ARCTIC 2023 – PROJECTS SELECTED FOR IMPLEMENTATION

Habitat template microbial signaturEs and iconic life in a changing Arctic Ocean (ELENO)

PI, LEAD INSTITUTION

Maurizio Azzaro, CNR-ISP, IT

ABSTRACT

The Arctic and sub-Arctic regions have experienced rapid warming during the past decades. Moreover, the continuous decline in sea-ice extent and thickness and the increasing river discharges are important recorded findings. Arctic Amplification, Atlantification and Ocean Acidification are a series of stressors experienced directly and indirectly by the species living in the Arctic and sub-Arctic Ocean today. In fact, large changes are taking place beneath the ice/ocean interface where water masses and ocean life interact across a range of temporal and spatial scale. **ELENO** project seeks to quantify the present state of the physical, chemical, biological and biogeochemical systems of the Arctic Ocean. As part of the Synoptic Arctic Survey 2020/23 (SAS), **ELENO** will operate with a multidisciplinary approach, making use of common protocols. Emphasis of the project will be also devoted to understanding the major ongoing transformations on the water masses, the marine ecosystem and the carbon cycle. **ELENO** aims at expanding the marine Arctic study area of the ongoing project CASSANDRA (who is Eleno's twin sister in Greek mythology; PI Maurizio Azzaro) funded by the Italian Arctic Research Program (PRA). **ELENO** will therefore generate a dataset that will lead to an almost complete characterization of the Arctic Ocean by focusing on hydrography, carbon remineralization and ecosystem functioning, and iconic life. The obtained results will provide a unique baseline that will contribute to track climate change and its impacts as they unfold in the Arctic over the coming years and decades. There can be no doubt that not only future generations of polar scientists will benefit from such a baseline, but also decision makers.