Post-Doc Position
"ARCTIC SEA ICE-PELAGIC COUPLING OF THE CARBON AND SULFUR CYCLES"
Dutch contribution to the MOSAiC campaign

Project description

This project will contribute to the ***M**ultidisciplinary drifting **O**bservatory for the **S**tudy of **A**rcti**c** **C**limate* (MOSAiC) field campaign (http://www.mosaicobservatory.org). MOSAiC is a multi-disciplinary, international Arctic research initiative that will study sea-ice dynamics and interactions with the atmosphere and ocean for a full year cycle, starting in Sept/Oct 2019. During this period, the icebreaker RV Polarstern will be used as a drifting platform, from which scientists operate. Our project has been granted 3 legs of approximately 2 months on board of RV Polarstern, of which one will be carried out by the postdoc. There will be multiple options for collaboration, both during and after the campaign.

The sea-ice sulfur cycle is one of the core parameters of MOSAiC. The volatile organic compound dimethyl sulfide (DMS) is an important contributor to aerosol particles. The precursor of DMS, dimethylsulfoniopropionate (DMSP) can reach extremely high concentrations in sea-ice, due to its potential physiological function for ice algae and because ice algae can reach very high biomass accumulations. The efficiency with which DMSP is converted into DMS varies over the seasons and depends on the composition and phenology of the lower trophic levels.

Our project will be leading in measuring the production of a full year-round time series of sulfur compounds in Arctic sea-ice and underlying seawater, using a state-of-the-art Proton Transfer-Reaction Time-of-Flight mass spectrometer. We will also provide process rates through the S and C cycles within sea-ice and pelagic ecosystems, using multiple isotope-addition experiments and contribute to identifying the composition and production rates of phytoplankton in ice and water. Our work connects with DMS-flux measurements to the atmosphere, methane measurements and molecular identification of the microbial community structure and productivity by international partners. By coupling the fluxes through the sulfur cycle with production and loss rates of primary produced organic carbon, we aim to unravel the role of the lower trophic levels in climate-regulating C and S cycles.

Job description and responsibilities

You will be part of a small team on Ecophysiology of Marine Microalgae, based at the University of Groningen, and will participate in the MOSAiC field campaign together with two colleagues.

During your leg on board of RV Polarstern, you will take sea-ice and water samples and directly analyze DMS(O/P) samples. You will collect additional biological samples and run on-board experiments using stable-isotope additions. You are also responsible for the continuous running of the PTR-TOF-MS.

During the time you are in the home lab, you are responsible for the analyses and evaluation of data taken by your colleagues on board. You will assist in processing the biological samples (HPLC-pigments, POC, phytoplankton counts etc.), process the data and prepare them for storage in data repositories.

You will publish at least one paper as first author on the DMS(O/P) timeseries and contribute to collaborative papers.

MOSAiC is a highly collaborative exercise. Therefore, a supportive attitude while working in a small community is a prerequisite.

What we expect from you

- you have a PhD degree in marine science, with knowledge of the marine sulfur cycle.
- you have ample working experience, preferably in polar regions
- You have significant experience in operating and maintaining analytical instruments, preferably a mass spectrometer
- you are eager to spend 2-3 months in the Arctic
- you are self supporting and a collaborative worker
- you are physically fit
- you have experience in data analyses and publishing papers

Organization

Founded in 1614, the University of Groningen, the Netherlands, enjoys an international reputation as a dynamic and innovative institution of higher education offering high-quality teaching and research. Flexible study programs and academic career opportunities in a wide variety of disciplines encourage the 30.000 students and researchers alike to develop their own individual talents.
The Groningen Institute for Evolutionary Life Sciences (GELIFES) is a research institute within the Faculty of Science and Engineering of the University of Groningen, located at the Linnaeusborg on the Zernike campus in the north of the city of Groningen.

Working conditions

You are based at the GELIFES centre of the University of Groningen and will become member of the Plant Ecophysiology/Ecophysiology of Marine Microalgae group. The appointment is for 2, potentially 3, year full-time position (the 3rd year will be decided on before end of March); part-time conditions are negotiable. Gross salary for a full-time position is €3,400 per month maximum and depends on experience.

Application deadline: 1 March.

Starting date to be negotiated.

If the position is taken later in the year, we will ask you to come over for a short period to be trained on the mass spec during April/May.

For more information about this vacancy, please contact:
Dr. Jacqueline Stefels, E-mail: j.stefels@rug.nl

Send an application letter plus CV, plus 2 references, to be approached when necessary, to
j.stefels@rug.nl