GEO 350- Fact Sheet 6: Precipitation and Evaoporation

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This exercise introduced students to the study of microclimatology. The goals of the exercise were (1) to train students in the collection of rainfall and pan evaporation time-series data, and (2) to assess the microclimatological causes of pan evaporation and its comparison to a temperature-based determination using spatially- and temporally-averaged data.
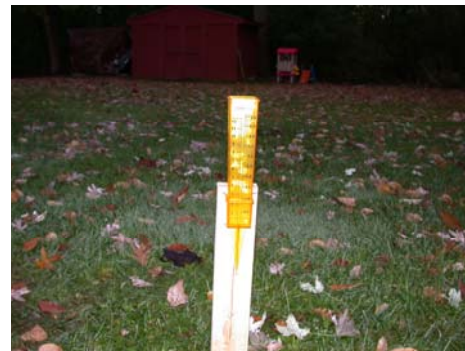

Grand Island, N.Y.

Kenmore, N.Y.

The pictures above show the experimental setups at Grand Island and Kenmore, NY. Each experiment consisted of an evaporation pan maintained daily at a constant height and rainfall gauge.

Daily observations were made of the water height in the evaporation pan for a 5-day period.

The rain gauge also was checked and recorded daily over the same timer period.

With the data collected from the National Weather Service at Buffalo Niagara International Airport we were able to calculate potential evapotranspiration. We used this information to see if there were any correlations between the home station's results and the Airport's data.

Below are some typical results from the National Weather Service summarizing daily variations in air temperature, wind speed, cloud cover, length of day, relative humidity, and precipitation.

Day	Temperature (°C) Max.	Min.	Ave.	Wind (km/hr) Max.	Ave.	Cloud Cover (%)	Daylength (hr)	Rel. Hum. (%)	PPT (mm)
0	12	6	9	16	8	100	11.00	72	19.3
1	9	3	6	14	8	90	10.95	80	8.9
2	9	3	6	8	3	80	10.92	81	0.0
3	8	7	8	10	7	100	10.85	96	2.5
4	11	7	9	6	4	100	10.82	95	1.3
5	10	8	9	5	3	100	10.77	100	0.8

Below are some typical experimental results from the Wendy Lazarki, Hamburg, NY, showing daily fluctuations in actual precipitation, actual evaporation, saturation vapor pressure, potential evapotranspiration.

Day	Actual PPT (mm)	Actual E (mm)	SVP (kPa)	PET (mm)
0	0	0	0.74	0.86
1	54	-1	0.81	0.95
2	0	3	0.81	0.94
3	5	0	0.76	0.88
4	0	2	0.72	0.83
5	2	0	0.74	0.84