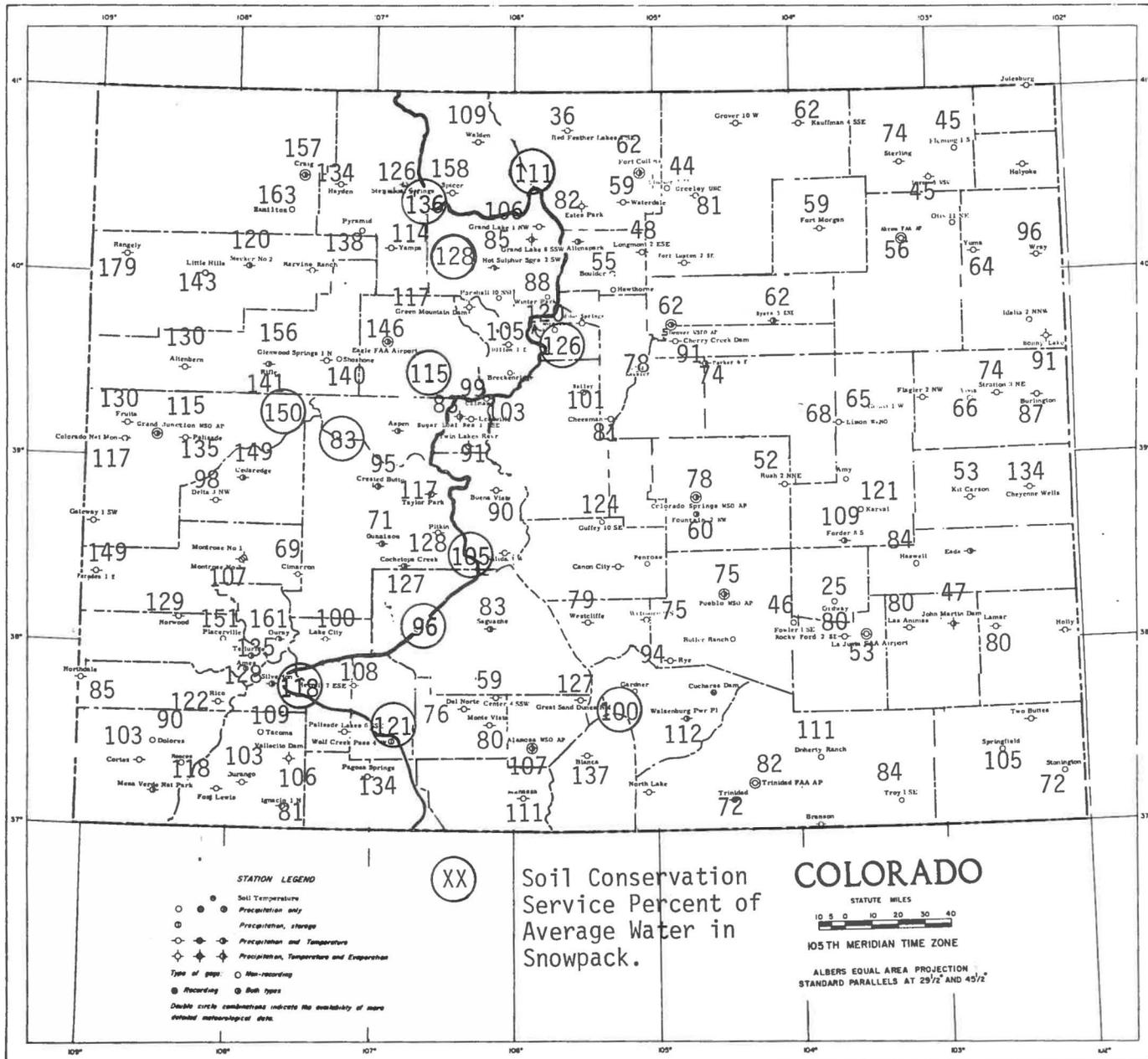


Figure 5. February 1982 Heating Degree Days (in parentheses) and percent above or below the 1941-1970 average.

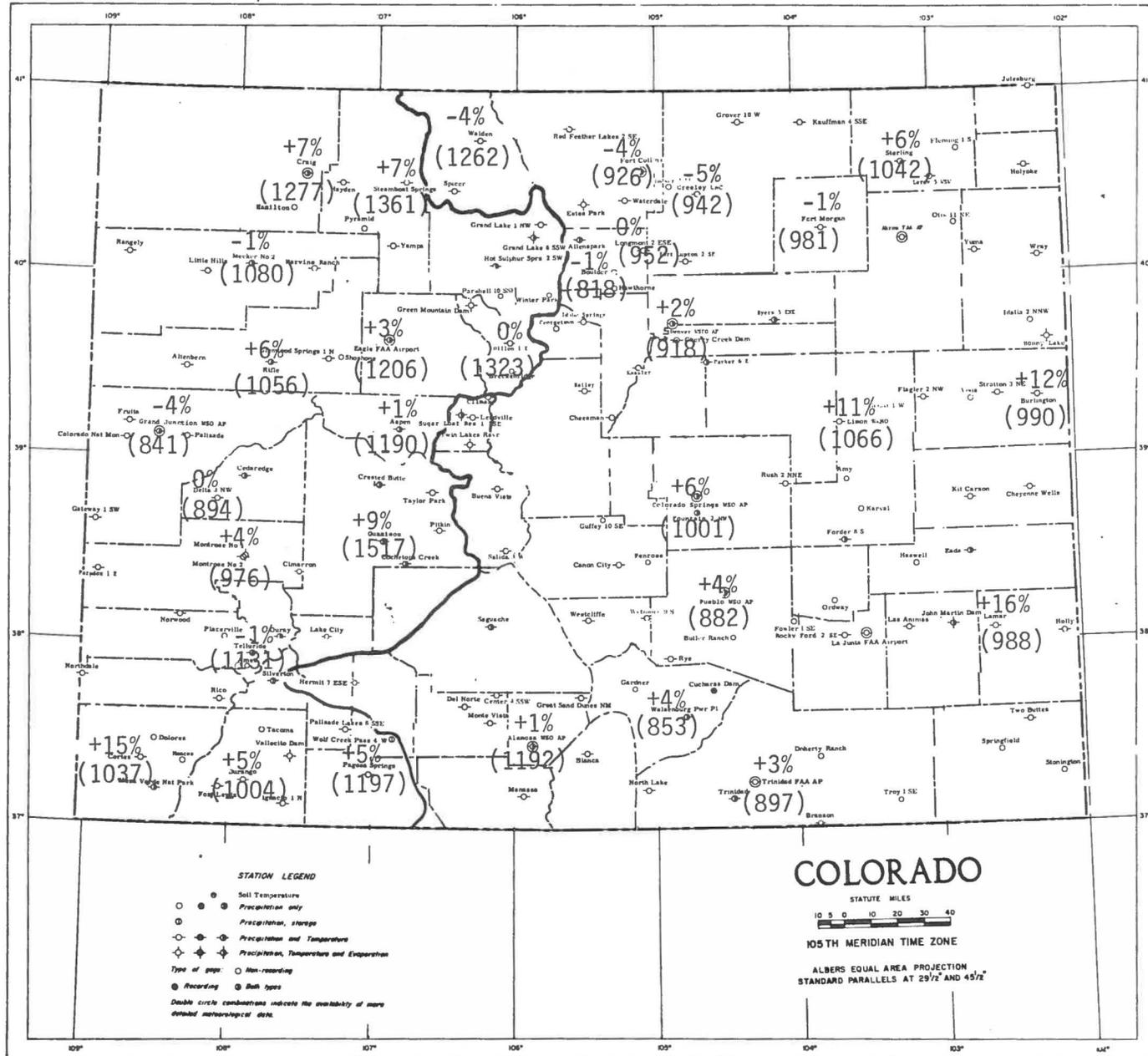


Figure 6. February 1982 Heating Degree Days as a percent above or below February 1981.

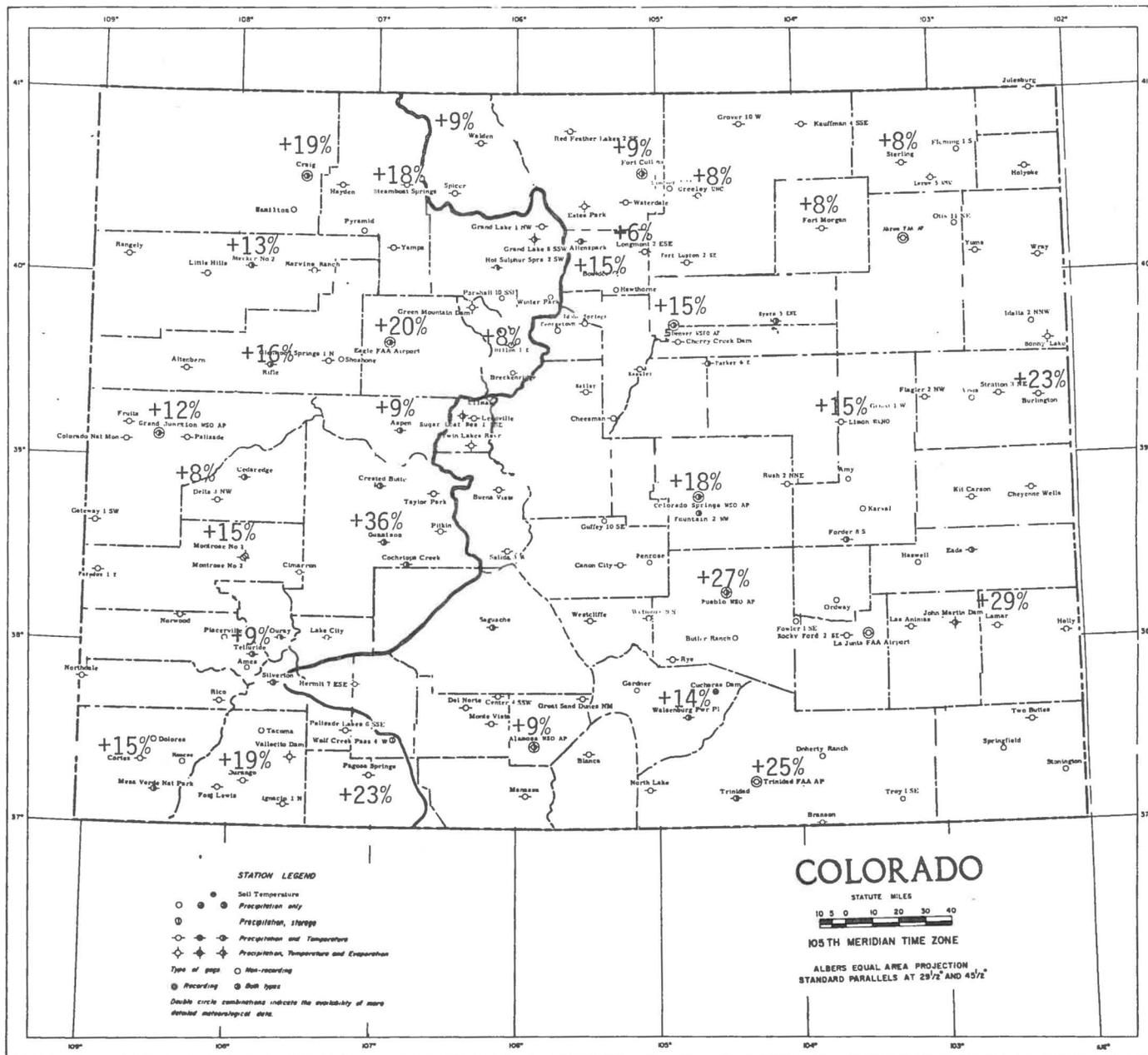


Table 1. Colorado Heating Degree Day Data through February 1982.

														JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANNUAL														
Alamosa	average	55	96	294	648	1053	1420	1482	1182	1054	714	440	171	8609	Greeley	average	0	5	153	465	870	1147	1256	991	911	528	253	60	6639											
	1980-81	5	102	263	757	1031	1136	1274	1097	979	576	458	102	7780		1980-81	0	4	57	457	762	845	964	872	749	304	273	23	5310											
	1981-82	14	108	254	656	904	1366	1457	1192							1981-82	5	9	31	459	651	1014	1170	942																
Aspen	average	113	161	345	654	1026	1324	1392	1176	1144	792	530	291	8948	Gunnison	average	103	169	384	704	1110	1538	1686	1397	1246	789	533	282	9941											
	1980-81	59	159	305	705	1004	1005	1164	1094	1066	656	574	208	7999		1980-81	106	191	358	738	1037	1159	1331	1117	994	640	509	158	8338											
	1981-82	98	147	298	721	916	1279	1408	1190							1981-82	63	165	328	709	977	1354	1693	1517																
Boulder	average	6	0	139	367	690	905	992	826	809	482	236	88	5540	Lamar	average	0	0	57	320	741	1032	1107	854	766	377	129	19	5402											
	1980-81	1	61	384	630	644	800	714	702	252	306	27	4521	1980-81		0	0	28	349	735	823	910	766	604	171	166	3	4555												
	1981-82	4	14	444	562	866	964	818								1981-82	0	0	27	287	575	963	1076																	
Burlington	average	0	0	102	363	741	1011	1085	882	828	462	210	54	5738	Limon	average	8	6	144	448	834	1070	1156	960	936	570	299	100	6531											
	1980-81	0	0	49	356	763	866	907	804	734	256	265	18	5018		1980-81	0	12	139	542	831	859	1014	927	917	403	400	60	6104											
	1981-82	10	7	25	377	601	940	1155	990							1981-82	6	26	83	516	704	1071	1244	1066																
Canon City	average	0	0	57	285	600	806	877	728	713	402	158	34	4660	Longmont	average	0	7	155	457	828	1076	1184	952	902	537	269	92	6459											
	1980-81	0	0	50	313	603	590	679	651	652	228	203	2	3971		1980-81	0	4	77	455	744	806	952	902	767	317	277	21	5333											
	1981-82	2	9	35	495	761										1981-82	5	12	38	481	652	979	1156	952																
Colorado Springs	average	9	13	155	456	825	1054	1128	944	921	564	301	103	6473	Meeker	average	28	56	261	564	927	1240	1345	1086	998	651	394	164	7714											
	1980-81	0	7	113	463	759	776	928	850	789	335	321	38	5379		1980-81	5	60	211	589	861	912	1044	958	901	573	427	86	6627											
	1981-82	5	30	70	433	640	993	1095	1001							1981-82	8	72	160	572	847	1098	1254	1080																
Cortez	average	0	10	110	425	807	1104	1156	904	834	534	274	81	6239	Montrose	average	0	9	129	435	828	1132	1197	935	834	510	245	71	6325											
	1980-81	2	29	131	514	780	882	986	901	849	465	326	68	5933		1980-81	0	17	82	467	779	862	948	851	755	327	247	45	5380											
	1981-82	2	7	83	499	726	1076	1230	1037							1981-82	0	8	38	466	714	1074	1185	976																
Craig	average	32	58	275	608	996	1342	1479	1193	1094	687	419	193	8376	Pagosa Springs	average	95	114	291	611	981	1311	1401	1140	1048	711	481	233	8417											
	1980-81	7	68	228	626	914	1034	1091	1076	919	545	460	110	7078		1980-81	24	109	294	654	932	1029	1088	971	932	588	489	163	7273											
	1981-82	19	35	149	697	901	1260	1529	1277							1981-82	19	102	244	642	856	1265	1525	1197																
Delta	average	0	0	94	394	813	1135	1197	890	753	429	167	31	5903	Pueblo	average	0	0	55	335	726	992	1082	848	775	405	148	28	5394											
	1980-81	0	1	48	456	761	820	934	826	686	256	177	26	4991		1980-81	0	0	46	383	717	731	871	697	584	175	119	3	4326											
	1981-82	0	1	17	375	673	966	1123	894							1981-82	0	0	22	272	554	937	1046	882																
Denver	average	0	0	120	408	768	1004	1088	902	868	525	253	80	6016	Rifle	average	7	22	167	481	861	1200	1296	997	859	537	283	85	5394											
	1980-81	0	4	56	386	683	731	853	801	727	260	243	26	4770		1980-81	27	139	521	836	910	1052	910	771	416	302	49	5933												
	1981-82	0	12	19	375	570	898	1070	918							1981-82	0		42	513	760	1173	1342	1056																
Dillon	average	291	341	519	809	1173	1442	1519	1319	1321	966	701	453	10854	Salida	average	28	69	240	536	854	1094	1132	958	905	588	369	139	6910											
	1980-81	227	315	480	893	1106	1113	1302	1230	1219	819	713	331	9748		1980-81	0	39	200	581	838	780	1067	837	892	457	421													
	1981-82	243	302	448	835	1027	1379	1520	1323							1981-82	22	67	168	537		1033	1179																	
Durango	average	20	37	198	502	843	1147	1212	958	880	597	375	161	6930	Steamboat Springs	average	116	159	384	691	1086	1451	1553	1277	1190	789	521	306	9523											
	1980-81	3	39	150	516	815	910	968	842	891	478	409	81	6102		1980-81	61	165	343	743	1004	1101	1159	1152	983	625	546	227	8109											
	1981-82	9	22	125	531	764	1047	1311	1004							1981-82	83	141	257	734	973	1340	1502	1361																
Eagle	average	43	79	285	626	1023	1386	1457	1168	1051	693	425	190	8426	Sterling	average	0	6	158	459	849	1150	1249	986	927	522	256	76	6638											
	1980-81	8	89	230	674	967	1014	1165	1008	916	541	412	84	7108		1980-81	0	5	106	529	814	931	1038	963	835	359	391	33	6004											
	1981-82	6	54	155	632	889	1244	1451	1206							1981-82	8	20	79	448	755	1085	1321	1042																
Fort Collins	average	7	12	175	477	834	1076	1184	960	918	558	297	101	6599	Telluride	average	185	229	399	676	1017	1290	1333	1140	1147	825	583	345	9169											
	1980-81	1	14	88	486	764	810	980	848	760	318	314	39	5421		1980-81	78	162	301	662	925	1003	1132	1038	1098	621	576	187	7783											
	1981-82	8	8	42	487	661	987	1142	926							1981-82	117	177	320	707	891	1209	1323	1131																
Fort Morgan	average	0	0	132	439	849	1141	1262	986	899	509	233	61	6511	Trinidad	average	0	0	81	364	732	980	1054	868	822	471	212	58	5642											
	1980-81	0	8	74	455	773	894	993	912	813	291	259	15	5487		1980-81	0	0	57	394	679	689	860	720	712	240	212	14	4615											
	1981-82	3	11	37	421	650	1035	1199	981							1981-82	0	15	39	316	524	849	935	897																
Grand Junction	average	0	0	60	324	756	1101	1190	879	738	404	133	20	5606	Walden	average	197	270	489	803	1149	1438	1538	1313	1280	891	626	363	10357											
	1980-81	0	2	21	359	674	765	864	754	645	247	153	15	4499		1980-81	142	284	439	840	1123	1073	1281	1158	1111	727	663	248	9089											
	1981-82	0																																						

COLORADO CLIMATE -- MARCH 1982

Colorado Climate Center
 Department of Atmospheric Science
 Colorado State University

Warm weather statewide was accompanied by above average precipitation in most of the western half of Colorado and below average precipitation across the Eastern Plains. The arrival of spring was marked by several occurrences of strong winds, typical of the season.

Significant Highlights -- March

<u>Date</u>	<u>Event</u>
1	Dry and very warm, especially east half. Lamar 77° F.
2-6	Low pressure trough west of Washington coast moved inland. Strong polar air mass moved southward from Canada. Precip. statewide -- moderate to heavy in mountains. Telluride, 19" snow. Heavy precipitation also occurred in extreme northeast Colorado 3-4. Sedgwick 5S received 1.08 inches precipitation (7" snow) from the storm. Otherwise mostly light "upslope" precipitation east of mountains 3-5 as polar air moved in. Colorado Springs 8" snow, Ruxton Park 18". Clearing morning of 6th, coldest temperatures of the month most of state (Fort Morgan 11° F, La Junta 17° F, Gunnison -5° F). Coldest temperature in the state -33° F at Taylor Park Dam on the 6th.
7-11	Dry and much warmer. Some high mountain snowshowers daily. Warmest days of month 10-11 for many locations east of Continental Divide. Holly, 79° F on 10th, warmest in the state for March.
12	Very strong, fast moving storm passed north of Colorado. Windy. Light precip. Western Slope but heavy in mountains. Berthoud Pass 13" on 12th. More than 1.00" water equivalent precipitation many locations in southwest Colorado 11-12. Redstone 1.99" on 12th. Wolf Creek Pass 3.04".
13-15	Mild but unsettled. Scattered rain and snowshowers, mostly southern Colorado.
16-18	Large storm system moved across western U.S. Moderate precipitation mountains and northwest valleys 15-17. Craig 0.84". Mild temperatures. Dry Eastern Plains.
19-22	Very windy on the 19th. Sharply colder as storm moved east. Trinidad and Greeley 14° F, Dillon -6° F, and Taylor Park Dam -33° F on morning of 21st.

<u>Date</u>	<u>Event</u>
23	Warmer but dry.
24	Cold front dropped southward across Great Plains. A little snow along northern Front Range. Fort Collins 3" snow.
25-27	Mild mountains and west, cool east. Some scattered precipitation from upper air disturbance 26-27, especially southwest. Mancos 0.58" on 26th.
28-30	Warm statewide and dry on 28th as low pressure area developed over Wyoming. High 68° F at Denver, 55° F at Gunnison on 28th. Some mountain snows as cold front crossed the state, 29th. Very windy statewide but especially northeast Colorado on 29th and 30th as deep low pressure moved into South Dakota. Rain and snow, mostly light, continued in mountains and western valleys on 30th.
31	Clearing, calmer and warmer statewide.

Precipitation Summary

Precipitation totals and percents of average for March are shown in Figures 1 and 2. It was a wet month for most of the western half of Colorado. The San Juan Mountains and southwestern Colorado were particularly wet with many areas receiving more than double their March averages. The 3.78 inch total at Ignacio was 406 percent of average. Other local areas including Craig, Glenwood Springs and Cedaredge also received more than double their March average. Still a few areas ended up drier than usual. Below average totals were recorded from Grand Lake and Yampa to Breckenridge and also near Creede and Lake City on the northeast side of the San Juans.

Precipitation east of the mountains was generally less than average. March precipitation totals across the plains were mostly less than 0.50 inches. Burlington received just 0.05 inches for the month, 6 percent of average. For some areas of the Eastern Plains such as Genoa, March was the 9th consecutive drier-than-average month.

Water-Year Precipitation to Date

Precipitation as a percent of average for the first six months of the 1982 water year is shown in Figure 3. Western Colorado continues to look very good with all areas except the lower Gunnison Valley and the

Granby-Winter Park area wetter than usual for this time of year. The April 1 snowpack for the state is averaging 25% more than normal indicating excellent surface water supplies for the approaching summer. Meanwhile, moisture conditions east of the Continental Divide are deteriorating. Precipitation since October 1 is generally only 30 to 80 percent of average. Last summer was hotter and drier than usual across much of this area and portions of the area are quickly becoming critically dry. If the above average temperatures, high winds, and lack of precipitation continue into April and May, eastern Colorado could face a major dryland agricultural disaster.

Temperature Summary

March temperatures and departures from average are shown in Figure 4. The entire state was warmer than average with most locations on either side of the mountains ending up 3 to 5 degrees Fahrenheit warmer than usual. Even warmer conditions were noted along the northern Front Range and in parts of southeastern Colorado. Only extreme southwestern portions of the state had about normal temperatures for the month. Durango, for example, was just 0.5 degrees warmer than average.

Heating Degree Days

Heating degree day data, which supply a neat and simple way to compare outside air temperatures with fuel consumption for heating, are shown in Figures 5 and 6, and also in Table 1. The warm temperatures were reflected in the lower than normal heating degree day totals for the month. Totals west of the Continental Divide ranged from 1% less than usual at Cortez to 22% fewer than average at Grand Junction. East of the Divide totals ranged from 7% fewer than average at Alamosa to 25% fewer at Pueblo. Actual totals varied from just 581 heating degree days at Grand Junction to 1238 at Dillon.

Heating degree day totals for March 1982 compared to the previous March are shown in Figure 6. Totals were a bit higher than last year in some of the mountain valleys such as Pagosa Springs, Steamboat Springs, and Gunnison. This means that energy consumption for heating was probably greater than last March in these areas. Most of the rest of the state recorded totals which were equal to or less than March 1981. This

means that for most places in Colorado, energy consumption this year for heating should have been the same or a bit less than last March, all other factors being equal.

Figure 1. March 1982 precipitation amounts (inches).

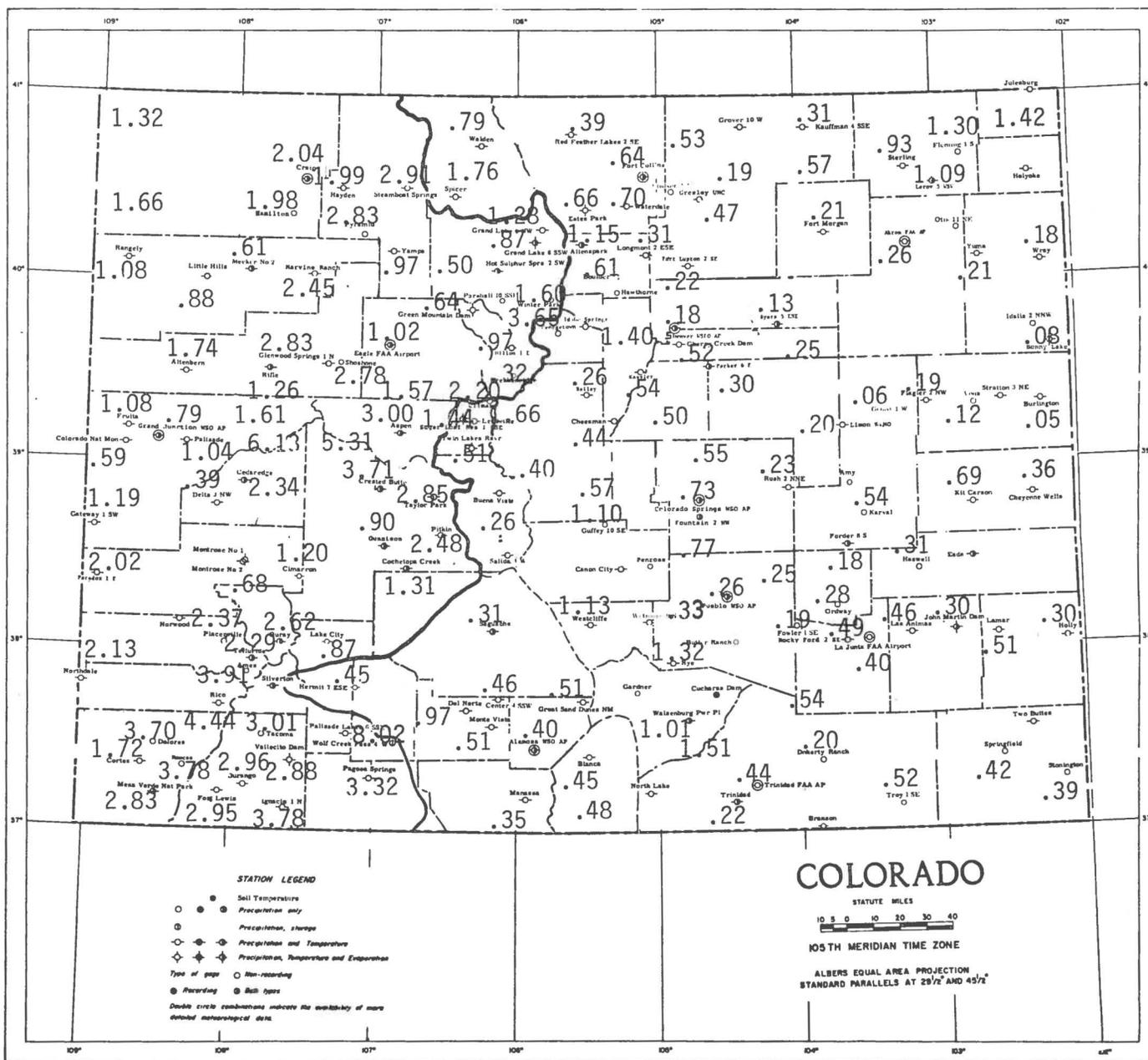


Figure 2. Precipitation for March 1982 as a percent of the 1951-1970 average.

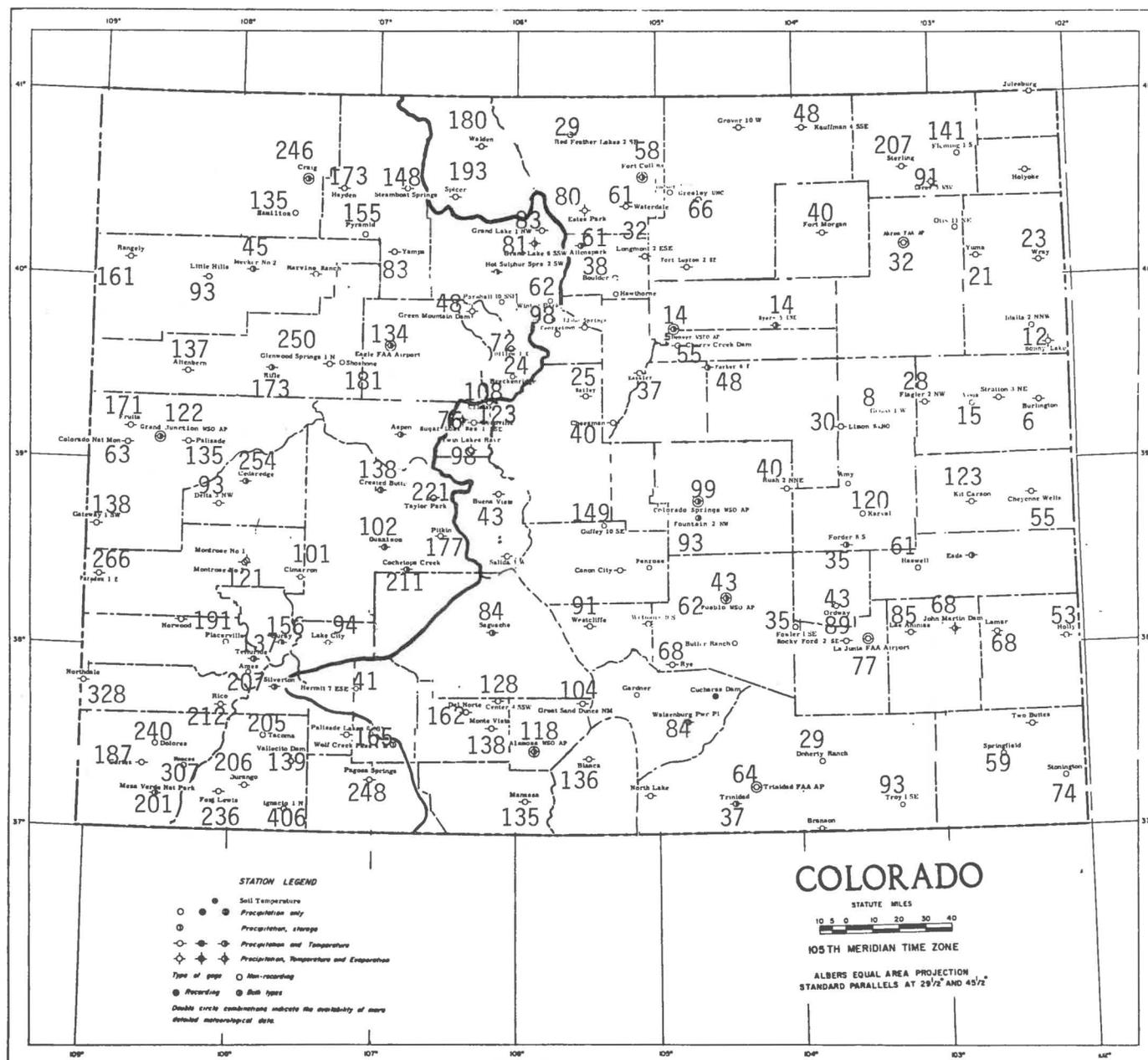


Figure 3. Precipitation for October 1981 through March 1982 as a percent of the 1951-1970 average.

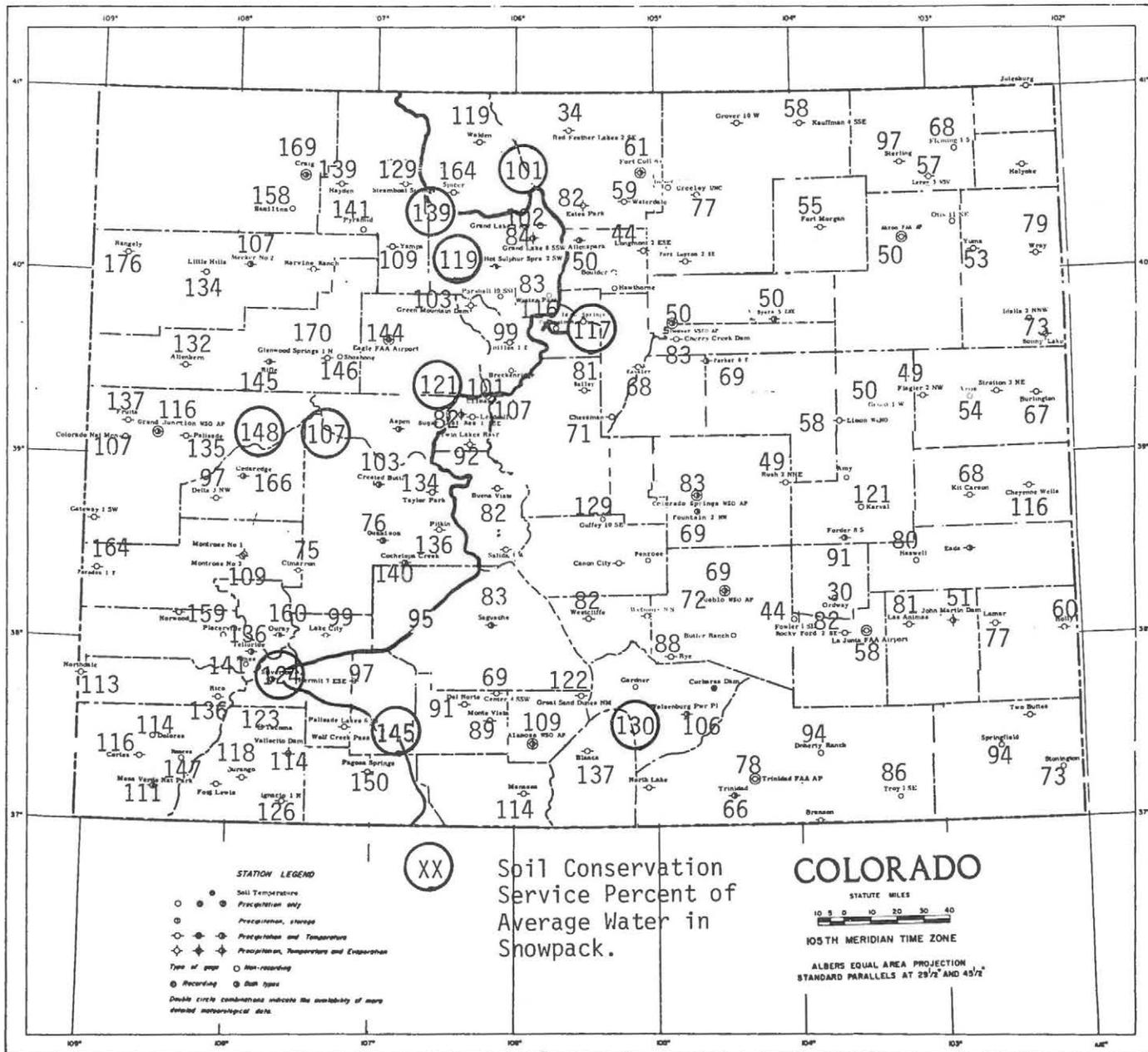


Figure 6. March 1982 Heating Degree Days as a percent above or below March 1981.

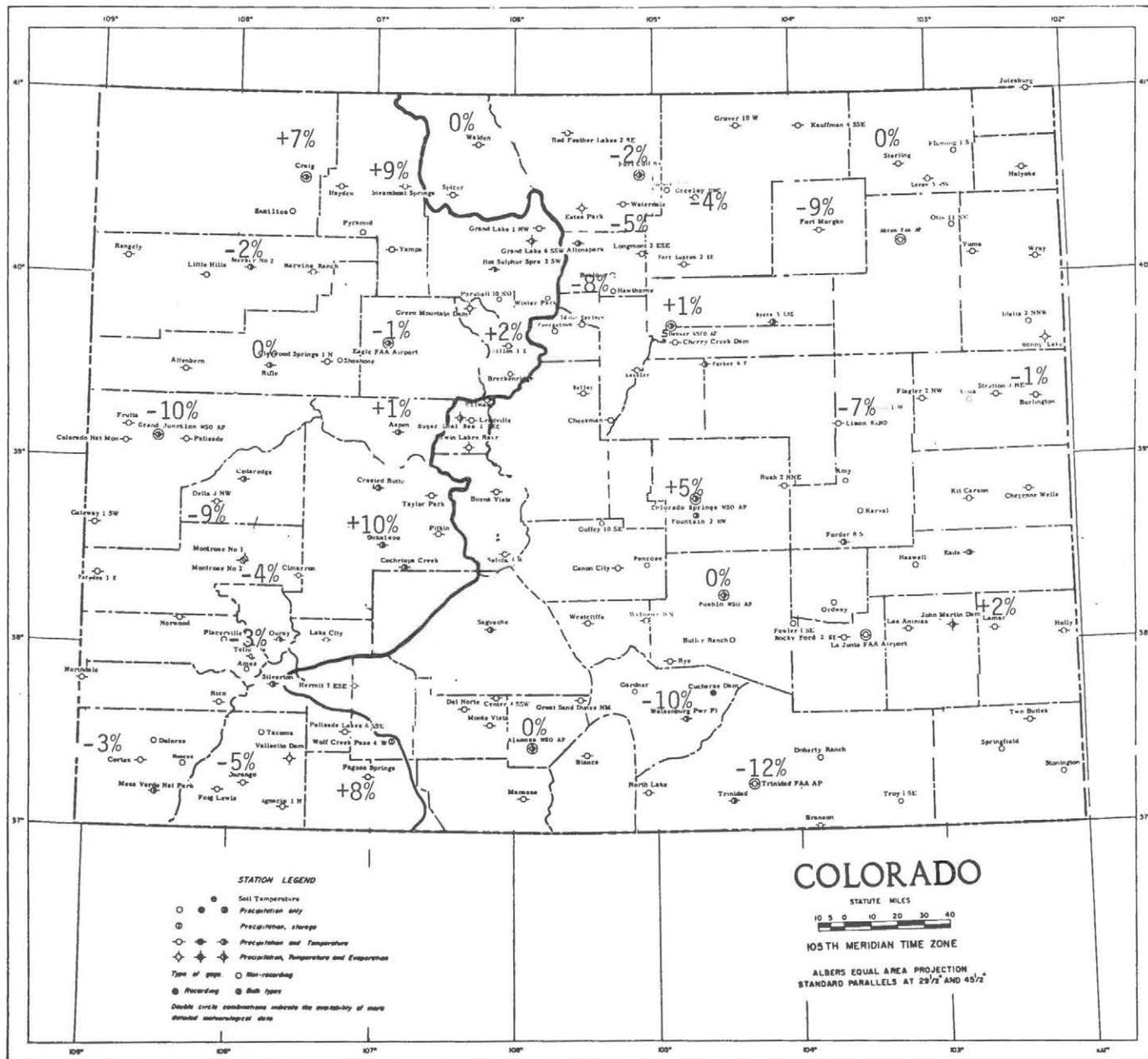


Table 1. Colorado Heating Degree Day Data through March 1982.

		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANNUAL															
		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANNUAL	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANNUAL		
Alamosa	average	55	96	294	648	1053	1420	1482	1182	1054	714	440	171	8609	Greeley	average	0	5	153	465	870	1147	1256	991	911	528	253	60	6639
	1980-81	5	102	263	757	1031	1136	1274	1097	979	576	458	102	7780		1980-81	0	4	57	457	762	845	964	872	749	304	273	23	5310
	1981-82	14	108	254	656	904	1366	1457	1192	977						1981-82	5	9	31	459	651	1014	1170	942	721				
Aspen	average	113	161	345	654	1026	1324	1392	1176	1144	792	530	291	8948	Gunnison	average	103	169	384	704	1110	1538	1686	1397	1246	789	533	282	9941
	1980-81	59	159	305	705	1004	1005	1164	1094	1066	656	574	208	7999		1980-81	106	191	358	738	1037	1159	1331	1117	994	640	509	158	8338
	1981-82	98	147	298	721	916	1279	1408	1190	1079						1981-82	63	165	328	709	977	1354	1693	1517	1093				
Boulder	average	6	0	139	367	690	905	992	-826	809	482	236	88	5540	Lamar	average	0	0	57	320	741	1032	1107	854	766	377	129	19	5402
	1980-81		1	61	384	630	644	800	714	702	252	306	27	4521		1980-81	0	0	28	349	735	823	910	766	604	171	166	3	4555
	1981-82	4	14	444	562	866	964	818	649							1981-82	0	0	27	287	575	963	1076	988	615				
Burlington	average	0	0	102	363	741	1011	1085	882	828	462	210	54	5738	Limon	average	8	6	144	448	834	1070	1156	960	936	570	299	100	6531
	1980-81	0	0	49	356	763	866	907	804	734	256	265	18	5018		1980-81	0	12	139	542	831	859	1014	927	917	403	400	60	6104
	1981-82	10	7	25	377	601	940	1155	990	727						1981-82	6	26	83	516	704	1071	1244	1066	850				
Canon City	average	0	0	57	285	600	806	877	728	713	402	158	34	4660	Longmont	average	0	7	155	457	828	1076	1184	952	902	537	269	92	6459
	1980-81	0	0	50	313	603	590	679	651	652	228	203	2	3971		1980-81	0	4	77	455	744	806	952	902	767	317	277	21	5333
	1981-82	2	9	35	495	761										1981-82	5	12	38	481	652	979	1156	952	730				
Colorado Springs	average	9	13	155	456	825	1054	1128	944	921	564	301	103	6473	Meeker	average	28	56	261	564	927	1240	1345	1086	998	651	394	164	7714
	1980-81	0	7	113	463	759	776	928	850	789	335	321	38	5379		1980-81	5	60	211	589	861	912	1044	958	901	573	427	86	6627
	1981-82	5	30	70	433	640	993	1095	1001	827						1981-82	8	72	160	572	847	1098	1254	1080	884				
Cortez	average	0	10	110	425	807	1104	1156	904	834	534	274	81	6239	Montrose	average	0	9	129	435	828	1132	1197	935	834	510	245	71	6325
	1980-81	2	29	131	514	780	882	986	901	849	465	326	68	5933		1980-81	0	17	82	467	779	862	948	851	755	327	247	45	5380
	1981-82	2	7	83	499	726	1076	1230	1037	825						1981-82	0	8	38	466	714	1074	1185	976	727				
Craig	average	32	58	275	608	996	1342	1479	1193	1094	687	419	193	8376	Pagosa Springs	average	95	114	291	611	981	1311	1401	1140	1048	711	481	233	8417
	1980-81	7	68	228	626	914	1034	1091	1076	919	545	460	110	7078		1980-81	24	109	294	654	932	1029	1088	971	932	588	489	163	7273
	1981-82	19	35	149	697	901	1260	1529	1277	987						1981-82	19	102	244	642	856	1265	1525	1197	1006				
Delta	average	0	0	94	394	813	1135	1197	890	753	429	167	31	5903	Pueblo	average	0	0	55	335	726	992	1082	848	775	405	148	28	5394
	1980-81	0	1	48	456	761	820	934	826	686	256	177	26	4991		1980-81	0	0	46	383	717	731	871	697	584	175	119	3	4326
	1981-82	0	1	17	375	673	966	1123	894	625						1981-82	0	0	22	272	554	937	1046	882	582				
Denver	average	0	0	120	408	768	1004	1088	902	868	525	253	80	6016	Rifle	average	7	22	167	481	861	1200	1296	997	859	537	283	85	5394
	1980-81	0	4	56	386	683	731	853	801	727	260	243	26	4770		1980-81	27	139	521	836	910	1052	910	771	416	302	49	5933	
	1981-82	0	12	19	375	570	898	1070	918	733						1981-82	0		42	513	760	1173	1342	1056	774				
Dillon	average	291	341	519	809	1173	1442	1519	1319	1321	966	701	453	10854	Salida	average	28	69	240	536	854	1094	1132	958	905	588	369	139	6910
	1980-81	227	315	480	893	1106	1113	1302	1230	1219	819	713	331	9748		1980-81	0	39	200	581	838	780	1067	837	892	457	421		
	1981-82	243	302	448	835	1027	1379	1520	1323	1238						1981-82	22	67	168	537		1033	1179						
Durango	average	20	37	198	502	843	1147	1212	958	880	597	375	161	6930	Steamboat Springs	average	116	159	384	691	1086	1451	1553	1277	1190	789	521	306	9523
	1980-81	3	39	150	516	815	910	968	842	891	478	409	81	6102		1980-81	61	165	343	743	1004	1101	1159	1152	983	625	546	227	8109
	1981-82	9	22	125	531	764	1047	1311	1004	845						1981-82	83	141	257	734	973	1340	1502	1361	1069				
Eagle	average	43	79	285	626	1023	1386	1457	1168	1051	693	425	190	8426	Sterling	average	0	6	158	459	849	1150	1249	986	927	522	256	76	6638
	1980-81	8	89	230	674	967	1014	1165	1008	916	541	412	84	7108		1980-81	0	5	106	529	814	931	1038	963	835	359	391	33	6004
	1981-82	6	54	155	632	889	1244	1451	1206	904						1981-82	8	20	79	448	755	1085	1321	1042	832				
Fort Collins	average	7	12	175	477	834	1076	1184	960	918	558	297	101	6599	Telluride	average	185	229	399	676	1017	1290	1333	1140	1147	825	583	345	9169
	1980-81	1	14	88	486	764	810	980	848	760	318	314	39	5421		1980-81	78	162	301	662	925	1003	1132	1038	1098	621	576	187	7783
	1981-82	8	8	42	487	661	987	1142	926	741						1981-82	117	177	320	707	891	1209	1323	1131	1062				
Fort Morgan	average	0	0	132	439	849	1141	1262	986	899	509	233	61	6511	Trinidad	average	0	0	81	364	732	980	1054	868	822	471	212	58	5642
	1980-81	0	8	74	455	773	894	993	912	813	291	259	15	5487		1980-81	0	0	57	394	679	689	860	720	712	240	212	14	4615
	1981-82	3	11	37	421	650	1035	1199	981	742						1981-82	0	15	39	316	524	849	935	897	624				
Grand Junction	average	0	0	60	324	756	1101	1190	879	738	404	133	20	5606	Walden	average	197	270	489	803	1149	1438	1538	1313	1280	891	626	363	10357
	1980-81	0	2	21	3																								

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COLORADO CLIMATE -- APRIL 1982

Colorado Climate Center
Department of Atmospheric Science
Colorado State University

Most of Colorado experienced a cool and dry April. Strong winds early in the month across the eastern half of the state kicked up tons of blowing topsoil and half of the state revived memories and fears of the great dust bowl years.

Significant Highlights -- April

<u>Date</u>	<u>Event</u>
1-3	Large, powerful storm system passed just north of Colorado. Very strong winds on 2nd, 50-100 mph across Eastern Plains, even higher along eastern foothills. Considerable local damage. Much blowing dust across the plains. Some snow and rain mountains and western valleys, on 2nd, mostly light.
4-7	Changeable unsettled weather. Windy. A few trace showers east 4, 5, and 7. Significant mountain precipitation. Berthoud Pass, 15" snow 5-7.
8-10	Clearing and cool. Some snow continued in the mountains. Most locations recorded their coldest temperatures of the month on the 8th. Akron 14° F, Grand Junction 22° F, Dillon 0° F, Taylor Park Dam, as usual, recorded the state's coldest temperature for the month, -19° F also on the 8th.
11-15	Warm period. Strong winds 11-12 as low pressure area passed northeast of Colorado. Brief but heavy precipitation mostly northern mountains on 12th. More than 0.50" water-equivalent precipitation much of NW Colorado. Steamboat Springs, 0.94" on 12th. Many areas east of mountains recorded warmest temperatures of the month on the 11th. Fort Collins, Denver, and Colorado Springs hit 80° F. Las Animas was warmest in the state with a 89° F reading.
16-17	Briefly cooler with a little precipitation Northern and Central Mountains, Front Range, and Eastern Plains.
18	Short warming statewide. No precipitation.
19-22	Very chilly. Cloudy east 19-20 with light "upslope" snows along Front Range. Some locally heavy snows. Ruxton Park near Colorado Springs received 20" of snow. Very cold statewide on morning of 21st -- teens east, near zero in the mountains. Damaging frosts in the Western Slope fruit growing areas.

<u>Date</u>	<u>Event</u>
23-24	Light to moderate precipitation San Juan and Central mountains with near average temperatures. Dry with warm days and cool nights remainder of state.
25-30	Unsettled, showery weather, especially mountains and east. Cool and damp 26-27 across much of the Eastern Plains. One-third to one-half inch rainfalls common. Lighter showers from the Front Range westward. Mostly dry on 28th statewide. Cooler with more light showers east 29-30. Warm and dry west.

Precipitation Summary

Precipitation totals and percents of average for April are shown in Figures 1 and 2. It was a very dry month for most of the state. Most areas east of the Continental Divide received less than half of the average April precipitation. Southwest and west central Colorado was also very dry with several stations such as Eagle and Gunnison reporting less than 10% of their April average. Northdale and Yellow Jacket both reported no precipitation for the month. One small area of the state received near to above average precipitation. The upper Yampa and upper Colorado watersheds both reported abundant precipitation. Craig, for example, totalled 1.87 inches, 152% of average. Berthoud Pass reported the state high with 4.53 inches, 108 percent of average.

Water-Year Precipitation to Date

Precipitation as a percent of average for the first 7 months (winter season) of the 1982 water year is shown in Figure 3. After a good start to the winter, some lower elevation areas of southwestern and west central Colorado are now near or somewhat below average. Accumulated moisture at higher elevations is still above average, however, and streamflows in most major watersheds in Colorado are predicted to be excellent for the months ahead.

Meanwhile, moisture conditions east of the mountains continue to deteriorate. Many areas from the Front Range eastward across the plains have received 60% or less of their average precipitation since October 1. Strong spring winds accompanying these dry conditions have been causing major soil erosion problems in some areas. Generally, agricultural conditions in the dryland farming areas of the plains don't look good.

The rains which fell late in April did help the young winter wheat plants, but much more precipitation is needed to avoid major losses.

Temperature Summary

April temperatures and departures from average are shown in Figure 4. Except for a narrow band along the eastern slope of the Rockies, most of Colorado was cooler than average. West of the Continental Divide temperatures for the month ranged from about one degree Fahrenheit warmer than average at Telluride to nearly 5 degrees cooler than average at Craig. Out on the plains temperatures were mostly 1 to 2 degrees cooler than average. At the eastern base of the mountains and in the lower foothills, temperatures ended up slightly warmer than average ranging from near average at Colorado Springs to 1 to 2 degrees above average at Fort Collins, Greeley, Trinidad, and Pueblo.

Heating Degree Days

Heating degree day data, which supply a simple way to compare outside air temperatures with fuel consumption for heating, are shown in Figures 5 and 6 and also in Table 1. The cool temperatures resulted in higher than normal April heating degree day totals for most of the state with the exception of the eastern foothills -- Front Range area. Totals west of the Divide ranged from near average at Telluride, Grand Junction, Durango, and Pagosa Springs to 22% more than average at Craig. East of the Divide, totals varied from 16% more than average at Limon to 12% less than average at Pueblo.

Comparing April 1982 with April 1981 (Figure 6), heating degree day totals this year were considerably greater statewide. Totals ranged from 20 to 40 percent more than last year in the mountains to as much as 100% more than last year along portions of the Front Range and the Eastern Plains. This means that more energy for residential and business heating was needed this year compared to last April. (Note: April 1981 was unusually warm.)

Figure 1. April 1982 precipitation amounts (inches).

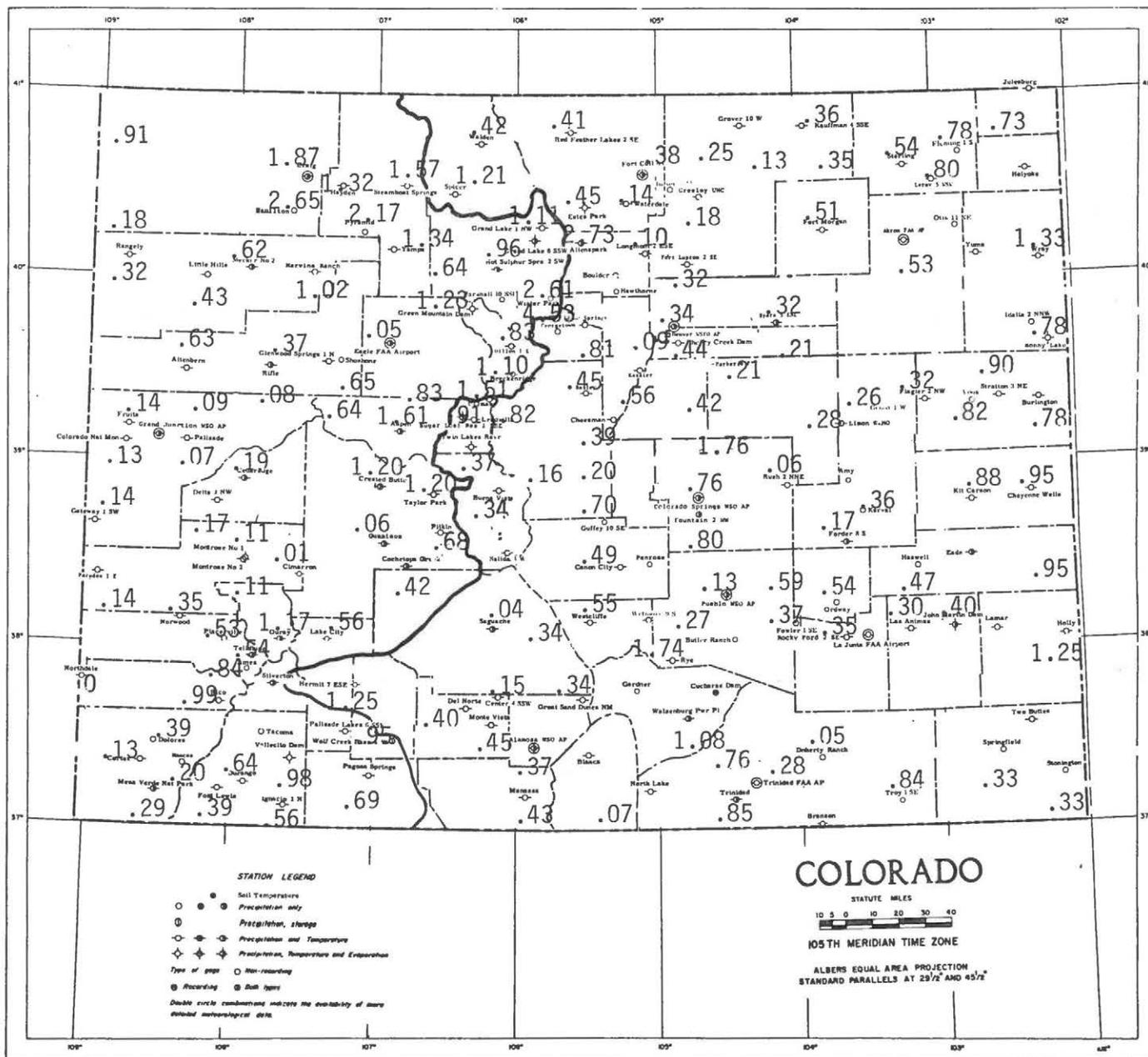


Figure 2. Precipitation for April 1982 as a percent of the 1951-1970 average.

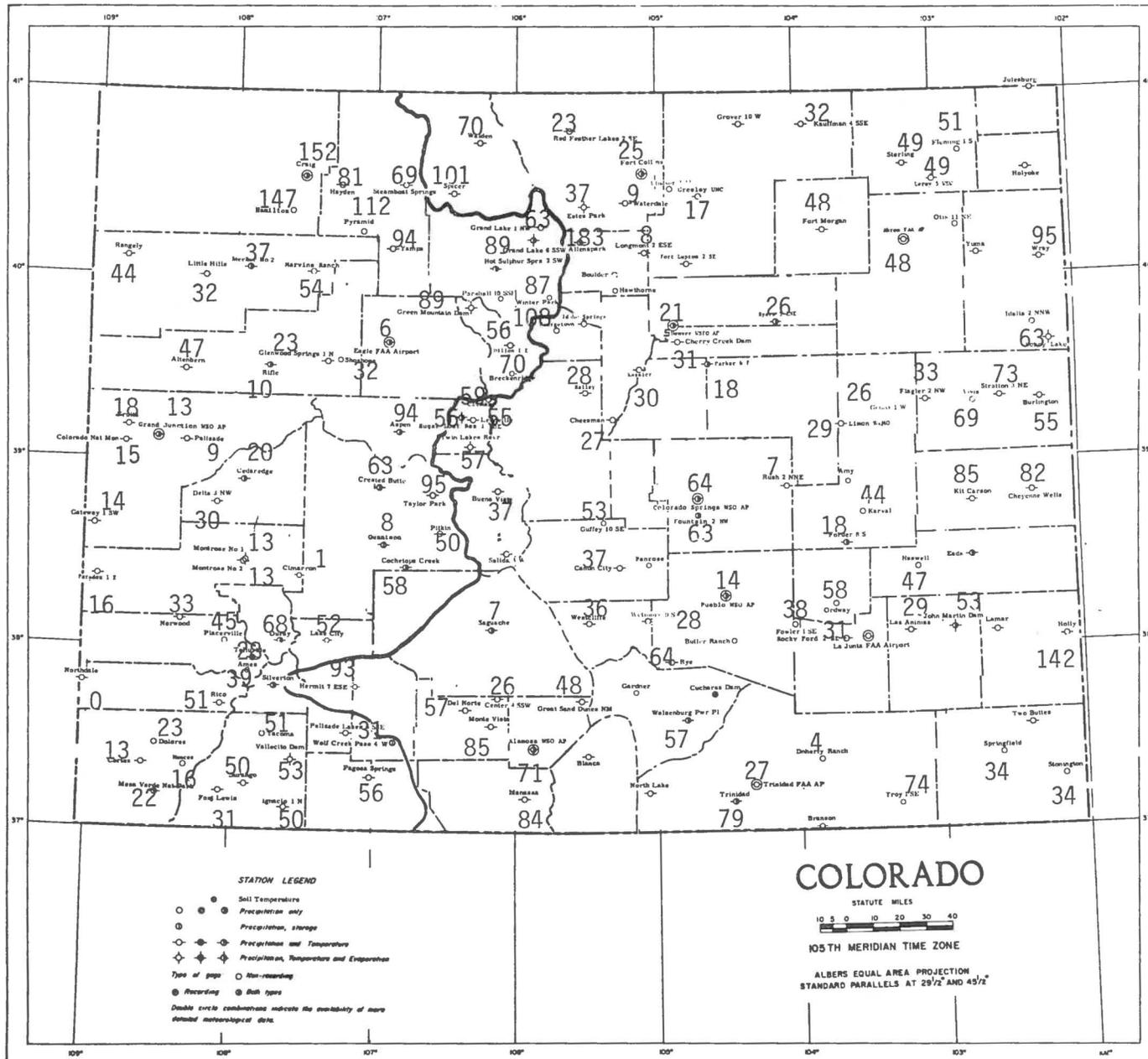


Figure 3. Precipitation for October 1981 through April 1982 as a percent of the 1951-1970 average.

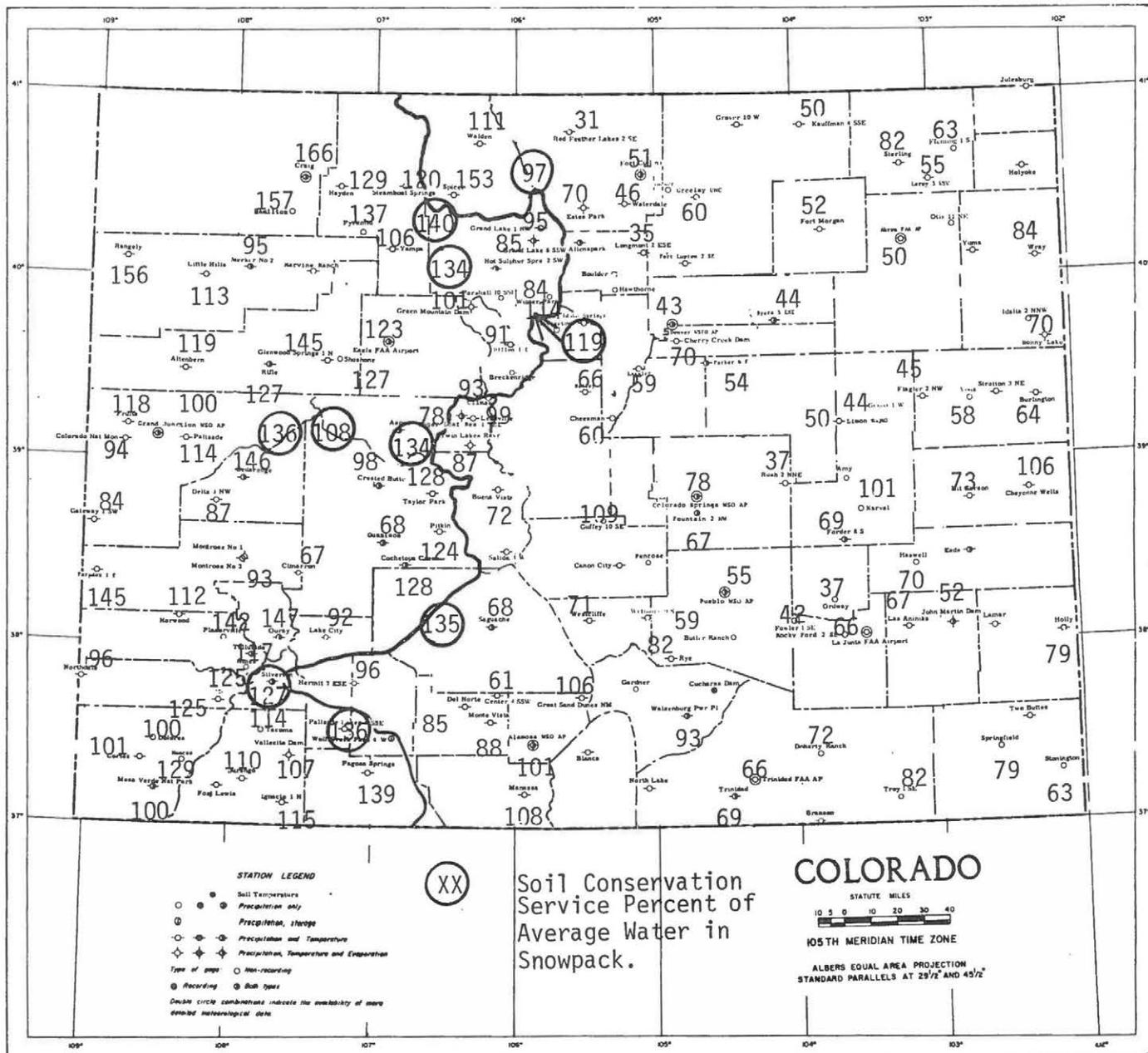


Figure 4. Temperatures for April 1982 in degrees Fahrenheit (in parentheses) and departures from the 1951-1970 average.

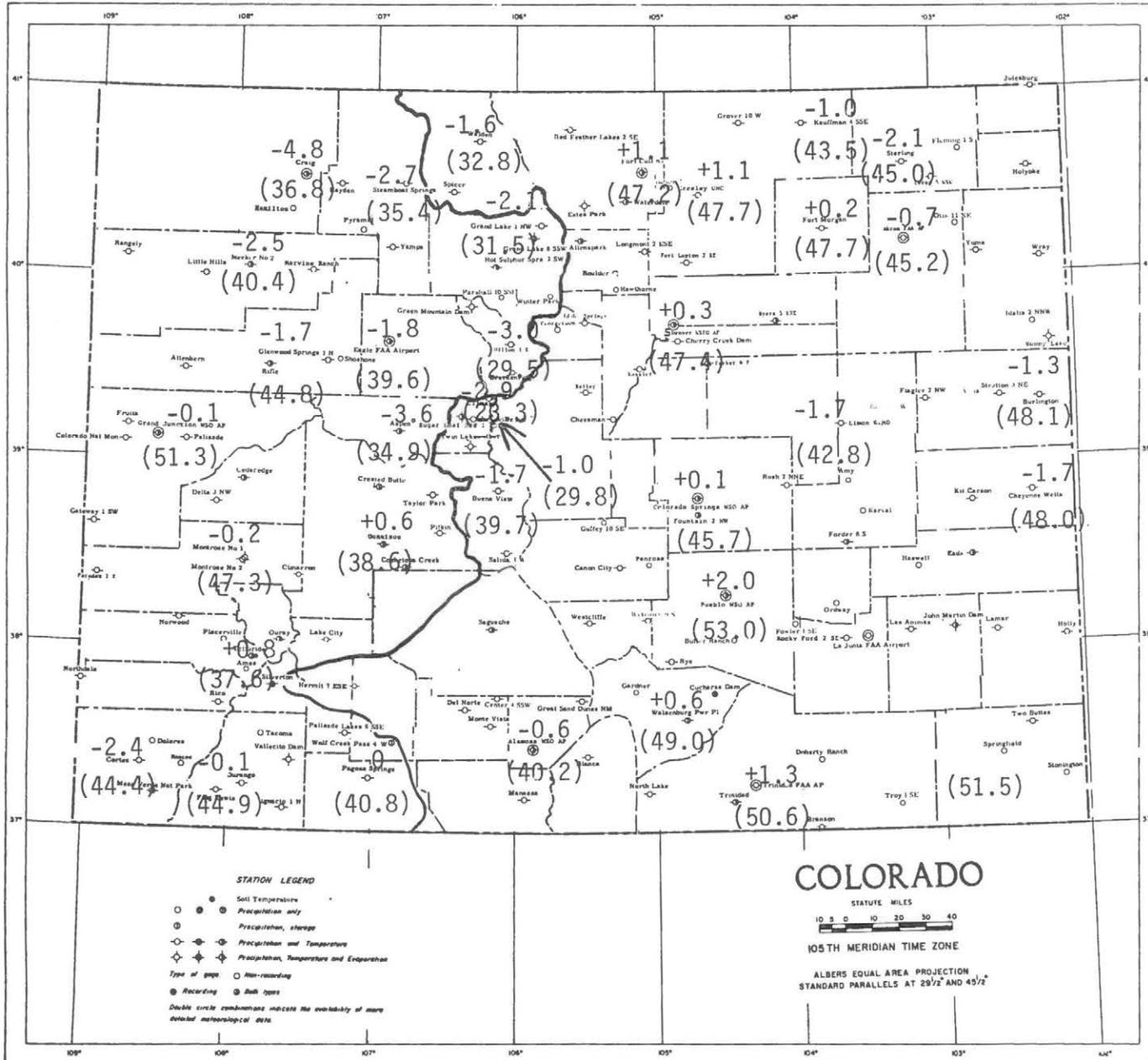


Table i. Colorado Heating Degree Day Data through April 1982.

														JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANNUAL														
Alamosa	average	55	96	294	648	1053	1420	1482	1182	1054	714	440	171	8609	Greeley	average	0	5	153	465	870	1147	1256	991	911	528	253	60	6639											
	1980-81	5	102	263	757	1031	1136	1274	1097	979	576	458	102	7780		1980-81	0	4	57	457	762	845	964	872	749	304	273	23	5310											
	1981-82	14	108	254	656	904	1366	1457	1192	977	736					1981-82	5	9	31	459	651	1014	1170	942	721	511														
Aspen	average	113	161	345	654	1026	1324	1392	1176	1144	792	530	291	8948	Gunnison	average	103	169	384	704	1110	1538	1686	1397	1246	789	533	282	9941											
	1980-81	59	159	305	705	1004	1005	1164	1094	1066	656	574	208	7999		1980-81	106	191	358	738	1037	1159	1331	1117	994	640	509	158	8338											
	1981-82	98	147	298	721	916	1279	1408	1190	1079	897					1981-82	63	165	328	709	977	1354	1693	1517	1093															
Boulder	average	6	0	139	367	690	905	992	826	809	482	236	88	5540	Lamar	average	0	0	57	320	741	1032	1107	854	766	377	129	19	5402											
	1980-81	59	159	305	705	1004	1005	1164	1094	1066	656	574	208	7999		1980-81	0	0	28	349	735	823	910	766	604	171	166	3	4555											
	1981-82	4	14		444	562	866	964	810	649						1981-82	0	0	27	287	575	963	1076	988	615															
Burlington	average	0	0	102	363	741	1011	1085	882	828	462	210	54	5738	Limon	average	8	6	144	448	834	1070	1156	960	936	570	299	100	6531											
	1980-81	0	0	49	356	763	866	907	804	734	256	265	18	5018		1980-81	0	12	139	542	831	859	1014	927	917	403	400	60	6104											
	1981-82	10	7	25	377	601	940	1155	990	727	499					1981-82	6	26	83	516	704	1071	1244	1066	850	660														
Canon City	average	0	0	57	285	600	806	877	728	713	402	158	34	4660	Longmont	average	0	7	155	457	828	1076	1184	952	902	537	269	92	6459											
	1980-81	0	0	50	313	603	590	679	651	652	228	203	2	3971		1980-81	0	4	77	455	744	806	952	902	767	317	277	21	5333											
	1981-82	2	9	35		495	761									1981-82	5	12	38	481	652	979	1156	952	730	485														
Colorado Springs	average	9	13	155	456	825	1054	1128	944	921	564	301	103	6473	Meeker	average	28	56	261	564	927	1240	1345	1086	998	651	394	164	7714											
	1980-81	0	7	113	463	759	776	928	850	789	335	321	38	5379		1980-81	5	60	211	589	861	912	1044	958	801	573	427	86	6627											
	1981-82	5	30	70	433	640	993	1095	1001	827	571					1981-82	8	72	160	572	847	1098	1254	1080	884	731														
Cortez	average	0	10	110	425	807	1104	1156	904	834	534	274	81	6239	Montrose	average	0	9	129	435	828	1132	1197	935	834	510	245	71	6325											
	1980-81	2	29	131	514	780	882	986	901	849	465	326	68	5933		1980-81	0	17	82	467	779	862	948	851	755	327	247	45	5380											
	1981-82	2	7	83	499	726	1076	1230	1037	825	609					1981-82	0	8	38	466	714	1074	1185	976	727	525														
Craig	average	32	58	275	608	996	1342	1479	1193	1094	687	419	193	8376	Pagosa Springs	average	95	114	291	611	981	1311	1401	1140	1048	711	481	233	8417											
	1980-81	7	68	228	626	914	1034	1091	1076	919	545	460	110	7078		1980-81	24	109	294	654	932	1029	1088	971	932	588	489	163	7273											
	1981-82	19	35	149	697	901	1260	1529	1277	987	838					1981-82	19	102	244	642	856	1265	1525	1197	1006															
Delta	average	0	0	94	394	813	1135	1197	890	753	429	167	31	5903	Pueblo	average	0	0	55	335	726	992	1082	848	775	405	148	28	5394											
	1980-81	0	1	48	456	761	820	934	826	686	256	177	26	4991		1980-81	0	0	46	383	717	731	871	697	584	175	119	3	4326											
	1981-82	0	1	17	375	673	966	1123	894	625	451					1981-82	0	0	22	272	554	937	1046	882	582	358														
Denver	average	0	0	120	408	768	1004	1088	902	868	525	253	80	6016	Rifle	average	7	22	167	481	861	1200	1296	997	859	537	283	85	5394											
	1980-81	0	4	56	386	683	731	853	801	727	260	243	26	4770		1980-81	27	139	521	836	910	1052	910	771	416	302	49	5933												
	1981-82	0	12	19	375	570	898	1070	918	733	522					1981-82	0	42	513	760	1173	1342	1056	774	603															
Dillon	average	291	341	519	809	1173	1442	1519	1319	1321	966	701	453	10854	Salida	average	28	69	240	536	854	1094	1132	958	905	588	369	139	6910											
	1980-81	227	315	480	893	1106	1113	1302	1230	1219	819	713	331	9748		1980-81	0	39	200	581	838	780	1067	837	892	457	421													
	1981-82	243	302	448	835	1027	1379	1520	1323	1238	1058					1981-82	22	67	168	537		1033	1179																	
Durango	average	20	37	198	502	843	1147	1212	958	880	597	375	161	6930	Steamboat Springs	average	116	159	384	691	1086	1451	1553	1277	1190	789	521	306	9523											
	1980-81	3	39	150	516	815	910	968	842	891	478	409	81	6102		1980-81	61	165	343	743	1004	1101	1159	1152	983	625	546	227	8109											
	1981-82	9	22	125	531	764	1047	1311	1004	845	599					1981-82	83	141	257	734	973	1340	1502	1361	1069	878														
Eagle	average	43	79	285	626	1023	1386	1457	1168	1051	693	425	190	8426	Sterling	average	0	6	158	459	849	1150	1249	986	927	522	256	76	6638											
	1980-81	8	89	230	674	967	1014	1165	1008	916	541	412	84	7108		1980-81	0	5	106	529	814	931	1038	963	835	359	391	33	6004											
	1981-82	6	54	155	632	889	1244	1451	1206	904	753					1981-82	8	20	79	448	755	1085	1321	1042	832	595														
Fort Collins	average	7	12	175	477	834	1076	1184	960	918	558	297	101	6599	Telluride	average	185	229	399	676	1017	1290	1333	1140	1147	825	583	345	9169											
	1980-81	1	14	88	486	764	810	980	848	760	318	314	39	5421		1980-81	78	162	301	662	925	1003	1132	1038	1098	621	576	187	7783											
	1981-82	8	42	487	661	987	1142	1266	926	741	527					1981-82	117	177	320	707	891	1209	1323	1131	1062	815														
Fort Morgan	average	0	0	132	439	849	1141	1262	986	899	509	233	61	6511	Trinidad	average	0	0	81	364	732	980	1054	868	822	471	212	58	5642											
	1980-81	0	8	74	455	773	894	993	912	813	291	259	15	5487		1980-81	0	0	57	394	679	689	860	720	712	240	212	14	4615											
	1981-82	3	11	37	421	650	1035	1199	981	742	516					1981-82	0	15	39	316	524	849	935	897	624	428														
Grand Junction	average	0	0	60	324	756	1101	1190	879	738	404	133	20	5606	Walden	average	197	270	489	803	1149	1438	1538	1313	1280	891	626	363	10357											
	1980-81	0	2	21	359	674																																		

COLORADO CLIMATE -- MAY 1932

Colorado Climate Center
 Department of Atmospheric Science
 Colorado State University

May was cooler than average across the entire state for the second month in a row. Spring rains finally came to the areas east of the mountains, as most of the state enjoyed a wet month.

Significant Highlights -- May

<u>Date</u>	<u>Event</u>
1-3	Huge high pressure ridge over central U.S. Warm across Colorado. A few light showers, mostly southwest.
4-6	Strong winter-type storm system passed north of the state. Warm on 4th, then much colder 5th and 6th with significant precipitation across most of state. Springfield 88° F on 4th. Thunderstorms across plains with some hail. Even snow northeast plains (4" at Akron). Coldest temperatures of the month morning of 6th -- 33° F at Grand Junction, 26° F at Colorado Springs, 10° F Walden and Leadville. Climax reported the coldest temperature for the state, 5° F at Climax on the 7th. Last freeze of the spring for many low elevation areas.
7-10	Partly cloudy, breezy and warm period as storm system began forming over western U.S. 96° F at Las Animas on 10th, warmest in the state for May.
11-17	Large "cut-off" low pressure center in upper atmosphere drifted slowly across Colorado. Cool with heavy precipitation many areas. Snow above 6,000 feet. Allenspark 28" snow on 13th. Berthoud Pass totalled 48" snow for the storm including 21" on the 13th. Fort Collins totalled 4" rain on the 12th and 13th.
18-19	Brief warming, especially east of mountains. Very warm southeast Colorado on 19th. Pueblo reached 87° F. Las Animas 92° F.
20-21	Cooler with some light rain and snow showers, mostly near the mountains.
22-23	Warm and mostly dry.
24-26	Cool and showery - especially from the Front Range eastward. Another 10" snow at Berthoud Pass. Heavy thunderstorm activity portions of southeast Colorado 24-25. More than 2.00" rain Walsenburg and Aguilar with several reports of hail. Much warmer western Colorado on 26th. Eagle 78° F.

<u>Date</u>	<u>Event</u>
27	Dry and very warm. Fort Morgan 90° F.
28-31	Turning cooler throughout period as large storm system moved slowly across northern states. Frequent showers and thunderstorms across eastern half of state, heaviest northeast and east central. Some hail damage to crops. Wray received 3.60 inches rain on 30th. Western Colorado, mild and mostly dry.

Precipitation Summary

Precipitation totals and percents of average for May are shown in Figures 1 and 2. May, normally the wettest month of the year along the Front Range and across portions of the northeast plains, lived up to expectations. Monthly totals east of the mountain barrier ranged from 1.47" at Westcliffe up to 8.26" at Wray. Many locations north of the Arkansas River received more than 4.00 inches. Estes Park's 5.43" total was 260 percent of average. At Denver, this was the first month since last May with above average precipitation.

Precipitation amounts were less in the western half of the state where May and June tend to be quite dry. Monthly totals were mostly less than 2.00 inches. Still, the only drier than average regions were portions of the San Luis Valley and spotty areas in the western valleys. Blue Mesa Lake near Gunnison received only 0.20" for the month. Ouray, however, was soaked by 3.86", 243 percent of average.

Water-Year Precipitation to Date

Precipitation as a percent of average since October 1, 1981 is shown in Figure 3. The wet May did wonders to avert a serious drought problem on the Eastern Plains. There are still several areas east of the mountains that have received less than 80 percent of average, and more wet weather will be needed to bring the whole area out of their drought. Nevertheless, the improvement last month was dramatic.

Accumulated water-year precipitation in the western half of Colorado continues to look good. There are some local drier than average locations such as the interior San Luis Valley and lower elevations of the Gunnison Valley. Otherwise most of western Colorado remains wetter than usual.

Craig, Rangely, and Ouray have all totalled more than 150 percent of average. High elevation snowpack is also much greater than average due, in part, to the cool spring which has delayed melting. Overall, surface water supplies in the state are in good shape.

Temperature Summary

May temperatures and departures from average are shown in Figure 4. Cooler than average temperatures accompanied the cloudy, damp weather in May across the entire state. East of the Continental Divide temperatures ranged from just 0.3 degrees less than average at Las Animas to about 4 degrees below average at Boulder and Canon City. West of the mountains temperatures were mostly 1 to 2 degrees F cooler than usual. Climax was the coldest reporting station in Colorado with a monthly mean of 34.4° F. Las Animas was warmest averaging 63.4° F.

Heating Degree Days

From now until October, no detailed description and maps of heating degree days will be presented. Table 1 showing tabulated heating degree day totals and comparisons with last year will continue to be published. A new feature, tabulated cooling degree days, will begin soon for those of you who wish to keep a close eye on how climate affects your air conditioning costs.

Figure 2. Precipitation for May 1982 as a percent of the 1951-1970 average.

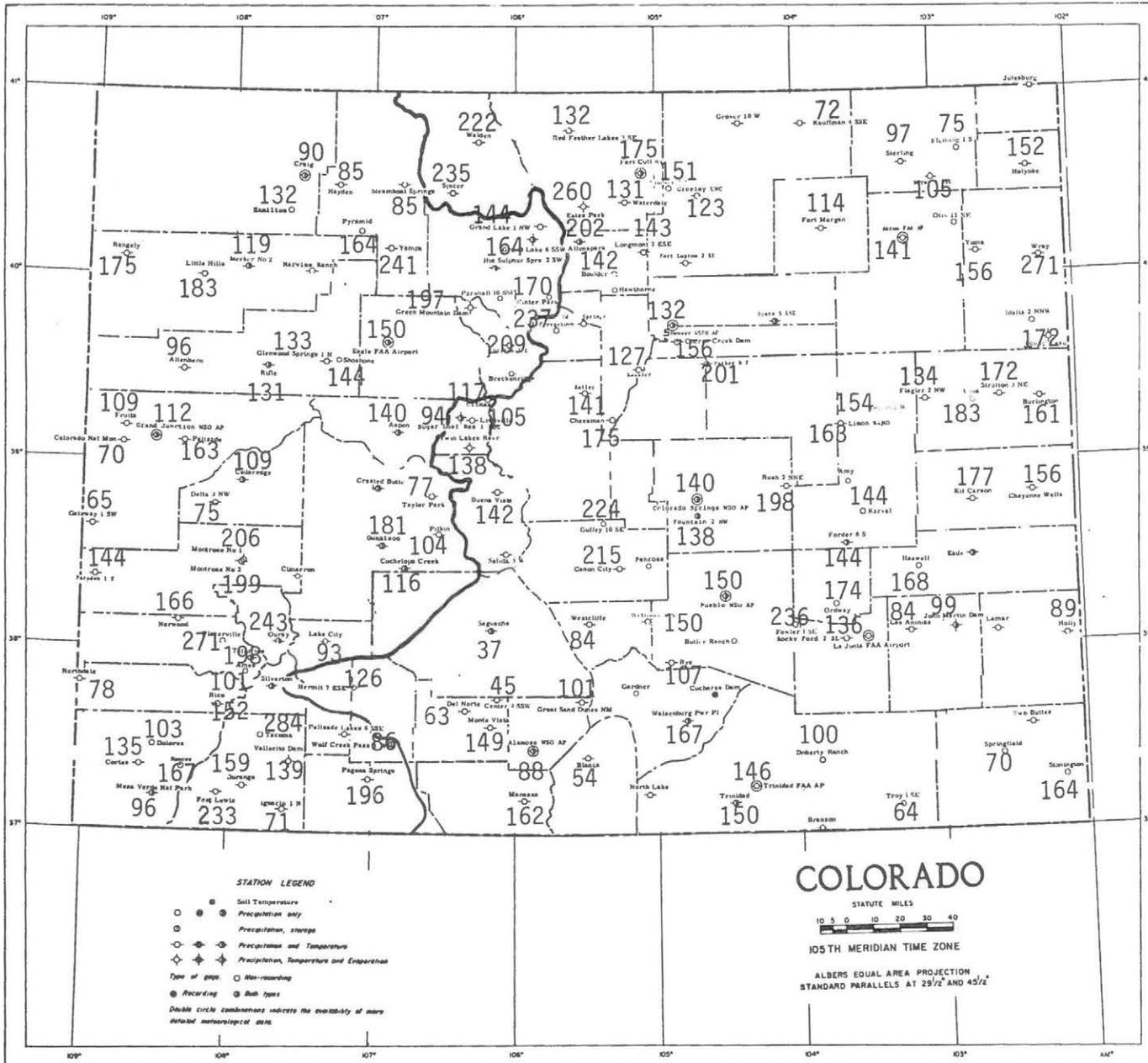


Figure 3. Precipitation for October 1981 through May 1982 as a percent of the 1951-1970 average.

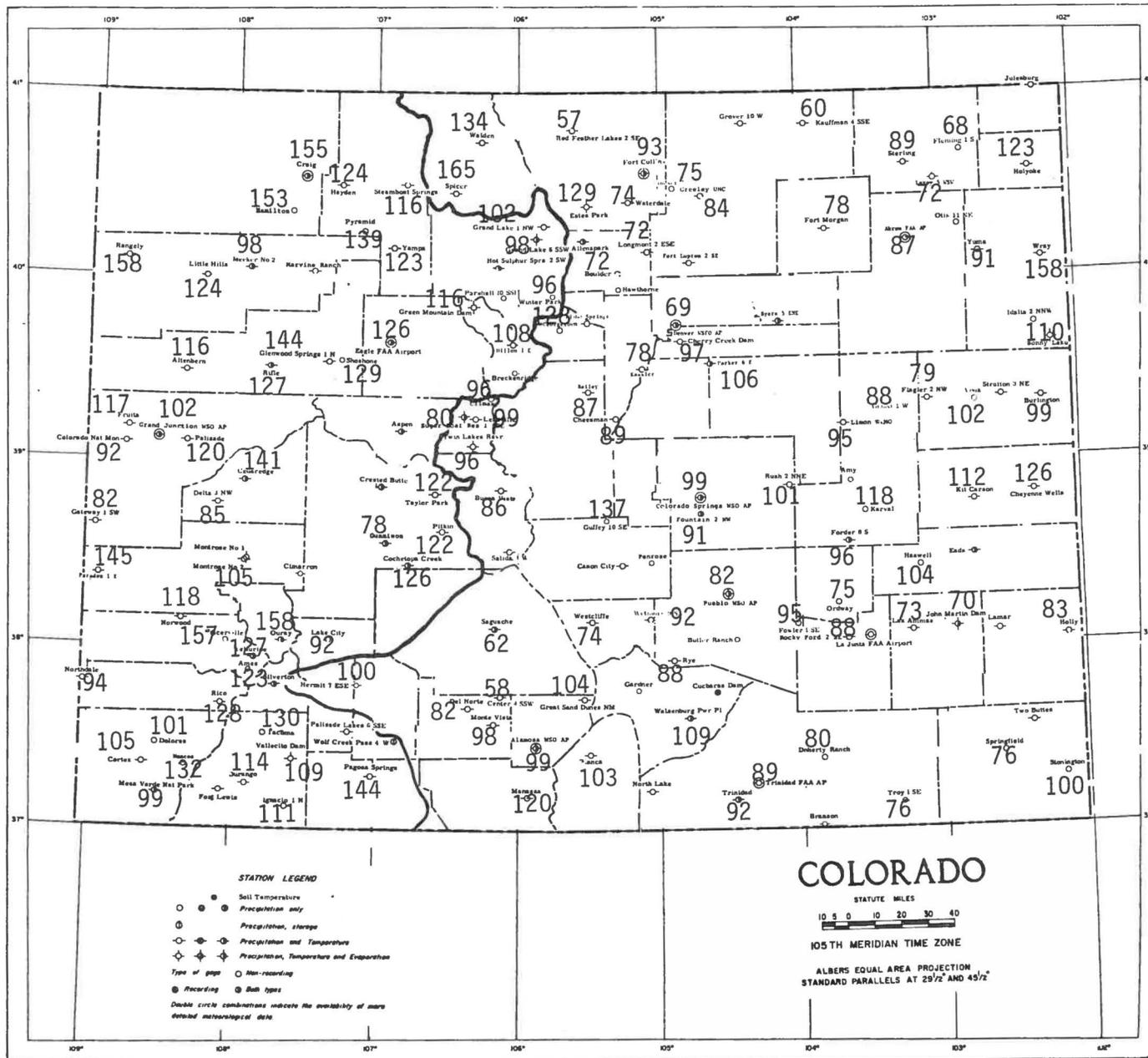


Figure 4. Temperatures for May 1982 in degrees Fahrenheit (in parentheses) and departures from the 1951-1970 average.

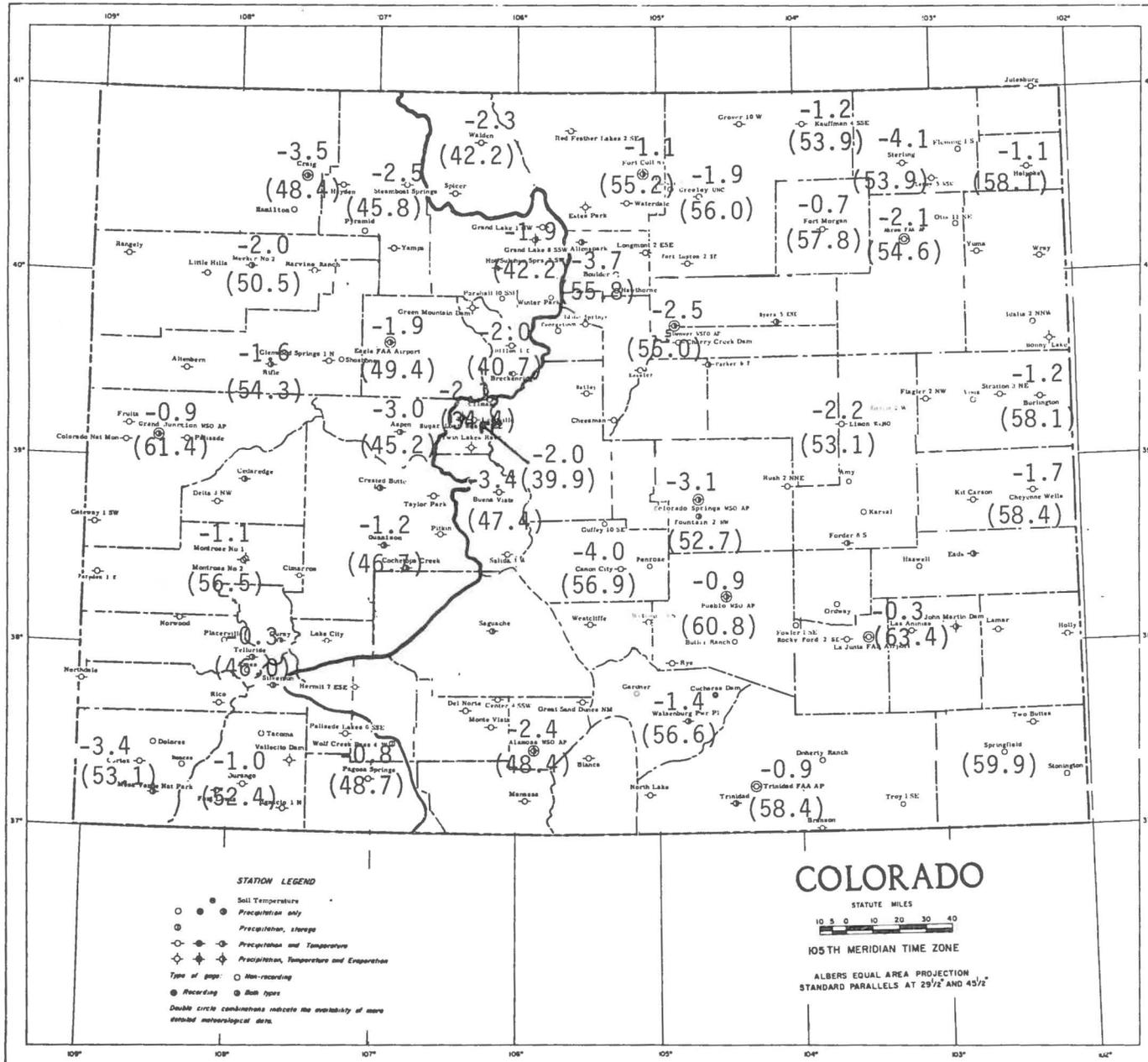


Table 1. Colorado Heating Degree Day Data through May 1982.

		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANNUAL													JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANNUAL
Atamosa	average	55	96	294	648	1053	1420	1482	1182	1054	714	440	171	8609	Greeley	average	0	5	153	465	870	1147	1256	991	911	528	253	60	6639										
	1980-81	5	102	263	757	1031	1136	1274	1097	979	576	458	102	7780		1980-81	0	4	57	457	762	845	964	872	749	304	273	23	5310										
	1981-82	14	108	254	656	904	1366	1457	1192	977	736	508				1981-82	5	9	31	459	651	1014	1170	942	721	511	275												
Aspen	average	113	161	345	654	1026	1324	1392	1176	1144	792	530	291	8948	Gunnison	average	103	169	384	704	1110	1538	1686	1397	1246	789	533	282	9941										
	1980-81	59	159	305	705	1004	1005	1164	1094	1066	656	574	208	7999		1980-81	106	191	358	738	1037	1159	1331	1117	994	640	509	158	8338										
	1981-82	98	147	298	721	916	1279	1408	1190	1079	897	609				1981-82	63	165	328	709	977	1354	1693	1517	1093	786	564												
Boulder	average	6	0	139	367	690	905	992	826	809	482	236	88	5540	Lamar	average	0	0	57	320	741	1032	1107	854	766	377	129	19	5402										
	1980-81			1	61	384	630	644	800	714	702	252	306	27		4521	1980-81	0	0	28	349	735	823	910	766	604	171	166	3	4555									
	1981-82	4	14		444	562	866	964	818	649	440	279				1981-82	0	0	27	287	575	963	1076	988	615	364													
Burlington	average	0	0	102	363	741	1011	1085	882	828	462	210	54	5738	Limon	average	8	6	144	448	834	1070	1156	960	936	570	299	100	6531										
	1980-81	0	0	49	356	763	866	907	804	734	256	265	18	5018		1980-81	0	12	139	542	831	859	1014	927	917	403	400	60	6104										
	1981-82	10	7	25	377	601	940	1155	990	727	499	213				1981-82	6	26	83	516	704	1071	1244	1066	850	660	363												
Canon City	average	0	0	57	285	600	806	877	728	713	402	158	34	4660	Longmont	average	0	7	155	457	828	1076	1184	952	902	537	269	92	6459										
	1980-81	0	0	50	313	603	590	679	651	652	228	203	2	3971		1980-81	0	4	77	455	744	806	952	902	767	317	277	21	5333										
	1981-82	2	9	35		495	761					253				1981-82	5	12	38	481	652	979	1156	952	730	485	280												
Colorado Springs	average	9	13	155	456	825	1054	1128	944	921	564	301	103	6473	Meeker	average	28	56	261	564	927	1240	1345	1086	998	651	394	164	7714										
	1980-81	0	7	113	463	759	776	928	850	789	335	321	38	5379		1980-81	5	60	211	589	861	912	1044	958	901	573	427	86	6627										
	1981-82	5	30	70	433	640	993	1095	1001	827	571	374				1981-82	8	72	160	572	847	1098	1254	1080	884	731	442												
Cortez	average	0	10	110	425	807	1104	1156	904	834	534	274	81	6239	Montrose	average	0	9	129	435	828	1132	1197	935	834	510	245	71	6325										
	1980-81	2	29	131	514	780	882	986	901	849	465	326	68	5933		1980-81	0	17	82	467	779	862	948	851	755	327	247	45	5380										
	1981-82	2	7	83	499	726	1076	1230	1037	825	609	362				1981-82	0	8	38	466	714	1074	1185	976	727	525	262												
Craig	average	32	58	275	608	996	1342	1479	1193	1094	687	419	193	8376	Pagosa Springs	average	95	114	291	611	981	1311	1401	1140	1048	711	481	233	8417										
	1980-81	7	68	228	626	914	1034	1091	1076	919	545	460	110	7078		1980-81	24	109	294	654	932	1029	1088	971	932	588	489	163	7273										
	1981-82	19	35	149	697	901	1260	1529	1277	987	838	506				1981-82	19	102	244	642	856	1265	1525	1197	1006	708	495												
Deña	average	0	0	94	394	813	1135	1197	890	753	429	167	31	5903	Pueblo	average	0	0	55	335	726	992	1082	848	775	405	148	28	5394										
	1980-81	0	1	48	456	761	820	934	826	686	256	177	26	4991		1980-81	0	0	46	383	717	731	871	697	584	175	119	3	4326										
	1981-82	0	1	17	375	673	966	1123	894	625	451	163				1981-82	0	0	22	272	554	937	1046	882	582	358	151												
Denver	average	0	0	120	408	768	1004	1088	902	868	525	253	80	6016	Rifle	average	7	22	167	481	861	1200	1296	997	859	537	283	85	5394										
	1980-81	0	4	56	386	683	731	853	801	727	260	243	26	4770		1980-81	27	139	521	836	910	1052	910	771	416	302	49	5933											
	1981-82	0	12	19	375	570	898	1070	918	733	522	306				1981-82	0		42	513	760	1173	1342	1056	774	603	323												
Dillon	average	291	341	519	809	1173	1442	1519	1319	1321	966	701	453	10854	Salida	average	28	69	240	536	854	1094	1132	958	905	588	369	139	6910										
	1980-81	227	315	480	893	1106	1113	1302	1230	1219	819	713	331	9748		1980-81	0	39	200	581	838	780	1067	837	892	457	421												
	1981-82	243	302	448	835	1027	1379	1520	1323	1238	1058	746				1981-82	22	67	168	537		1033	1179																
Durango	average	20	37	198	502	843	1147	1212	958	880	597	375	161	6930	Steamboat Springs	average	116	159	384	691	1086	1451	1553	1277	1190	789	521	306	9523										
	1980-81	3	39	150	516	815	910	968	842	891	478	409	81	6102		1980-81	61	165	343	743	1004	1101	1159	1152	983	625	546	227	8109										
	1981-82	9	22	125	531	764	1047	1311	1004	845	599	383				1981-82	83	141	257	734	973	1340	1502	1361	1069	878	589												
Eagle	average	43	79	285	626	1023	1386	1457	1168	1051	693	425	190	8426	Sterling	average	0	6	158	459	849	1150	1249	986	927	522	256	76	6638										
	1980-81	8	89	230	674	967	1014	1165	1008	916	541	412	84	7108		1980-81	0	5	106	529	814	931	1038	963	835	359	391	33	6004										
	1981-82	6	54	155	632	889	1244	1451	1206	904	753	479				1981-82	8	20	79	448	755	1085	1321	1042	832	595	337												
Fort Collins	average	7	12	175	477	834	1076	1184	960	918	558	297	101	6599	Telluride	average	185	229	399	676	1017	1290	1333	1140	1147	825	583	345	9169										
	1980-81	1	14	88	486	764	810	980	848	760	318	314	39	5421		1980-81	78	162	301	662	925	1003	1132	1038	1098	621	576	187	7783										
	1981-82	8	8	42	487	661	987	1142	926	741	527	295				1981-82	117	177	320	707	891	1209	1323	1131	1062	815	582												
Fort Morgan	average	0	0	132	439	849	1141	1262	986	899	509	233	61	6511	Trinidad	average	0	0	81	364	732	980	1054	868	822	471	212	58	5642										
	1980-81	0	8	74	455	773	894	993	912	813	291	259	15	5487		1980-81	0	0	57	394	679	689	860	720	712	240	212	14	4615										
	1981-82	3	11	37	421	650	1035	1199	981	742	516	234				1981-82	0	15	39	316	524	849	935	897	624	428	211												
Grand Junction	average	0	0	60	324	756	1101	1190	879	738	404	133	20	5606	Walden	average	197	270	489	803	1149	1438	1538	1313	1280	891	626	363	10357										

COLORADO CLIMATE -- JUNE 1982

Colorado Climate Center
Department of Atmospheric Science
Colorado State University

June brought the second consecutive month of cool, wet weather to areas east of the mountains. Many severe storms occurred during the month, some late at night. The western half of the state was also cooler than usual, but precipitation was considerably below average.

Significant Highlights -- June

<u>Date</u>	<u>Event</u>
1-3	Cool, stormy period east of mountains. Mostly dry mountains and west. Heavy rainfall amounts on 2-3 many Eastern Plains locations with temperatures in the 50's and 60's. Some reported damaging hail. More than 2" rain at Fountain, Rush, and Yuma. Many locations from Littleton and Colorado Springs eastward totalled more than 1".
4-9	Dry statewide. Cool 4th. Warming 5-6, especially SE. Cool again on 7th and 9th with low temperatures of 40° or less much of state. The Hermit weather station (near Creede) and Taylor Park Dam shared honors for the state's coldest temperature with 18° F on the morning of the 7th.
10-14	Dry and mild mountains and west. High pressure east of Colorado encouraged daily scattered storms across the plains, some severe with heavy rains and large damaging hail. Severe hailstorm Colorado Springs on 12th. Haswell totalled 2.26" rain and hail 10th-11th. Trinidad received hail and more than an inch of rain late on the night of the 13th.
15-18	Cool and stormy from the Front Range eastward with more locally heavy rain and hail. Many locations totalled an inch or more of rain on the 17th and 18th including Cheesman, Denver, Byers, Fort Collins, Trinidad, and Las Animas. Mountains and western valleys were generally cool with a few scattered thundershowers.
19-21	Clear and cooler than usual statewide with just a few showers near the mountains.
22-26	Another period of cool, humid, and unsettled weather across eastern Colorado. Several more severe storms. Heavy flooding in Milliken late on 24th. Heavy rains, hail, and local flooding evening of 25th in the Fort Collins, Loveland, Greeley areas. Fort Collins recorded 1.76" on the 25-26th.

<u>Date</u>	<u>Event</u>
27-29	Much warmer with first real summer heat. Many locations reported their first 90° F readings of the year (70's and 80's in the mountains). Palisade reached 103° F on the 28th and Las Animas matched that on the 29th, the hottest in the state for the month. Dry 27th with isolated storms mostly on the northeast plains 28-29.
30	Stormy weather again. Official sightings of funnel clouds in the Denver area. More heavy local rains. Wray ended the month with 2.56" of rain in a few hour period.

Precipitation Summary

Precipitation totals and percents of average for June are shown in Figures 1 and 2. Precipitation totals were very large again across much of eastern Colorado for the second consecutive month. Totals in excess of 3 inches were common with several stations exceeding 5 inches. The northeast corner was the wettest part of the state. Yuma, Wray, and Sedgwick 5S all recorded more than 7 inches for the month. All areas east of the mountains were considerably wetter than average in June except for Boulder and a small portion of southeastern Colorado. Precipitation exceeded 200% of average at Fort Collins, Trinidad, extreme eastern Colorado, and in much of the Arkansas Valley. Haswell's 5.20 inch total was 385% of average.

While eastern Colorado soaked up heavy rains, the mountains and western valleys of the state experienced a very dry month. (June is normally the driest month of the year in those areas.) Totals ranged from a high of 1.90" (70% of average) at Berthoud Pass, to less than .10" at Center, Delta, Montrose, Meeker, and several locations in southwestern Colorado. Northdale, near the Utah border, received no precipitation at all during the month, while Mesa Verde had only a trace. On the whole, most precipitation totals ranged between 0 and 60 percent of average.

Water-Year Precipitation to Date

Precipitation as a percent of average since October 1, 1981 is shown in Figure 3. The combination of wet weather east, and dry conditions west has mostly offset the results of the winter. Most of the state is now near or somewhat wetter than average for the period. Many Eastern Plains

locations have made remarkable recoveries in the past 2 months. Limon, for example, had only received 50% of their average precipitation through April. They now stand at 127% of average. Wray has gone from 84% to 177%. Only three small areas of the state are still significantly drier than average: a small area long the Front Range from Loveland to south of Denver, a portion of southeastern Colorado, and the interior portion of the San Luis Valley.

Agriculture has benefitted from the abundant precipitation east of the mountains. Reduced demand for irrigation water has also improved the overall state water supply picture. However, cool temperature with the wet weather has slowed crop development and delayed the wheat harvest. This, in turn, has increased the potential for hail damage as the crop faces a longer thunderstorm season.

Delayed melting of the mountain snowpack has kept rivers running high and high elevation snow lingering longer than usual.

Temperature Summary

June temperatures and departures from average are shown in Figure 4. Cooler than average temperatures were observed statewide. East of the mountains temperatures were generally 3 to 6 degrees Fahrenheit cooler than average -- a significant departure for a summer month. West of the Continental Divide, departures from average were less extreme. Temperatures ranged from about 3 degrees F cooler than average at Steamboat Springs, Meeker, Cortez, and Aspen, to slightly warmer than average at Grand Junction. The month seemed particularly cool due to unusually cool daytime temperatures. At Las Animas, for example, the average daily maximum temperature for June was 83° F, 8 degrees below average.

Degree Days

Tables of both heating and cooling degree days (base 65° F) are presented here. The cooling degree day concept with the 65° F base temperature does not appear to work as well as heating degree days. The information will be presented only on a trial basis. Please let us know in writing if you feel this information is valuable.

Figure 1. June 1982 precipitation amounts (inches).

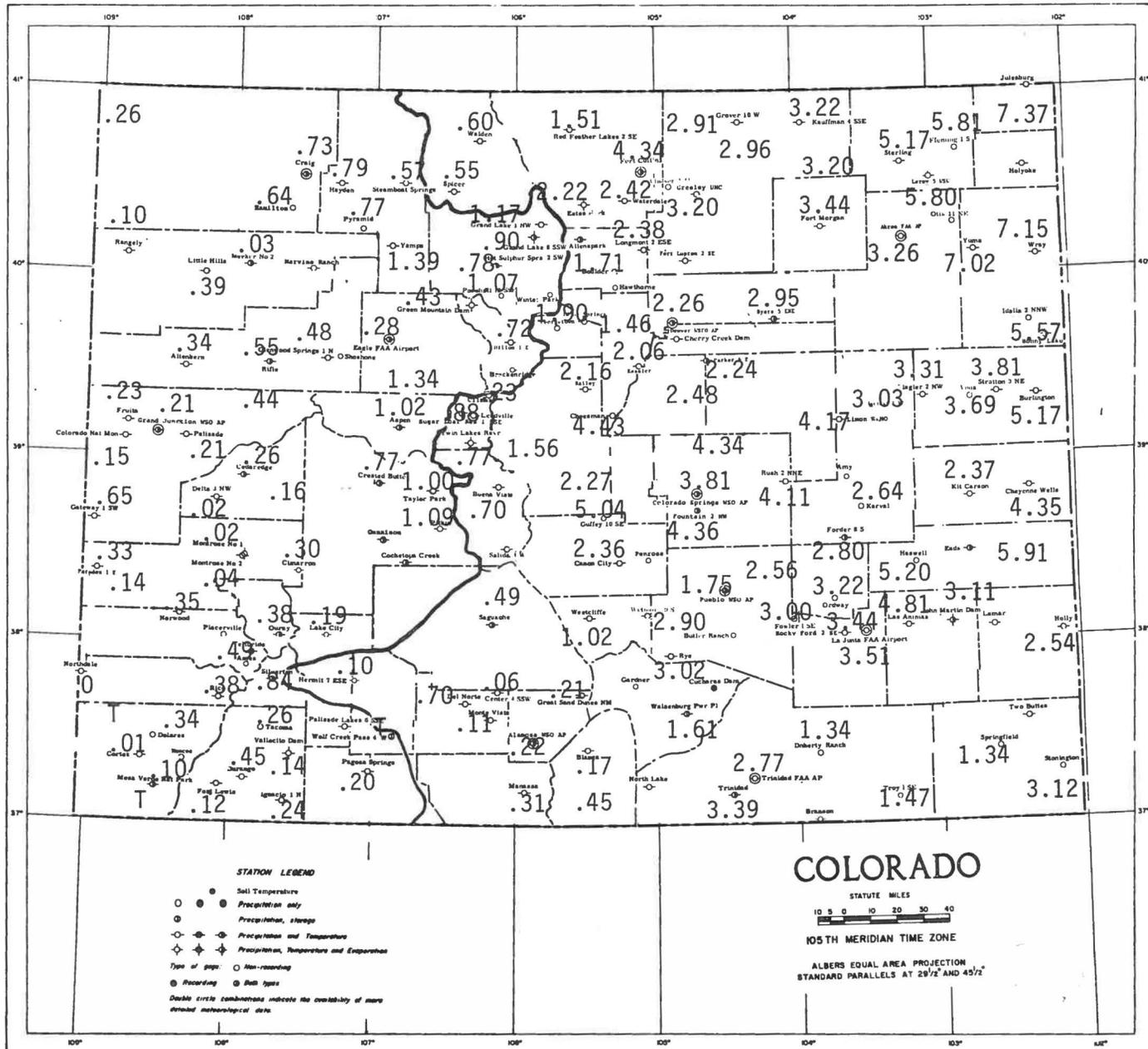


Figure 2. Precipitation for June 1982 as a percent of the 1951-70 average.

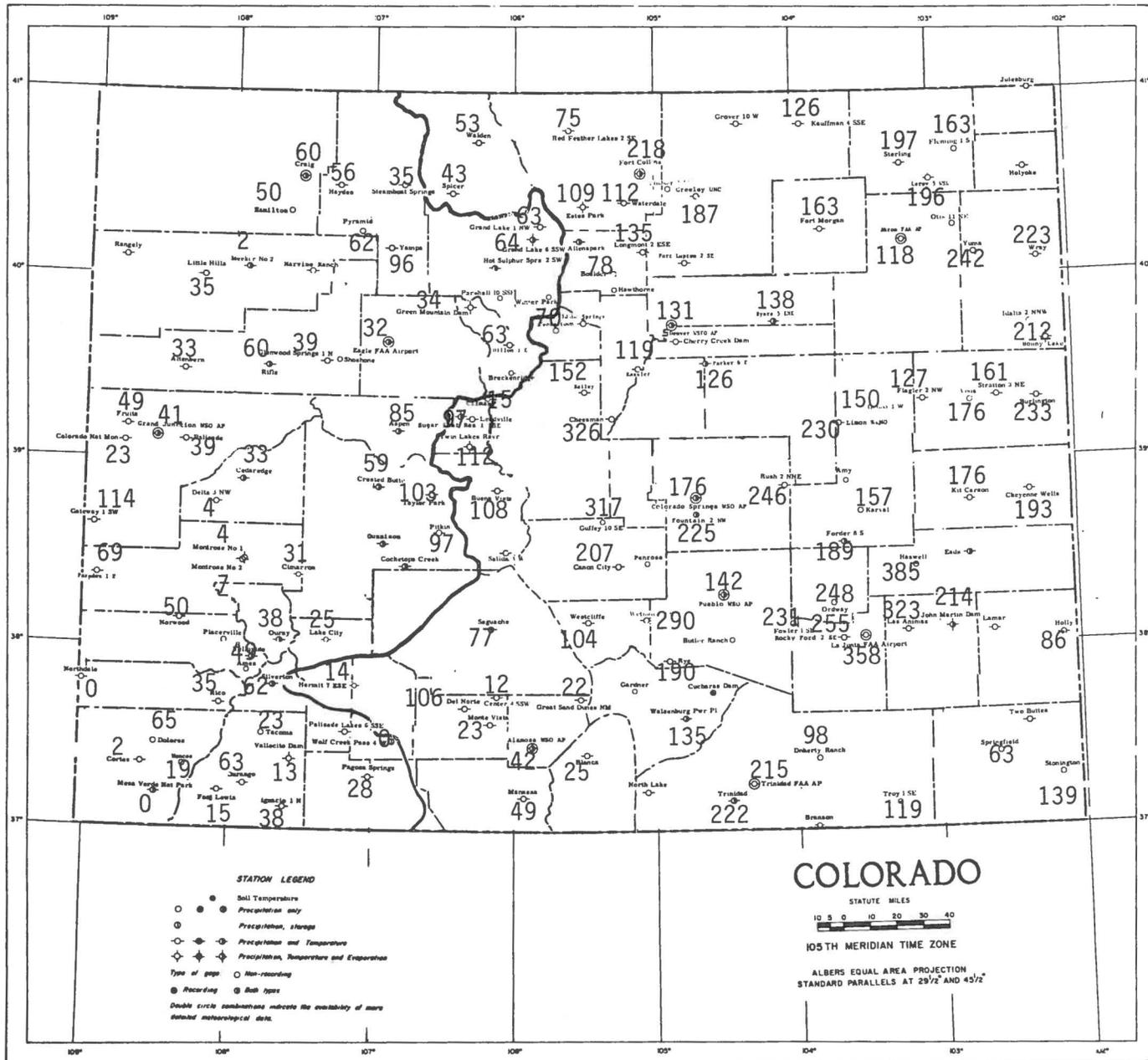


Figure 3. Precipitation for October 1981 through June 1982 as a percent of the 1951-1970 average.

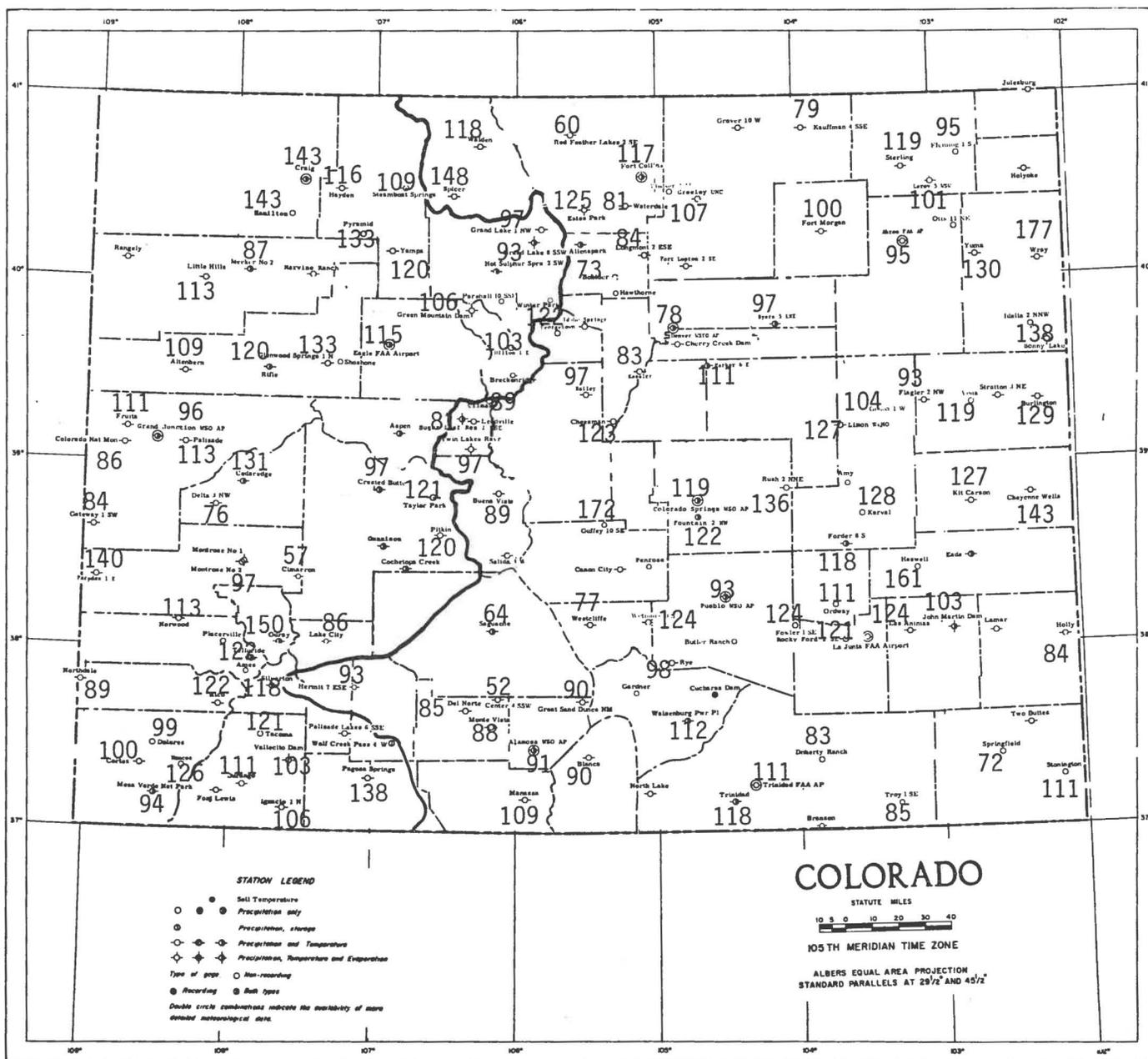


Table 1. Colorado Heating Degree Days through June 1982.

		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANNUAL		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANNUAL	
Alamosa	average	55	96	294	648	1053	1420	1482	1182	1054	714	440	171	8609	Greeley	average	0	5	153	465	870	1147	1256	991	911	528	253	60	6639
	1980-81	5	102	263	757	1031	1136	1274	1097	979	576	458	102	7780		1980-81	0	4	57	457	762	845	964	872	749	304	273	23	5310
	1981-82	14	108	254	656	904	1366	1457	1192	977	736	508	230	8402		1981-82	5	9	31	459	651	1014	1170	942	721	511	275	82	5870
Aspen	average	113	161	345	654	1026	1324	1392	1176	1144	792	530	291	8948	Gunnison	average	103	169	384	704	1110	1538	1686	1397	1246	789	533	282	9941
	1980-81	59	159	305	705	1004	1005	1164	1094	1066	656	574	208	7999		1980-81	106	191	358	738	1037	1159	1331	1117	994	640	509	158	8338
	1981-82	98	147	298	721	916	1279	1408	1190	1079	897	609	366	9008		1981-82	63	165	328	709	977	1354	1693	1517	1093	786	564		
Boulder	average	6	0	139	367	690	905	992	826	809	482	236	88	5540	Lamar	average	0	0	57	320	741	1032	1107	854	766	377	129	19	5402
	1980-81	1	61	384	630	644	800	714	702	252	306	27	4521	1980-81		0	0	28	349	735	823	910	766	604	171	166	3	4555	
	1981-82	4	14	444	562	866	964	810	649	440	279	107	5181	1981-82		0	0	27	287	575	963	1076	988	615	364	117			
Burlington	average	0	0	102	363	741	1011	1085	882	828	462	210	54	5738	Limon	average	8	6	144	448	834	1070	1156	960	936	570	299	100	6531
	1980-81	0	0	49	356	763	866	907	804	734	256	265	18	5018		1980-81	0	12	139	542	831	859	1014	927	917	403	400	60	6104
	1981-82	10	7	25	377	601	940	1155	990	727	499	213	78	5622		1981-82	6	26	83	516	704	1071	1244	1066	850	660	363	176	6765
Canon City	average	0	0	57	285	600	806	877	728	713	402	158	34	4660	Longmont	average	0	7	155	457	828	1076	1184	952	902	537	269	92	6459
	1980-81	0	0	50	313	603	590	679	651	652	228	203	2	3971		1980-81	0	4	77	455	744	806	952	902	767	317	277	21	5333
	1981-82	2	9	35	495	761						253	84			1981-82	5	12	38	481	652	979	1156	952	730	485	280	98	5868
Colorado Springs	average	9	13	155	456	825	1054	1128	944	921	564	301	103	6473	Meeker	average	28	56	261	564	927	1240	1345	1086	998	651	394	164	7714
	1980-81	0	7	113	463	759	776	928	850	789	335	321	38	5379		1980-81	5	60	211	589	861	912	1044	958	901	573	427	86	6627
	1981-82	5	30	70	433	640	993	1095	1001	927	571	374	163	6202		1981-82	8	72	160	572	847	1098	1254	1080	884	731	442	207	7355
Cortez	average	0	10	110	425	807	1104	1156	904	834	534	274	81	6239	Montrose	average	0	9	129	435	828	1132	1197	935	834	510	245	71	6325
	1980-81	2	29	131	514	780	882	986	901	849	465	326	68	5933		1980-81	0	17	82	467	779	862	948	851	755	327	247	45	5380
	1981-82	2	7	83	499	726	1076	1230	1037	825	609	362	109	6565		1981-82	0	8	38	466	714	1074	1185	976	727	525	262	47	6022
Craig	average	32	58	275	608	996	1342	1479	1193	1094	687	419	193	8376	Pagosa Springs	average	95	114	291	611	981	1311	1401	1140	1048	711	481	233	8417
	1980-81	7	68	228	626	914	1034	1091	1076	919	545	460	110	7078		1980-81	24	109	294	654	932	1029	1088	971	932	508	489	163	7273
	1981-82	19	35	149	697	901	1260	1529	1277	987	838	506	209	8407		1981-82	19	102	244	642	856	1265	1525	1197	1006	708	495	269	8328
Delta	average	0	0	94	394	813	1135	1197	890	753	429	167	31	5903	Pueblo	average	0	0	55	335	726	992	1082	848	775	405	148	28	5394
	1980-81	0	1	48	456	761	820	934	826	686	256	177	26	4991		1980-81	0	0	46	383	717	731	871	697	584	175	119	3	4326
	1981-82	0	1	17	375	673	966	1123	894	625	451	163	12	5300		1981-82	0	0	22	272	554	937	1046	882	582	358	151	21	4825
Denver	average	0	0	120	408	768	1004	1088	902	868	525	253	80	6016	Rifle	average	7	22	167	481	861	1200	1296	997	859	537	283	85	5394
	1980-81	0	4	56	386	683	731	853	801	727	260	243	26	4770		1980-81	27	139	521	836	910	1052	910	771	416	302	49	5933	
	1981-82	0	12	19	375	570	898	1070	918	733	522	306	92	5515		1981-82	0	42	513	760	1173	1342	1056	774	603	323	105		
Dillon	average	291	341	519	809	1173	1442	1519	1319	1321	966	701	453	10854	Salida	average	28	69	240	536	854	1094	1132	958	905	588	369	139	6910
	1980-81	227	315	480	893	1106	1113	1302	1230	1219	819	713	331	9748		1980-81	0	39	200	581	838	780	1067	837	892	457	421		
	1981-82	243	302	448	835	1027	1379	1520	1323	1238	1058	746	507	10626		1981-82	22	67	168	537		1033	1179						
Durango	average	20	37	198	502	843	1147	1212	958	880	597	375	161	6930	Steamboat Springs	average	116	159	384	691	1086	1451	1553	1277	1190	789	521	306	9523
	1980-81	3	39	150	516	815	910	968	842	891	478	409	81	6102		1980-81	61	165	343	743	1004	1101	1159	1152	983	625	546	227	8109
	1981-82	9	22	125	531	764	1047	1311	1004	845	599	383	145	6785		1981-82	83	141	257	734	973	1340	1502	1361	1069	878	589	380	9307
Eagle	average	43	79	285	626	1023	1386	1457	1168	1051	693	425	190	8426	Sterling	average	0	6	158	459	849	1150	1249	986	927	522	256	76	6638
	1980-81	8	89	230	674	967	1014	1165	1008	916	541	412	84	7108		1980-81	0	5	106	529	814	931	1038	963	835	359	391	33	6004
	1981-82	6	54	155	632	889	1244	1451	1206	904	753	479	234	8007		1981-82	8	20	79	448	755	1085	1321	1042	832	595	337	122	6644
Fort Collins	average	7	12	175	477	834	1076	1184	960	918	558	297	101	6599	Telluride	average	185	229	399	676	1017	1290	1333	1140	1147	825	583	345	9169
	1980-81	1	14	82	486	764	810	980	849	760	318	314	39	5421		1980-81	78	162	301	662	925	1003	1132	1038	1098	621	576	187	7783
	1981-82	8	8	42	487	661	987	1142	926	741	527	295	115	5939		1981-82	117	177	320	707	891	1209	1323	1131	1062	815	582	325	8659
Fort Morgan	average	0	0	132	439	849	1141	1262	986	899	509	233	61	6511	Trinidad	average	0	0	81	364	732	980	1054	868	822	471	212	58	5642
	1980-81	0	8	74	455	773	894	993	912	813	291	259	15	5487		1980-81	0	0	57	394	679	689	860	720	712	240	212	14	4615
	1981-82	3	11	37	421	650	1035	1199	981	742	516	234	81	5910		1981-82	0	15	39	316	524	849	935	897	624	428	211	49	4887
Grand Junction	average	0	0	60	324	756	1101	1190</																					

Table 2. Colorado Cooling Degree Days through June 1982.

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL															
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL		
Alamosa	average	0	0	0	0	0	9	55	24	0	0	0	0	88	Greeley	average	0	0	0	0	15	108	260	191	48	0	0	0	622
	1981	0	0	0	0	0	35	47	19	0	0	0	0	101		1981	0	0	0	5	3	175	295	160	74	0	0	0	712
	1982	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	4	3	41	0	0	0	0	0	0	0	
Aspen	average	0	0	0	0	0	0	13	9	0	0	0	0	22	Gunnison	average	0	0	0	0	0	0	7	8	0	0	0	0	15
	1981	0	0	0	0	0	2	7	7	0	0	0	0	16		1981	0	0	0	0	0	11	17	4	0	0	0	0	32
	1982	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	
Boulder	average	0	0	0	8	29	154	282	234	109	26	0	0	842	Lamar	average	0	0	0	11	61	247	406	344	120	10	0	0	1199
	1981	0	0	0	9	8	158	218	136	31	0	0	0	560		1981	0	0	0	28	56	356	453	304	160	18	0	0	1375
	1982	0	0	0	0	3	30	0	0	0	0	0	0	0		0	0	0	9	57	0	0	0	0	0	0	0		
Burlington	average	0	0	0	6	27	168	315	259	90	13	0	0	878	Limon	average	0	0	0	0	8	97	206	158	39	8	0	0	516
	1981	0	0	0	14	19	208	317	233	114	2	0	0	907		1981	0	0	0	1	0	110	228	102	34	0	0	0	475
	1982	0	0	0	0	9	61	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0		
Canon City	average	0	0	0	6	28	169	326	276	93	19	0	0	917	Longmont	average	0	0	0	0	8	92	208	159	35	0	0	0	502
	1981	0	0	0	27	12	---	353	250	141	4	1	0	---		1981	0	0	0	6	10	196	253	199	73	0	0	0	737
	1982	0	0	0	0	12	62	0	0	0	0	0	0	0		0	0	0	1	11	43	0	0	0	0	0	0		
Colorado Springs	average	0	0	0	0	6	91	186	140	32	6	0	0	461	Meeker	average	0	0	0	0	0	14	87	49	12	0	0	0	162
	1981	0	0	0	4	2	176	226	105	27	0	0	0	540		1981	0	0	0	0	0	48	109	54	0	0	0	0	211
	1982	0	0	0	0	0	23	0	0	0	0	0	0	0		0	0	0	0	0	13	0	0	0	0	0	0		
Cortez	average	0	0	0	0	0	69	211	159	26	0	0	0	465	Montrose	average	0	0	0	0	13	104	233	161	48	0	0	0	559
	1981	0	0	0	0	0	117	218	136	8	0	0	0	479		1981	0	0	0	0	7	211	275	195	33	0	0	0	721
	1982	0	0	0	0	0	29	0	0	0	0	0	0	0		0	0	0	0	4	84	0	0	0	0	0	0		
Craig	average	0	0	0	0	0	13	82	49	8	0	0	0	152	Pagosa Springs	average	0	0	0	0	0	8	73	42	0	0	0	0	123
	1981	0	0	0	0	0	35	103	70	4	0	0	0	212		1981	0	0	0	0	0	27	52	24	0	0	0	0	103
	1982	0	0	0	0	0	11	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0		
Delta	average	0	0	0	0	21	115	282	208	52	0	0	0	678	Pueblo	average	0	0	0	6	27	199	353	295	91	10	0	0	981
	1981	0	0	0	0	13	245	360	258	87	1	0	0	964		1981	0	0	0	20	34	328	446	291	142	9	0	0	1270
	1982	0	0	0	0	13	120	0	0	0	0	0	0	0		0	0	0	3	30	123	0	0	0	0	0	0		
Denver	average	0	0	0	0	0	110	248	208	54	5	0	0	625	Rifle	average	0	0	0	0	0	34	168	125	17	0	0	0	344
	1981	0	0	0	7	6	195	346	121	1	0	0	0	676		1981	0	0	0	0	1	139	238	140	39	0	0	0	557
	1982	0	0	0	0	6	42	0	0	0	0	0	0	0		0	0	0	0	0	38	0	0	0	0	0	0		
Dillon	average	0	0	0	0	0	0	0	0	0	0	0	0	0	Salida	average	0	0	0	0	0	10	56	42	0	0	0	0	108
	1981	0	0	0	0	0	0	0	0	0	0	0	0	0		1981	0	0	0	0	1	71	102	43	1	0	0	0	218
	1982	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	---	---	---	0	0	0	0	0	0	0		
Durango	average	0	0	0	0	0	17	97	68	6	0	0	0	188	Steamboat Springs	average	0	0	0	0	0	0	11	7	0	0	0	0	18
	1981	0	0	0	0	0	71	151	81	5	0	0	0	308		1981	0	0	0	0	0	2	11	2	0	0	0	0	15
	1982	0	0	0	0	0	10	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0		
Eagle	average	0	0	0	0	0	7	71	39	0	0	0	0	117	Sterling	average	0	0	0	0	20	124	266	210	44	0	0	0	664
	1981	0	0	0	0	0	55	108	42	0	0	0	0	205		1981	0	0	0	0	13	175	273	162	53	0	0	0	676
	1982	0	0	0	0	0	6	0	0	0	0	0	0	0		0	0	0	3	51	0	0	0	0	0	0	0		
Fort Collins	average	0	0	0	0	5	80	187	133	25	0	0	0	430	Telluride	average	0	0	0	0	0	0	0	0	0	0	0	0	0
	1981	0	0	0	1	2	157	235	125	38	0	0	0	558		1981	0	0	0	0	0	5	5	0	0	0	0	0	0
	1982	0	0	0	0	1	28	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0		
Fort Morgan	average	0	0	0	5	16	136	282	219	48	0	0	0	706	Trinidad	average	0	0	0	0	14	145	263	213	63	7	0	0	705
	1981	0	0	0	8	15	199	316	198	104	0	0	0	840		1981	0	0	0	8	10	238	278	151	69	4	0	0	758
	1982	0	0	0	4	17	78	0	0	0	0	0	0	0		0	0	0	3	12	83	0	0	0	0	0	0		
Grand Junction	average	0	0	0	0	47	209	425	322	126	11	0	0	1140	Walden	average	0	0	0	0	0	0	0	0	0	0	0	0	0
	1981	0	0	0	9	31	367	456	375	143	0	0	0	1381		1981	0	0	0	0	0	1	0	0	0	0	0	0	1
	1982	0	0	0	---	33	229	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0		
Walsenburg	average	0	0	0	0	6	107	204	167	48	10	0	0	542	Walsenburg	average	0	0	0	0	6	107	204	167	48	10	0	0	542
	1981	0	0	0	0	3	14	226	264	138	37	1	0	683		1981	0	0	0	3	14	226	264	138	37	1	0	0	683
	1982	0	0	0	1	1	30	0	0	0	0	0	0	0		0	0	0	1	1	30	0	0	0	0	0	0		

COLORADO CLIMATE -- JULY 1982

Colorado Climate Center
 Department of Atmospheric Science
 Colorado State University

A typical variety of summer weather conditions occurred across Colorado in July ranging from a long hot and dry spell to a period of cool temperatures with heavy rain. For the month as a whole, most areas were quite close to their long term temperature and precipitation averages.

Significant Highlights -- July

<u>Date</u>	<u>Event</u>
1	Some early morning showers in western Colorado as upper air disturbance crossed the state. Widely scattered afternoon and evening thunderstorms in northeastern Colorado. Over 3/4" rain fell in Lakewood with hail at the Denver airport.
2-4	Dry statewide. A bit cooler than average west half of state, warm east (mostly 80's and 90's Fahrenheit).
5-6	Cooler statewide as a Pacific airmass moved into the state. Unusual late night thundershowers on 5th from the mountains northeastward across the plains. Rainfall mostly light. Clearing and very chilly mountains and western valleys on the 6th. Grand Junction dropped to 46° F, their coldest July temperature of this century. Many daily records were set and sub-freezing temperatures were common. Bonham Reservoir and Dillon shared honors for the state's coldest temperature with a 26° F reading on the morning of the 6th.
7-12	Rather cool and unsettled. Scattered afternoon thundershowers across all but the southwestern part of the state. Precipitation mostly light, but a very heavy storm on the 7th dropped 4.30" of rain at the Walsh weather station in southeast Colorado. More than 6" of rain in 75 minutes was reported in that general area. Coldest temperatures of the month east of the mountains occurred on the 10th. Limon dropped to 46° F that morning.
13-16	Warming to near 100° F in the lower Colorado and Arkansas Valleys. Just a few widely scattered showers. The dam break above Estes Park on the 15th, which caused loss of life and heavy damage, occurred during clear, dry weather.
17-18	Briefly cooler as a Pacific cold front crossed the state. Again some scattered storms but with very little rain.

<u>Date</u>	<u>Event</u>
19-25	Dry heatwave as large high pressure ridge aloft developed over Colorado and gradually moved eastward. Temperatures in the 80's in the mountains -- 90's and 100's at lower elevations. Hottest temperatures west of the mountains occurred on the 21-22. Palisade reached 104° F both days. East of the mountains the 23rd was the hottest day. Some urban water systems and electric utilities were pushed to their limits. Fort Morgan, Sterling, and Genoa all hit 105° F, the state's hottest temperature for the month. A few light thundershowers mountains and west, especially late in the period.
26-30	Weak cold front crossed the state on the 25th. High pressure north of Colorado helped push cool, very moist air into eastern Colorado. Low clouds, fog, cool temperatures and widespread rainfall on the 27-29, heaviest along the eastern foothills. Some very heavy rainfall amounts -- Waterdale 3.10" on the 27th, Walsenburg 3.25" on the 29th, Rye 3.50" on the 28th. Many areas east of the mountains received 2-5" of rain during the period. Mountain areas generally recorded from 0.5-1.5" with lesser amounts on the Western Slope.
30-31	Clearing and warmer statewide.

Precipitation Summary

Precipitation totals and percents of average for July are shown in Figures 1 and 2. Precipitation was generally near or above average east of the Continental Divide and drier than average to the west. However, there were considerable local variations. Precipitation totals east of the mountains ranged from 7.40" at Walsh, 7.12" at Rye and 6.12" (371 percent of average) at Waterdale (Loveland) down to 0.92" at Denver and 0.51" (19 percent of average) at Wray. Precipitation in the San Luis Valley was considerably drier than average except near the Sangre de Cristo mountains.

Precipitation totals west of the mountains ranged from 0.31" at Palisade to 3.06" at Paradox. Most locations ended the month with 50 to 90 percent of the average July rainfall. The only significant area with above average precipitation was northwestern Colorado. Hayden, for example, received 2.04", 173 percent of average.

Water-Year Precipitation to Date

Precipitation as a percent of average since October 1, 1981 is shown in Figure 3. Precipitation statewide is mostly near or above average. The San Luis Valley is a notable exception. Center and Saguache both have totalled only 57 percent of the water-year average. The Gunnison Valley from Gunnison to Delta and a small area near Denver also remain dry. A few locations widely scattered around the state have received substantially above average moisture.

Temperature Summary

July temperatures and departures from average are shown in Figure 4. Most stations around the state were slightly cooler than average. Slightly warmer than average conditions were noted at Kauffman and Fort Morgan in northeastern Colorado, along the southern foothills from Pueblo to Trinidad, and in west central Colorado.

Degree Days

Tables 1 and 2 show heating and cooling degree days (base 65° F). Monthly accumulated degree days are compared to last year as well as to the 30-year average. Cooling degree day information is being presented on a trial basis and will be discontinued if no interest is shown. Please let us know if you feel this information is important.

Figure 1. July 1982 precipitation amounts (inches).

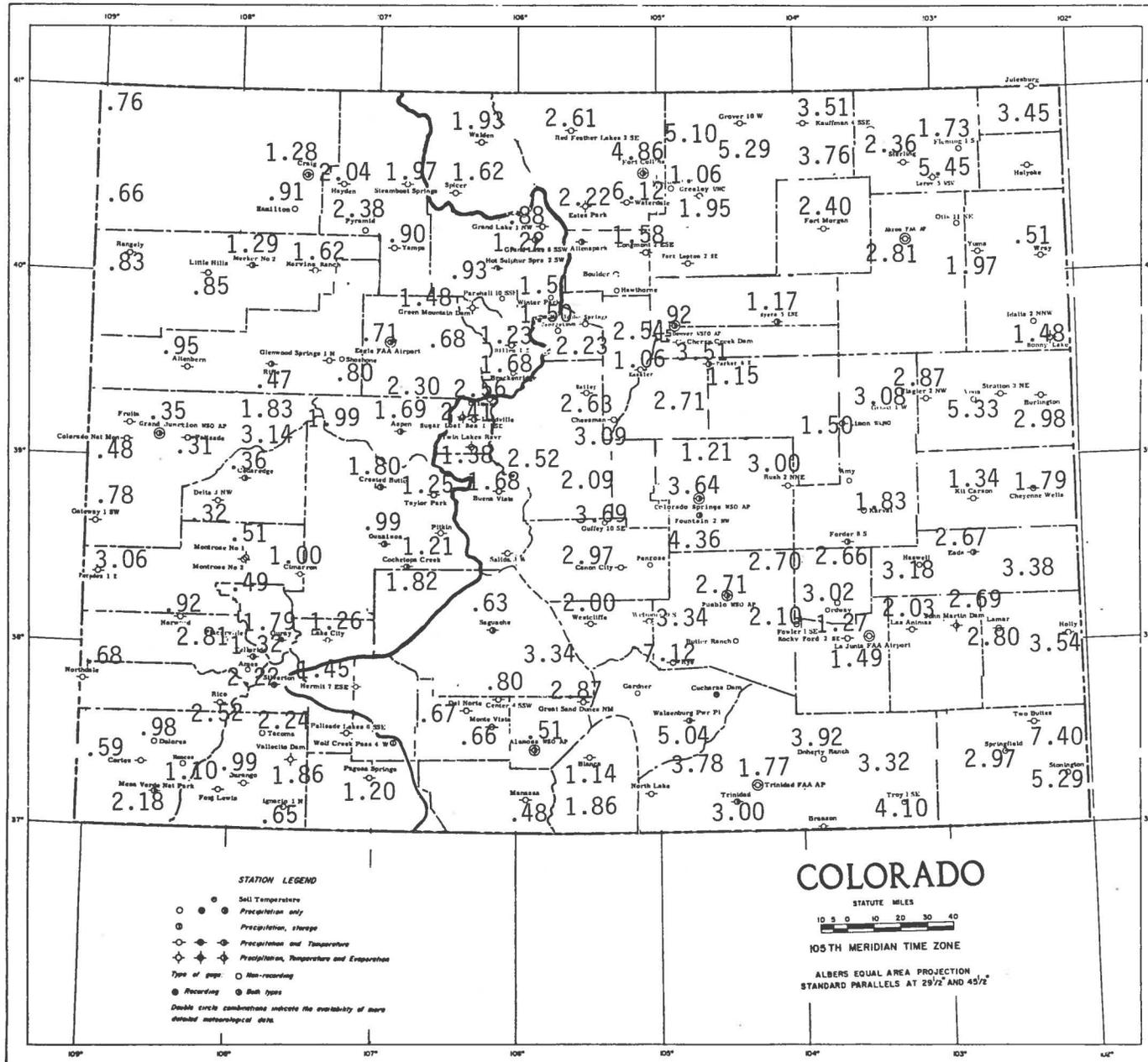


Figure 2. Precipitation for July 1982 as a percent of the 1951-1970 average.

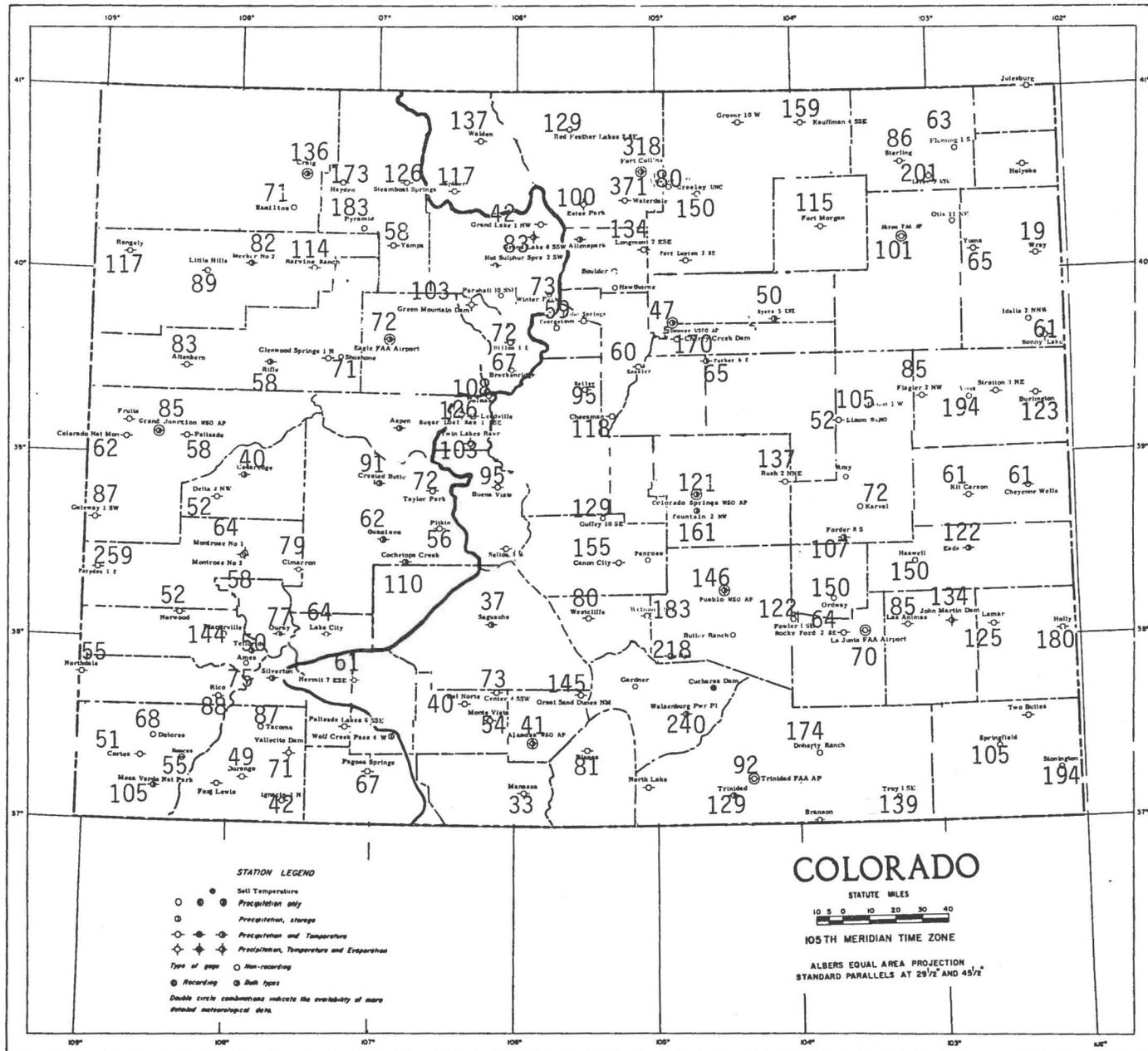


Figure 3. Precipitation for October 1981 through July 1982 as a percent of the 1951-1970 average.

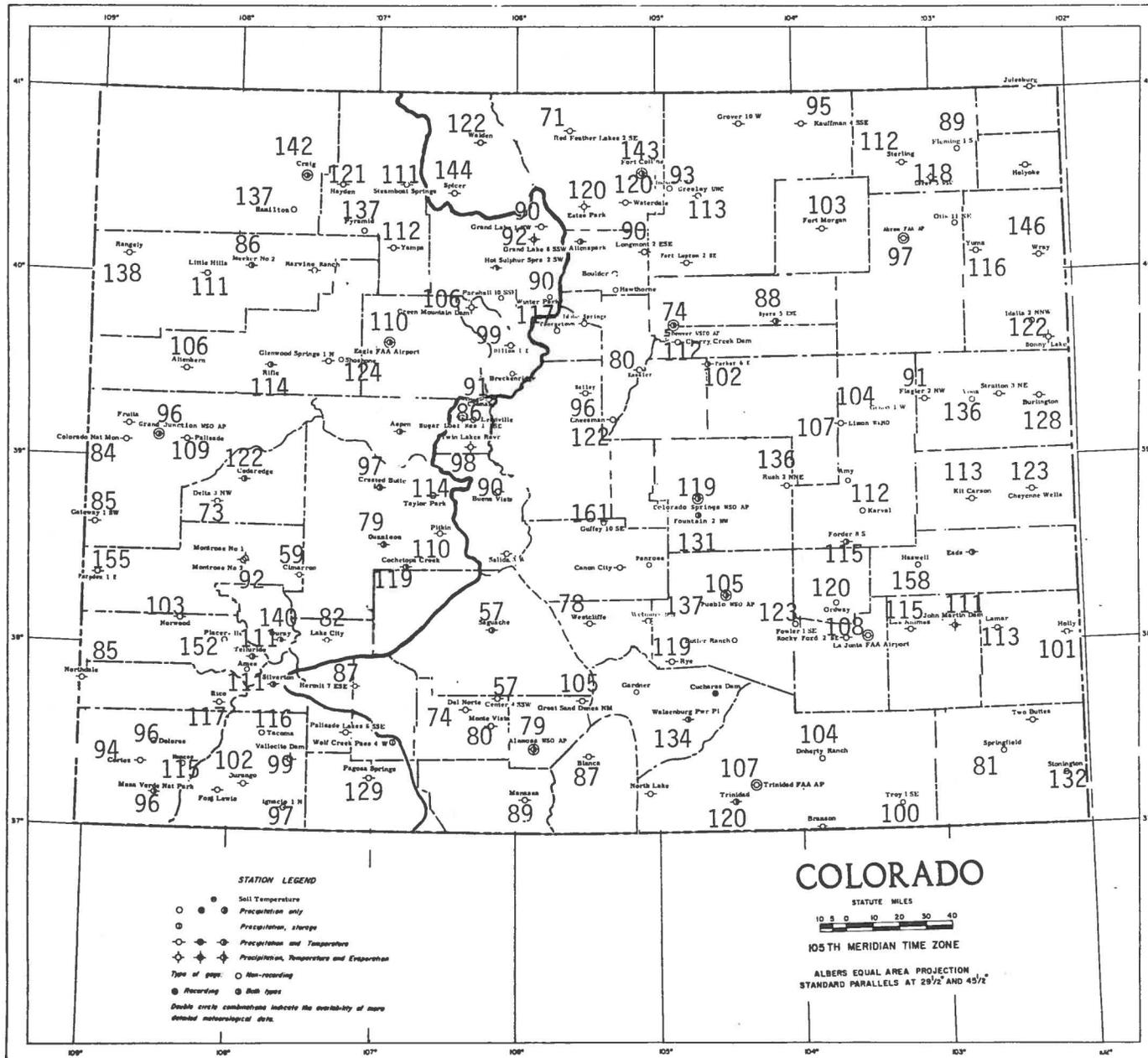


Table 2. Colorado Cooling Degree Days through July 1982.

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL															
Alamosa	average	0	0	0	0	0	9	55	24	0	0	0	0	88	Greeley	average	0	0	0	0	15	108	260	191	48	0	0	0	622
	1981	0	0	0	0	0	35	47	19	0	0	0	0	101		1981	0	0	0	5	3	175	295	160	74	0	0	0	712
	1982	0	0	0	0	0	0	-38								1982	0	0	0	4	3	41	-232						
Aspen	average	0	0	0	0	0	0	13	9	0	0	0	0	22	Gunnison	average	0	0	0	0	0	0	7	8	0	0	0	0	15
	1981	0	0	0	0	0	2	7	7	0	0	0	0	16		1981	0	0	0	0	0	11	17	4	0	0	0	32	
	1982	0	0	0	0	0	0	6								1982	0	0	0	0	0	0	11						
Boulder	average	0	0	0	8	29	154	282	234	109	26	0	0	842	Lamar	average	0	0	0	11	61	247	406	344	120	10	0	0	1199
	1981	0	0	0	9	8	158	218	136	31	0	0	0	560		1981	0	0	0	28	56	356	453	304	160	18	0	0	1375
	1982	0	0	0	0	3	30									1982	0	0	0	9	57	136	404						
Burlington	average	0	0	0	6	27	168	315	259	90	13	0	0	878	Limon	average	0	0	0	0	8	97	206	158	39	8	0	0	516
	1981	0	0	0	14	19	208	317	233	114	2	0	0	907		1981	0	0	0	1	0	110	228	102	34	0	0	0	475
	1982	0	0	0	0	9	61	316								1982	0	0	0	0	0	17	174						
Canon City	average	0	0	0	6	28	169	326	276	93	19	0	0	917	Longmont	average	0	0	0	0	8	92	208	159	35	0	0	0	502
	1981	0	0	0	27	12	---	353	250	141	4	1	0	---		1981	0	0	0	6	10	196	253	199	73	0	0	0	737
	1982	0	0	0	0	12	62	326								1982	0	0	0	1	11	43	216						
Colorado Springs	average	0	0	0	0	6	91	186	140	32	6	0	0	461	Meeker	average	0	0	0	0	0	14	87	49	12	0	0	0	162
	1981	0	0	0	4	2	176	226	105	27	0	0	0	540		1981	0	0	0	0	0	48	109	54	0	0	0	0	211
	1982	0	0	0	0	0	23	176								1982	0	0	0	0	0	13	87						
Cortez	average	0	0	0	0	0	69	211	159	26	0	0	0	465	Montrose	average	0	0	0	0	13	104	233	161	48	0	0	0	559
	1981	0	0	0	0	0	117	218	136	8	0	0	0	479		1981	0	0	0	0	7	211	275	195	33	0	0	0	721
	1982	0	0	0	0	0	29	143								1982	0	0	0	0	4	84	246						
Craig	average	0	0	0	0	0	13	82	49	8	0	0	0	152	Pagosa Springs	average	0	0	0	0	0	8	73	42	0	0	0	0	123
	1981	0	0	0	0	0	35	103	70	4	0	0	0	212		1981	0	0	0	0	0	27	52	24	0	0	0	0	103
	1982	0	0	0	0	0	11	84								1982	0	0	0	0	0	0	42						
Delta	average	0	0	0	0	21	115	282	208	52	0	0	0	678	Pueblo	average	0	0	0	6	27	199	353	295	91	10	0	0	981
	1981	0	0	0	0	13	245	360	258	87	1	0	0	964		1981	0	0	0	20	34	328	446	291	142	9	0	0	1270
	1982	0	0	0	0	13	120	268								1982	0	0	0	3	30	123	395						
Denver	average	0	0	0	0	0	110	248	208	54	5	0	0	625	Rifle	average	0	0	0	0	0	34	168	125	17	0	0	0	344
	1981	0	0	0	7	6	195	346	121	1	0	0	0	676		1981	0	0	0	0	1	139	238	140	39	0	0	0	557
	1982	0	0	0	0	6	42	247								1982	0	0	0	0	0	38	193						
Dillon	average	0	0	0	0	0	0	0	0	0	0	0	0	0	Salida	average	0	0	0	0	0	10	56	42	0	0	0	0	108
	1981	0	0	0	0	0	0	0	0	0	0	0	0	0		1981	0	0	0	0	1	71	102	43	1	0	0	0	218
	1982	0	0	0	0	0	0	0								1982	0	0	---	---	---								
Durango	average	0	0	0	0	0	17	97	68	6	0	0	0	188	Steamboat Springs	average	0	0	0	0	0	0	11	7	0	0	0	0	18
	1981	0	0	0	0	0	71	151	81	5	0	0	0	308		1981	0	0	0	0	0	2	11	2	0	0	0	0	15
	1982	0	0	0	0	0	10	114								1982	0	0	0	0	0	0	12						
Eagle	average	0	0	0	0	0	7	71	39	0	0	0	0	117	Sterling	average	0	0	0	0	20	124	266	210	44	0	0	0	664
	1981	0	0	0	0	0	55	108	42	0	0	0	0	205		1981	0	0	0	0	13	175	273	162	53	0	0	0	676
	1982	0	0	0	0	0	6	49								1982	0	0	0	0	3	51	268						
Fort Collins	average	0	0	0	0	5	80	187	133	25	0	0	0	430	Telluride	average	0	0	0	0	0	0	0	0	0	0	0	0	0
	1981	0	0	0	1	2	157	235	125	38	0	0	0	558		1981	0	0	0	0	0	5	5	0	0	0	0	0	10
	1982	0	0	0	0	1	28	202								1982	0	0	0	0	0	0	3						
Fort Morgan	average	0	0	0	5	16	136	282	219	48	0	0	0	706	Trinidad	average	0	0	0	0	14	145	263	213	63	7	0	0	705
	1981	0	0	0	8	15	199	316	198	104	0	0	0	840		1981	0	0	0	8	10	238	278	151	69	4	0	0	758
	1982	0	0	0	4	17	78	325								1982	0	0	0	3	12	83	306						
Grand Junction	average	0	0	0	0	47	209	425	322	126	11	0	0	1140	Walden	average	0	0	0	0	0	0	0	0	0	0	0	0	0
	1981	0	0	0	9	31	367	456	375	143	0	0	0	1381		1981	0	0	0	0	0	1	0	0	0	0	0	0	1
	1982	0	0	0	---	33	229	443								1982	0	0	0	0	0	0	2						
Walsenburg	average	0	0	0	0	6	107	204	167	48	10	0	0	542	Walsenburg	average	0	0	0	0	6	107	204	167	48	10	0	0	542
	1981	0	0	0	3	14	226	264	138	37	1	0	0	683		1981	0	0	0	3	14	226	264	138	37	1	0	0	683
	1982	0	0	0	1	1	30	250								1982	0	0	0	1	1	30	250						

COLORADO CLIMATE -- AUGUST 1982

Colorado Climate Center
Department of Atmospheric Science
Colorado State University

Humid, showery weather with above average temperatures was the rule in Colorado in August. A persistent flow of moist air from Mexico northward into southwest Colorado -- sometimes called the "Southwest Monsoon" -- encouraged daily thunderstorm development from the San Juan Mountains to the Front Range.

Significant Highlights -- August

Scattered and occasionally very heavy thunderstorms occurred practically every day of the month somewhere in the state, particularly Front Range, foothills, and mountain areas. There were only minor day to day temperature variations with no unusual extremes either hot or cold.

<u>Date</u>	<u>Event</u>
1-2	Warmest days of the month for much of the state. 70's and 80's in mountains, 90's at lower elevations. 100°F at Grand Junction on 1st. Mostly dry 1st but afternoon showers across much of the state began on the 2nd.
3-4	Cooler daytime temperatures. Scattered showers, mostly light. Heavy storms lower Arkansas Valley late on 4th.
5-8	High pressure ridge aloft over state. Dry and warmer than average Western Slope. Scattered showers and seasonal temperatures elsewhere. Pueblo, 2.28" rain on 7th.
9-11	Cold front brought cooler air into state from the northeast. Showery weather continued as moist southwesterly winds aloft began pumping moisture into southwest Colorado.
12-22	Warm and humid statewide. Las Animas hit 102°F on the 12th, the hottest in the state for the month. Daily thunderstorms, some heavy. Heavy storms NE plains late on the 13th. Akron, 2.11". Troy in southeast Colorado measured 3.31" of rain from a thunderstorm on the 15th. 1" to 2.50" rains Pueblo to Cheyenne late on the 20th. Colorado Springs received 2.31" from that storm.
23-27	Cooler with just a few light showers across the Eastern Plains. Weak upper air disturbance over Arizona produced very heavy precipitation in southwestern Colorado. Some daily rainfall

DateEvent

amounts included 1.72" at Ames and 2.25" at Rico on the 24th. Mesa Verde National Park received 2.01" on the 25th. Rainfall totals exceeded 3" for the period at many locations in the area, and some local flooding was noted which closed highways and disrupted activities. The coolest temperatures in the state were noted during this period, 32°F at Bonham Reservoir on the 24th and 32°F at Rio Grande Reservoir on the 27th. Also unusually cool daytime temperatures on the 25th in western Colorado. Delta, for example, had a high of only 62°.

28-31 Generally warmer and drier but still considerable shower activity. Gateway, in a desert-like area south of Grand Junction was deluged by 2.29" of rain in about 2 hours on the 28th -- more than 20% of their entire annual average.

Precipitation Summary

Precipitation totals and percents of average for August are shown in Figures 1 and 2. Some areas of the state received very heavy rainfall amounts for the month. The 4.35" total at Pueblo and 5.37" total at Colorado Springs were both more than double the August average. A few other locations east of the mountains, including Sterling, received more than 200% of average. The wettest part of the state was the southwest where most stations received from 150 to 300 percent of their August average. Rico's 7.77" total was the greatest in the state and was the wettest August on record since data collection began there in 1893. Lake City's 6.60" total (317 percent of average) also set a new record. Some stations in the San Juans recorded 24 days in August with measurable precipitation and as many as 30 days with at least a trace. Lake City had one stretch of 11 consecutive days with more than .10 inches of rain.

Despite the frequent heavy rains, some areas of the state ended up drier than average for the month. West central Colorado, the Front Range north from Denver, and significant portions of southeastern and east central Colorado were quite dry. Windsor, for example, totalled only 0.11" for the month. Haswell and Ordway accumulated 0.13" and 0.15", respectively. Indicative of the high humidity and frequent showers, Fort Collins received a trace or more of precipitation on 21 days in August. However, all major storms missed the station and the monthly total was just 0.45", 28 percent of average.

Water-Year Precipitation to Date

With only one month remaining in the 1982 water year, accumulated precipitation as a percent of average is generally near or above average statewide. The heavy August rains noticeably improved the rainfall statistics both in the San Luis Valley and the Gunnison Valley which had previously been quite dry.

Temperature Summary

August temperatures and departures from average are shown in Figure 4. Daily high temperatures were near average at most stations. However, high humidity and considerable cloud cover helped elevate nighttime temperatures to near record levels in some areas. Rifle's minimum temperatures averaged 55.9°F more than 6 degrees Fahrenheit above average for the month, the warmest on record. Statewide, with the exception of Colorado Springs, the entire state was mostly 1 to 3 degrees warmer than average for the month as a whole. Walden had their warmest August on record with a monthly mean temperature of 60.2°F, 4.4 degrees above the average.

Degree Days

Tables 1 and 2 show heating and cooling degree days (base 65°F). Monthly accumulated degree days are compared to last year as well as to the 30-year average. Cooling degree day information is presented here on a trial basis. If you want this information to continue to be published, please contact our office and let us know.

Figure 1. August 1982 precipitation amounts (inches).

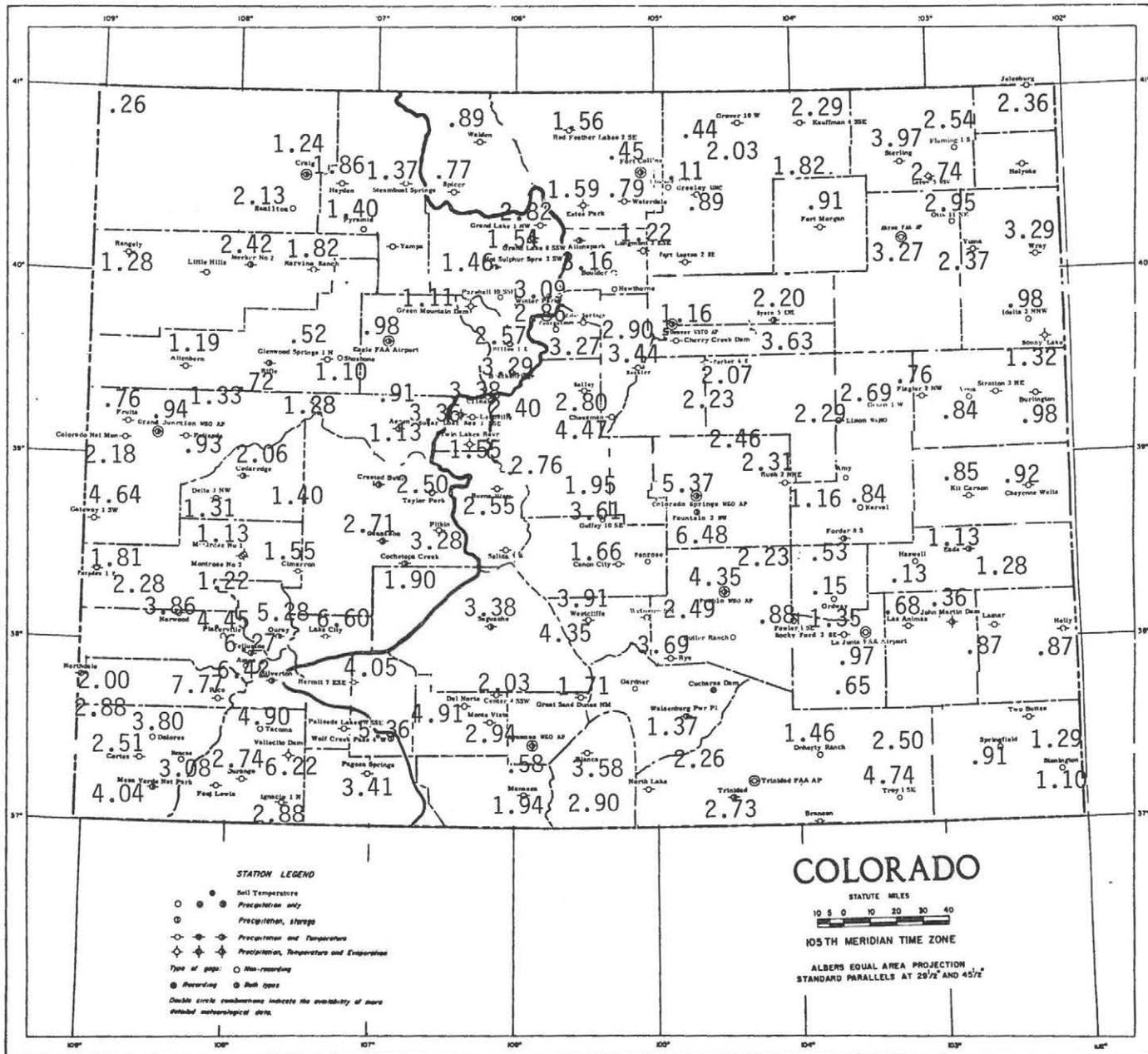


Figure 2. Precipitation for August 1982 as a percent of the 1951-1970 average.

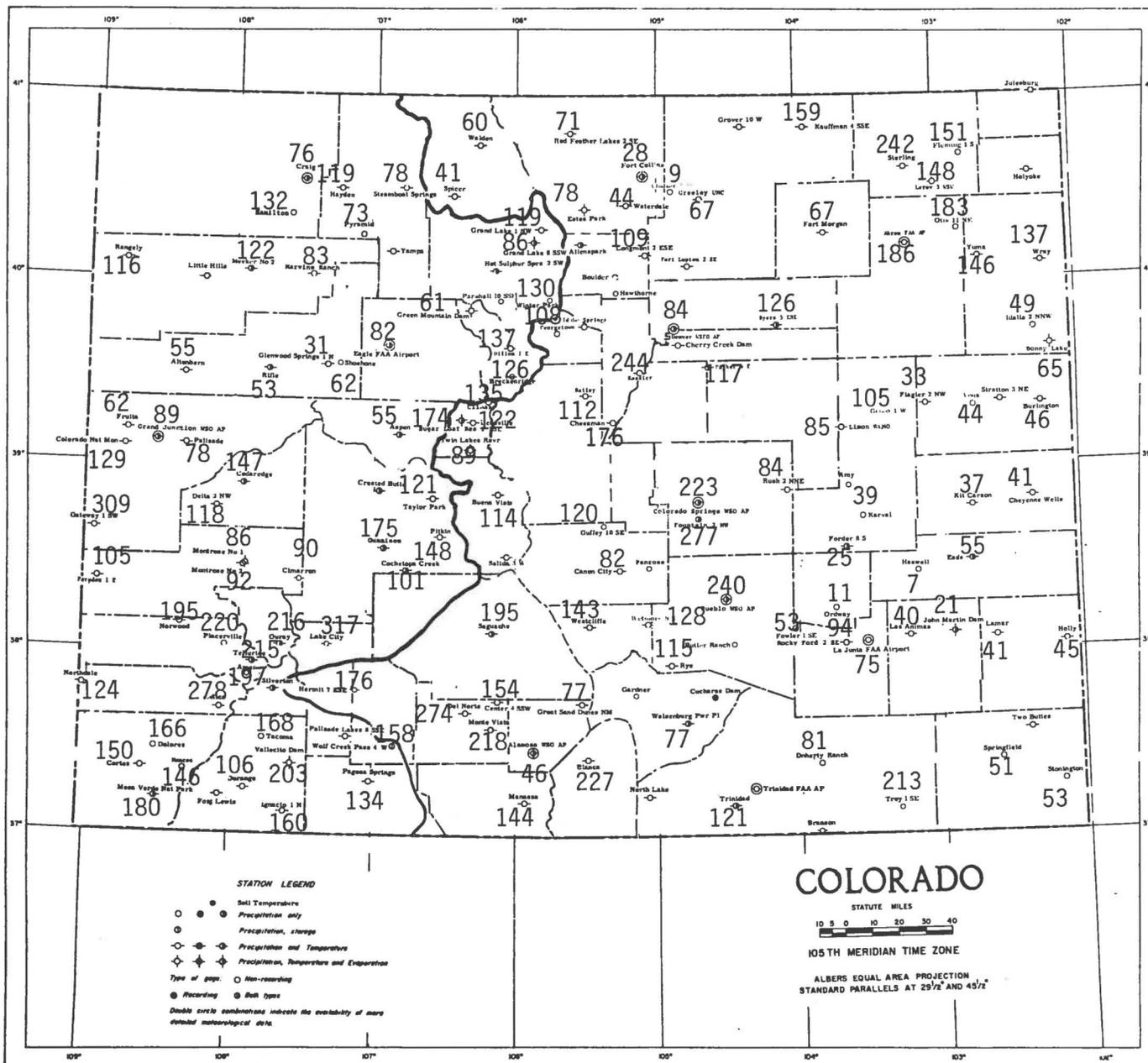


Figure 3. Precipitation for October 1981 through August 1982 as a percent of the 1951-1970 average.

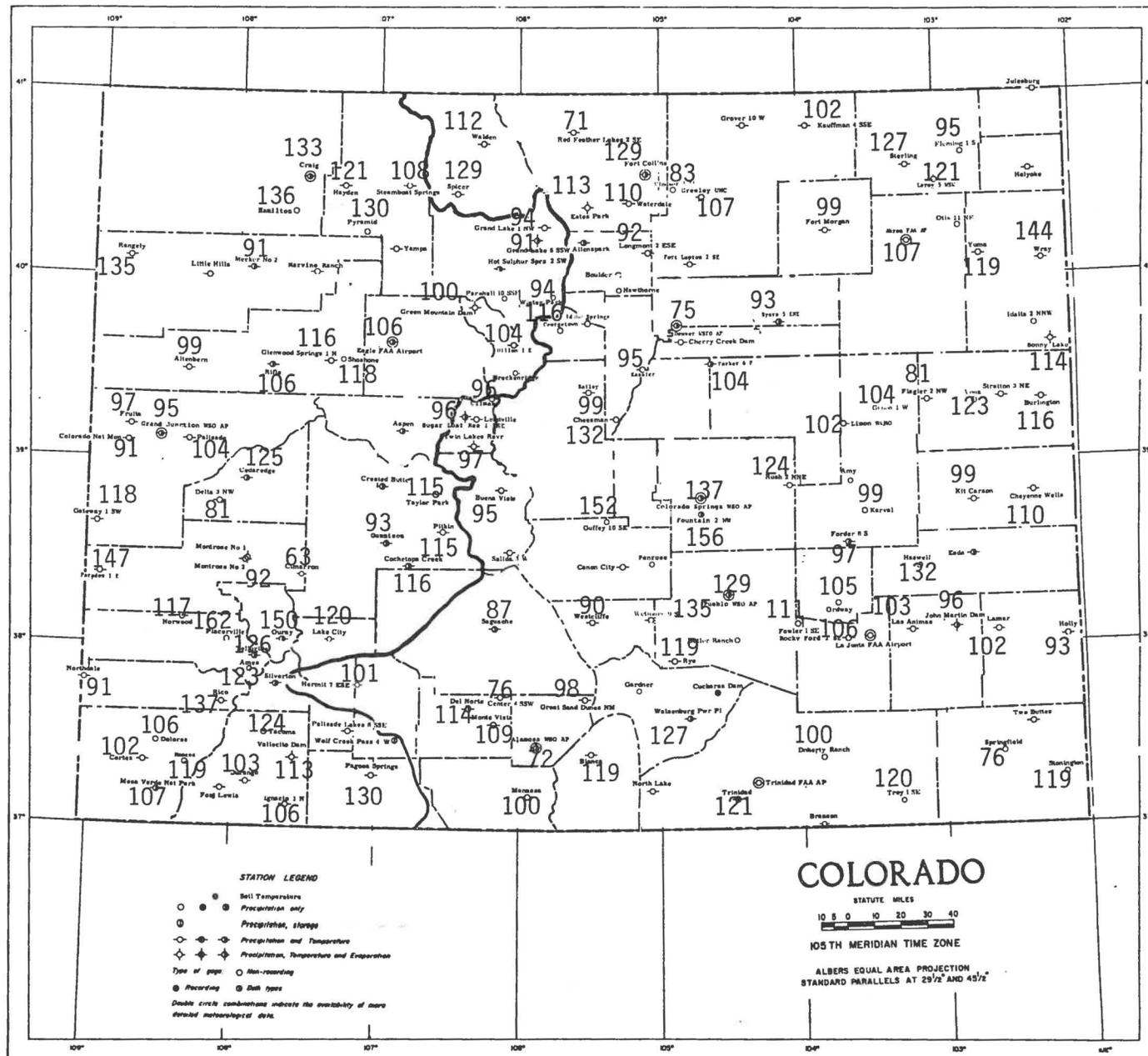


Table 1. Colorado Heating Degree Day Data through August 1982.

		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANNUAL															
Alamosa	average	55	96	294	648	1053	1420	1482	1182	1054	714	440	171	8609	Greeley	average	0	5	153	465	870	1147	1256	991	911	528	253	60	6639
	1981-82	14	108	254	656	904	1366	1457	1192	977	736	508	230	8402		1981-82	5	9	31	459	651	1014	1170	942	721	511	275	82	5870
	1982-83	59	47													1982-83	5	0											
Aspen	average	113	161	345	654	1026	1324	1392	1176	1144	792	530	291	8948	Gunnison	average	103	169	384	704	1110	1538	1686	1397	1246	789	533	282	9941
	1981-82	98	147	298	721	916	1279	1408	1190	1079	897	609	366	9008		1981-82	63	165	328	709	977	1354	1693	1517	1093	786	564	379	9628
	1982-83	148	119													1982-83	132	89											
Boulder	average	6	0	139	367	690	905	992	826	809	482	236	88	5540	Lamar	average	0	0	57	320	741	1032	1107	854	766	377	129	19	5402
	1981-82	4	14		444	562	866	964	818	649	440	279	107	5181		1981-82	0	0	27	287	575	963	1076	988	615	364	117	22	5034
	1982-83															1982-83	0	0											
Burlington	average	0	0	102	363	741	1011	1085	882	828	462	210	54	5738	Limon	average	8	6	144	448	834	1070	1156	960	936	570	299	100	6531
	1981-82	10	7	25	377	601	940	1155	990	727	499	213	78	5622		1981-82	6	26	83	516	704	1071	1244	1066	850	660	363	176	6765
	1982-83	0	5													1982-83	18	5											
Canon City	average	0	0	57	285	600	806	877	728	713	402	158	34	4660	Longmont	average	0	7	155	457	828	1076	1184	952	902	537	269	92	6459
	1981-82	2	9	35		495	761					253	84	---		1981-82	5	12	38	481	652	979	1156	952	730	485	280	98	5868
	1982-83	3	6													1982-83	7	0											
Colorado Springs	average	9	13	155	456	825	1054	1128	944	921	564	301	103	6473	Meeker	average	28	56	261	564	927	1240	1345	1086	998	651	394	164	7714
	1981-82	5	30	70	433	640	993	1095	1001	827	571	374	163	6202		1981-82	8	72	160	572	847	1098	1254	1080	884	731	442	207	7355
	1982-83	8	11													1982-83	33	7											
Cortez	average	0	10	110	425	807	1104	1156	904	834	534	274	81	6239	Montrose	average	0	9	129	435	828	1132	1197	935	834	510	245	71	6325
	1981-82	2	7	83	499	726	1076	1230	1037	825	609	362	109	6565		1981-82	0	8	38	466	714	1074	1185	976	727	525	262	47	6022
	1982-83	17	5													1982-83	4	2											
Craig	average	32	58	275	608	996	1342	1479	1193	1094	687	419	193	8376	Pagosa Springs	average	95	114	291	611	981	1311	1401	1140	1048	711	481	233	8417
	1981-82	19	35	149	697	901	1260	1529	1277	987	838	506	209	8407		1981-82	19	102	244	642	856	1265	1525	1197	1006	708	495	269	8328
	1982-83	37	5													1982-83	76	29											
Delta	average	0	0	94	394	813	1135	1197	890	753	429	167	31	5903	Pueblo	average	0	0	55	335	726	992	1082	848	775	405	148	28	5394
	1981-82	0	1	17	375	673	966	1123	894	625	451	163	12	5300		1981-82	0	0	22	272	554	937	1046	882	582	358	151	21	4825
	1982-83	2	4													1982-83	0	0											
Denver	average	0	0	120	408	768	1004	1088	902	868	525	253	80	6016	Rifle	average	7	22	167	481	861	1200	1296	997	859	537	283	85	5394
	1981-82	0	12	19	375	570	898	1070	918	733	522	306	92	5515		1981-82	0	42	513	760	1173	1342	1056	774	603	323	105	---	
	1982-83	3	0													1982-83	8	3											
Dillon	average	291	341	519	809	1173	1442	1519	1319	1321	966	701	453	10854	Salida	average	28	69	240	536	854	1094	1132	958	905	588	369	139	6910
	1981-82	243	302	448	835	1027	1379	1520	1323	1238	1058	746	507	10626		1981-82	22	67	168	537		1033	1179	1096	---	---	---	---	---
	1982-83	318	253													1982-83	--	--											
Durango	average	20	37	198	502	843	1147	1212	958	880	597	375	161	6930	Steamboat Springs	average	116	159	384	691	1086	1451	1553	1277	1190	789	521	306	9523
	1981-82	9	22	125	531	764	1047	1311	1004	845	599	383	145	6785		1981-82	83	141	257	734	973	1340	1502	1361	1069	878	589	380	9307
	1982-83	24	6													1982-83	146	80											
Eagle	average	43	79	285	626	1023	1386	1457	1168	1051	693	425	190	8426	Sterling	average	0	6	158	459	849	1150	1249	986	927	522	256	76	6638
	1981-82	6	54	155	632	889	1244	1451	1206	904	753	479	234	8007		1981-82	8	20	79	448	755	1085	1321	1042	832	595	337	122	6644
	1982-83	54	21													1982-83	3	3											
Fort Collins	average	7	12	175	477	834	1076	1184	960	918	558	297	101	6599	Telluride	average	185	229	399	676	1017	1290	1333	1140	1147	825	583	345	9169
	1981-82	8	8	42	487	661	987	1142	926	741	527	295	115	5939		1981-82	117	177	320	707	891	1209	1323	1131	1062	815	582	325	8659
	1982-83	4	0													1982-83	139	140											
Fort Morgan	average	0	0	132	439	849	1141	1262	986	899	509	233	61	6511	Trinidad	average	0	0	81	364	732	980	1054	868	822	471	212	58	5642
	1981-82	3	11	37	421	650	1035	1199	981	742	516	234	81	5910		1981-82	0	15	39	316	524	849	935	897	624	428	211	49	4887
	1982-83	3	3													1982-83	0	0											
Grand Junction	average	0	0	60	324	756	1101	1190	879	738	404	133	20	5606	Walden	average	197	270	489	803	1149	1438	1538	1313	1280	891	626	363	10357
	1981-82	0	0	12	439	696	1039	1203	841	581	405	136	6	5358		1981-82	143	241	357	831	1007	1314	1444	1262	1114	958	703	412	9786
	1982-83	2	0													1982-83	201	141											
															Walsenburg	average	6	12	93	364	690	911	977	820	806	489	230	62	5460
														1981-82		0	15		324	522	831	932	853	671	474	250	61	4974	
														1982-83		0	1												

Table 2. Colorado Cooling Degree Day Data through August 1982.

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL																
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL			
Alamosa	average	0	0	0	0	0	9	55	24	0	0	0	0	88	Greeley	average	0	0	0	0	15	108	260	191	48	0	0	0	622	
	1981	0	0	0	0	0	35	47	19	0	0	0	0	101		1981	0	0	0	5	3	175	295	160	74	0	0	0	712	
	1982	0	0	0	0	0	0	0	27							1982	0	0	0	4	3	41	232	259						
Aspen	average	0	0	0	0	0	0	13	9	0	0	0	0	22	Gunnison	average	0	0	0	0	0	0	7	8	0	0	0	0	15	
	1981	0	0	0	0	0	2	7	7	0	0	0	0	16		1981	0	0	0	0	0	11	17	4	0	0	0	0	32	
	1982	0	0	0	0	0	0	6	2							1982	0	0	0	0	0	0	11	1						
Boulder	average	0	0	0	8	29	154	282	234	109	26	0	0	842	Lamar	average	0	0	0	11	61	247	406	344	120	10	0	0	1199	
	1981	0	0	0	9	8	158	218	136	31	0	0	0	560		1981	0	0	0	28	56	356	453	304	160	18	0	0	1375	
	1982	0	0	0	0	3	30									1982	0	0	0	9	57	136	404	435						
Burlington	average	0	0	0	6	27	168	315	259	90	13	0	0	878	Limon	average	0	0	0	0	8	97	206	158	39	8	0	0	516	
	1981	0	0	0	14	19	208	317	233	114	2	0	0	907		1981	0	0	0	1	0	110	228	102	34	0	0	0	475	
	1982	0	0	0	0	9	61	316	310							1982	0	0	0	0	0	17	174	193						
Canon City	average	0	0	0	6	28	169	326	276	93	19	0	0	917	Longmont	average	0	0	0	0	8	92	208	159	35	0	0	0	502	
	1981	0	0	0	27	12	---	353	250	141	4	1	0	---		1981	0	0	0	6	10	196	253	199	73	0	0	0	737	
	1982	0	0	0	0	12	62	326	289							1982	0	0	0	1	11	43	216	257						
Colorado Springs	average	0	0	0	0	6	91	186	140	32	6	0	0	461	Meeker	average	0	0	0	0	0	14	87	49	12	0	0	0	162	
	1981	0	0	0	4	2	176	226	105	27	0	0	0	540		1981	0	0	0	0	0	48	109	54	0	0	0	0	211	
	1982	0	0	0	0	0	0	23	176	127						1982	0	0	0	0	0	13	87	88						
Cortez	average	0	0	0	0	0	69	211	159	26	0	0	0	465	Montrose	average	0	0	0	0	13	104	233	161	48	0	0	0	559	
	1981	0	0	0	0	0	117	218	136	8	0	0	0	479		1981	0	0	0	0	7	211	275	195	33	0	0	0	721	
	1982	0	0	0	0	0	29	143	154							1982	0	0	0	0	4	84	246	224						
Craig	average	0	0	0	0	0	13	82	49	8	0	0	0	152	Pagosa Springs	average	0	0	0	0	0	8	73	42	0	0	0	0	123	
	1981	0	0	0	0	0	35	103	70	4	0	0	0	212		1981	0	0	0	0	0	27	52	24	0	0	0	0	103	
	1982	0	0	0	0	0	11	84	106							1982	0	0	0	0	0	0	42	50						
Delta	average	0	0	0	0	21	115	282	208	52	0	0	0	678	Pueblo	average	0	0	0	6	27	199	353	295	91	10	0	0	981	
	1981	0	0	0	0	13	245	360	258	87	1	0	0	964		1981	0	0	0	20	34	328	446	291	142	9	0	0	0	1270
	1982	0	0	0	0	13	120	268	274							1982	0	0	0	3	30	123	395	368						
Denver	average	0	0	0	0	0	110	248	208	54	5	0	0	625	Rifle	average	0	0	0	0	0	34	168	125	17	0	0	0	344	
	1981	0	0	0	7	6	195	346	121	1	0	0	0	676		1981	0	0	0	0	1	139	238	140	39	0	0	0	557	
	1982	0	0	0	0	6	42	247	257							1982	0	0	0	0	0	38	193	205						
Dillon	average	0	0	0	0	0	0	0	0	0	0	0	0	0	Salida	average	0	0	0	0	0	10	56	42	0	0	0	0	108	
	1981	0	0	0	0	0	0	0	0	0	0	0	0	0		1981	0	0	0	0	1	71	102	43	1	0	0	0	218	
	1982	0	0	0	0	0	0	0	0							1982	0	0	---	---	---	---	---	---						
Durango	average	0	0	0	0	0	17	97	68	6	0	0	0	188	Steamboat Springs	average	0	0	0	0	0	0	11	7	0	0	0	0	18	
	1981	0	0	0	0	0	71	151	81	5	0	0	0	308		1981	0	0	0	0	0	2	11	2	0	0	0	0	15	
	1982	0	0	0	0	0	10	114	122							1982	0	0	0	0	0	0	12	10						
Eagle	average	0	0	0	0	0	7	71	39	0	0	0	0	117	Sterling	average	0	0	0	0	20	124	266	210	44	0	0	0	664	
	1981	0	0	0	0	0	55	108	42	0	0	0	0	205		1981	0	0	0	0	13	175	273	162	53	0	0	0	676	
	1982	0	0	0	0	0	6	49	65							1982	0	0	0	0	3	51	268	279						
Fort Collins	average	0	0	0	0	5	80	187	133	25	0	0	0	430	Telluride	average	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1981	0	0	0	1	2	157	235	125	38	0	0	0	558		1981	0	0	0	0	0	5	5	0	0	0	0	0	0	10
	1982	0	0	0	0	1	28	202	214							1982	0	0	0	0	0	0	3	2						
Fort Morgan	average	0	0	0	5	16	136	282	219	48	0	0	0	706	Trinidad	average	0	0	0	0	14	145	263	213	63	7	0	0	705	
	1981	0	0	0	8	15	199	316	198	104	0	0	0	840		1981	0	0	0	8	10	238	278	151	69	4	0	0	758	
	1982	0	0	0	4	17	78	325	319							1982	0	0	0	3	12	83	306							
Grand Junction	average	0	0	0	0	47	209	425	322	126	11	0	0	1140	Walden	average	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1981	0	0	0	9	31	367	456	375	143	0	0	0	1381		1981	0	0	0	0	0	1	0	0	0	0	0	0	0	1
	1982	0	0	0	---	33	229	443	415							1982	0	0	0	0	0	0	2	0						
Walsenburg	average	0	0	0	0	6	107	204	167	48	10	0	0	542	Walsenburg	average	0	0	0	0	6	107	204	167	48	10	0	0	542	
	1981	0	0	0	3	14	226	264	138	37	1	0	0	683		1981	0	0	0	3	14	226	264	138	37	1	0	0	683	
	1982	0	0	0	1	1	30	250	211							1982	0	0	0	1	1	30	250	211						

COLORADO CLIMATE -- SEPTEMBER 1982

Colorado Climate Center
Department of Atmospheric Science
Colorado State University

Another month of rainy weather brought the 1982 water year to a close. The high country was greeted with the first snow of the approaching winter season in mid September.

Significant Highlights -- September

<u>Date</u>	<u>Event</u>
1-5	Large ridge of high pressure produced hot and mostly dry weather until lively scattered thunderstorms developed on the 4th. Hottest temperatures of the month occurred on the 3rd and 4th, mostly 80's and 90's. 101°F at Springfield, Las Animas, Holly and La Junta on the 4th, warmest in the state. Late night storms on 4th continued through the night producing more than 1.00" rain at Rico, Ames, Glenwood Springs and Eagle.
6-10	Mild, unsettled weather with afternoon thundershowers daily, particularly over and near the mountains. Precipitation mostly light with little at all across SE plains. An isolated heavy storm dropped 2.09" of rain at Bonny Reservoir on the night of the 8th.
11-15	Major winter-like storm system, which developed west of Colorado, brought cold temperatures, heavy precipitation, and some snow into the state, and then moved back towards the west. More than an inch of rain was common across SW and south central Colorado as the first band of clouds and moisture swept into the state. Ignacio, 1.85" late on the 10th. Blanca (near Alamosa) received 1.47" on 10-11th, nearly 20% of their annual average. Precipitation continued and became heavy again on the 13th, temperatures dropped, and snow began in the mountains. 1.57" of rain and hail fell at Pueblo on the 13th. Waterdale, near Loveland, received 2.54" of cold rain, most of it falling that evening. (Boulder totalled 3.61" for the entire 5-day period.) Snow fell at elevations above 8,000 feet with 1 to 2 feet accumulating in parts of the San Juans and atop the Grand Mesa. Precipitation tapered off on the 14th and 15th, but temperatures remained unseasonably cool. Climax dropped to 19°F on the 14th with the 1st freezing temperatures of the season chilling most of the major mountain valleys.
16-17	Dry and considerably warmer mountains and west. Fog, low clouds, and light rain developed again east of mountains as cold front with weak "upslope" flow affected eastern Colorado.

<u>Date</u>	<u>Event</u>
18-21	Old storm system still lingering west of Colorado. Scattered showers, mostly light, southern and western portions of the state. Temperatures slightly below average east, near average west.
22-26	Ridge of high pressure aloft keeping most of the state warm and dry. Some mountain showers early on the 23rd as fast moving disturbance passed north of the state.
27-30	Another large organized storm system moved inland from the Pacific and picked up a tremendous moisture supply from a dissipated hurricane south of California. Flooding rains occurred in Utah with mountain snows throughout the West. Most of Colorado was spared as the storm weakened rapidly as it crossed the state on October 1. Significant precipitation was limited to the western quarter of Colorado. Rangely and Paradox each received over 1" of rain on the 27th. Bonham Reservoir (on the Grand Mesa) totalled over 3" for the period. Heavy rains of 1.50" also occurred in southeast Colorado on the 30th.

Precipitation Summary

Precipitation totals and percents of average for September are shown in Figures 1 and 2. Practically the entire state was wetter than average. Totals ranged from near average on the northeast plains and in a small area of the Central Mountains near Berthoud Pass to much above average over most of the remainder of the state. Precipitation totals were generally between 2 and 5 inches over the entire western two-thirds of the state. Trinidad's 4.44 inch total was 516 percent of average. Redstone and Bonham Reservoir each exceeded 6 inches for the month.

Despite the very high precipitation amounts this September, very few records were broken. This is because September, while normally quite dry, can periodically be extremely wet. Just like this year, wet Septembers usually occur when moisture from tropical storms merge into mid-latitude storm systems. In 1970, Wolf Creek Pass received more than 11 inches of precipitation, nearly double this year's total. Similar conditions can also occur in October.

Temperature Summary

September temperatures and departures from average are shown in Fig. 3. Most of the state ended up about average for the month with the western half of the state generally slightly warmer than average and the eastern half slightly cooler than average. However, daily high temperatures were considerably cooler than normal accompanied by above average nighttime temperatures. This was an indication of the above average cloud cover and humidity.

Degree Days

Tables 1 and 2 show heating and cooling degree days (base 65°F) for selected Colorado locations. Monthly accumulated degree days are compared to last year as well as to the 30-year average. A more detailed description of heating degree day information will begin in the October summary.

Summary of 1982 Summer Precipitation

Precipitation as a percent of average for the May-September growing season period is shown in Figure 4. Growing season precipitation was above average practically everywhere in Colorado. Only 4 weather stations out of a sample of about 125 recorded below average summer totals. These stations were widely scattered around the state. Statewide, May through September 1982 precipitation averaged 34% above normal. The wettest areas, compared to average were the San Juan mountains (50-70 percent above average), a thin strip along the Utah border from Paradox to Rangely (75-100 percent above average), and a large area from New Mexico to Wyoming along the eastern base of the Rockies (50-100 percent above average). Fort Collins' summer precipitation total of 18.20 inches was exactly double the May-September average, the 2nd wettest summer since records began in the 1880's. The wettest summer occurred in 1961 when 21.17 inches fell.

1982 Water Year Summary

Water year precipitation was above average over most of Colorado. The most noticeable and very localized exception was Denver airport with a water-year total of 12 inches, 78 percent of average.

The wettest location in Colorado with complete official statistics for the 1982 water year was Berthoud Pass with a total of 42.27 inches of precipitation. The wettest location compared to average was Paradox with a water-year total of 19.77 inches, 165 percent of average. Alamosa was the driest with just 6.51 inches.

Temperatures for the 1982 water year were relatively normal. On the whole, the state experienced temperatures about 0.5 to 1.0 degree Fahrenheit warmer than average for the year. The hottest daily temperature for the year in Colorado was 105°F on July 23rd at Fort Morgan, Sterling, and Genoa. The year's coldest temperature dropped to -54°F at Taylor Park Dam.

As of October 1, 1982 overall water supplies for Colorado are in excellent shape. Soil moisture is good to ample in most agricultural areas. Surface water supplies, based on streamflows and reservoir storage, are above average for this time of year, and should mean that water supplies for urban, industrial, and agricultural irrigation uses will be adequate for the next year. Again we must wait and see what the new year will bring. The state is never more than a dry mountain winter away from local water supply problems, but we couldn't ask for better conditions with which to start a new winter. We won't often have it this good.

Figure 1. September 1982 precipitation amounts.

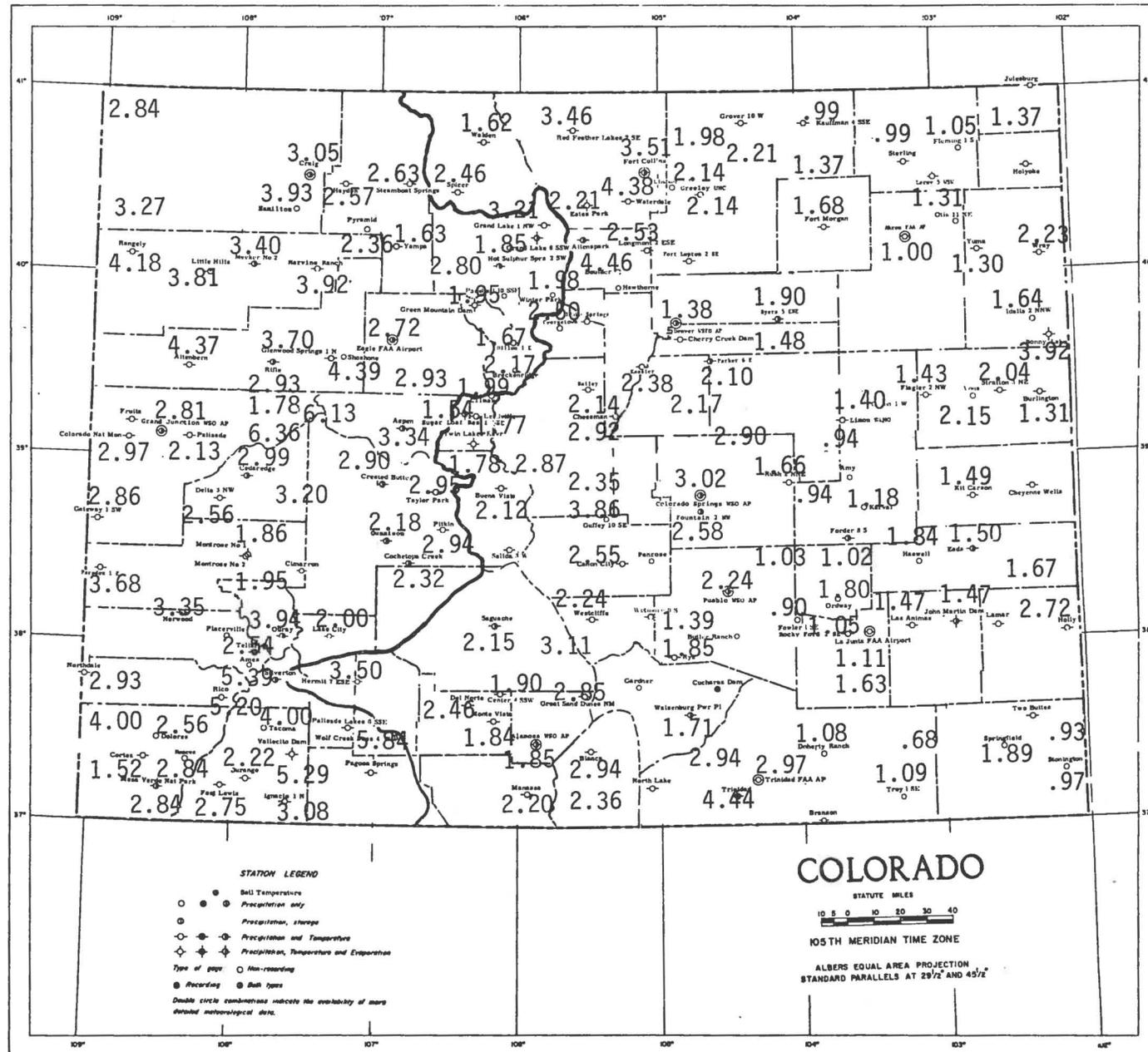


Figure 2. Precipitation for September 1982 as a percent of the 1951-1970 average.

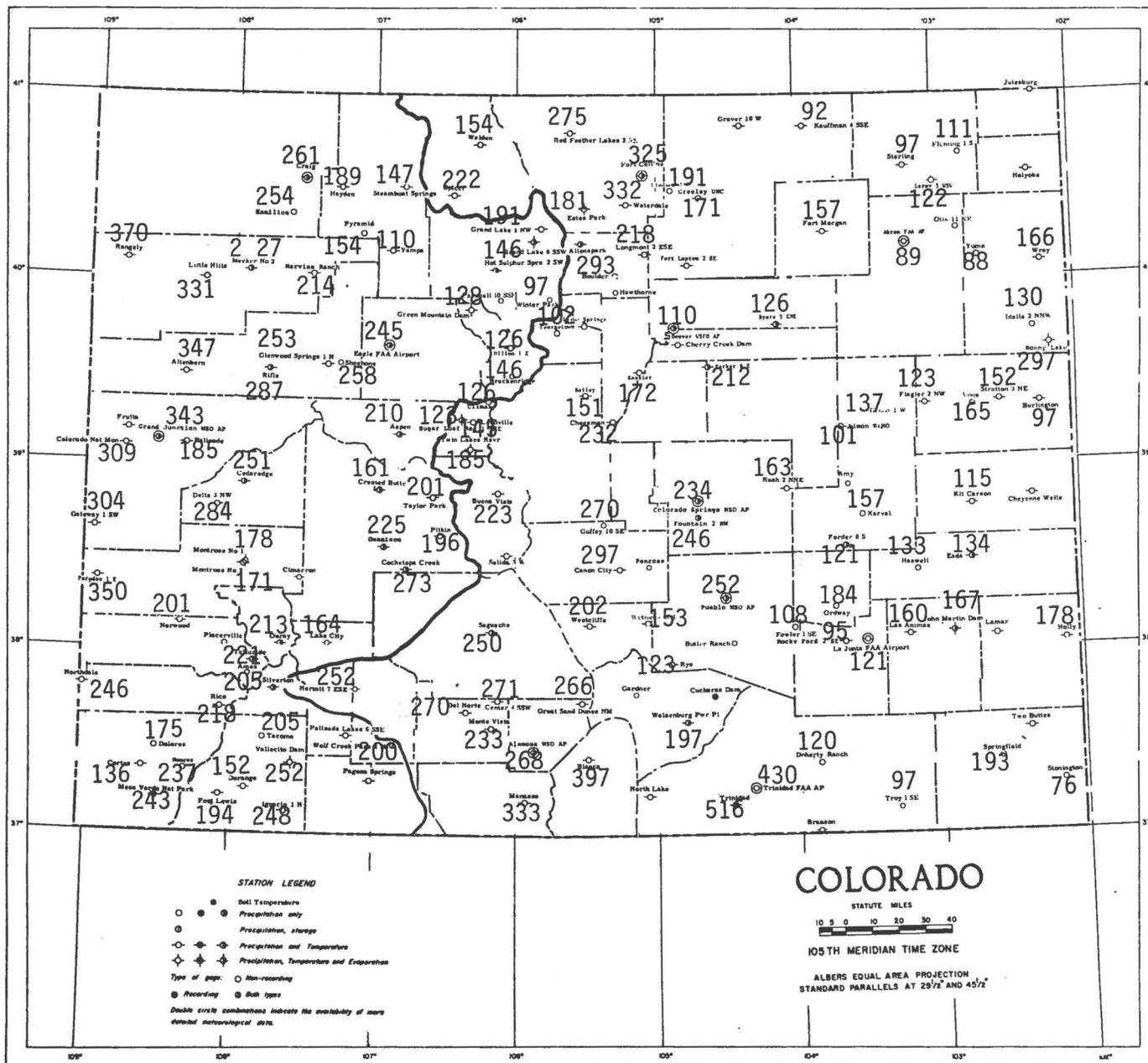


Figure 4. May through September 1982 "growing season" precipitation as a percent of the 1951-1970 average.

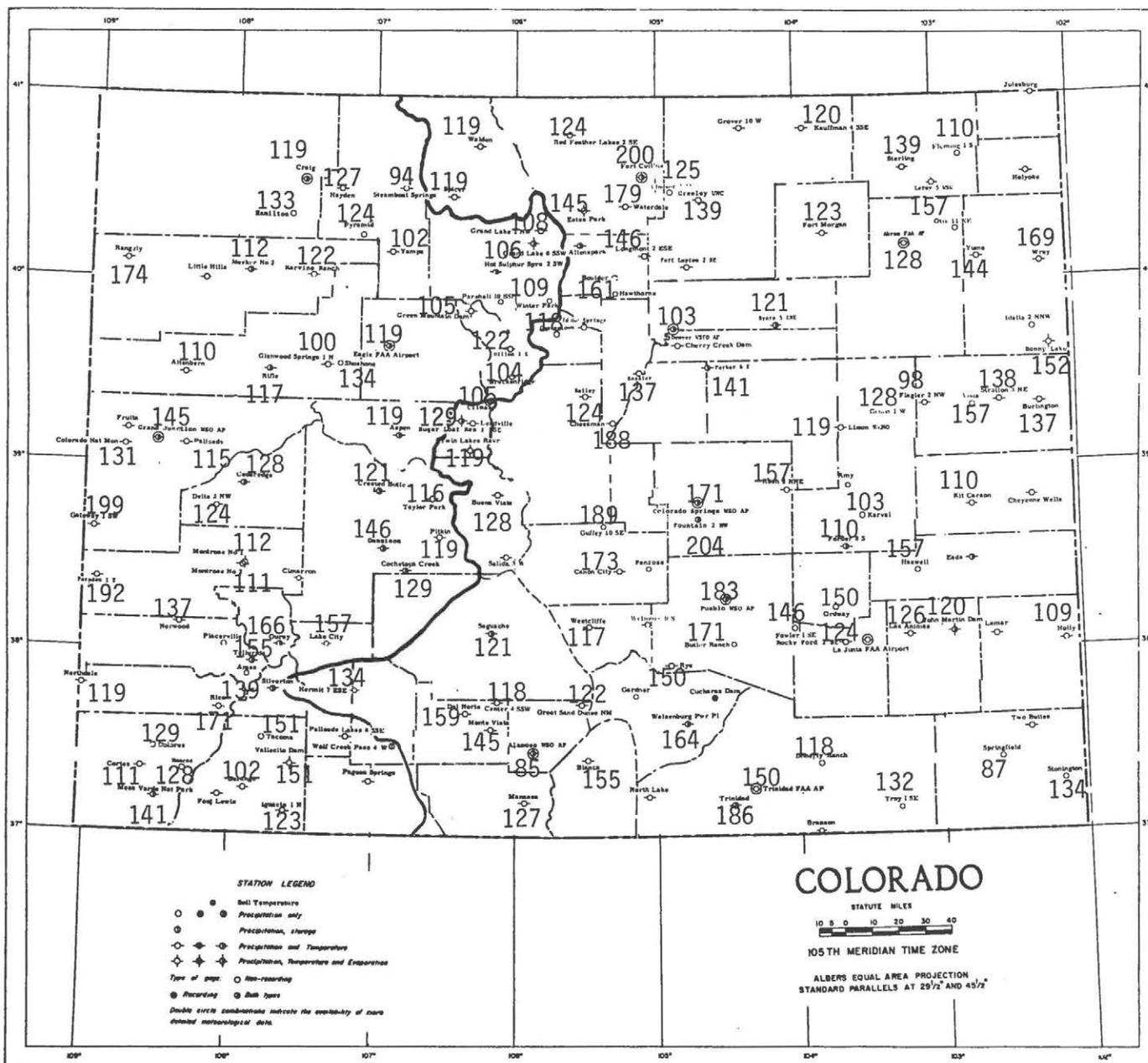


Figure 5. Precipitation for the complete 1982 Water Year (October 1981 through September 1982) as a percent of the 1951-1970 average.

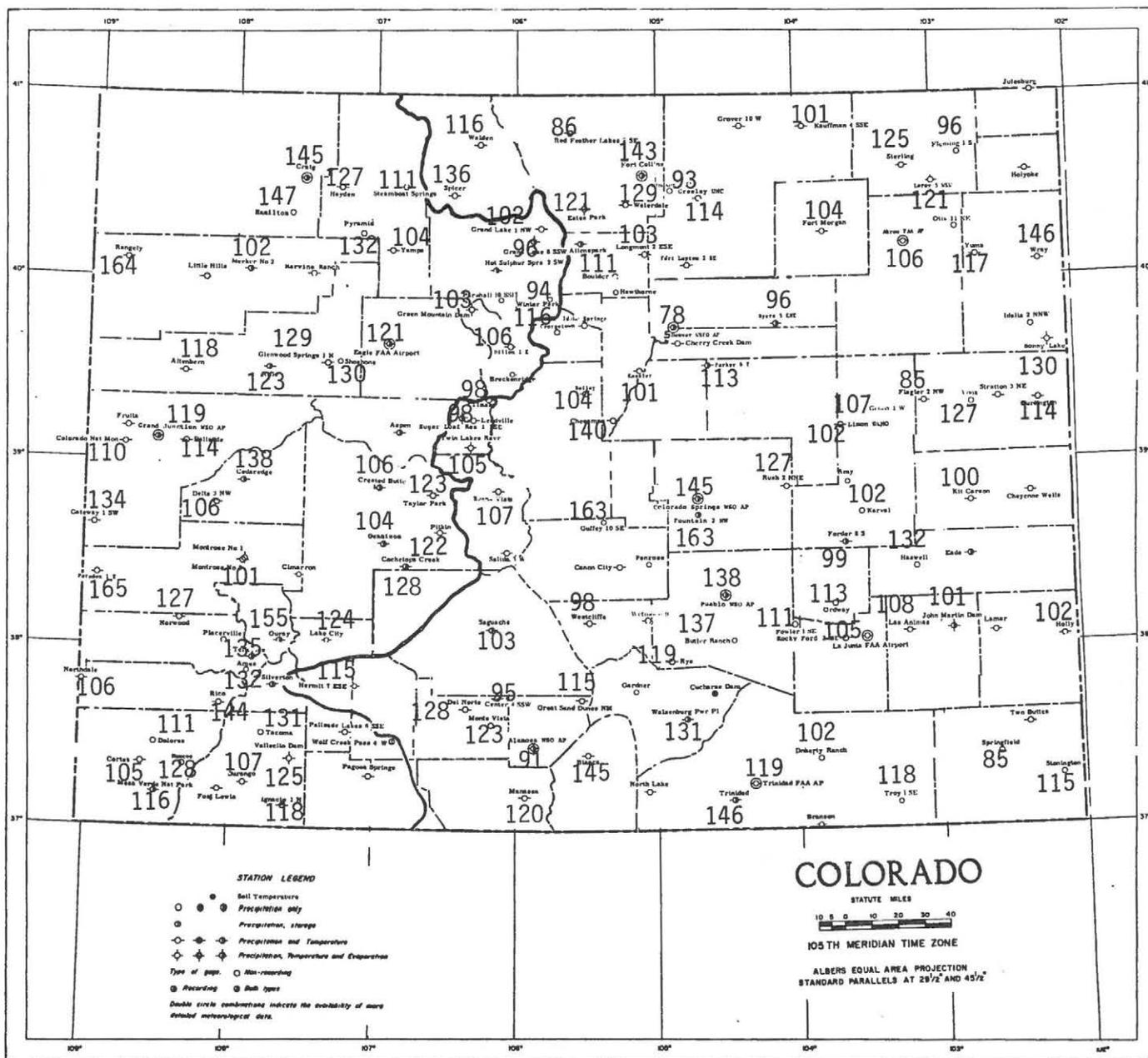


Table 1. Colorado Heating Degree Day Data through September 1982.

		JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	ANNUAL															
Alamosa	average	55	96	294	648	1053	1420	1482	1182	1054	714	440	171	8609	Greeley	average	0	5	153	465	870	1147	1256	991	911	528	253	60	6639
	1981-82	14	108	254	656	904	1366	1457	1192	977	736	508	230	8402		1981-82	5	9	31	459	651	1014	1170	942	721	511	275	82	5870
	1982-83	59	47	274													1982-83	5	0	154									
Aspen	average	113	161	345	654	1026	1324	1392	1176	1144	792	530	291	8948	Gunnison	average	103	169	384	704	1110	1538	1686	1397	1246	789	533	282	9941
	1981-82	98	147	298	721	916	1279	1408	1190	1079	897	609	366	9008		1981-82	63	165	328	709	977	1354	1693	1517	1093	786	564	379	9941
	1982-83	148	119	362													1982-83	132	89	374									
Boulder	average	6	0	139	367	690	905	992	826	809	482	236	88	5540	Lamar	average	0	0	57	320	741	1032	1107	854	766	377	129	19	5402
	1981-82	4	14	36	444	562	866	964	818	649	440	279	107	5183		1981-82	0	0	27	287	575	963	1076	988	615	364	117	22	5034
	1982-83	4	0	154													1982-83	0	0										
Burlington	average	0	0	102	363	741	1011	1085	882	828	462	210	54	5738	Limon	average	8	6	144	448	834	1070	1156	960	936	570	299	100	6531
	1981-82	10	7	25	377	601	940	1155	990	727	499	213	78	5622		1981-82	6	26	83	516	704	1071	1244	1066	850	660	363	176	6765
	1982-83	0	5	99													1982-83	18	5	184									
Canon City	average	0	0	57	285	600	806	877	728	713	402	158	34	4660	Longmont	average	0	7	155	457	828	1076	1184	952	902	537	269	92	6459
	1981-82	2	9	35		495	761					253	84	---		1981-82	5	12	38	481	652	979	1156	952	730	485	280	98	5868
	1982-83	3	6	109													1982-83	7	0	164									
Colorado Springs	average	9	13	155	456	825	1054	1128	944	921	564	301	103	6473	Meeker	average	28	56	261	564	927	1240	1345	1086	998	651	394	164	7714
	1981-82	5	30	70	433	640	993	1095	1001	827	571	374	163	6202		1981-82	8	72	160	572	847	1098	1254	1080	884	731	442	207	7355
	1982-83	8	11	198													1982-83	33	7	245									
Cortez	average	0	10	110	425	807	1104	1156	904	834	534	274	81	6239	Montrose	average	0	9	129	435	828	1132	1197	935	834	510	245	71	6325
	1981-82	2	7	83	499	726	1076	1230	1037	825	609	362	109	6565		1981-82	0	8	38	466	714	1074	1185	976	727	525	262	47	6022
	1982-83	17	5	132													1982-83	4	2	111									
Craig	average	32	58	275	608	996	1342	1479	1193	1094	687	419	193	8376	Pagosa Springs	average	95	114	291	611	981	1311	1401	1140	1048	711	481	233	8417
	1981-82	19	35	149	697	901	1260	1529	1277	987	838	506	209	8407		1981-82	19	102	244	642	856	1265	1525	1197	1006	708	495	269	8328
	1982-83	37	5	271													1982-83	76	29										
Delta	average	0	0	94	394	813	1135	1197	890	753	429	167	31	5903	Pueblo	average	0	0	55	335	726	992	1082	848	775	405	148	28	5394
	1981-82	0	1	17	375	673	966	1123	894	625	451	163	12	5300		1981-82	0	0	22	272	554	937	1046	882	582	358	151	21	4825
	1982-83	2	4	81													1982-83	0	0	63									
Denver	average	0	0	120	408	768	1004	1088	902	868	525	253	80	6016	Rifle	average	7	22	167	481	861	1200	1296	997	859	537	283	85	5394
	1981-82	0	12	19	375	570	898	1070	918	733	522	306	92	5515		1981-82	0	42	513	760	1173	1342	1055	774	603	323	105	---	---
	1982-83	3	0	151													1982-83	8	3	150									
Dillon	average	291	341	519	809	1173	1442	1519	1319	1321	966	701	453	10854	Salida	average	28	69	240	536	854	1094	1132	958	905	588	369	139	6910
	1981-82	243	302	448	835	1027	1379	1520	1323	1238	1058	746	507	10626		1981-82	22	67	168	537	---	1033	1179	1096	---	---	---	---	---
	1982-83	318	253	511													1982-83	--	--	---									
Durango	average	20	37	198	502	843	1147	1212	958	880	597	375	161	6930	Steamboat Springs	average	116	159	384	691	1086	1451	1553	1277	1190	789	521	306	9523
	1981-82	9	22	125	531	764	1047	1311	1004	845	599	383	145	6785		1981-82	83	141	257	734	973	1340	1502	1361	1069	878	589	380	9523
	1982-83	24	6	175													1982-83	146	80	368									
Eagle	average	43	79	285	626	1023	1386	1457	1168	1051	693	425	190	8426	Sterling	average	0	6	158	459	849	1150	1249	986	927	522	256	76	6638
	1981-82	6	54	155	632	889	1244	1451	1206	904	753	479	234	8007		1981-82	8	20	79	448	755	1085	1321	1042	832	595	337	122	6644
	1982-83	54	21	257													1982-83	3	3	154									
Fort Collins	average	7	12	175	477	834	1076	1184	960	918	558	297	101	6599	Telluride	average	185	229	399	676	1017	1290	1333	1140	1147	825	583	345	9169
	1981-82	8	8	42	487	661	987	1142	926	741	527	295	115	5939		1981-82	117	177	320	707	891	1209	1323	1131	1062	815	582	325	8659
	1982-83	4	0	178													1982-83	139	140	364									
Fort Morgan	average	0	0	132	439	849	1141	1262	986	899	509	233	61	6511	Trinidad	average	0	0	81	364	732	980	1054	868	822	471	212	58	5642
	1981-82	3	11	37	421	650	1035	1199	981	742	516	234	81	5910		1981-82	0	15	39	316	524	849	935	897	624	428	211	49	4887
	1982-83	3	3	123													1982-83	0	0	66									
Grand Junction	average	0	0	60	324	756	1101	1190	879	738	404	133	20	5606	Walden	average	197	270	489	803	1149	1438	1538	1313	1280	891	626	363	10357
	1981-82	0	0	12	439	696	1039	1203	841	581	405	136	6	5358		1981-82	143	241	357	831	1007	1314	1444	1262	1114	958	703	412	9786
	1982-83	2	0	61													1982-83	201	141	469									
															Walsenburg	average	6	12	93	364	690	911	977	820	806	489	230	62	5460
																1981-82	0	15	41	324	522	831	932	853	671	474	250	61	4974
																1982-83	0	1	95										

Table 2. Colorado Cooling Degree Day Data through September 1982.

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL	
Alamosa	average	0	0	0	0	0	9	55	24	0	0	0	0	88	Greeley	average	0	0	0	0	15	108	260	191	48	0	0	0	622	
	1981	0	0	0	0	0	35	47	19	0	0	0	0	101		1981	0	0	0	5	3	175	295	160	74	0	0	0	712	
	1982	0	0	0	0	0	0	38	27	0	0	0	0	101		1982	0	0	0	4	3	41	232	259	42	0	0	0	0	0
Aspen	average	0	0	0	0	0	0	13	9	0	0	0	0	22	Gunnison	average	0	0	0	0	0	0	7	8	0	0	0	0	15	
	1981	0	0	0	0	0	2	7	7	0	0	0	0	16		1981	0	0	0	0	0	11	17	4	0	0	0	0	32	
	1982	0	0	0	0	0	0	6	2	0	0	0	0	16		1982	0	0	0	0	0	0	11	1	0	0	0	0	0	0
Boulder	average	0	0	0	8	29	154	282	234	109	26	0	0	842	Lamar	average	0	0	0	11	61	247	406	344	120	10	0	0	1199	
	1981	0	0	0	9	8	158	218	136	31	0	0	0	560		1981	0	0	0	28	56	356	453	304	160	18	0	0	1375	
	1982	0	0	0	0	3	30	222	246	52	0	0	0	842		1982	0	0	0	9	57	136	404	435	0	0	0	0	0	0
Burlington	average	0	0	0	6	27	168	315	259	90	13	0	0	878	Limon	average	0	0	0	0	8	97	206	158	39	8	0	0	516	
	1981	0	0	0	14	19	208	317	233	114	2	0	0	907		1981	0	0	0	1	0	110	228	102	34	0	0	0	475	
	1982	0	0	0	0	9	61	316	310	94	0	0	0	878		1982	0	0	0	0	0	17	174	193	36	0	0	0	0	0
Canon City	average	0	0	0	6	28	169	326	276	93	19	0	0	917	Longmont	average	0	0	0	0	8	92	208	159	35	0	0	0	502	
	1981	0	0	0	27	12	---	353	250	141	4	1	0	---		1981	0	0	0	6	10	196	253	199	73	0	0	0	737	
	1982	0	0	0	0	12	62	326	289	88	0	0	0	917		1982	0	0	0	1	11	43	216	257	62	0	0	0	0	0
Colorado Springs	average	0	0	0	0	6	91	186	140	32	6	0	0	461	Meeker	average	0	0	0	0	0	14	87	49	12	0	0	0	162	
	1981	0	0	0	4	2	176	226	105	27	0	0	0	540		1981	0	0	0	0	0	48	109	54	0	0	0	0	211	
	1982	0	0	0	0	0	23	176	127	26	0	0	0	540		1982	0	0	0	0	0	13	87	88	2	0	0	0	0	0
Cortez	average	0	0	0	0	0	69	211	159	26	0	0	0	465	Montrose	average	0	0	0	0	13	104	233	161	48	0	0	0	559	
	1981	0	0	0	0	0	117	218	136	8	0	0	0	479		1981	0	0	0	0	7	211	275	195	33	0	0	0	721	
	1982	0	0	0	0	0	29	143	154	31	0	0	0	479		1982	0	0	0	0	4	84	246	224	43	0	0	0	0	0
Craig	average	0	0	0	0	0	13	82	49	8	0	0	0	152	Pagosa Springs	average	0	0	0	0	0	8	73	42	0	0	0	0	123	
	1981	0	0	0	0	0	35	103	70	4	0	0	0	212		1981	0	0	0	0	0	27	52	24	0	0	0	0	103	
	1982	0	0	0	0	0	11	84	106	8	0	0	0	212		1982	0	0	0	0	0	0	42	50	0	0	0	0	0	0
Delta	average	0	0	0	0	21	115	282	208	52	0	0	0	678	Pueblo	average	0	0	0	6	27	199	353	295	91	10	0	0	981	
	1981	0	0	0	0	13	245	360	258	87	1	0	0	964		1981	0	0	0	20	34	328	446	291	142	9	0	0	1270	
	1982	0	0	0	0	13	120	268	274	51	0	0	0	964		1982	0	0	0	3	30	123	395	368	110	0	0	0	0	0
Denver	average	0	0	0	0	0	110	248	208	54	5	0	0	625	Rifle	average	0	0	0	0	0	34	168	125	17	0	0	0	344	
	1981	0	0	0	7	6	195	346	121	1	0	0	0	676		1981	0	0	0	0	1	139	238	140	39	0	0	0	557	
	1982	0	0	0	0	6	42	247	257	59	0	0	0	676		1982	0	0	0	0	0	38	193	205	14	0	0	0	0	0
Dillon	average	0	0	0	0	0	0	0	0	0	0	0	0	0	Salida	average	0	0	0	0	0	10	56	42	0	0	0	0	108	
	1981	0	0	0	0	0	0	0	0	0	0	0	0	0		1981	0	0	0	0	1	71	102	43	1	0	0	0	218	
	1982	0	0	0	0	0	0	0	0	0	0	0	0	0		1982	0	0	---	---	---	---	---	---	---	0	0	0	0	0
Durango	average	0	0	0	0	0	17	97	68	6	0	0	0	188	Steamboat Springs	average	0	0	0	0	0	0	11	7	0	0	0	0	18	
	1981	0	0	0	0	0	71	151	81	5	0	0	0	308		1981	0	0	0	0	0	2	11	2	0	0	0	0	15	
	1982	0	0	0	0	0	10	114	122	15	0	0	0	308		1982	0	0	0	0	0	0	12	10	0	0	0	0	0	0
Eagle	average	0	0	0	0	0	7	71	39	0	0	0	0	117	Sterling	average	0	0	0	0	20	124	266	210	44	0	0	0	664	
	1981	0	0	0	0	0	55	108	42	0	0	0	0	205		1981	0	0	0	0	13	175	273	162	53	0	0	0	676	
	1982	0	0	0	0	0	6	49	65	0	0	0	0	205		1982	0	0	0	0	3	51	268	279	53	0	0	0	0	0
Fort Collins	average	0	0	0	0	5	80	187	133	25	0	0	0	430	Telluride	average	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1981	0	0	0	1	2	157	235	125	38	0	0	0	558		1981	0	0	0	0	0	5	5	0	0	0	0	0	0	10
	1982	0	0	0	0	1	28	202	214	25	0	0	0	558		1982	0	0	0	0	0	0	3	2	0	0	0	0	0	0
Fort Morgan	average	0	0	0	5	16	136	282	219	48	0	0	0	706	Trinidad	average	0	0	0	0	14	145	263	213	63	7	0	0	705	
	1981	0	0	0	8	15	199	316	198	104	0	0	0	840		1981	0	0	0	8	10	238	278	151	69	4	0	0	758	
	1982	0	0	0	4	17	78	325	319	82	0	0	0	840		1982	0	0	0	3	12	83	306	257	95	0	0	0	0	0
Grand Junction	average	0	0	0	0	47	209	425	322	126	11	0	0	1140	Walden	average	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1981	0	0	0	9	31	367	456	375	143	0	0	0	1381		1981	0	0	0	0	0	1	0	0	0	0	0	0	0	1
	1982	0	0	0	---	33	229	443	415	144	0	0	0	1381		1982	0	0	0	0	0	0	2	0	0	0	0	0	0	0
Walsenburg	average	0	0	0	0	6	107	204	167	48	10	0	0	542	Walsenburg	average	0	0	0	0	6	107	204	167	48	10	0	0	542	
	1981	0	0	0	3	14	226	264	138	37	1	0	0	683		1981	0	0	0	3	14	226	264	138	37	1	0	0	683	
	1982	0	0	0	1	1	30	250	211	65	0	0	0	683		1982	0	0	0	1	1	30	250	211	65	0	0	0	683	