

README

Data collected for NSF project EAR-1419223: RAPID: Characterizing the response of a burned landscape to an unusual and extreme rain event

This package contains survey data, photographs, rain gage measurements, and pebble counts collected in Skin Gulch and Hill Gulch, two watersheds burned in the 2012 High Park Fire and subsequently affected by the September 2013 Colorado Front Range storms and floods.

Skin Gulch and Hill Gulch watersheds are located just west of Fort Collins, Colorado (Figure 1). Cross-sections and corresponding longitudinal profiles were surveyed before and after the 2013 Colorado Front Range Floods (Figure 2). Figures 1 and 2 are provided in the “Maps” folder.

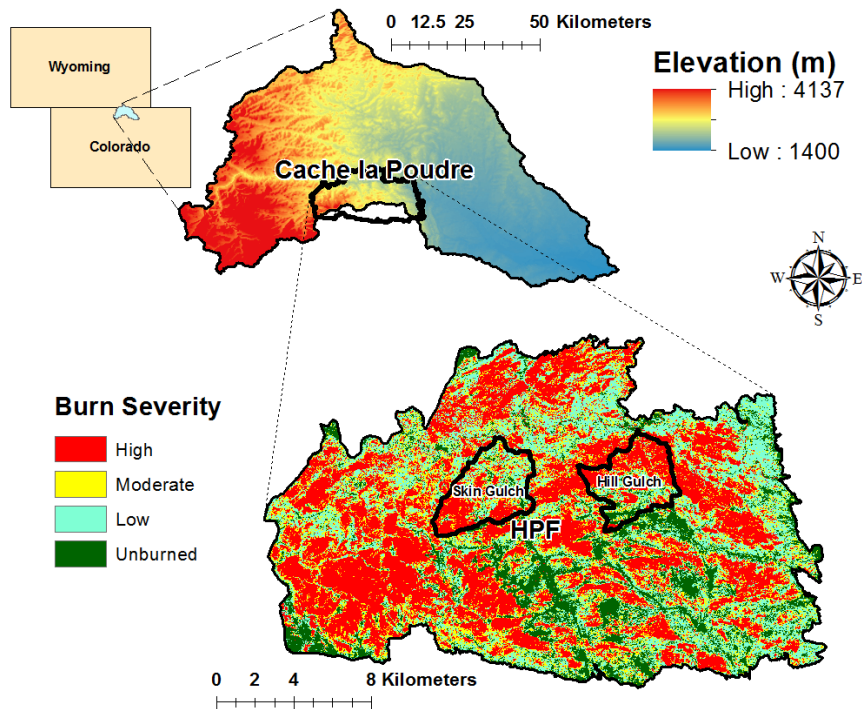


Figure 1. Overview map showing the locations of Skin Gulch and Hill Gulch with respect to the location of the High Park Figure within the Colorado Front Range.

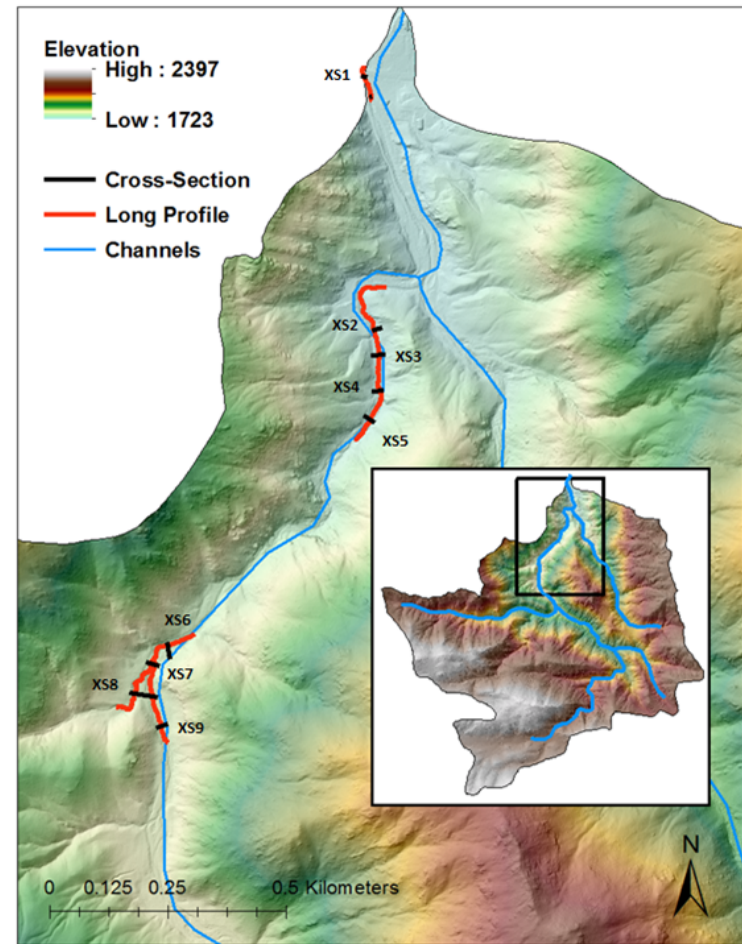
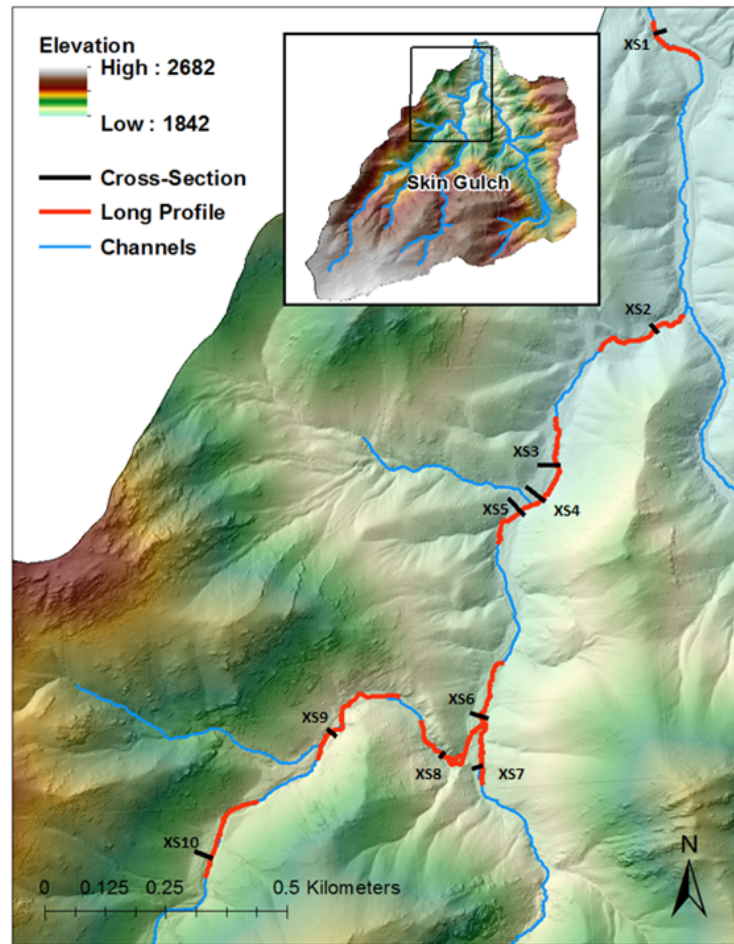


Figure 2. Location of the cross-sections and the corresponding longitudinal profiles within Skin Gulch.

Data

The “Data” folder is split into three subfolders: 1) “Pebble Counts”, 2) “Rainfall”, and 3) “Survey Data” (which is split into Skin Gulch and Hill Gulch separately).

Survey Data: The Survey Data .zip files contain folders including data and photographs taken when the survey data were collected. The survey data was collected using TOPCON GR-5 receivers and a TOPCON Tesla data collector. The RTK-GPS data were corrected using the National Geodetic Surveys Online Position User Service (OPUS) and the final product is presented using the North American Datum of 1983 – NAD83 (2011), North American Vertical Datum of 1988 – NAVD88, and projected in Universal Transverse Mercator 13 North – UTM 13N. Survey data are provided as comma-delimited text files, and the dates on which survey data were collected are indicated by the file name (xx_yyyy-mm-dd.csv, where ‘xx’ is SG for Skin Gulch or HG for Hill Gulch).

The survey data have four columns: y (Northing in UTM zone 13N NAD83; meters), x (Easting in UTM zone 13N NAD83; meters), z (elevation NAVD88; meters), and code. Codes indicate the cross-section number (‘XS1’, ‘XS2’, etc.), channel thalweg (‘TWG’) for longitudinal profiles, or benchmark locations for repeat surveys (‘BMxxx’). Note that XS6, XS7, XS8, and XS9 in Figure 2 correspond to XS10, XS11, XS12, and XS13 in the Survey Data.

Rainfall: Tipping bucket rain gages were set up in the two study watersheds. The locations (degrees latitude and longitude) of the gages are provided in the file ‘RainGageLocations.txt’. NCAR gage data are provided as comma-separated text files, with columns corresponding to the date and a 5-minute total of measured rainfall (in inches). Non-NCAR gages are lists of the times of bucket tips. Each tip corresponds to accumulation of 0.01 inches of rain; in these text files, the second-to-last column is a running total of the number of tips and the last column is the total cumulative rainfall (in inches) measured at the gage. The precipitation timestamp is in mountain daylight time (MDT).

Pebble Counts: Bed surface grain-size distributions were measured by collecting Wolman-style pebble counts. Pebble counts were performed twice for each cross-section, once during the summer before the 2013 flood and once in the spring of 2014. Pebble counts were performed in Hill Gulch over the dates of June 19, 2013; July 6, 2013; and February 28, 2014. Pebble counts were performed in Skin Gulch over the dates of June 12, 2013; June 19, 2013; June 25, 2013; and March 5, 2014. These data, including the coordinates of the sample as measured by a hand-held GPS, the raw data, and summary statistics, are provided in the Microsoft Excel spreadsheet PebbleCounts.xlsx. Photographs taken during the collection of pebble count data are also included in their own folders.

Dates for which survey data and photographs were taken:

Hill Gulch	Skin Gulch
7/29/2013	8/12/2013
9/22/2013	9/24/2013
	9/26/2013