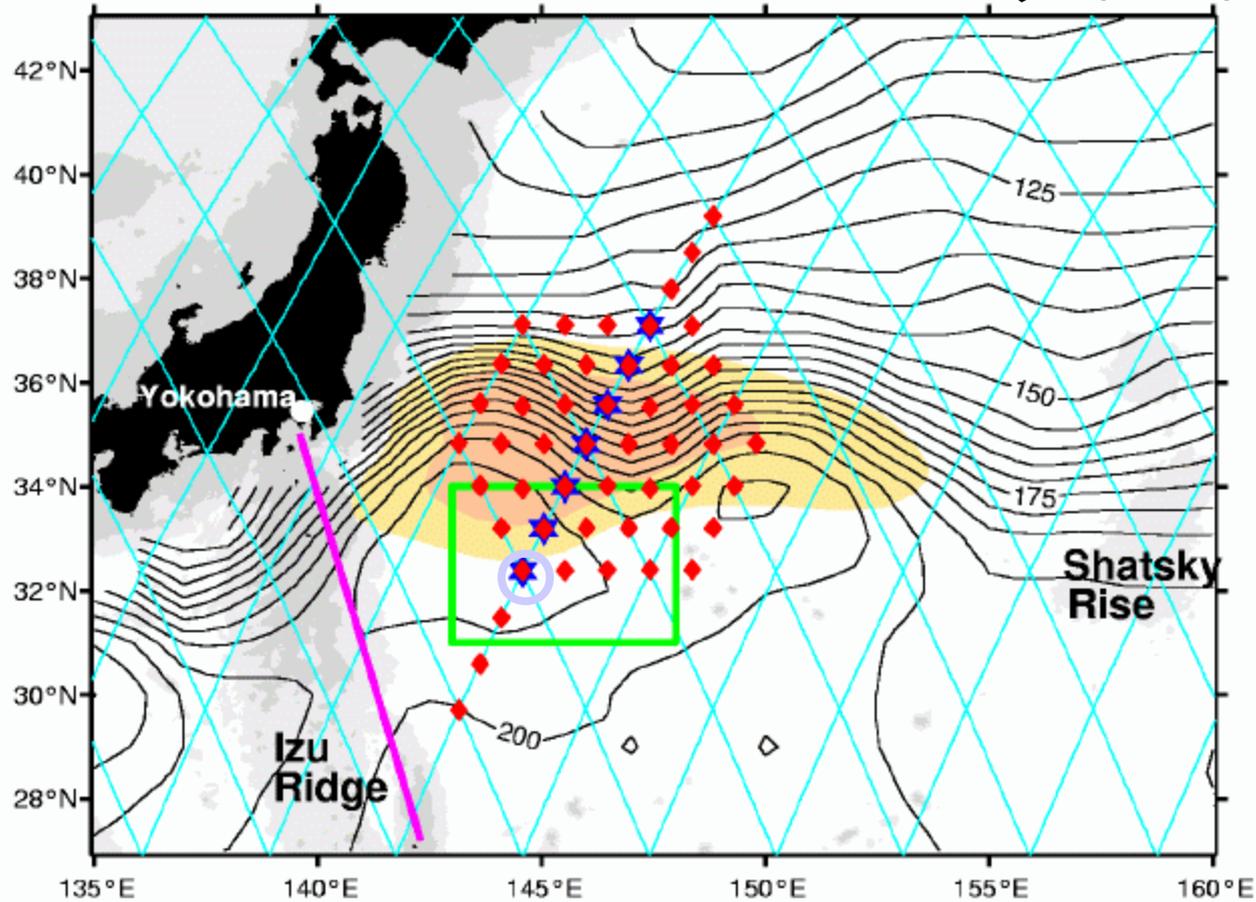


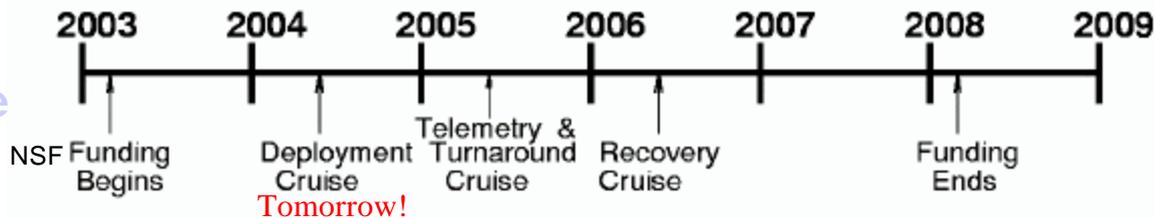
KESS Observational Plan (UH, URI, WHOI, PMEL)



Funded by:
NSF, NOAA

- ◆ C-PIES
- ★ Profiler/ADCP/CM
- Surface flux buoy
- Ferry XBT/ADCP
- Profiling Float Deployments

KESS
Timeline



KEO (Kuroshio Extension Observatory)

Dr. Meghan Cronin, Mr. Chris Meinig, Dr. Christopher Sabine
NOAA Pacific Marine Environmental Laboratory



Version 1 is a TAO buoy, modified for the extreme conditions of Kuroshio Extension, with special sensors to monitor...

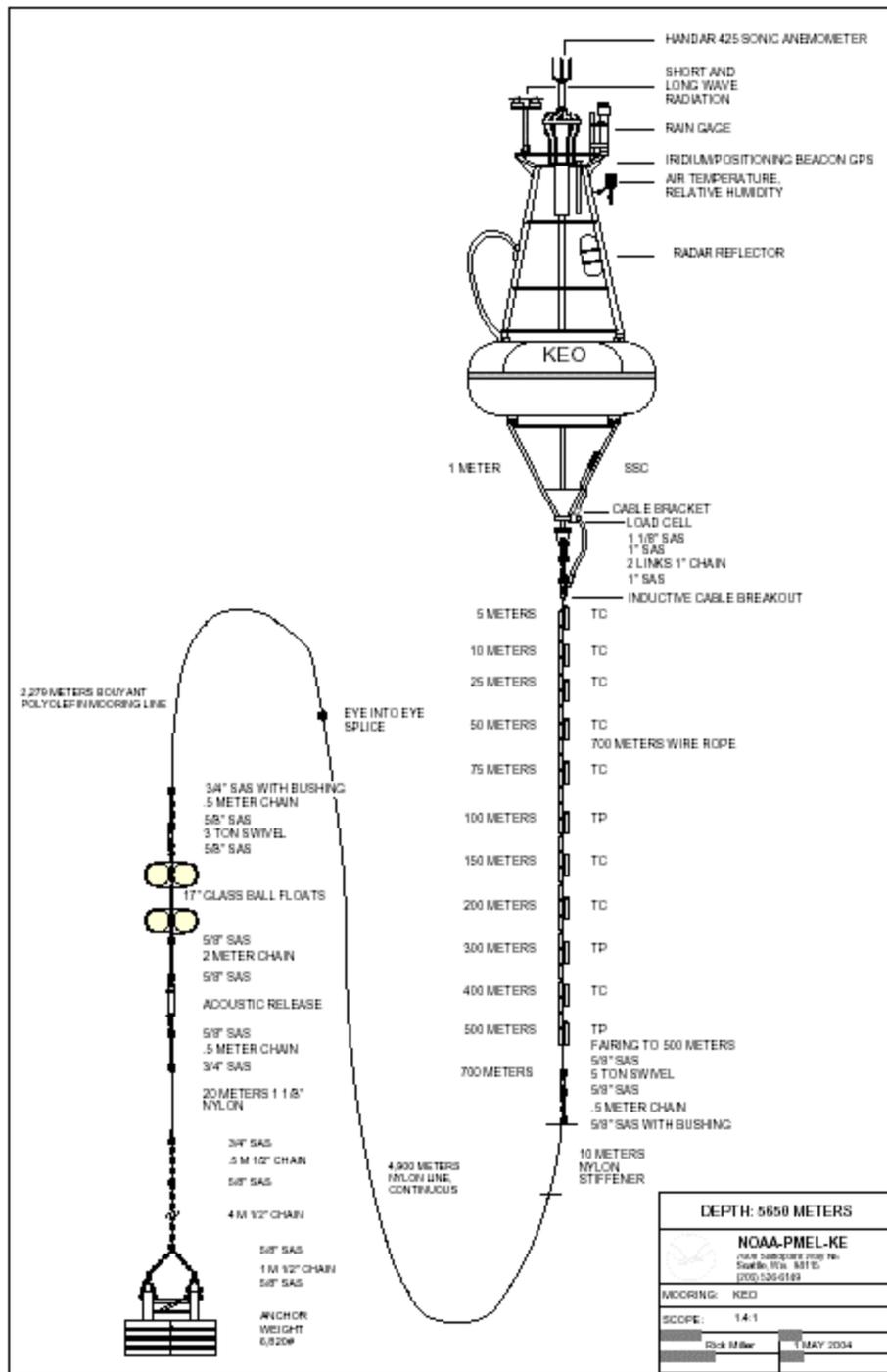
- Air-sea heat, moisture, and momentum fluxes
- Air-sea CO₂ flux (beginning June 2005)
- surface and subsurface T and S
- engineering quantities (load cell)
- ?

For tropics ...

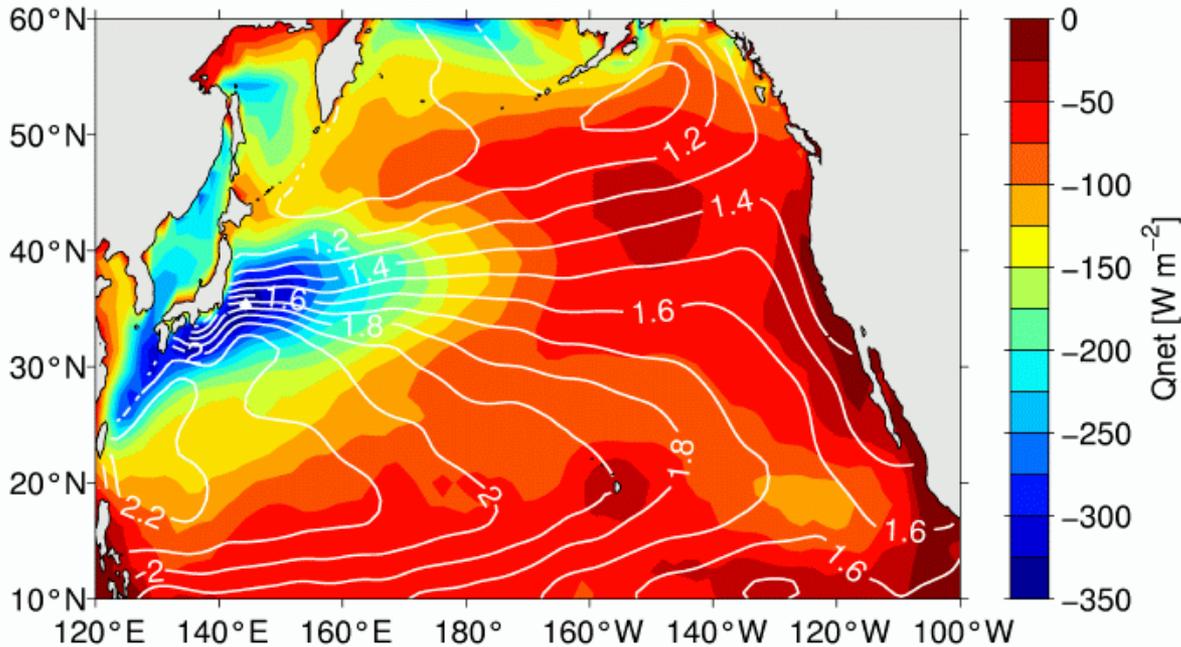


For Kuroshio Extension (145E, 32.3N) ...

- decked over toroid
- slack-line scope 1.4:1
- heavy anchor
- sonic anemometer

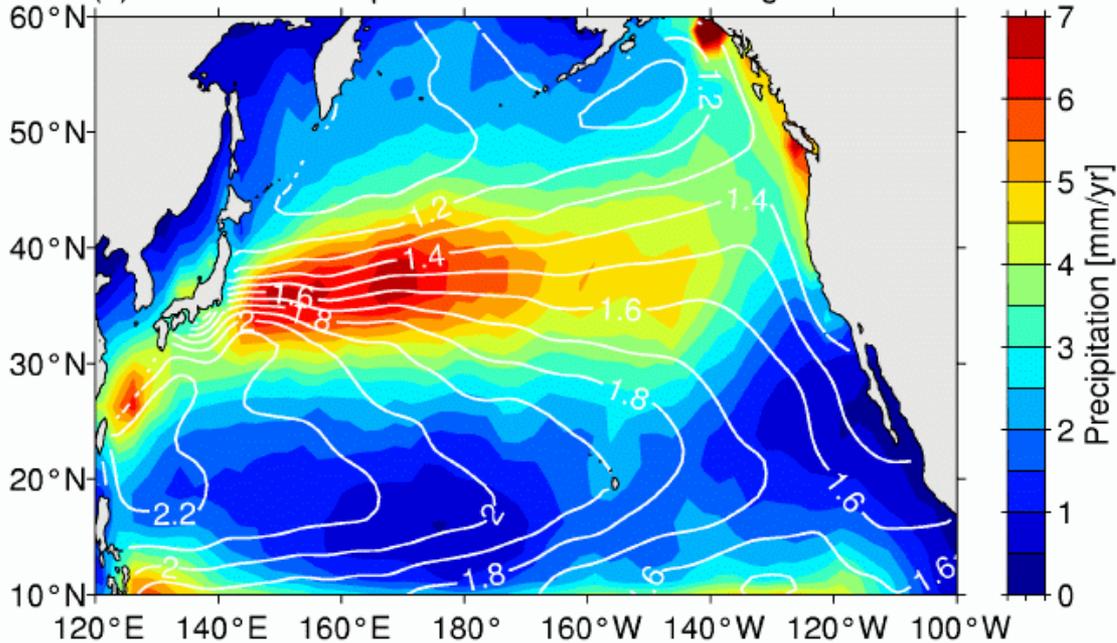


Wintertime Net Heat Flux vs. Mean SSH



**Cold dry air
blowing over
warm KE causes
large sensible and
latent heat loss.**

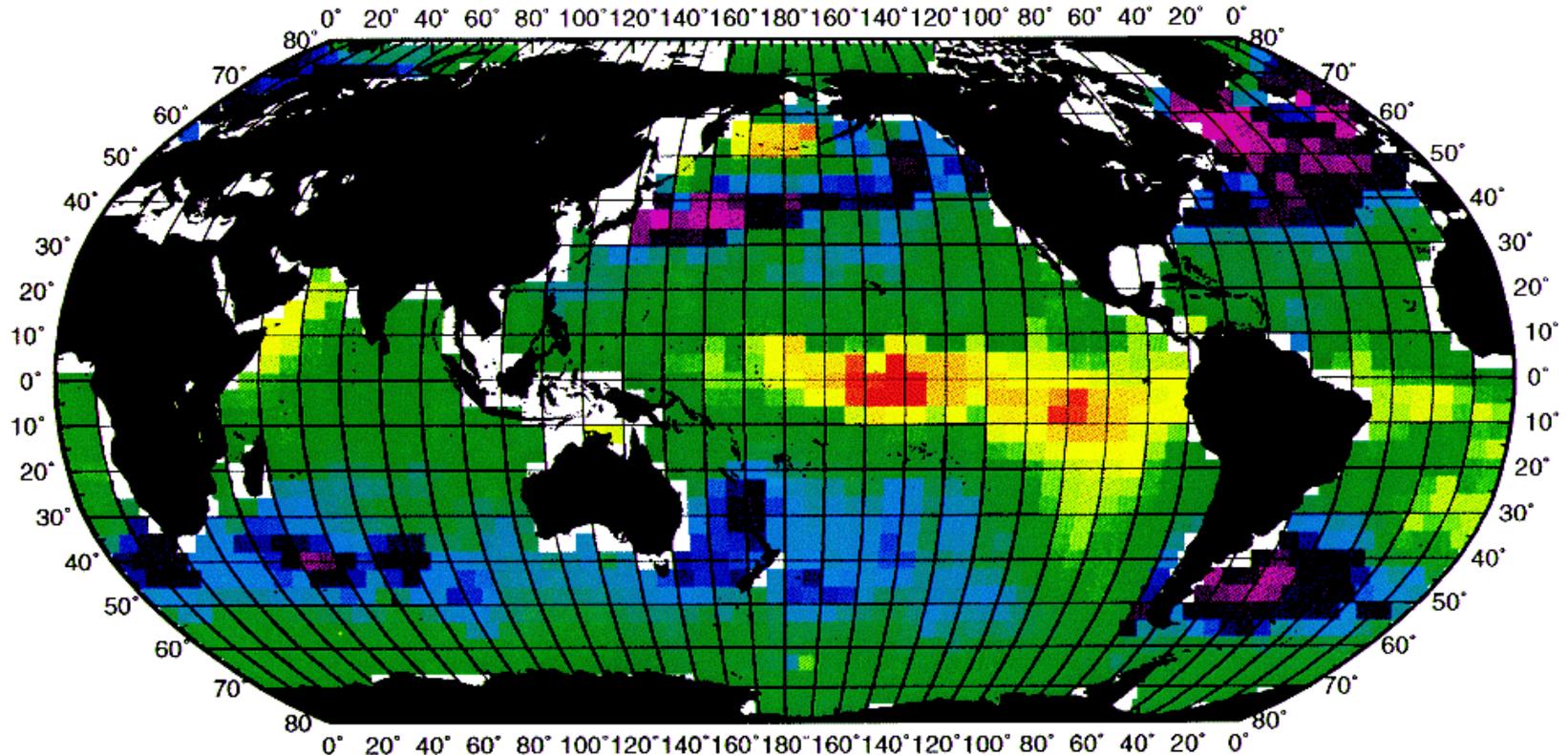
(a) Wintertime Precipitation vs. Sea Surface Height



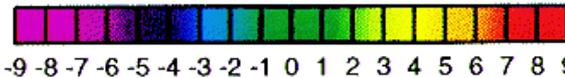
- What is Q ?
- How does heat flux affect SST? Mode water formation? Size of recirculation gyre?
- Do SST (KE) variations affect convection? Winds? Storm track?

The largest sink of carbon in the North Pacific is in the Kuroshio Extension

Annual Flux (Wanninkhof Gas Exchange)

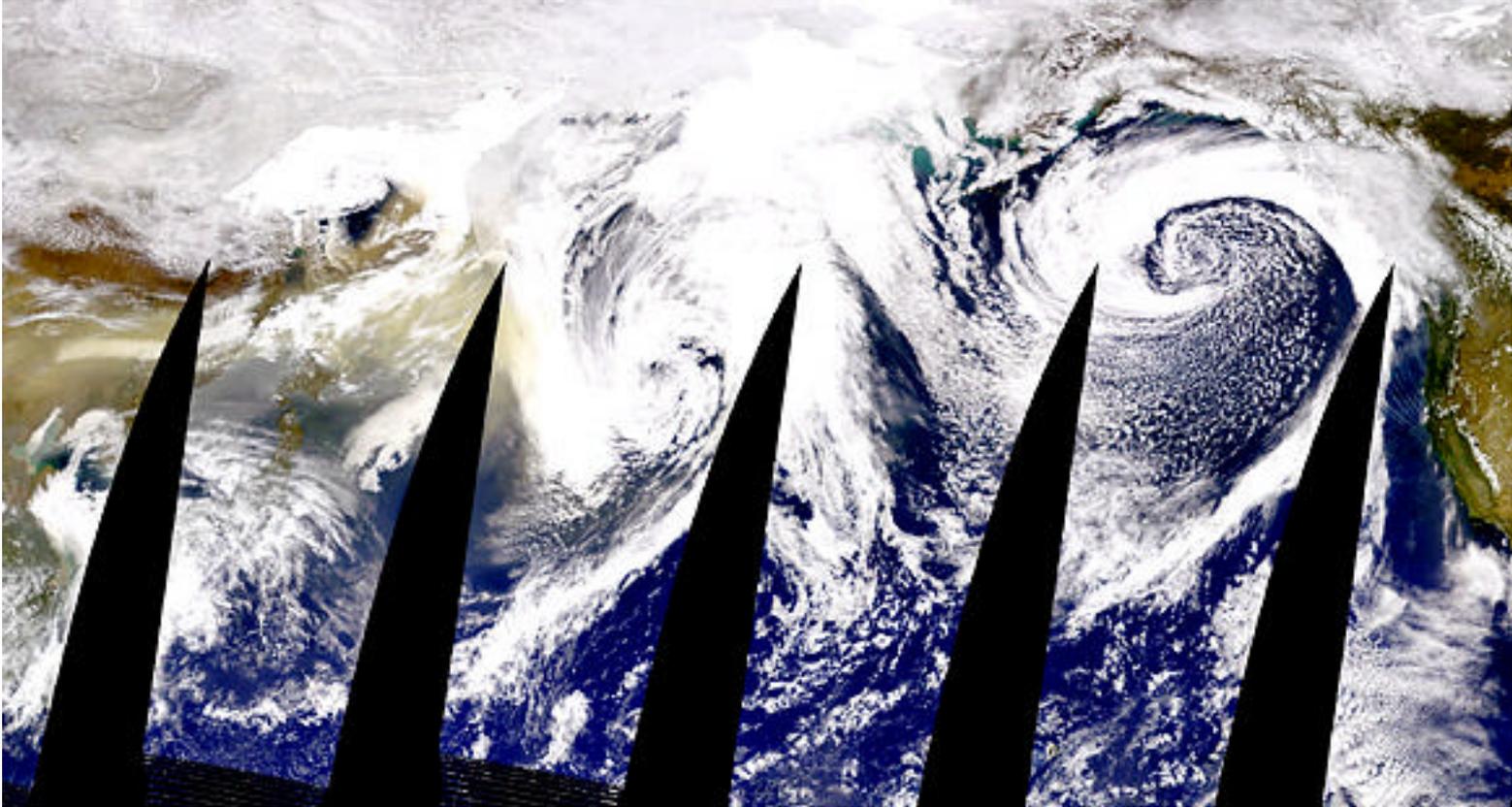


Takahashi et al. 1997



Net Flux (10^{12} grams C yr⁻¹ in each 4° x 5° area)

Asian dust storms (e.g. April 1998)



...are rich in iron and other micro-nutrients. How do dust clouds affect the ocean biological pump and carbon cycle?

KEO will be part of the global network of time series reference sites.

