

Cruise plan
R/V New Horizon
September 22-29, 2009
P.I.: Ralph Keeling

Objectives:

On this cruise, we will test a system to continuously measure dissolved gases in seawater. We will be pumping seawater into an equilibrator, which allows dissolved gases to come to equilibrium with “sweep gas” from a tank. The equilibrated air will then be sent into a mass spectrometer on board the ship for continuous measurement. The mass spectrometer was tested on the R/V New Horizon in June 2008, and was found to have high precision even at sea. On this cruise we will take continuous measurements of O₂/N₂ and Ar/N₂ ratios, along with isotopes of oxygen and nitrogen. These measurements can give information about primary production in the ocean. It is of interest to test the method in a transect between near-shore and open ocean conditions.

Schedule:

September 22-24: Load mass spectrometer, gas cylinders, and equilibrator onto the R/V New Horizon. Secure seawater pump to transducer rail, and set up a hose from the pump into the lab. Test out system by taking measurements while the R/V New Horizon is in port. Because loading and testing the system in three days will be a challenge, we would benefit from extra days before this if the ship is available.

September 25-26: Head into the open ocean on a westerly or southwesterly transect, roughly perpendicular to the coast. We will measure dissolved gases while the ship is in transit.

September 27-28: Return to port. Sampling will again take place during transit.

September 29: Unload equipment from the R/V New Horizon.