



# IV ROSS SEA CONFERENCE 2023

Università degli Studi di Napoli "Parthenope"

Via Amm. F. Acton, 38 - 80133 Napoli, ITALY

3-7 July 2023, Via Acton 38, Naples-Italy

**Topic:** Marine biology and ecology



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**ABSTRACT Subject :**

Shift in phytoplankton communities below the Antarctic Landfast Ice During the Melt Season Between Late Spring and Early Summer in Terra Nova Bay



**Abstract** 15/02/2023 12:16:24

In the last decade it has become clear that the ongoing climate changes have direct impact on the microalgal communities of the Terra Nova Bay (TNB), one of the most productive areas in the Ross Sea. Changes in physical forcing, biogeochemical cycling might affect the phytoplankton bloom dynamics and composition in the water column under the landfast ice and at the platelet ice interface. Diatoms are known to dominate the the water column under the landfast ice although to date, scarce information is available on the phytoplankton bloom dynamics and how this might be affected by climate changes. In this study, phytoplankton abundance and species composition were investigated in the first 50 m of the water column under the 2.5 m thick landfast ice from December 2015 to January 2016 in TNB. For the first time, we report two intense blooms (mid-December, late December) dominated by nanoflagellates (<15  $\mu\text{m}$ ) which included Chrysophyceae, Bolidophyceae, Prymnesiophyceae and Chlorophyceae, typically found in fresh waters. These species represented from 40% to 91% of the total phytoplankton community, a data never reported before in an area that several studies consider to be dominated by diatoms. The increasing inflow of continental water into the marine environment and the reported changes in phytoplankton species composition may directly affect the lower levels of the food web, with consequences on grazing and nursery of zooplankton species, and therefore the whole biogeochemical cycles. Our results could represent an early sign of climate change effects shaping Antarctic communities in one of the most important region of the entire Southern Ocean.