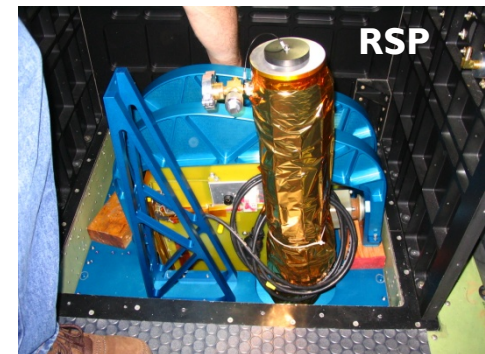
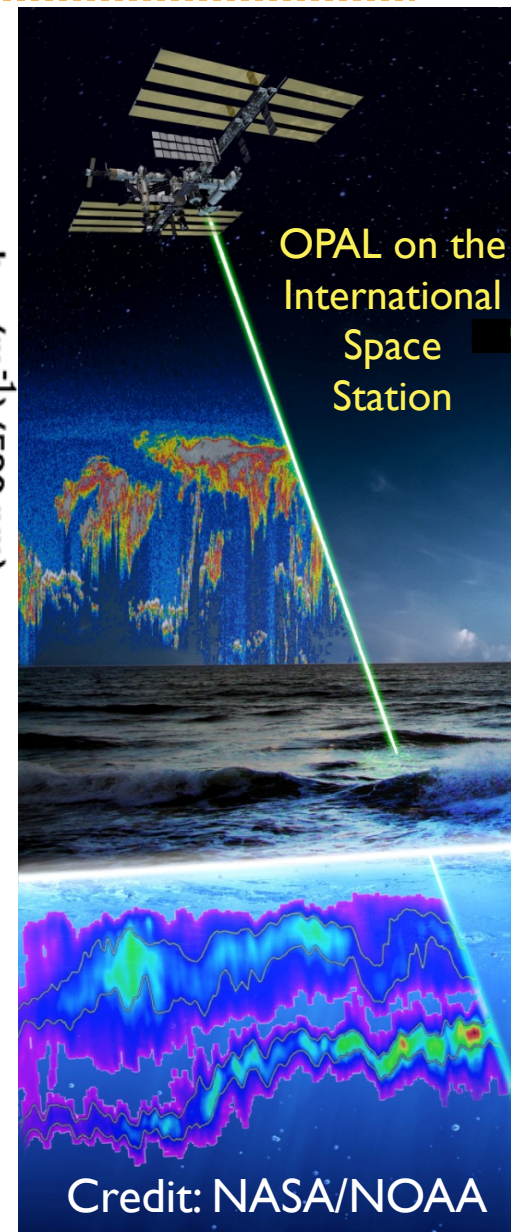
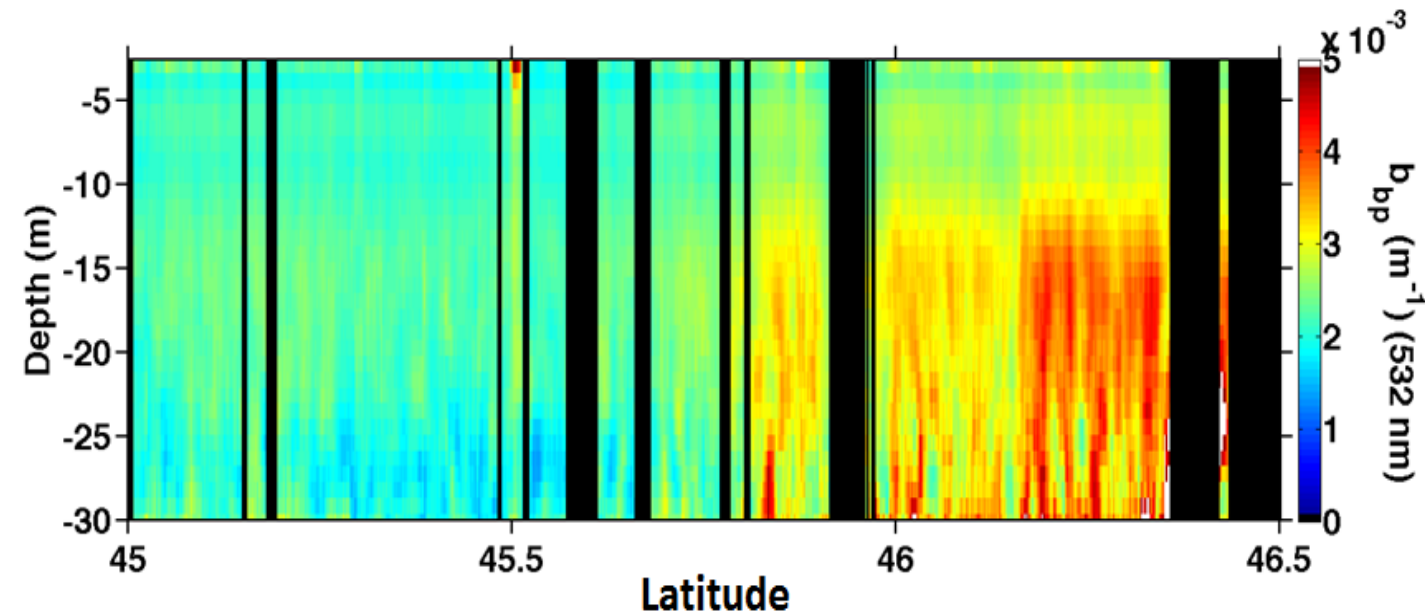


SABOR Airborne Lidar-Polarimeter Objectives

- ▶ Develop breakthrough lidar and polarimeter algorithms that could open a new frontier in satellite remote sensing for ocean biology-biogeochemistry applications
 - ▶ Develop lidar algorithms to produce depth-resolved profiles of diffuse attenuation (K_d) and particulate backscattering coefficient (b_{bp})
 - ▶ Develop multispectral and multiangle photopolarimeter algorithms to retrieve absorption by colored dissolved organic matter α_{CDOM} , b_{bp} , and chlorophyll *a* concentration [Chl] and augment lidar retrievals of b_{bp} .
- ▶ Validate these algorithms via flights of airborne prototypes of potential future satellite lidars and polarimeters



Preliminary retrievals of b_{bp} from HSRL-1



Credit: NASA/NOAA

- ▶ Flights based in the Azores in 2012 provided the first-ever independent profiles of K_d and b_{bp} from lidar via the HSRL technique
- ▶ The lidar has since been modified to improve those retrievals
- ▶ SABOR will vet techniques planned for a potential spaceborne lidar: OPAL – Ocean Profiling and Atmospheric Lidar

Atmospheric Applications

In addition to ocean applications, we are interested in understanding marine aerosols, their impact on clouds and the radiation budget, and methods to reduce their influence on passive ocean color retrievals of ocean optical properties. Airborne lidar and polarimeter observations provide coincident data on ocean optical properties and aerosol and cloud properties needed for these studies.

