



# Early Career Scientist program on board I/B Oden 2023 (ARTofMELT2023 expedition)

The Swedish Polar Research Secretariat invites Early Career Scientists<sup>1</sup> to take part in an expedition with the Swedish Icebreaker Oden focusing on atmospheric rivers and the onset of sea ice melt (ARTofMELT). The ARTofMELT expedition will start in Longyearbyen, Svalbard May 7<sup>th</sup> 2023 and end in Longyearbyen June 15<sup>th</sup> 2023.

The expedition will target the North-Atlantic sector of the ice-covered Arctic Ocean, relatively far north of the ice edge. The purpose is to get to the areas where warm and moist air from the south penetrates into the Arctic and affects the sea ice melting. The aim is to understand this interaction between the lower latitudes and the Arctic and what happens at the onset of the annual surface melt, a central issue for many Arctic scientific disciplines.

With the aid of specialized weather forecasts, I/B Oden will navigate to positions where atmospheric rivers are expected to occur and detailed observations can be made when the warm and moist air arrives. While stationary, the ship will point into the main wind, with limitations in operations at the foredeck and in front of the ship due to the planned clean air sampling. Observations taken in-between events will provide a baseline. Most observations will be performed from on board the ship with possibilities for shorter ice-based observations, both while stationary waiting for an atmospheric river to arrive, and by helicopter during transits.

## **Research areas of the Early Career Scientist Program**

The Early Career Scientist program will be an educational initiative, where early career scientists will get experience from different types of scientific projects, a training on scientific communication, and there will be lectures given onboard from all projects involved in the expedition. The Early Career Scientist program will be based in a Work Package focusing on the upper ocean led by **Julia Muchowski from Stockholm University**. This physical oceanography program aims at characterizing the upper ocean and will be closely coordinated with the rest of the expedition. Knowledge on the ocean surface, its temperature and stratification, is important to estimate the transport of heat between the ocean and the atmosphere, and to understand and model ice conditions.

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<sup>1</sup> An Early Career Scientist (ECS) is here defined as a postgraduate (PhD) student or a scientist who has received a PhD-degree within the past seven years. The call is open for all Early Career Scientists, but ECS with Swedish affiliation will be prioritized.



The Early Career Scientists will collect CTD (conductivity, temperature, depth) measurements at several locations along the cruise track. In addition to salinity, temperature and pressure sensors, the CTD is also equipped with oxygen, dissolved organic matter, turbidity and fluorescence sensors, giving insights into, for instance, biological productivity in the upper ocean. The sensors are surrounded by water bottles which we will use to collect water samples at selected depths.

ECS will help to collect the data, monitor the data quality, perform basic maintenance on the CTD rosette and its sensors, and to protocol all measurements using deck sheets and a digital log book. CTD data will be backed up and processed immediately after each cast and processed data will be provided to other work packages.

Participating Early Career Scientists will also be involved in the work of several other projects, such as exploring upper ocean structure and dynamics, ice properties, the vertical properties of the lower atmosphere, aerosols and clouds and their impact on surface radiation budget. The data from the ARTofMELT expedition will be published as open data for public use on various data repositories.

Applicants that previously have been involved in marine, atmospheric and/or polar sciences are prioritized and the applicant should motivate how participation in the expedition could benefit the applicant's research project and/or research career.

The Swedish Polar Research Secretariat will evaluate the applications and make the final decisions, using the Principal Investigators and Chief Scientist Michael Tjernström (Stockholm University) as expert panel. The Secretariat strives for balance between gender, disciplines and affiliations. The selected group should be relatively "self-going" and a balance between experience and training is necessary to achieve the goals of the program. All prospective participants must do a medical screening before final selection.

The Swedish Polar Research Secretariat will cover travel and participation costs, living costs onboard Oden and the fee for Medical screening. Salary or per diem will not be covered.

## Application

Please, apply by sending an email to [marine@polar.se](mailto:marine@polar.se)

Submit your application before **10 February 2023** with the following attachments:

- Description of current research /studies
- CV
- Letter of support from your supervisor and/or Head of Department
- Motivation of how the participation will benefit your scientific career



# POLARFORSKNINGS SEKRETARIATET

SWEDISH POLAR RESEARCH SECRETARIAT

## Contact

If you have questions regarding the expedition, the call or similar, please contact Åsa Lindgren, [asa.lindgren@polar.se](mailto:asa.lindgren@polar.se), +46 70 785 56 01.