

# Spatial pattern of phenology in the Ross Sea Polynya using multi-temporal MODIS chlorophyll data

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Ross Sea Polynya (RSP), the largest polynya around Antarctica, is the regions with the highest primary productivity (annual production of 150 to 200 g C m<sup>-2</sup>) in the Southern Ocean. It is also traditionally known for taxonomically distinct regimes: the south-central areas are dominated by *Phaeocystis Antarctica* and to the west diatoms are abundant. Such distributions are mainly influenced by the various environmental forcings such as irradiance, temperature, and wind systems. We analyzed the spatial pattern of phenology in the RSP using weekly mean MODIS 9-km chlorophyll data for last several years. In this process, feature extractions of the phenology were conducted using the shifted Gaussian filter and then we conducted the parameterization about the phytoplankton bloom with respect to growth rate, initial and terminative timings, peak intensities and periods of bloom. Additionally, this study was performed to understand what physical drivers mainly affect on the phytoplankton assemblage in terms of the relevant parameters.