

# APPENDIX V

## Bill Martin Cruise Highlights

P.I. : Bill Martin (with Fred Sayles)

Cruise: All 134, June / July 1996 On the NW Atlantic continental margin at 70°W,  
water depths 1020 - 2500 m

**Purpose:** To use pore water and benthic flux measurements to estimate the recycling rates of organic and inorganic carbon and nitrogen at the sea floor; and to use the data to define the regional trend in benthic recycling rates vs. water column depth.

Use of Alvin: To deploy

1. the OSPRE, an in Situ O<sub>2</sub> microelectrode profiling instrument, and
  2. the SQUIRTS, in situ benthic flux chambers, and
- To corect cores for solid phase and pore water measurements

### Alvin allowed us to:

- measure - 25 pore water O<sub>2</sub> profiles at each of 4 sites, an unprecedented degree of replication that will lead to strong conclusions about regional trends. We have found, contrary to prediction, that benthic oxygen consumption does not decrease over the water depth, 1020 - 2500 m.
- make our set of O<sub>2</sub> profile, flux, pore water, and solid phase measurements on small, well-defined spatial scales, allowing (1) analysis of scales of spatial variability, and (2) more confident combination of results from different techniques.

The results will ultimately be combined with a similar data set, to be collected in August 1997, from 100 - 1000 m water depth, and with previously collected data to define the regional benthic recycling vs. water depth trend from 100 - 4500 m water depth.