“Primary productivity and respiration in the North Pacific Transition Zone”

The balance between gross primary production (GPP) and community respiration (CR) in the surface ocean reflects the amount of organic matter that can be exported to deeper waters via the biological pump, thereby regulating atmospheric CO2 concentrations. Positioned between the North Pacific subtropical and subpolar gyres is a region of strong hydrographic and biogeochemical gradients, the North Pacific transition zone. Within the transition zone there is a dynamic feature, the transition zone chlorophyll front (TZCF), characterized by high biomass and chlorophyll a concentrations. This feature has been recognized as a hot spot for biological productivity and biologically-induced CO2 flux, as well as an important area for pelagic fauna and relevant fisheries. In this seminar I will describe an interdisciplinary on-going research project that aims to understand what drives the high productivity and net community production values that characterize the TZCF, and I will present and discuss productivity and respiration results collected during two cruises along a meridional transect in the NE Pacific Ocean, from the subtropical to the subpolar gyre.