

## Math 530, Spring 2009

### Homework 3 Due March 23

Analyze precipitation patterns over Southwestern Colorado.

In the file `www.nmt.edu/~olegm/530/mMeanCO.csv` you will find monthly average precipitation for 22 stations in the region, from 1950 to 1999.

- 1) Extract main patterns of precipitation by using Principal Components (PC's). Can you interpret 1<sup>st</sup> and 2<sup>nd</sup> PC's?
- 2) Compare the months using a plot of all months in the PC1-PC2 space. Which months seem to behave differently from the rest?
- 3) Compare the stations according to their contributions to PC1 and PC2. Which groups of stations seem to have similar behavior? (I will show you the map with the stations' locations after the completion of this assignment.)

As usual, I would prefer submission in a single written paper or single file (e.g. Word or PDF document) however that file can be submitted electronically. You might also want to attach your code "just in case".