

Flooding and Surface Water Exercise The February 25, 2004 flood at SFSU

Floods can occur almost anywhere, at almost anytime. Typically, for this class, I would use examples from some of the floods along the Sacramento River to illustrate some of the points we are discussing in class today. Early last year, however, we experienced a flood on campus that showcases many of the important features of floods. The flood that occurred on Wednesday, February 25, 2004, was severe enough to close the campus, turn 19th Avenue into a 4 foot deep river, and make cascading waterfalls out of the steps in front of Thornton Hall. After the flood, many people blamed the poor maintenance of the city's culverts and sewage network for the buildup of floodwater, but could it have been avoided? Go to the following web sites to see photos of the flooding on campus (you can click on many of the photos in this exercise to see enlarged images):

http://tornado.sfsu.edu/2_25_04_Flood/Page1.html

and

http://tornado.sfsu.edu/2_25_04_Flood/2_25_04_Flood.html

To understand the important aspects of the Feb. 25th flood, you will first look at rainfall statistics for both 2/25/04, and 12/29/03, a day about a month earlier that also experienced heavy rainfall, but which did not lead to the widespread flooding in San Francisco that we saw on February 25th. You will then read a brief report written by Professor John Monteverdi in the SFSU meteorology department, describing many of the factors that lead up to the flood, and answer a few short questions.

1. The first rainfall related data that we are interested in is the 24 hour total for the two days in questions. A great resource for historical weather data is the following website:

<http://www.wunderground.com>

- a) Type in the above URL or link from the class web site; after the page loads, in the search box at the top of the page, type in "94101". This will bring up the page for San Francisco related weather.
- b) The weather displayed here is taken from the airport, which for this exercise is too far away from the area of interest. So scroll down to near the bottom of the page to where it says "Personal Weather Stations". These are not official weather service stations, but are accurate enough for our purposes.
- c) The first station listed is the Panhandle, San Francisco. This station will serve as a good analog for SFSU. Click on the link for historical graphs of the Panhandle station.
- d) A series of graphs will show up showing various weather statistics. Below the graphs are buttons that will allow you to select data from other days. Select December 29, 2003.

e) After the page loads, look under the table labeled "Daily Statistics". The value in the current column for precipitation is the day's total rainfall. Write this value down in the table below.

f) Select February 25, 2004, and record the total rainfall in the table below.

Date	Total Rainfall/Precipitation (in inches)
Dec. 29, 2003	
Feb. 25, 2004	

Below is a table showing the rainfall rate (in inches per hour) for the same two days from the same site throughout the day.



