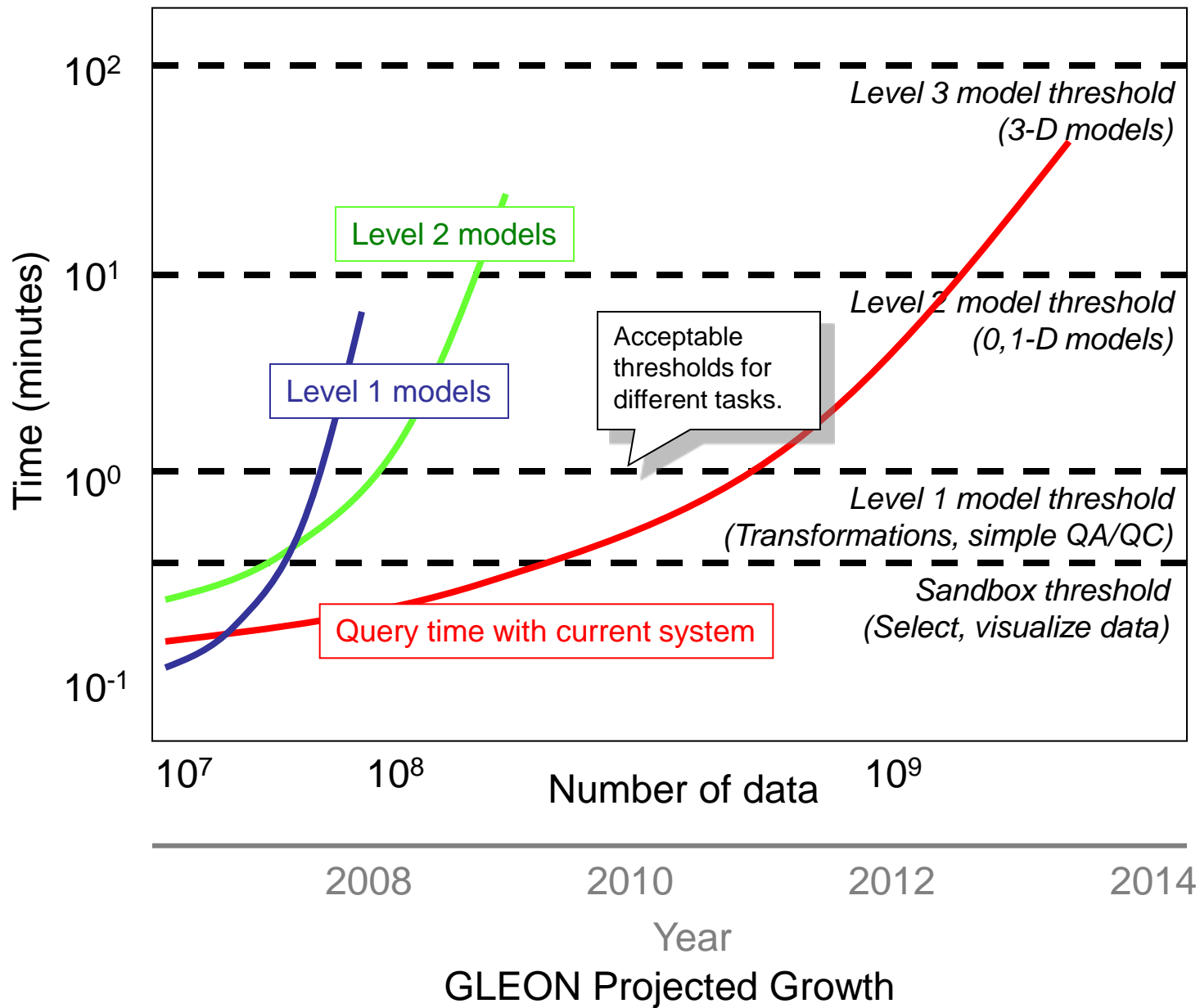


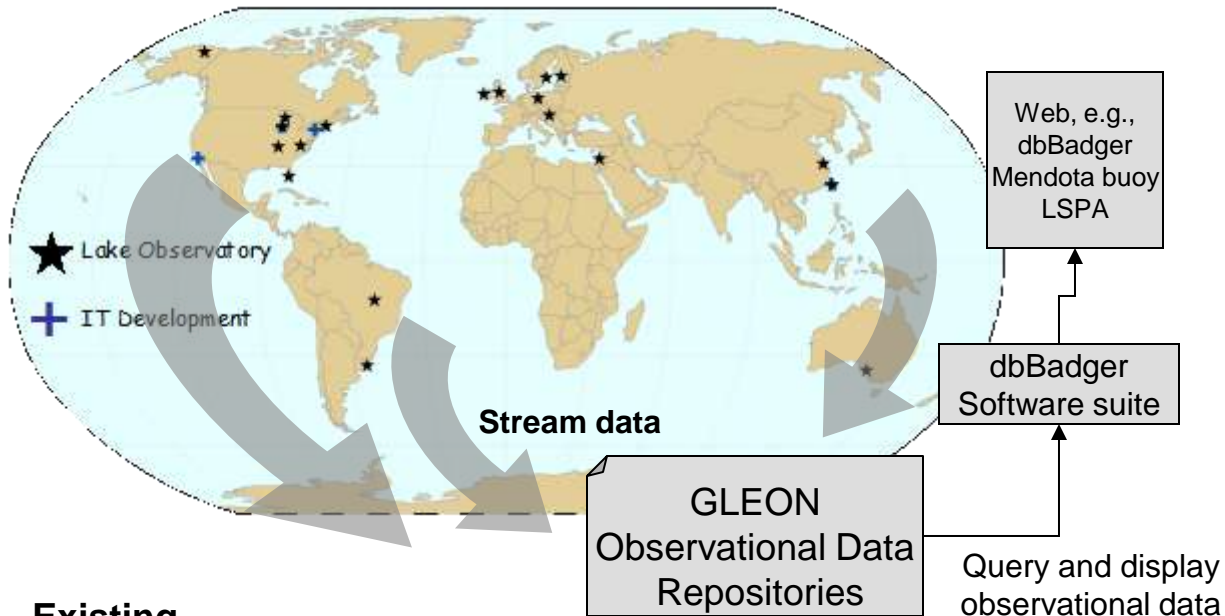
Transforming ecological sensor networks from data collectors to knowledge generators

Paul Hanson, Fang-Pang Lin, Miron Livny, Chin Wu, Chris Solomon,
Many colleagues of the GLEON

Questions

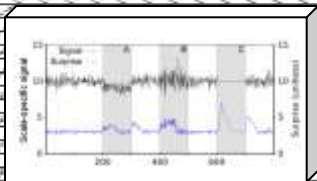
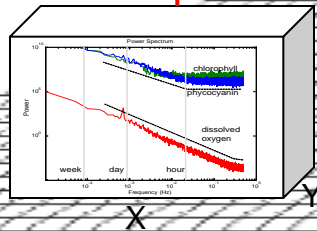
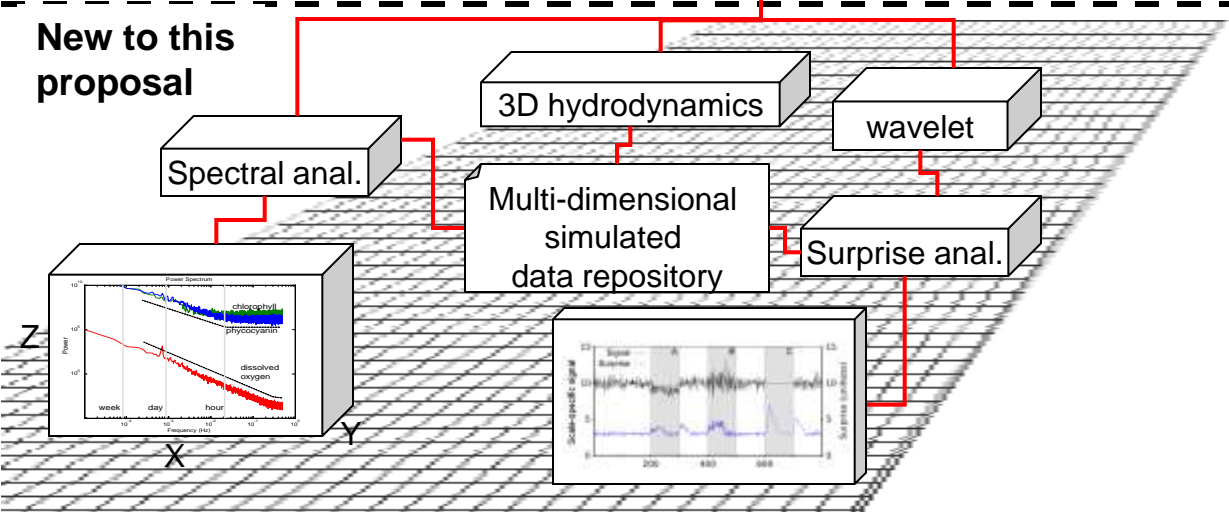
1. What are the *patterns and surprises* in sensor data, and what do they tell us about how external drivers influence lake physical, chemical, and biological processes?
2. How do *large gradients* in geology, hydrology, and climate influence lake responses to external drivers?
3. What are the essential *emergent characteristics* from lakes that allow us to generalize processes from a few, highly instrumented lakes to regional and global scales?





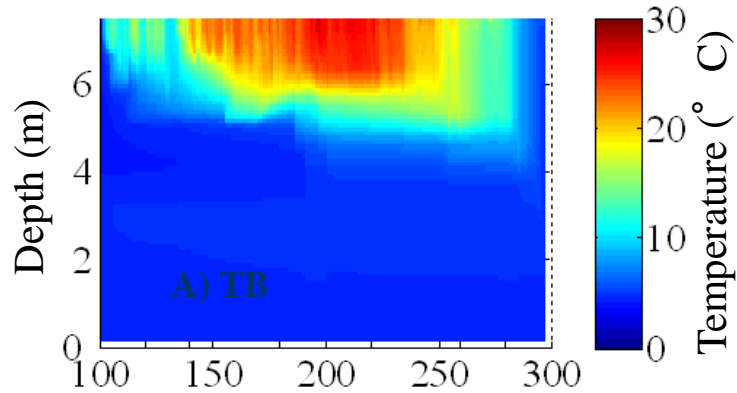
Existing

New to this proposal

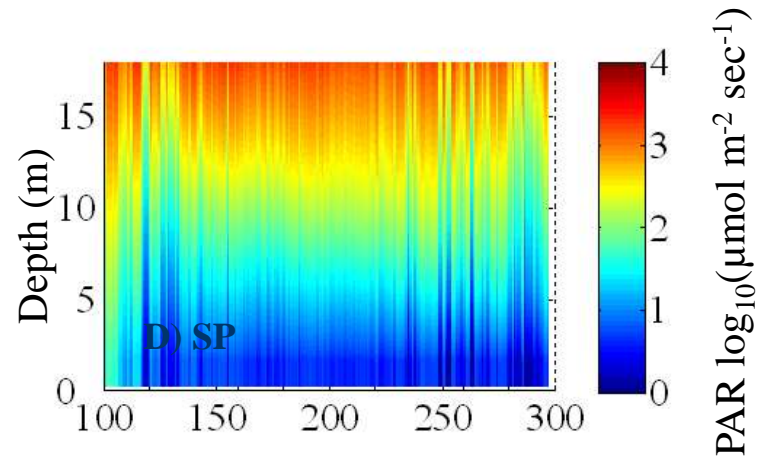
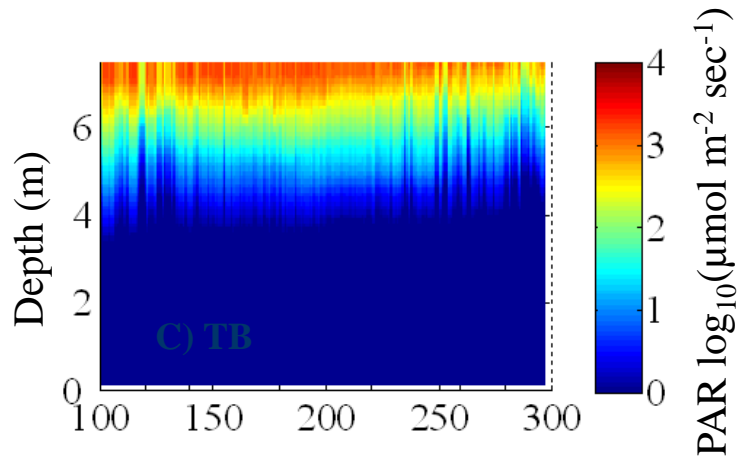
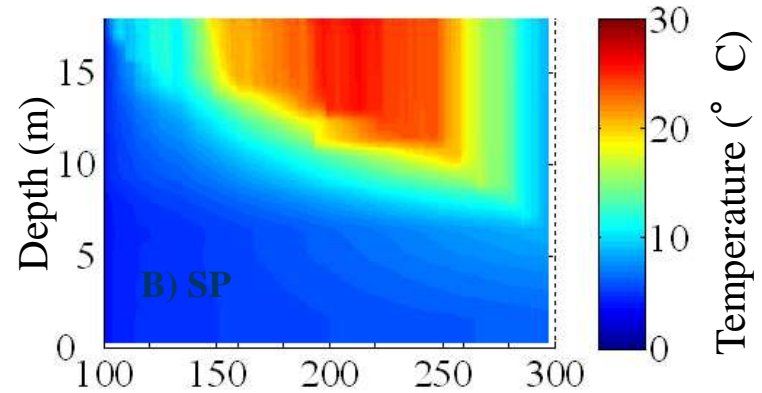


Condor

Trout Bog

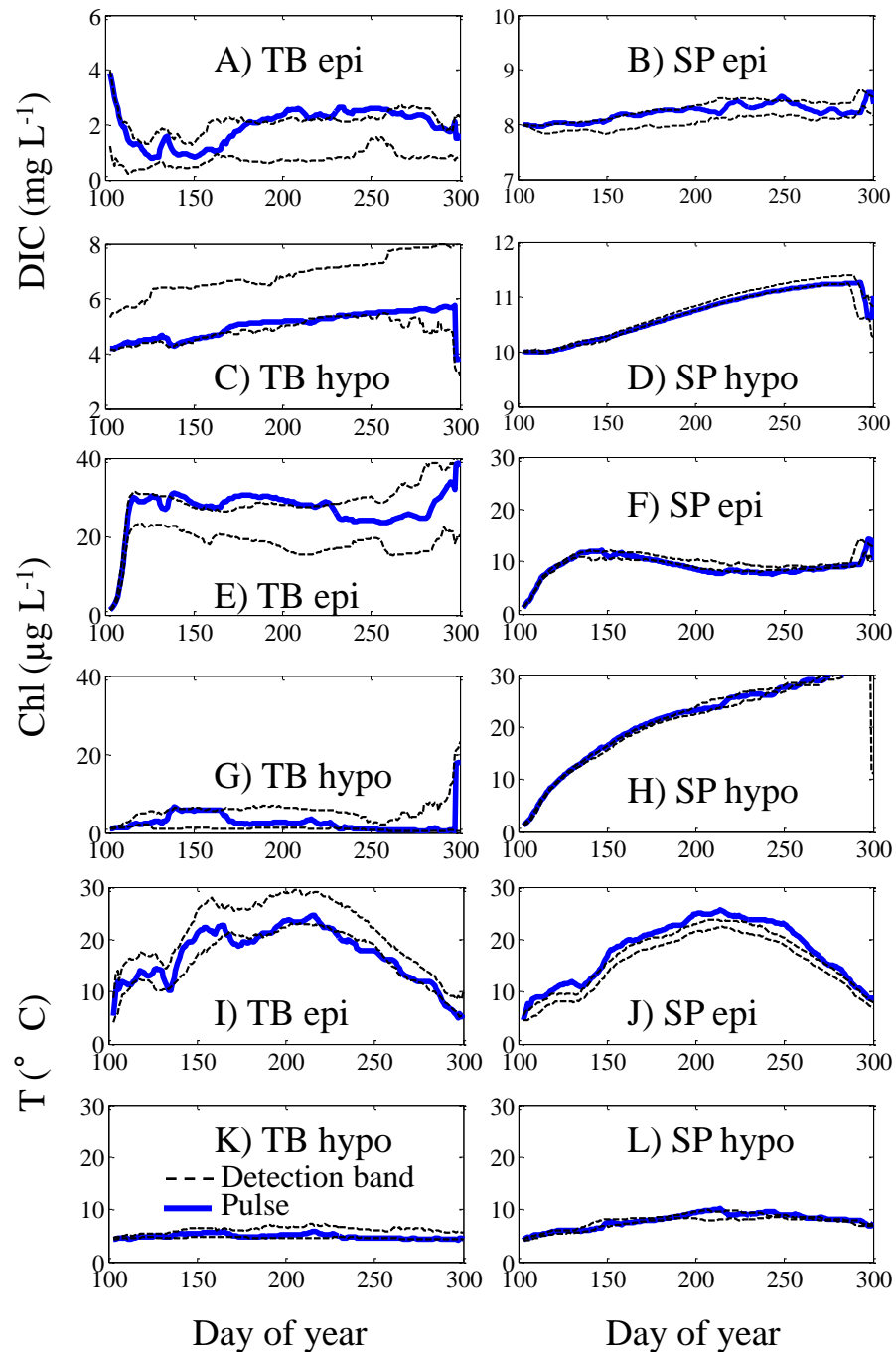
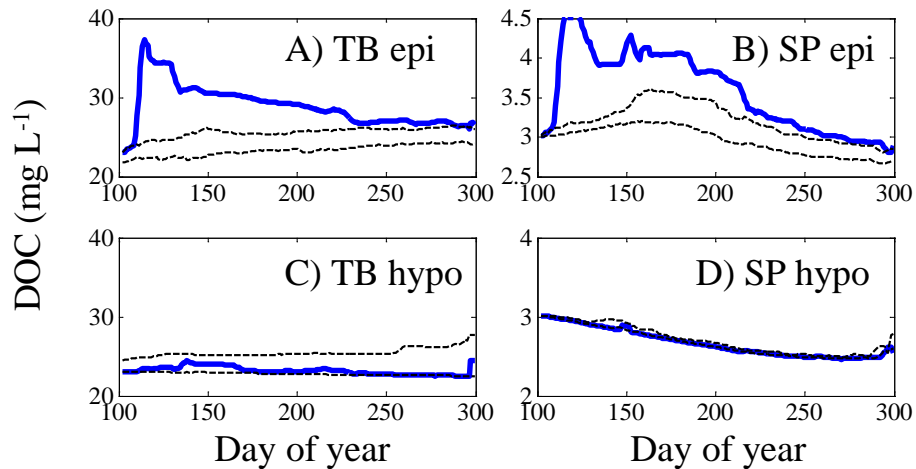


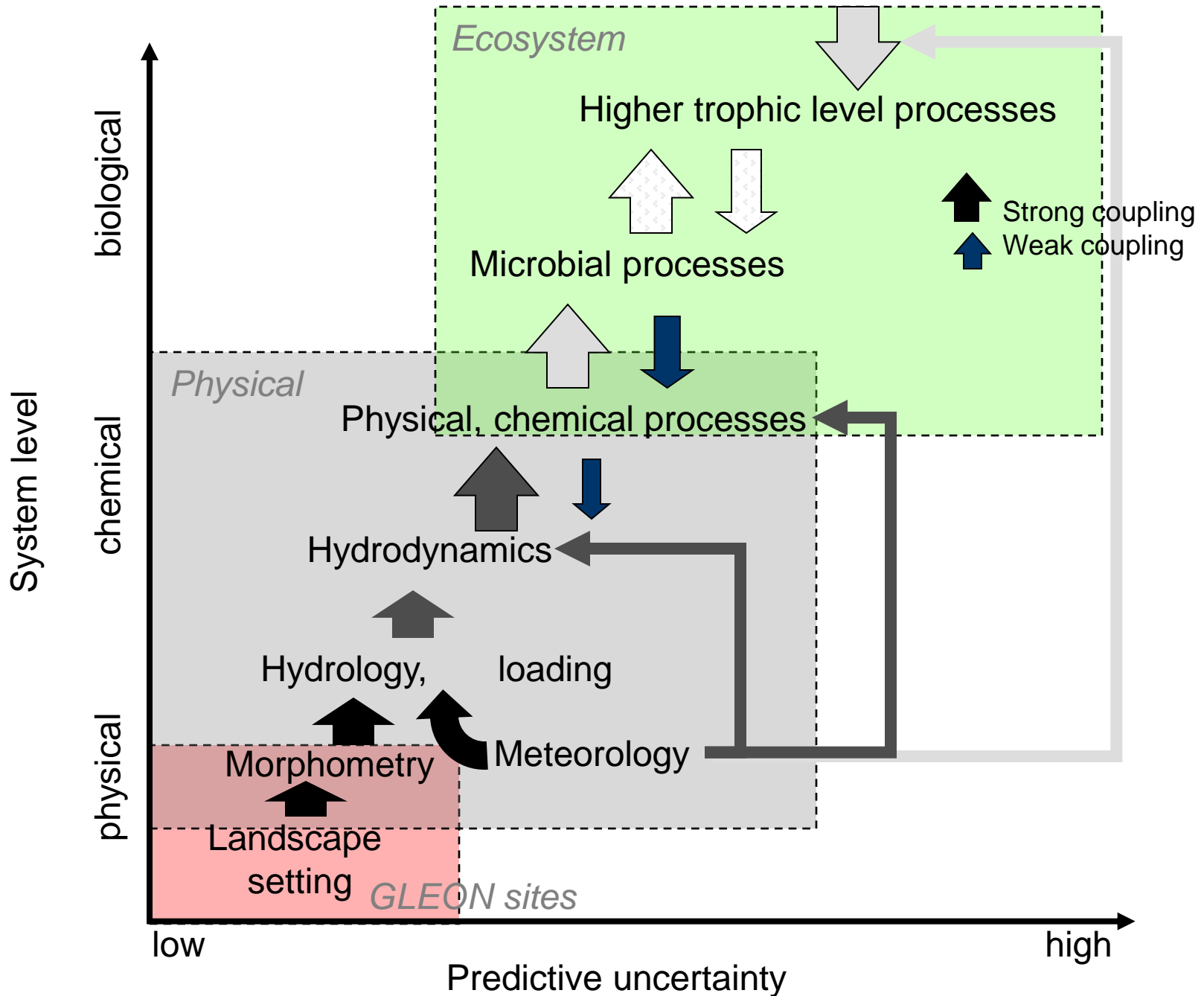
Sparkling Lake



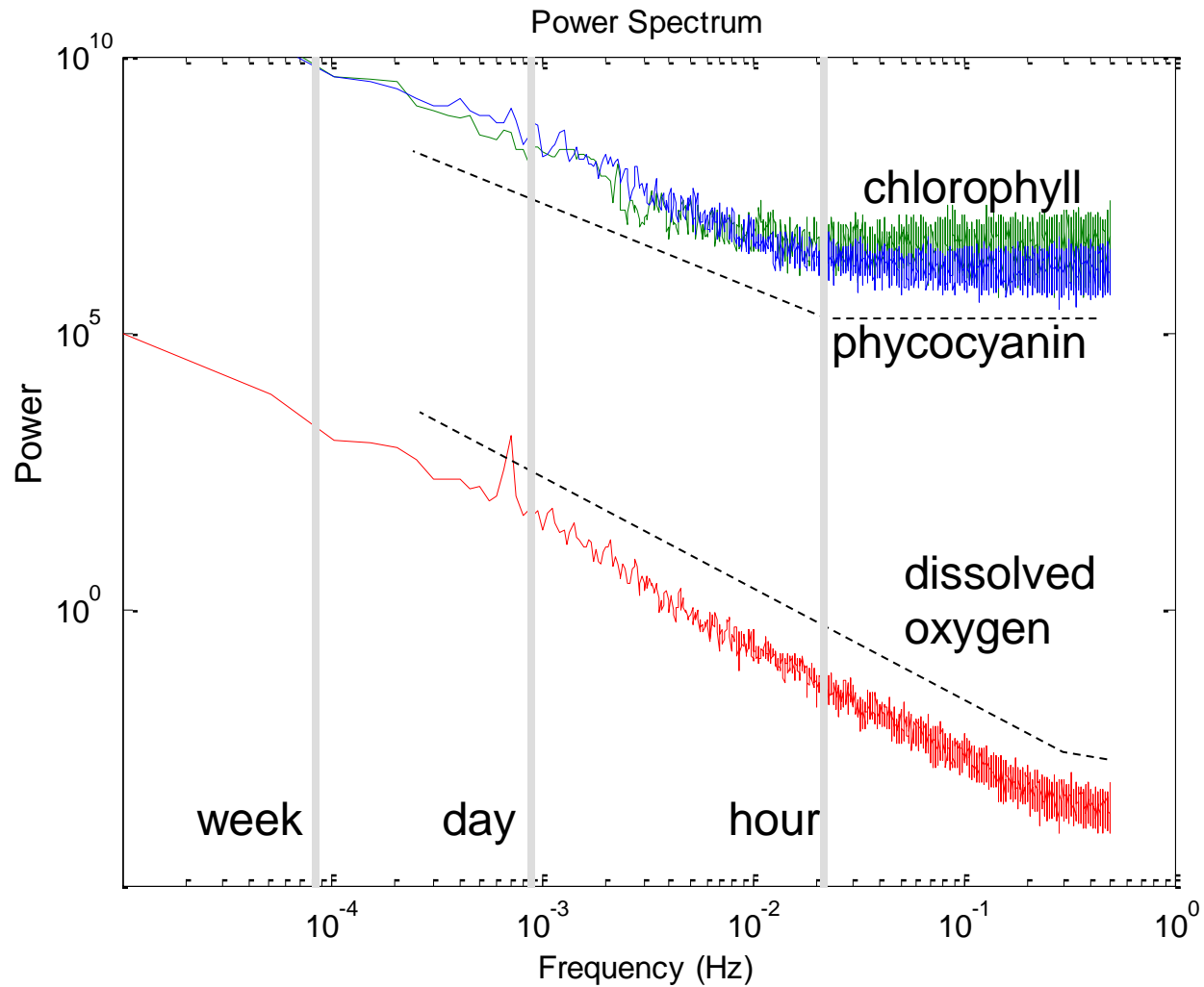
Hanson, Hamilton, Stanley, Langman, Preston in prep.

How does a large spring pulse of DOC affect other variables?

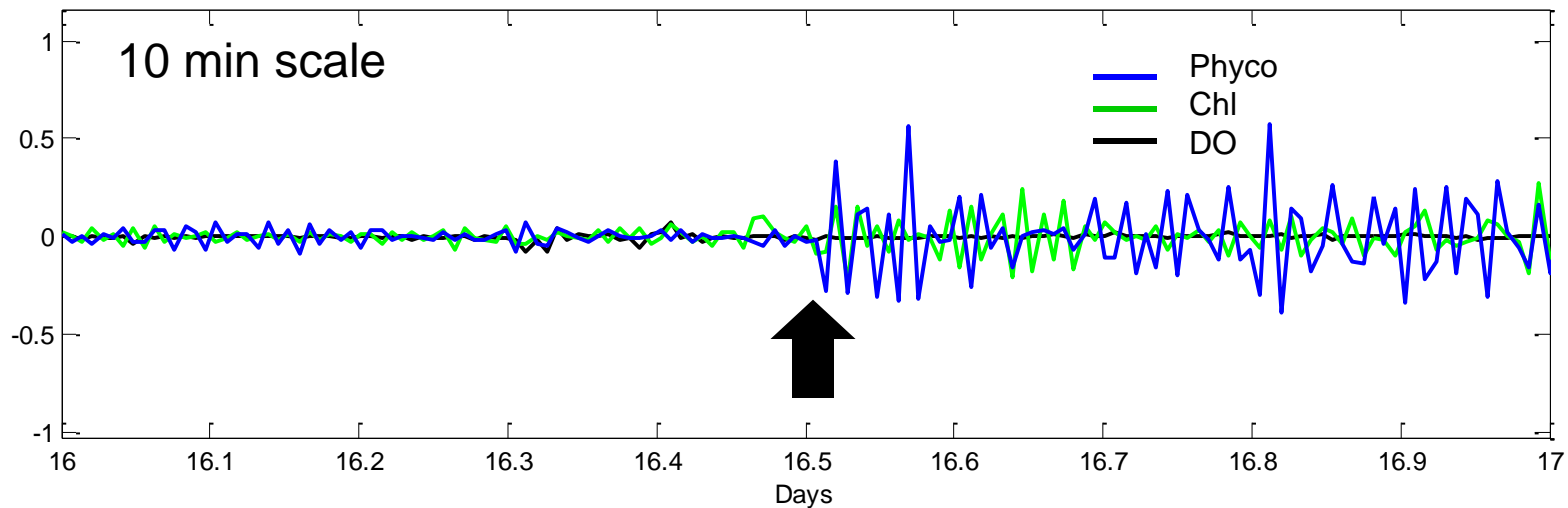




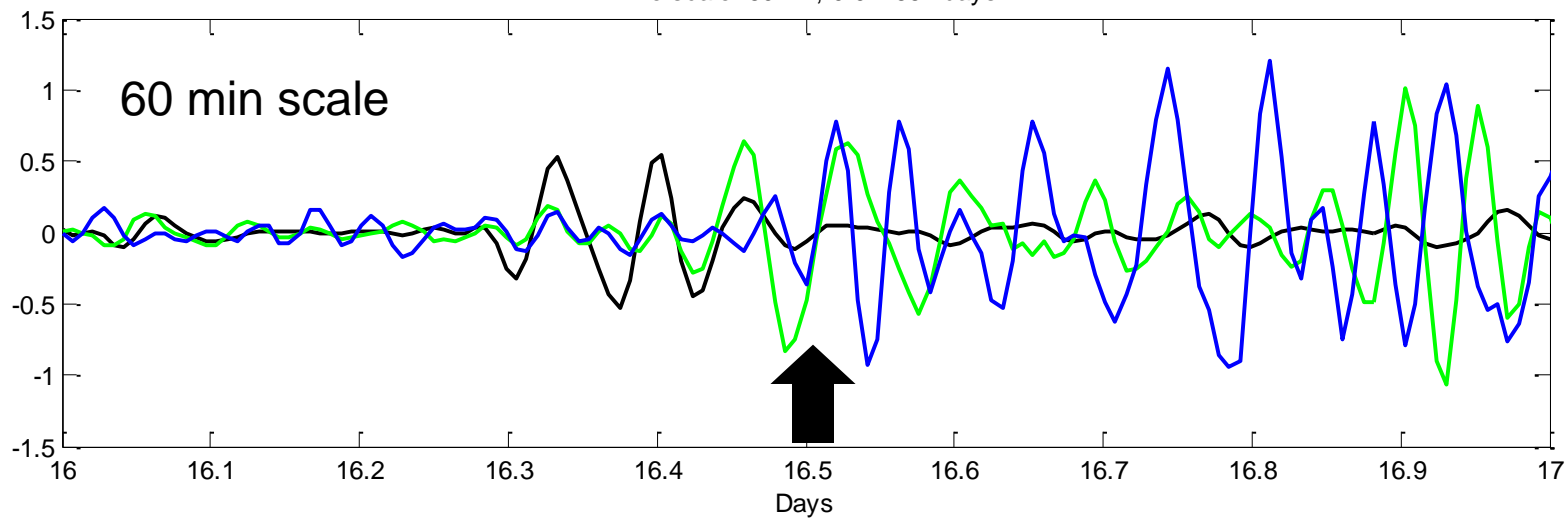
Lake Mendota 2008 July thru Sept



Time scale: 10min, 0.0069444 days



Time scale: 60min, 0.041667 days



Technology will...

1. **access** large repositories of data, and **move** data seamlessly through a web of models and repositories;
2. accomplish a **complex** series of tasks in **dependable** ways;
3. support the **interconnection of models**, some of which are extremely compute intensive, in flexible and fast ways;
4. provide **on-demand access** to GLEON scientists from around the world.

This functionality extends existing GLEON technology by leveraging proven workflow and distributed technologies available through Condor and data access, visualization and transport technologies through NCHC.