Highest priority observations: East Coast

Need models to most effectively determine which observations to make. Nevertheless …

(1) Lateral flux from tidal wetlands to estuaries—because it quantifies potential losses and fates of tidal wetland carbon in a changing environment (blue carbon)

(2) Respiration on the shelf—because it is very large and there are very few data. Should be measured with primary production to get NCP. Benthic and water column processes need separation.

Other important observations and thoughts

- Benthic primary production—because we have very little idea of its important in the carbon balance
- Cross-shelf transport—because it is large and poorly constrained. Could benefit from OOI infrastructure (service cruises, models)
- Close the water balance first
- Reoccupation of Ocean Margins Program sections
- Extension of east coast region into southeastern Canada

Possible research strategy for (East Coast) estuarine-wetland systems

- We cannot measure all fluxes in all systems—too expensive and time consuming

- Choose a small set (1-10?) of systems that cover relevant parameter space (wetland area, sea grass area, tidal range, stratification, geomorphology, temperature, etc.). Might also choose those with (a) existing infrastructure and knowledge base and (b) established losses of wetland C

- Quantify all fluxes for those systems (SWAT team), including variability

- For robust comparisons among systems, develop and distribute measurement protocols, calibration procedures, data formats, etc. (a la JGOFS and GEOTRACES)

Possible research strategy for (East Coast) estuarine-wetland systems (cont.)

- Develop, evaluate, and calibrate fully mechanistic models of those systems. Such models could be applied where needed.

- Use semi-empirical (i.e., intermediate complexity) models for scaling up; a hierarchy of models is useful.