

# Physical Hydrology for Ecosystems

## BEE 3710

### **Assignment #3: Ithaca Precipitation Frequency (Due 2/14)**

On September 8, 2011, Tropical Storm Lee dropped about 110 mm (4.4") in one day in Tompkins County, more than the infamous 1972 Hurricane Agnes' 90 mm day<sup>-1</sup> (3.55"). Both of these events are acutely remembered. Interestingly, in October 1981 Ithaca received 130 mm day<sup>-1</sup> (5.08"), which has almost been forgotten by everybody as were some respectable daily events in 1999 and 2001 which occurred in September, ~100 mm day<sup>-1</sup> (3.89") both years; think about why that might be. Are heavy precipitation events becoming more frequent? For this assignment I want you to answer this question, i.e. have the return periods for the 90, 100, 110, and 130 mm day<sup>-1</sup> changed over the past 60-100 years.

You're welcome to use any data you can find (e.g., [gis.ncdc.noaa.gov/map/viewer](http://gis.ncdc.noaa.gov/map/viewer)) but it might be easiest to use my sketchy Ithaca data set (1900-a couple days ago) that you can download from the class website:

<http://www.hydrology.bee.cornell.edu/BEE371Index.htm>

I've reserved today's lab to help you work on this. Feel free to take off if you want to go solo.

**Extra Credit:** Have there been any changes in hourly or annual rainfalls? Feel free to answer this for any location you want.