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

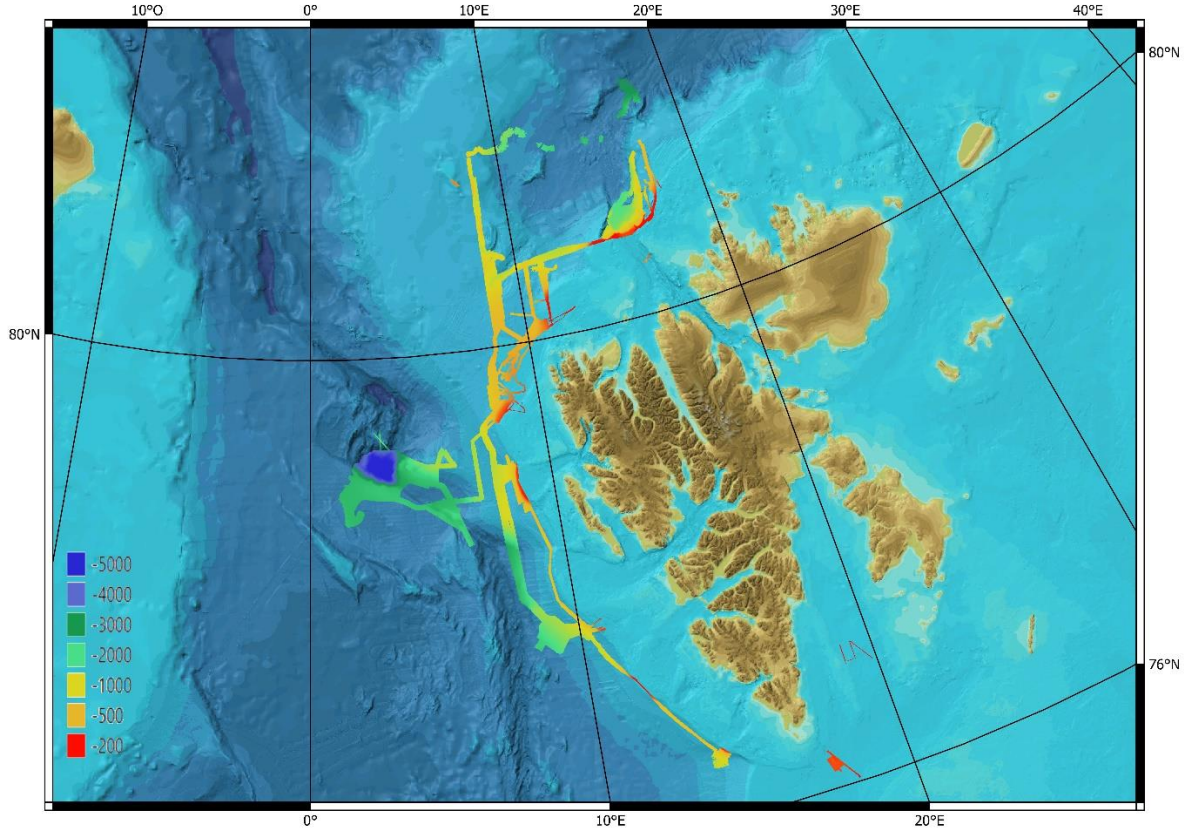
The IIM is in charge of all the official nautical documentation published in Italy and supports the Ministry of Defence for all related matters. Our mission is to support and contribute to the safety of navigation and to the National Defence, to promote the study of all sea related matters and the protection of the marine environment.

2022 is the 150th anniversary of the foundation of the Hydrographic Institute of the Italian Navy: a navigation that began more than a century and a half ago, strongly desired by the newborn Nation that needed to be connected to the rest of the world thanks to a modern cartographic portfolio representing its ports and its waters.

2. HYDROGRAPHIC SURVEYS IN THE ARCTIC REGION – 2022

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, recognized as Action 35 of the UN Decade of Ocean Science for Sustainable Development by IOC UNESCO. 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. HIGH NORTH22 was characterize by the presence of eight young researchers as part of the scientific team in order to support the action of the UN Ocean decade with ECOP (Early Carrier Ocean Professional) involving in the vision of the “Science we need for the ocean we want”. In order to contribute in exploration and high-resolution seabed mapping, during HIGH NORTH22, hydro-oceanographic data was collected using a multibeam echosounder (Kongsberg EM 302 - 30 kHz) installed onboard Italian Navy R/V Alliance.

HIGH NORTH22 hydrographic survey focused on two main areas: Molloy Hole and North-east Svalbard. The image below summarizes the area surveyed during the HIGH NORTH program from 2017 to 2022.



HIGH NORTH surveyed area - 2017/2022

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 North22 was conducted from July 1st to July 22nd. The main goal was to focus on the unsurveyed area close to the sea ice-edge. The data collected during HIGH NORTH22 is devoted to the bottom mapping (over 3100 km2 surveyed area and 103 sampling stations), water column and seabed feature characterization (50 CTD, 9 drifter), acoustic imaging of the seabed, remote sensing data in order to obtain a 3D mapping of the area (Fram Strait and Yermak Plateau, Arctic Ocean). The research activities were focused to study of the seabed and on the evolution of observed oceanic processes under different climate and environmental conditions to evaluate the variability of bio-geo chemical and physical parameters, marine pollution, sound speed, depth of Western Svalbard current (surface and deep), the Arctic dynamics and the relationship with changes in North Atlantic circulation.

9. OTHER ACTIVITIES

9.1. ITALIAN NAVY IN THE ARCTIC

The Italian Navy, in line with the Italian Arctic Strategy, will maintain its presence in the Arctic area through the Hydrographic Office and its research activities. The HIGH NORTH has concluded its sixth edition this year, the next High North23 will continue on the path traced up to now, with particular attention to the "UN Decade of Ocean Sciences for Sustainable Development" and the action n.35 "IT NAVY HIGH NORTH PROGRAM". Once again, we will continue to focus our effort on the unsurveyed area close to the sea ice-edge and on the 3D mapping from satellite to the seabed.

9.2. NEW HYDRO-OCEANOGRAPHIC SHIP

The Italian Navy has started a program concerning the acquisition of a new Hydro-Oceanographic Ship, the NIOM (new Major Hydro-Oceanographic Ship), an ICE-CLASS vessel, will have the following characteristics: displacement of 5,400 t, length of 106 meters and width of 18 meters. It will be equipped with large work areas suitable for hosting numerous types of scientific equipment for marine environmental monitoring, dry and wet laboratories, core drills, Remotely Operated Vehicle (ROV), Autonomous Underwater Vehicle (AUV), Unmanned Aerial Vehicle (UAV), Unmanned Surface Vehicle (USV).

9.3. INNOVATION TECHNOLOGY

The Italian Navy and the Hydrographic Institute have started the new decade by investing in technological innovation projects. In particular, the SMART TECH project will see the presence of a satellite component for Earth Observation, with the expected use of the European satellite segments COPERNICUS, national civil and military satellites, such as COSMO_SKYMED, PRISMA, and finally commercial satellites. The aim will not only be to support cartographic production, but also to support the needs in the oceanographic, geophysics, and marine geology fields. This segment will run in parallel with a segment of uncrewed vehicles in the three spaces, air, surface, and underwater, with the aim of integrating the information acquired and supporting numerical modeling with ground truth.

9.4. 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) and to GEBCO Seabed2030 project.