

DRAFT: Th Pa Statement of Interest

Bob Anderson – Lamont-Doherty Earth Observatory <boba@ldeo.columbia.edu>

Larry Edwards – University of Minnesota <edwar001@umn.edu>

Chris Hayes – University of Southern Mississippi <christopher.t.hayes@usm.edu>

We propose to collaborate in measuring ^{230}Th , ^{231}Pa and ^{232}Th along the Alaska – Tahiti section. We will propose to measure both dissolved and particulate forms. We will request 5-liter water samples from the ODF Niskin and $\frac{1}{4}$ sections of Supor filters following the procedures used in previous US GEOTRACES sections. We will also propose to deploy the NIOZ monocoherer to collect surface sediments along the section.

Our principal scientific goals include:

- 1) Compare and contrast the intensity of chemical scavenging and removal among three unique biogeochemical provinces: a) the Subarctic North Pacific gyre, with moderate biological productivity and incomplete nutrient utilization, 2) the oligotrophic subtropical gyre, and 3) the moderately productive equatorial upwelling system.
- 2) Estimate the mean annual deposition of dust using independent methods involving both dissolved and particulate Th isotopes.
- 3) Characterize the far-field impact of scavenging from the northern EPR hydrothermal plume, and compare the intensity of scavenging with the plume at a comparable distance from the EPR in the South Pacific.
- 4) Previous studies suggest that bottom scavenging is much less intense in the North Pacific than in the South Pacific. Our working hypothesis is that the local apparent intensity of bottom scavenging is related to the proximity of benthic nepheloid layers that efficiently remove trace elements from deep water.

Other research targets will be pursued as well, but these are our principal goals.

We propose that Anderson and Hayes represent the group at the planning workshop.