Science from AirSWOT

Tamlin Pavelsky

Upcoming AirSWOT Activities

- Willamette/Sacramento Hydrology, March 2015.
- Ocean Data Collections, April 2015.
- Wax Lake Delta/Lower Mississippi, May 2015.
- Alaska River, Lake, and Wetland Hydrology, June 2015.
- France AirSWOT Experiment, TBD.

After 2015?

What About Science Beyond 2015?

- AirSWOT is funded by the project as a cal/val tool. This means that project priorities will be funded, but science is a secondary concern.
- AirSWOT has the potential to be useful scientifically in and of itself, independent of its role in SWOT.
- Eric Lindstrom has suggested that it may be possible to obtain funding for AirSWOT science experiments in the 2017-2019 timeframe from science programs at NASA headquarters (i.e. not from the SWOT project).
  - Depends on validation of AirSWOT as a fully working instrument.

Action Items

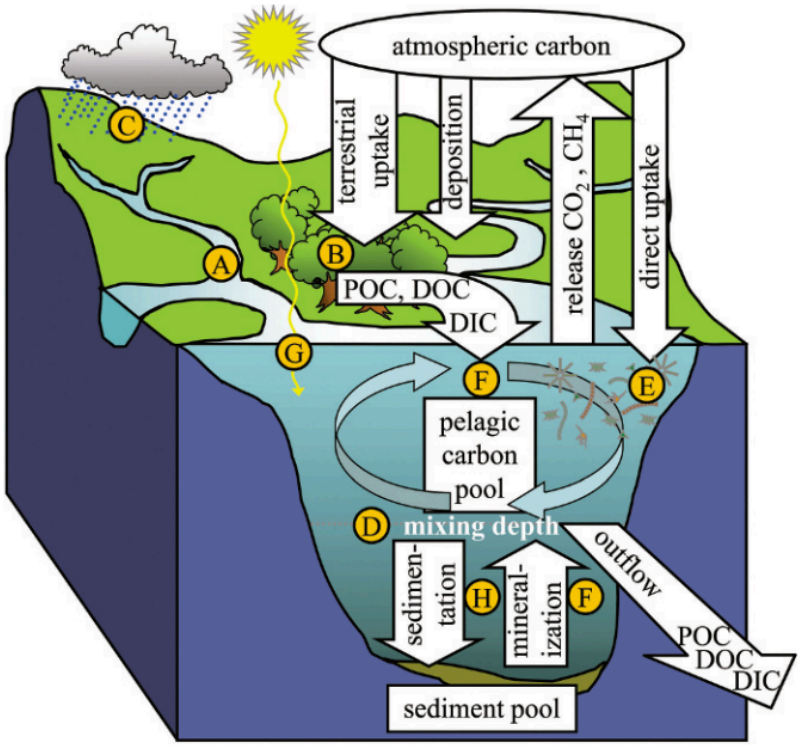
- We need to define potential experiments, including:
  - Anticipated scientific outcomes
  - Field location
  - Amount of flight time required
  - Cost for flights, field campaign, data processing
  - Lead personnel
- Current plan is to collect ideas over the next year, present best ideas to Eric by December 2015.

Lake Water and Carbon from AirSWOT: Boreal Lakes

Inland waters (lakes, rivers, wetlands) are significant actors in the global carbon cycle.

Evasion of CO_2 and methane depends on inundation extent and water level, but the precise controls in different environments remain uncertain.

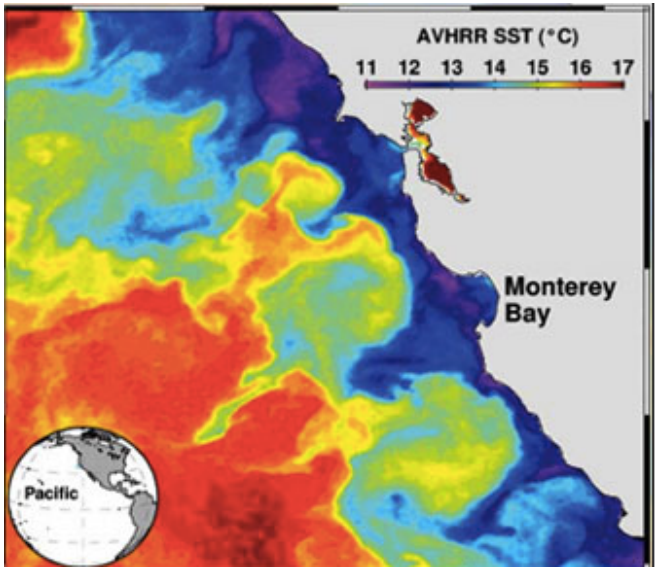
AirSWOT could provide measurements of water level and inundation extent in rivers, lakes, and wetlands on a regional scale in concert with ground-based carbon evasion measurements to improve understanding of water/carbon links.



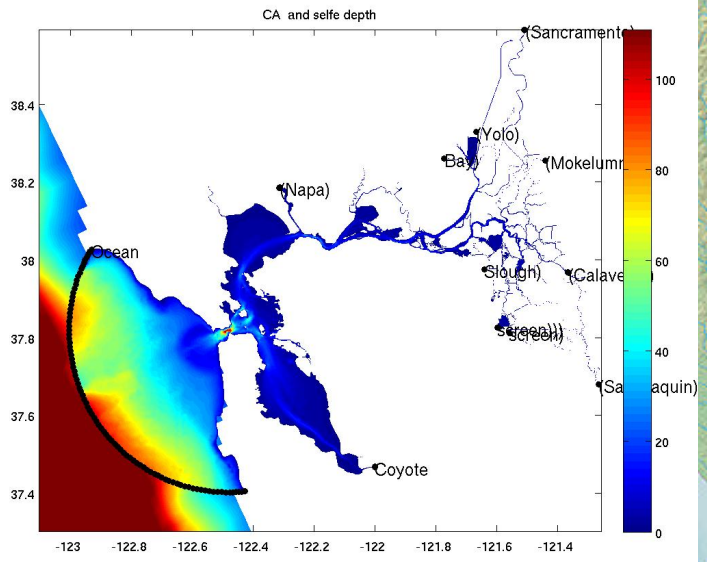
Tranvik et al, 2009

Hydrology-Oceanography Synergy with AirSWOT: San Francisco Bay/Estuary Case Study

Coastal Ocean



Bay/Estuary



River Discharge

Example Science Problems

- Hydrology: River discharge and its temporal variability
- Oceanography: Sea level change & interaction with waves
- Coupling: Impact of river discharge on the coastal ocean & Seawater intrusion into San Francisco Bay

(Yi Chao)

Are there other science questions that could be addressed using AirSWOT, regardless of direct connections with SWOT?