Variability in Phytoplankton Size-structure between the Antarctic Polar Front and the Pal-LTER Region: Is there a Connection?

Montes-Hugo, M.A., Integrative Oceanography Division, Scripps Institution of Oceanography, University of California, San Diego, 9500 Gilman Drive, CA 92093, mmontes@coast.ucsd.edu; Vernet, M., Integrative Oceanography Division, Scripps Institution of Oceanography, University of California, San Diego, 9500 Gilman Drive, CA 92093; Smith, R., Geography Department, University of California, Santa Barbara, Santa Barbara CA 93106-4060; Baker, K., Integrative Oceanography Division, Scripps Institution of Oceanography, University of California, San Diego, 9500 Gilman Drive, CA 92093

The size-distribution of phytoplankton communities is one essential component which drives carbon fluxes between the atmosphere, ocean and sediment reservoirs. Recent findings have shown a link between chlorophyll a variability in waters of the Antarctic Polar Front (APF) and west of the Antarctic Peninsula (WAP), and the Antarctic Oscillation. It is hypothesized that variations on phytoplankton-size structure in both regions are also related to the same mechanism. Time series of SeaWiFS-derived spectral shape of particle, and total (b_b) backscattering were generated between 1997 and 2006 at the APF and within the Palmer Long-term Ecological Research Project (Pal-LTER) study area. Spectral backscattering models were related to in situ fractions of chlorophyll a measured over the Pal-LTER region. Preliminary results are discussed regarding potential tele-connections between APF and WAP size-structure of phytoplankton communities.