

Tuesday, October 9

Poster Session 2

10:30–12:30

Poster 249

MULTILAYER APPROACH TO PLANKTON ANALYSES IN CONTRASTING TROPHIC SYSTEMS OF NORTH PACIFIC

The plankton community was sampled during the Sea2Space Particle Investigation Expedition in winter 2017 along the trophic gradient transect (four stations) from Hawaii to Columbia River. The phytoplankton was investigated using LM, SEM and pigment analyses, while whole plankton community (bacteria and heterotrophs) was in detail identified via high-throughput sequencing of 16S rRNA and 18S rRNA genes. According to microscopy, the phytoplankton community was mainly comprised of coccolithophores (35.5%), diatoms (25.2%) and dinoflagellates (19.5%), while cryptophytes, phytoflagellates, silicoflagellates and others contributed with 19.8%. Chemotaxonomic results are congruent with the microscopy mainly in case of diatoms, coccolithophores and cryptophytes whose bioindicator pigments were high in concentration. Bacterial community was dominated with Alphaproteobacteria (52.6%), Gammaproteobacteria (16.6%), Cyanobacteria (8.5%) and Bacteroidetes (3.7%) throughout all stations, while Actinobacteria (5.1%) and Deltaproteobacteria (2.6%) were higher in number in samples taken from greater depth and closer to the coastline. Eukaryotic community diversity was assessed in ultraplankton fraction (0.2 – 5 microns) and greater than 5 microns. Ultraplankton eukaryotes were dominated with parasitic dinoflagellates (order Syndiniales, 41.7%), other Dinophyceae (10.7%) and Stramenopiles (11.8%), while higher production by green algae (Mamiellophyceae, 12.7%) was observed in eutrophic samples. Eukaryotes greater than 5 microns showed different composition, dominating by metazoan sequences (mainly Arthropoda and Cnidaria) and larger dinoflagellates, while primary producers were scarce. This study provided important and useful results to be used in development of algorithms and sensor calibration in orbital satellites by which it will be possible to observe the subtle color differences of the ocean.

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