

NorEMSO - The Norwegian node for the European Multidisciplinary Seafloor and water column Observatory

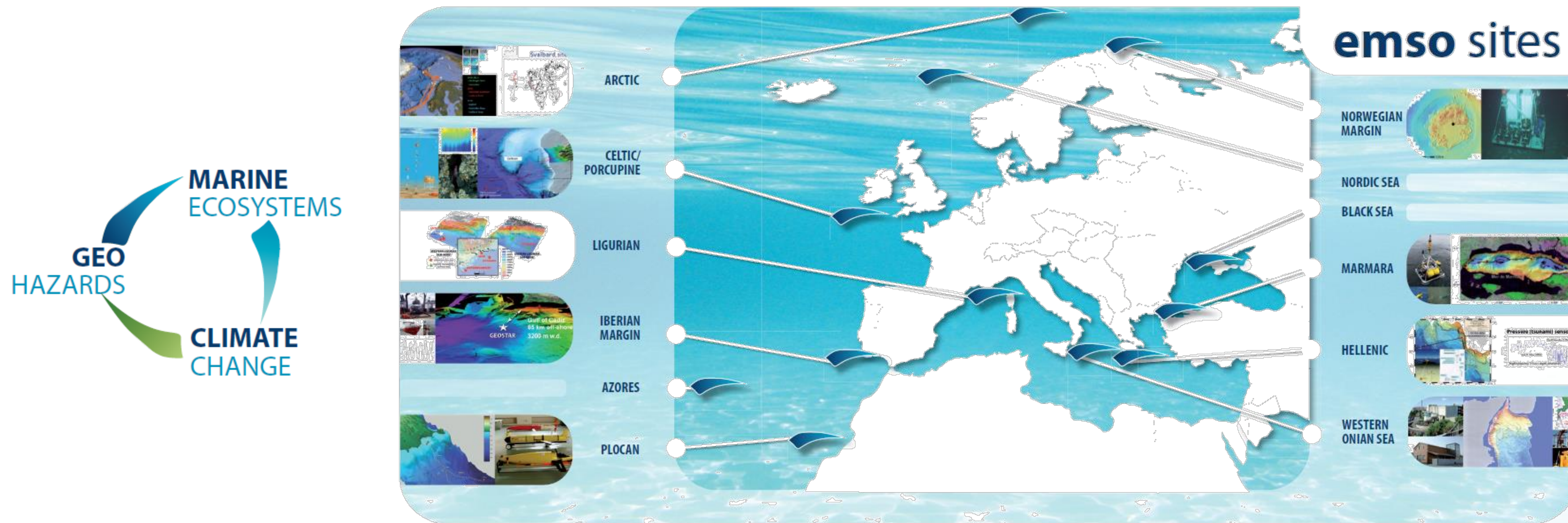
Abstract EGU2020-7248

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EMSO PP - European Multidisciplinary Seafloor Observatory

European network of fixed-point deep-sea observatories addressed to Marine Ecosystems, Climate Change and Geo-hazards long-term monitoring and inter-disciplinary studies



EMSO ERIC – Regional facilities

Geosciences

Seismicity
Gas hydrate stability
Seabed fluid flow
Submarine landslides
Submarine volcanism
Geo hazard early warning

Biogeochemistry

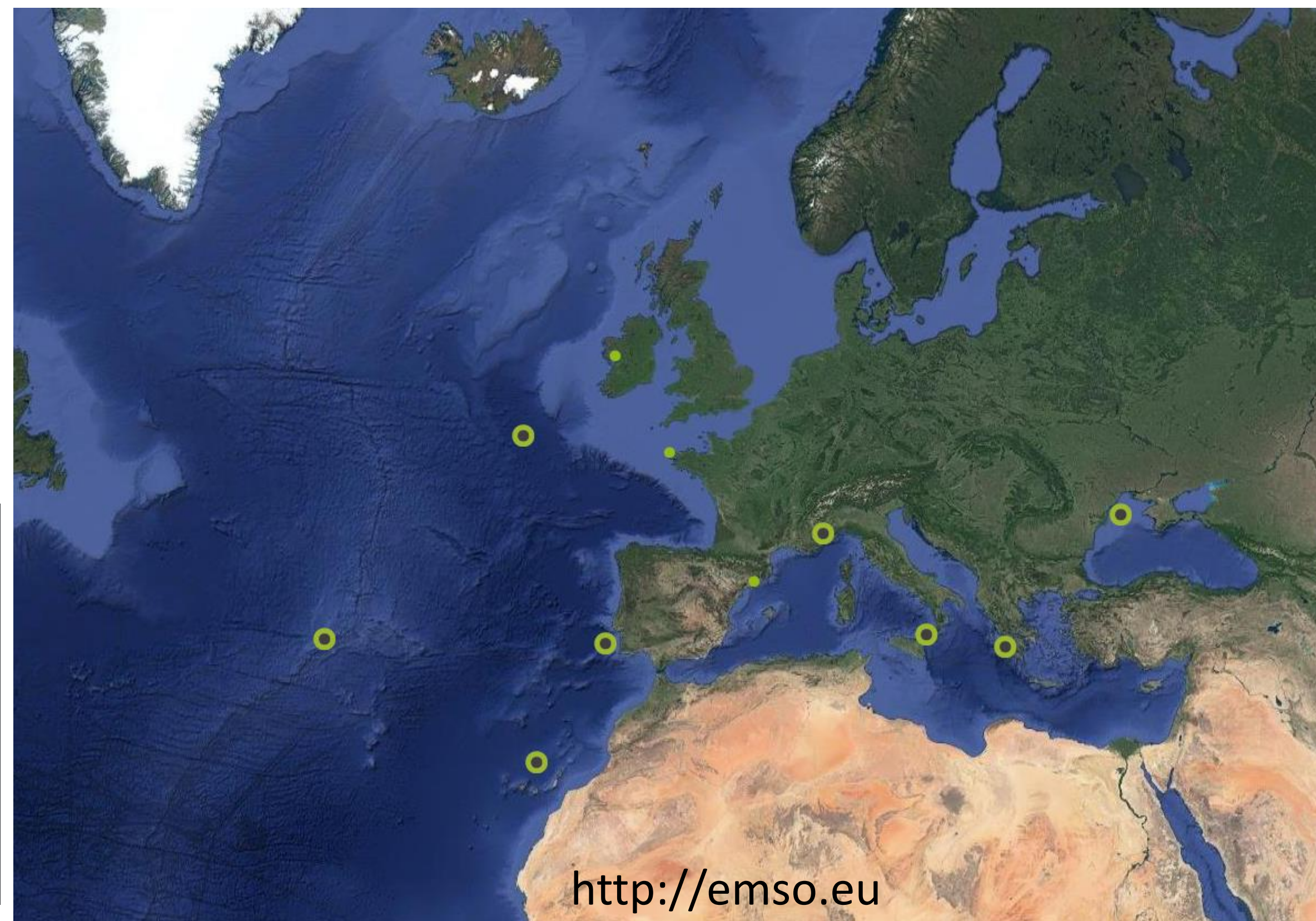
Ocean acidification & solubility pump
Biological pump
Hypoxia
Deep-ocean biogeochemical fluxes
Continental shelf pump

Marine ecology

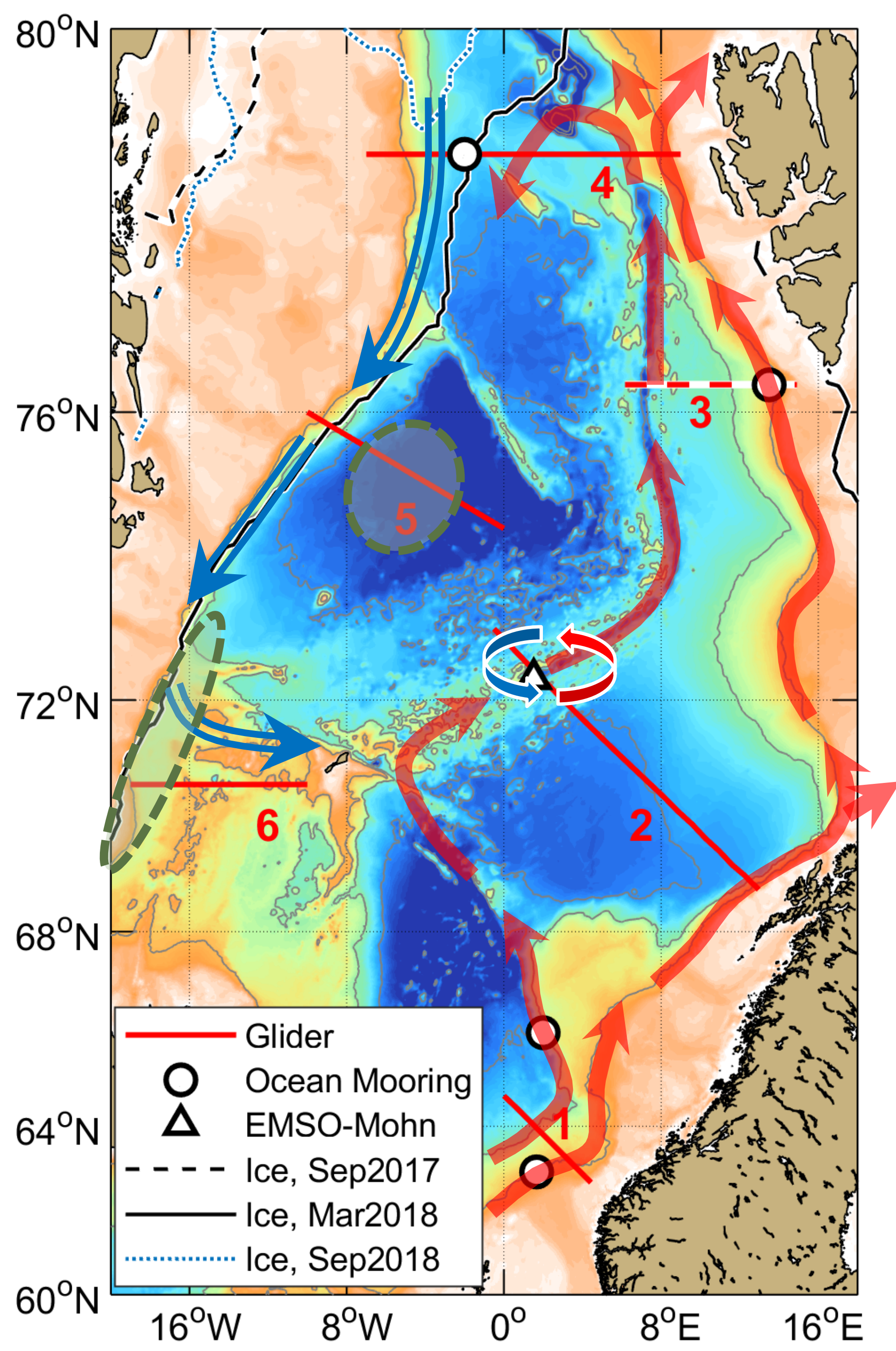
Climate forcing of ecosystems
Molecules to microbes
Fisheries
Marine noise
Deep biosphere
Chemosynthetic ecology

Physical oceanography

Ocean warming
Deep-ocean circulation
Benthic and water column interactions
Marine forecasting



The Norwegian node for the European Multidisciplinary Seafloor and water column Observatory



- 60 millions nok from INFRASTRUKTUR call
- Establish and expand a unified national monitoring of water bodies
- Contribute to the European deep-sea observation network
- Monitor sea circulation and acidification, physical processes in the water column from the surface to the great depths, as well as the ecosystem and water masses at the newly discovered hydrothermal site on the Mohn Ridge

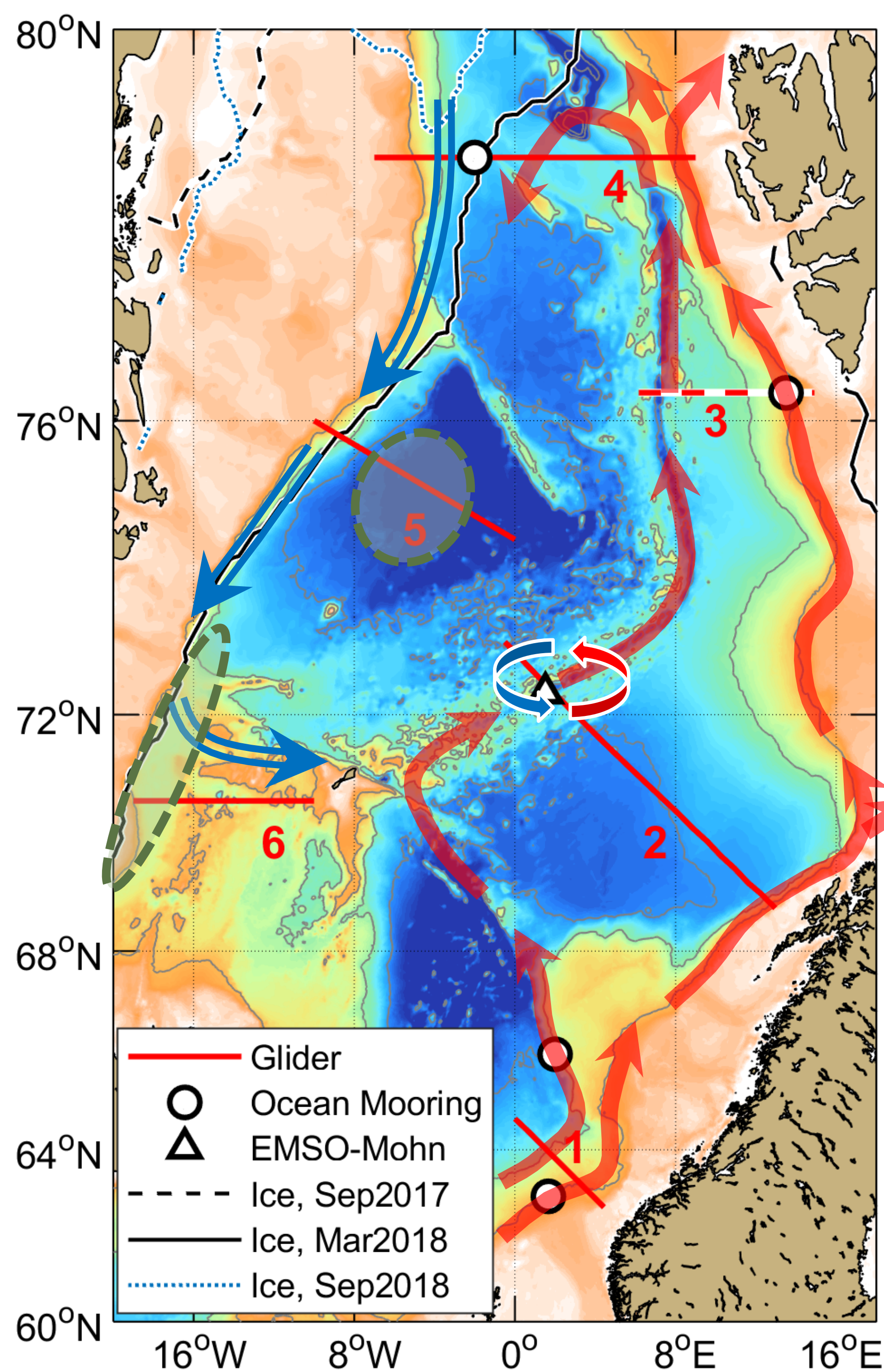
The **N**orwegian node for the **E**uropean **M**ultidisciplinary **S**ea floor and water column **O**bservatory

The network of NorEMSO in the Nordic Seas has three main components:

Glider sections (red): (1) Svinøy, (2) Gimsøy and (3) South Cape West, (4) Fram Strait, (5) Greenland Sea and (6) Iceland Sea

Moored observation systems (circles): Svinøy, Station M, South Cape, and Fram Strait

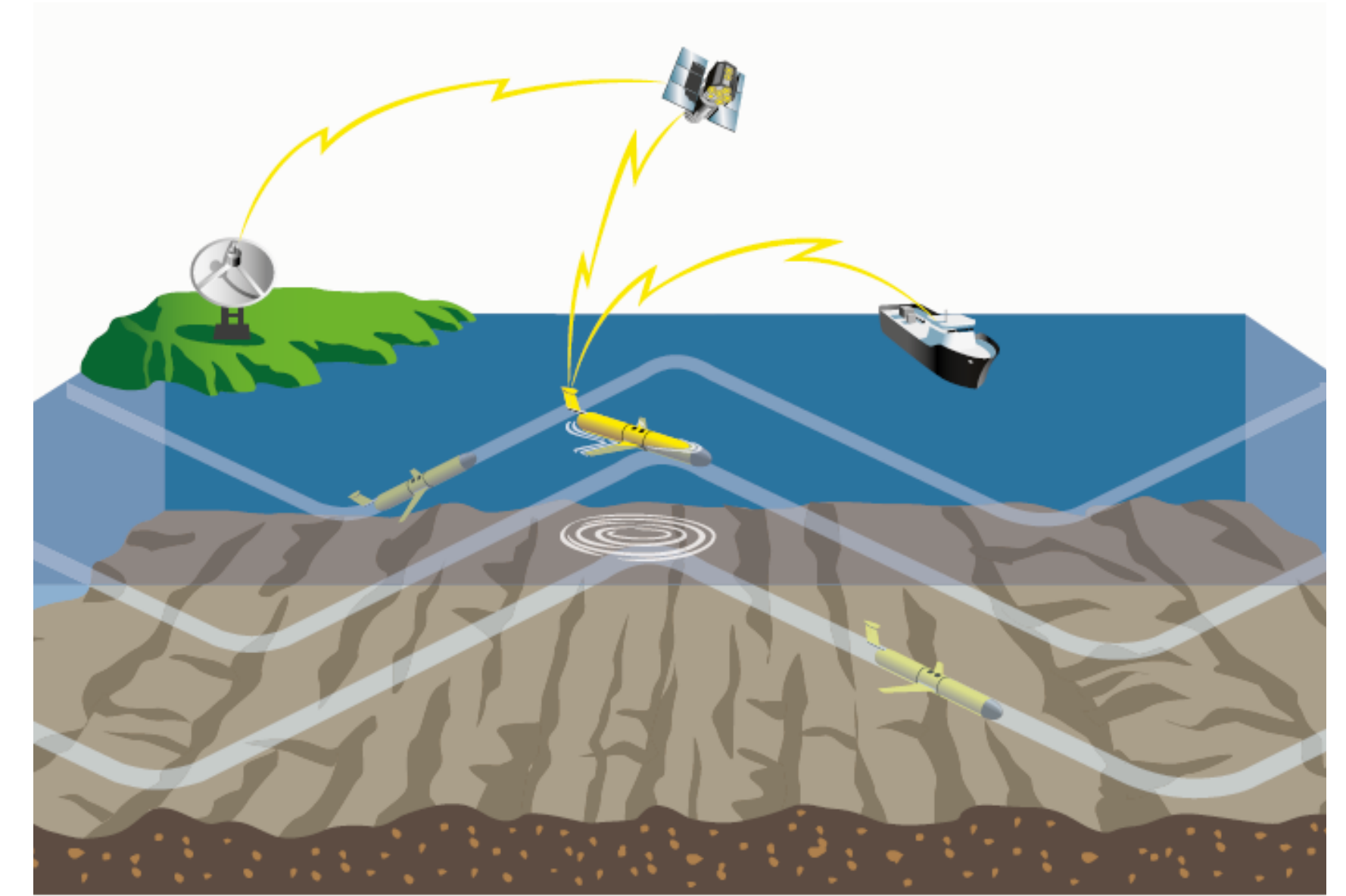
The **EMSO Mohn** observatory over the Mohn Ridge (triangle)



Integration across Nordic Seas
Exchanges, transformations

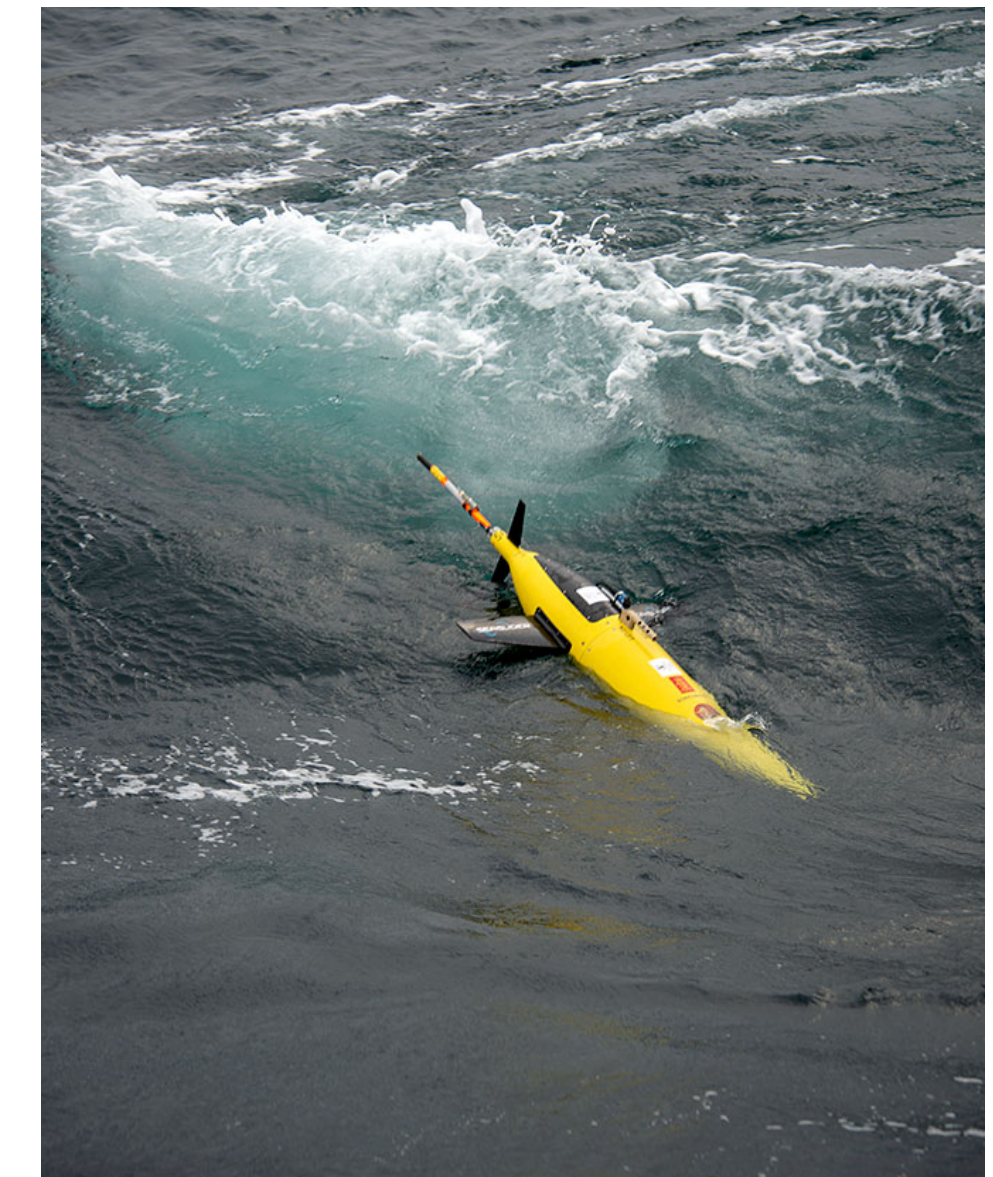
Ocean Gliders

- sustainable, fine resolution observations even in severe weather conditions
- upper 1000 m, 4-6 h cycle, 20-25 km/day horizontal speed, 4-12 mon. deployments
- Impact ocean modeling and forecasts

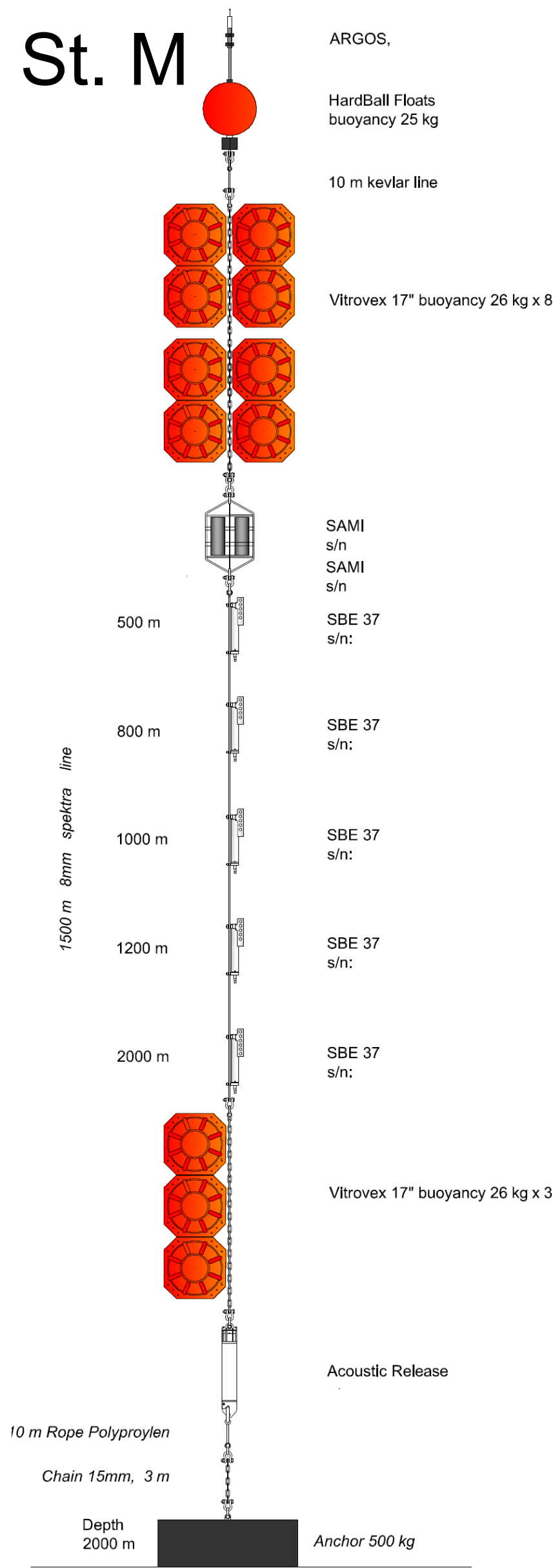


Norwegian National Facility for Ocean Gliders

- <http://norgliders.gfi.uib.no>
- As of today, 5 Kongsberg Seagliders, 2 TDW Slocums
- Piloting tool & **Glider Portal** developed at GFI
- A **Glider Lab** and 24/7 operation team of pilots
- Near real-time data delivery
- NorEMSO will expand on the glider facility by
- 5 new deep gliders
- a national team of pilots, by training and integrating technicians from partner institutions

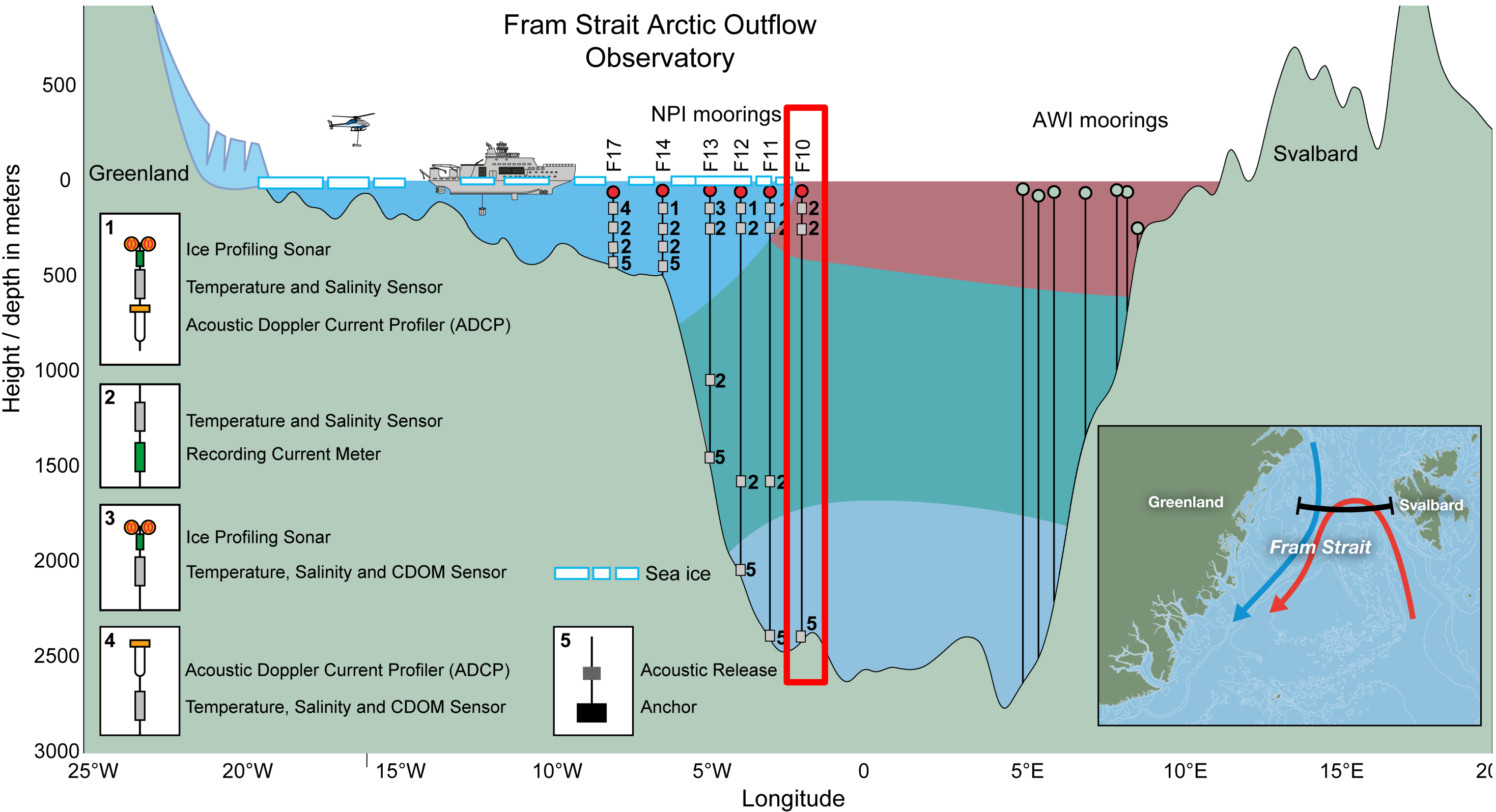


Moorings



Continuation of long-term observations

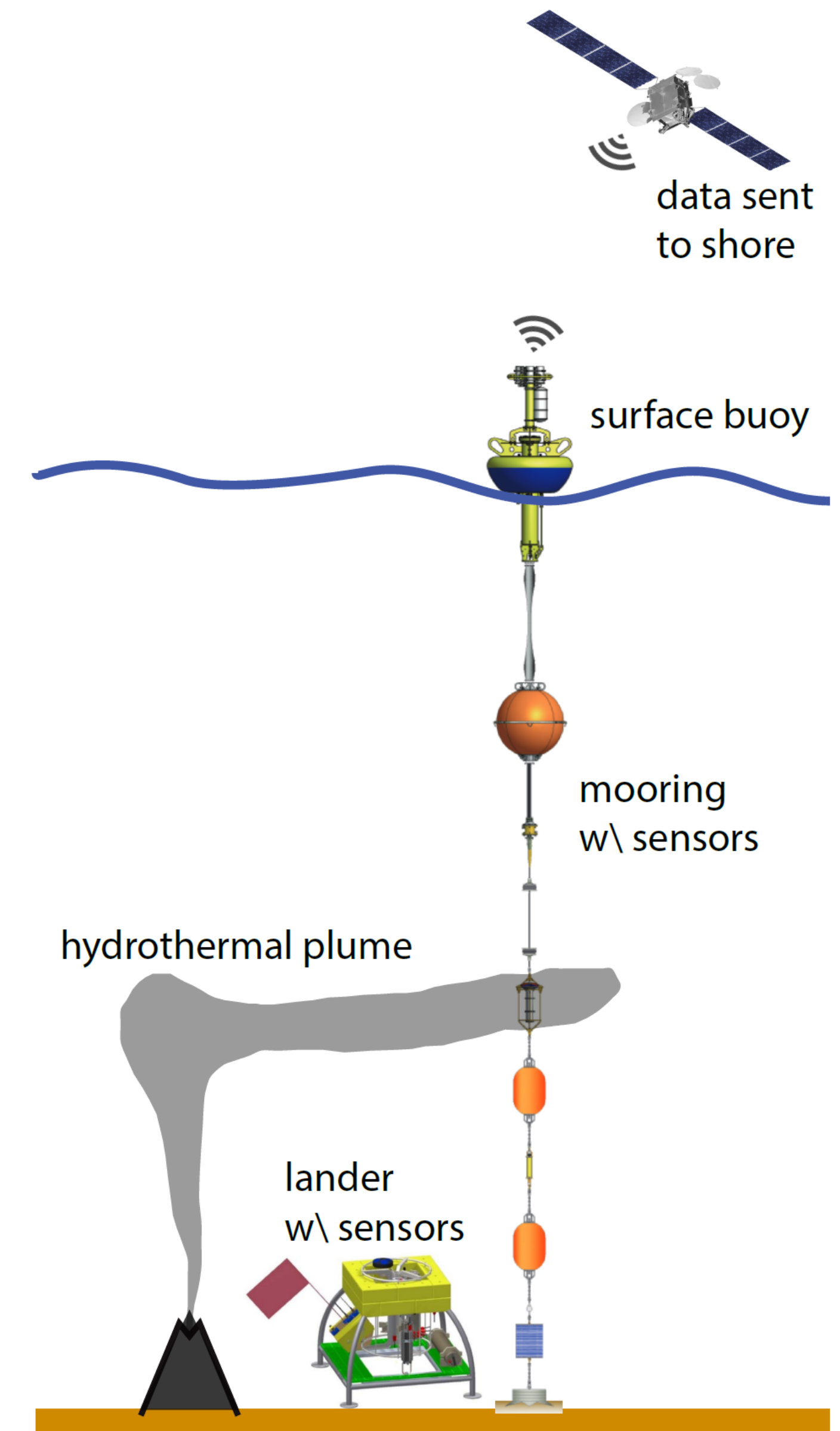
Station M (only subsurface); Svinøy; Fram Strait



Courtesy of Norwegian Polar Institute

EMSO - Mohn

- At a hydrothermal vent site on Mohn Ridge, co-located with a glider section
- A fixed-point seabed-based compact and wireless observatory with a multidisciplinary approach – from geophysics and physical oceanography to ecology and microbiology
- Sensors include an Acoustic Doppler Current Profiler, a pressure gauge, a temperature probe, a conductivity sensor, a turbidity meter, an optode, and a hydrophone
- Acoustic modems enable wireless communications
- Data Processing Unit for on board data reduction



Data management

- Open Research Data Pilot ; FAIR data management principles
- free and open access to all metadata and data (NRT and delayed mode)
CC BY 4.0 and NLOD (Norsk lisens for offentlige data)
- Data will be delivered and made available through the Norwegian Marine Data Centre (NMDC) and international portals such as CMEMS, EMODnet, Coriolis, SeaDataNet/SeaDataCloud, SEANOE
- The data management of NorEMSO will function as a regional node and use existing competence and data infrastructure at UiB (Bjerknes Climate Data Centre) and archives of the Norwegian Marine data Centre hosted by the Institute of Marine Research

