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IUGG 2019

P02a - Physics and Biogeochemistry of Semi-Enclosed, Shelf Seas, and Coastal Zones

Abstract: IUGG19-2445

Effect of Short-term Environmental Change on Phytoplankton Composition in the Amundsen Sea Coastal Waters (Antarctica) during the Austral Summer 2016

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The Amundsen Sea is the current hotspot of rapidly thinning ice shelves in Antarctica and the most productive of the coastal polynya systems in the Antarctic. To investigate the effect of short-term environmental change on phytoplankton composition, a field survey was conducted during austral summer in the Amundsen Sea. Five stations were visited twice in January and February 2016. Phytoplankton species abundance and photosynthetic pigments were studied using microscope and HPLC, respectively. Photosynthetically available radiation was low in January, but increased in February. Phytoplankton abundance showed different variation depending on species. In February, *Phaeocystis antarctica* and small size diatoms, *Fragilariopsis* spp. and *Pseudonitzschia* spp., were increased in abundance, while large size diatoms, *Proboscia alata* and *Corethron pennatum*, were decreased in abundance in the surface layer. Although total phytoplankton abundance has increased in February, total phytoplankton biomass was decreased in February compared to that in January due to a decrease of large size diatoms which are significant contributors to phytoplankton biomass. This study shows that phytoplankton composition might be affected by different responses of species to light and various sinking rates depending on cell size in the coastal waters of the Amundsen Sea during austral summer.

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