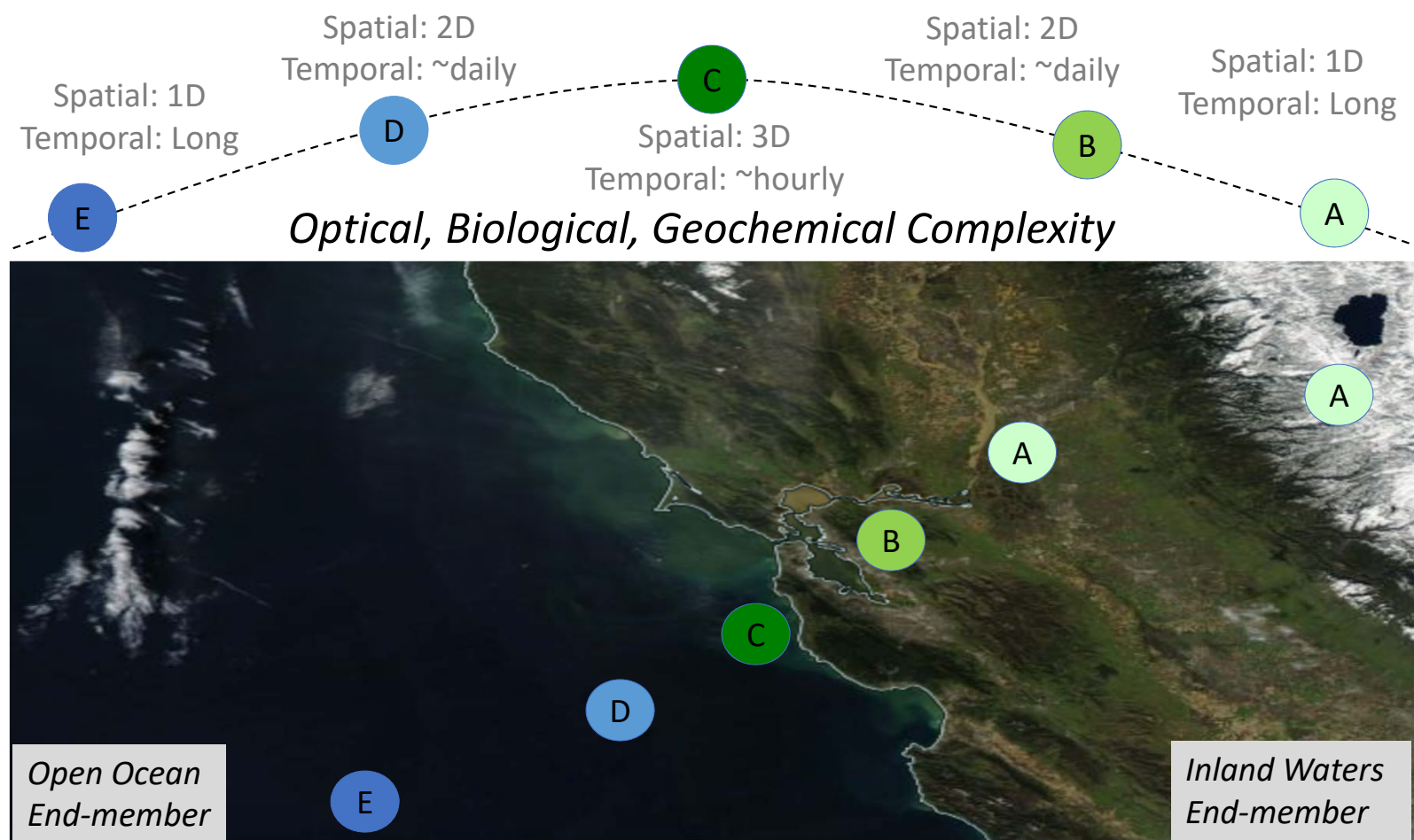


“Thriving on our changing planet” → Ecosystem Change → E1: Structure, Function, Biodiversity

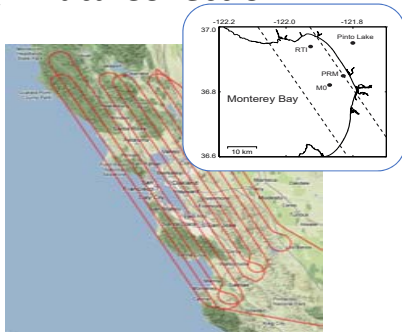


For the foreseeable future, airborne platforms are necessary to adequately capture the spatial and temporal dynamics at the land-sea interface

SensorWebs Improve Calibration, Validation, Research

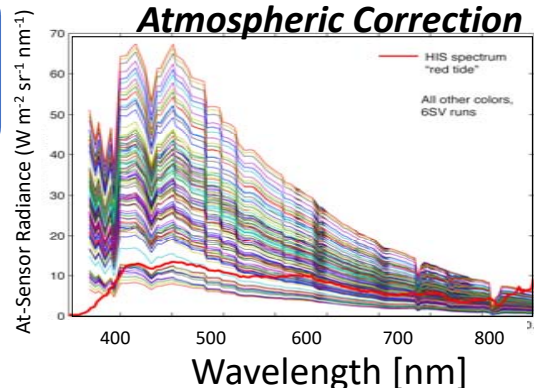
Standard

Data Collection

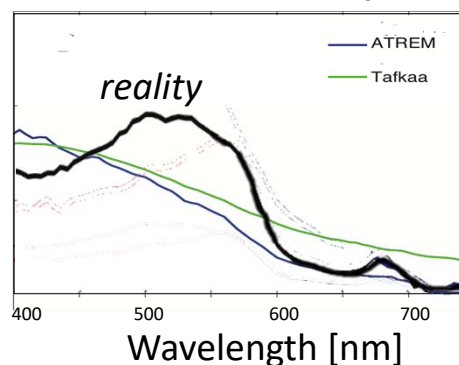


HyspIRI, 31 Oct 2013

Unconstrained Atmospheric Correction

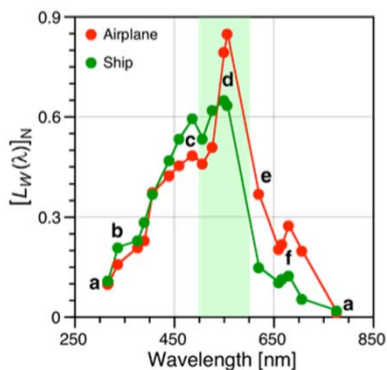


Standard L2 (R_{rs})

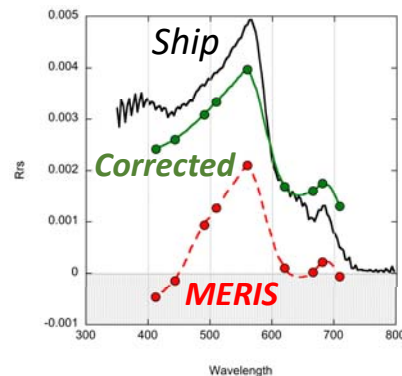


Traditional cal/val relies on fixed sites in optically simple systems (e.g. MOBY, Hawaii), not representative of most systems.

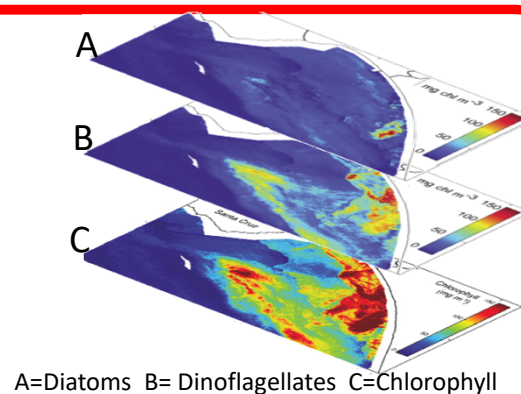
SensorWeb



Matched radiometers for in-water, airborne



Same radiometers for sun photometry



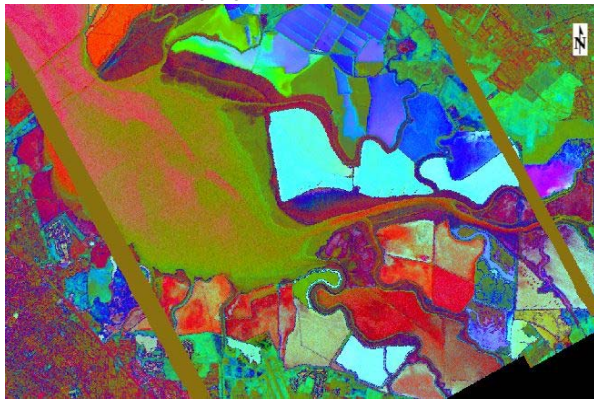
A=Diatoms B= Dinoflagellates C=Chlorophyll

Novel science products with traceability and constrained uncertainty

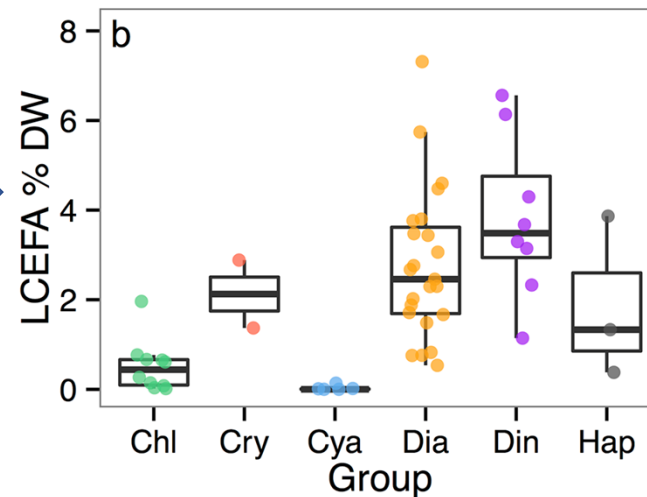
An airborne sensorweb provides calibration-quality data anywhere in the world, at relevant spatial and temporal scales.

Moving Beyond Chlorophyll to Biodiversity

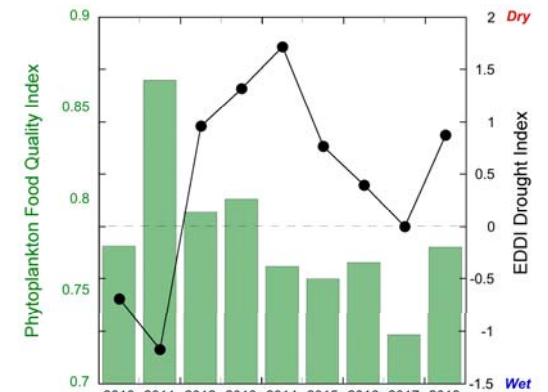
San Francisco Bay Salt Ponds
(HyspIRI 2015)



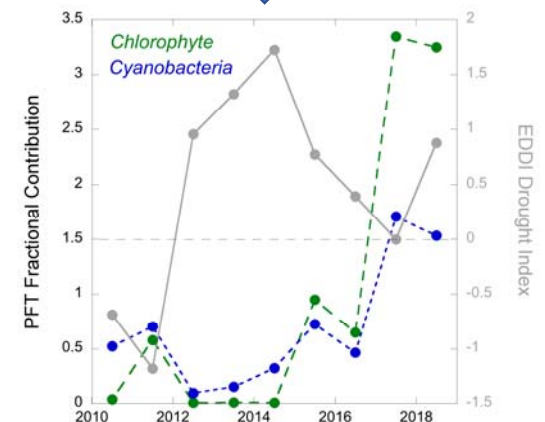
PFTs converted to Food Quality Index



Food Quality Linked to Drought



(VI) E-1a. Quantify the distribution of the functional traits, functional types, and composition of terrestrial and *shallow aquatic vegetation and marine biomass*, spatially and over time.



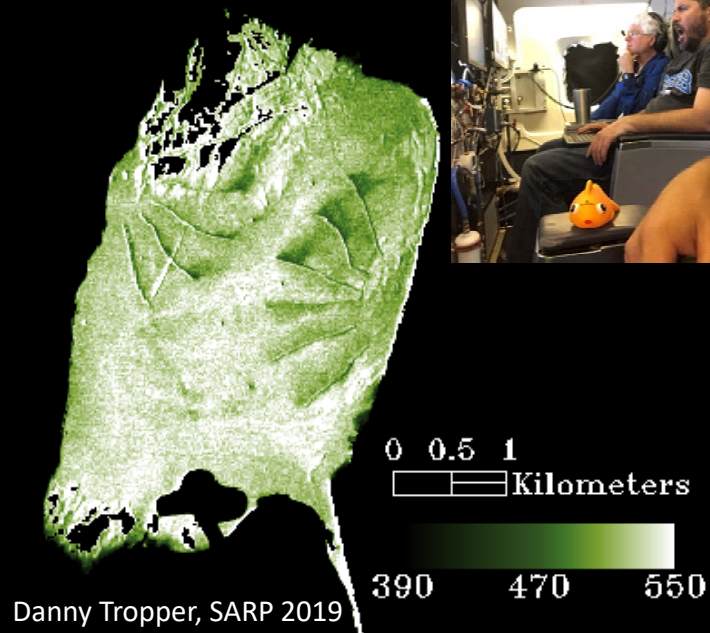
Spectra converted to six
phytoplankton groups
(Red=dinoflagellates, Green=chlorophytes,
Blue=cyanobacteria)

Heavy Lift, Long Haul Supports Training



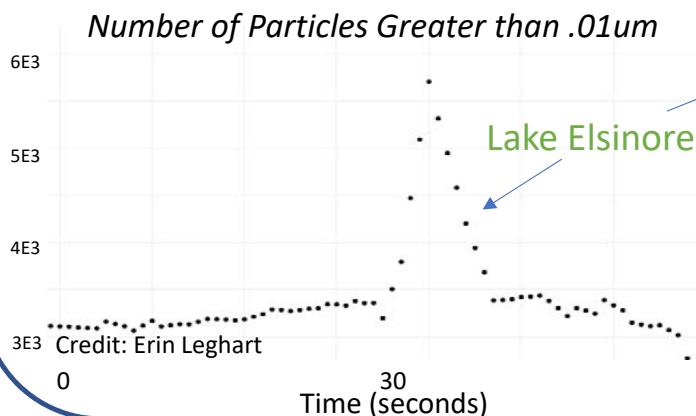
- 333 alumni from 212 schools in 49 states and Puerto Rico (2009-2019)
- 93% of alumni are currently employed in STEM fields or pursuing advanced degrees in STEM fields
- Almost 50 alumni now have PhDs in STEM fields
- Alumni participating in many NASA Airborne Science Program missions (GRIP, HS3, KORUS-AQ, DISCOVER-AQ, DC3, PECAN, SEAC4RS, AJAX, LMOS, AirMSPI, UAVSAR, NAAMES, ABoVE, FIREX-AQ, CAMP2Ex)

Algal Biomass (nFLH)



Example Project: Tracking aerosolized algal toxins over a California Lake

Langley Aerosol Research Group Experiment (LARGE)



Laser Aerosol Spectrometer (LAS)

