
NATIONAL REPORT OF ITALY

This report summarizes the main activities carried out by the Istituto Idrografico della Marina (IIM) in the Arctic Region.

1. HYDROGRAPHIC OFFICE

The IIM is in charge of all the official nautical documentation published in Italy and supports the Ministry of Defence for all the related matters.

Our mission is to support and to contribute to the safety of navigation and to the National Defence, to promote the study of all sea related matters and the protection of the marine environment.

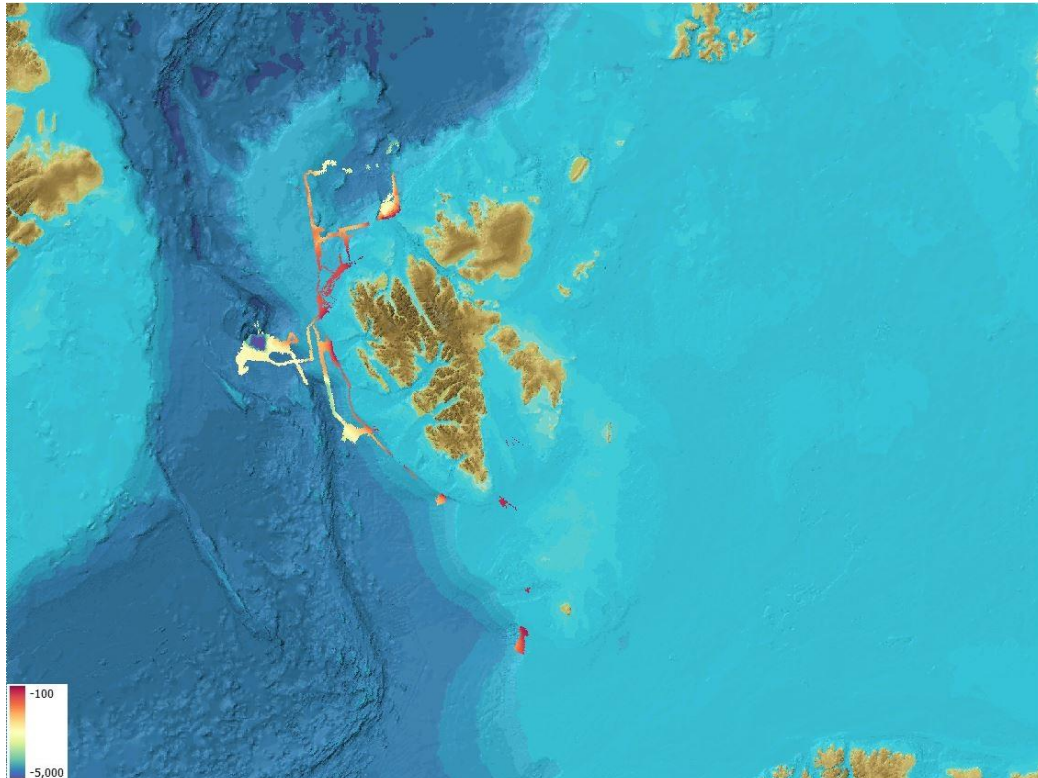
The IIM has an active role in the study and protection of the sea, from a scientific, technological and environmental point of view. Scientific research has always been crucial for the IIM along with cooperation with primary research centers and universities and taking part in national and intergovernmental working groups in the fields of hydrography and oceanography. Among others, the IIM was tasked with the hydrographic surveys and charting of three ENCs and paper charts of the Western Ross Sea – Antarctica.

2. HYDROGRAPHIC SURVEYS IN THE ARCTIC REGION – 2021

The Italian Navy – acting as national marine focal point for the Arctic research activities – with the scientific support of the IIM, at the begin of the 2020, has confirmed the Pluriannual Joint Research Program in the Arctic named HIGH NORTH for a new three years. IT Navy HIGH NORTH Program, was recognized Action 35 of the UN Decade of Ocean Science for Sustainable Development by IOC UNESCO <https://www.oceandecade.org/resource/166/Announcement-of-the-results-of-the-first-endorsed-Decade-Actions-following-Call-for-Decade-Actions-No-012020>. IT Navy addresses a particular attention to the UN Ocean Generation and during HIGH NORTH21 six young researchers were part of the scientific team in order to support the action of the UN Ocean decade with ECOP (Early Career Ocean Professional) involving in the vision of the “Science we need for the ocean we want”. The HIGH NORTH Program aims to contributing to Oceans’ knowledge with data sharing, monitoring and observation, new technology and young ocean generation. The HIGH NORTH program is the result of a long-lasting cooperation and a strong synergy between the main Italian research Centres (CNR, OGS, ENEA and INGV), JRC-UE, NATO STO-CMRE and the ITALIAN NAVY. In addition, scientists and researchers from the Universities of Tromsø, Sorbonne, Siviglia, the IAEA and the Norwegian Defence Research Establishment, are contributing to the success of the program. HIGH NORTH is a synergic, multisectorial and multidisciplinary tools for a holistic approach in many sectors, such as advanced marine technologies, short and long term observations and education to the study of marine dynamics and seabed mapping in the Arctic. In particular the HIGH NORTH 2020-2022 Program has as its main objective the knowledge of the Arctic Ocean (Svalbard area), in support at the attention of the global community to the gap of the knowledge and the rapidly changing, at the beginning of the UN Decade of Ocean Science for Sustainable Development (2021-2030). This ocean knowledge is based on exploration and study of unsurveyed area. A specific role in the HIGH NORTH program is played by the high education courses with a new generation of young researchers and hydrographers on field. In particular, IIM is involved in the activities of GBCO-IBCAO and SEABED2030 project with HIGH NORTH data and results in coordination with international community.

In order to contribute in exploration and high-resolution seabed mapping, during HIGH NORTH21, hydro-oceanographic data was collected using a multibeam echosounder (Kongsberg EM 302 - 30 kHz) installed onboard Italian Navy R/V Alliance.

HIGH NORTH21 hydrographic survey focused on two main areas: Molloy Hole and North-west Svalbard. The image below summarizes the area surveyed during the HIGH NORTH program from 2017 to 2021.



HIGH NORTH surveyed area

3. NEW CHARTS AND UPDATES

Not Applicable

4. NAUTICAL PUBLICATIONS

Not Applicable

5. MSI

Not Applicable

6. C-55

Not Applicable

7. CAPACITY BUILDING

Not Applicable

8. OCEANOGRAPHIC ACTIVITIES

High North21 was conducted during the last ARHC10 from May 21st to July 11th. The main goal was focusing on the unsurveyed area close to the sea ice-edge and observation sites, maintaining annual mooring as part of SIOS. Two new yearly moorings (CIO I e CIO II) in joint with CMRE and ONR have been deployed in the Molloy area to monitor the water masses with in-situ oceanographic short term and long term observations. In particular CIO I has been deployed in the deepest sector of the Arctic Ocean, Molloy area (78° 53,663' N 001° 44,574' E and 2510 m water

depth) and CIO II is in the Fram Strait, continental slope sector close to Svalbard, Isfjorden (77° 42,002' N 008° 59,750' E and 1720 m water depth). The data collected during HIGH NORTH21 is devoted to the bottom mapping (over 8500 km² surveyed area and 230 sampling stations), water column and seabed features characterization (33 CTD rosette sites, 9 box corer sites) collected sediment at 2516 m depth, acoustic imaging of the seabed, marine optical research (40 stations) and remote sensing data in order to obtain a 3D mapping of the area (Fram Strait and Yermak Plateau, Arctic Ocean). The research activities are focused to study the seabed and the evolution of observed oceanic processes under different climate and environmental condition to evaluate the variability of bio-geo chemical and physical parameters, marine pollution, speed, depth of Western Svalbard current (surface and deep), the Arctic dynamics and the relationship with changes in North Atlantic circulation. High North21 is innovation technology and research for a sustainable ocean with the implementation of the ARNACOSKY project (ARctic NAVigation with COsmo SKYmed), a joint activity IIM and e-Geos, for the best route along the marginal ice and its environment monitoring.

9. OTHER ACTIVITIES

9.1. DATA POLICY

All the collected hydrographic data will be made available to the Norwegian Hydrographic Service, to the IHO DCDB, to the International Bathymetric Chart of Arctic Ocean (IBCAO) Vers.4.0 and to GEBCO Seabed2030 project.

All the hydrographic data were collected and will be shared with the ancillary information in compliance with the IHO standards.

9.2. ARCTIC COUNCIL

Italy contributes to the works of the Arctic Council subsidiary bodies, following the prescribed rules for the observers, and participates in the Ministerial and SAO meetings through a senior diplomat of the Ministry of Foreign Affairs and International Cooperation (MFAIC).

The Italian Navy has been representing Italy in the Arctic Council WG Environmental Preparedness Prevention and Response (EPPR) since 2016, contributing to the coordination of the activities by the two subgroups - Marine Environmental Response Expert Group (MER EG) and Search and Rescue Expert Group (SAR-EG).