Data Assimilation Ecological Problems

Faculty: S. Lakshmivarahan

Objectives

- Understanding the process of carbon cycle.
- To improve prediction of terrestrial carbon sequestration at ecosystem and regional/continental scales with data assimilation techniques to estimate and constrain the three sets of parameters from AmeriFlux, soil carbon, and isotope data.
- Specifically interested in assimilating carbon flux data collected from various forests.

Background and Work

- Developing a common platform for data assimilation in terrestrial carbon research.
- Conducting inverse analysis at AmeriFlux sites to quantify temporal variations of photosynthesis and respiration parameters.
- Analyzing regional and continental carbon sequestration using data from FACE, AmeriFlux, soil carbon, and isotope measurements.

Relevant References

- Wiener, N. (1949) Extrapolation, interpolation and smoothing of stationary time series with engineering applications, Wiley [This was originally published in 1942 as a classified defense document] Also available from MIT press.