A PhD or mobility postdoctoral position in coupled physical-biogeochemical modelling.

A PhD or postdoctoral mobility position is available under a joint supervision arrangement at the Liège University (MAST group, Department of Astrophysics, Geophysics and Oceanography) and the Helmholtz Zentrum Hereon GMBH (HEREON) (Department of hydrodynamics and Data Assimilation). The PhD position is in collaboration with the Royal Netherlands Institute for Sea Research (NIOZ) in the Nederland.

The research project aims at understanding the Suspended Particulate Matter (SPM) dynamics on the continental shelf and, in particular, differentiating the effects of 1) physical and biogeochemical mechanisms and, 2) pelagic and benthic processes. This study will be performed using a coupled 3D hydrodynamical-biogeochemical-wave model. The hydrodynamical model is the Nucleus for European Modelling of the Ocean (NEMO), the biogeochemical model is the Biogeochemical Model for Hypoxic and Benthic Influenced areas (BAMHBI), and the wave model is (WAM). All these three models are run in forecasting and reanalysis mode for the Black Sea in the frame of the marine Copernicus program (CMEMS).

The position is offered in the frame of the recently funded 4-year Horizon-Europe project NECCTON (New Copernicus Capability for Trophic Ocean Networks).

Research activities
The candidate will have to develop and implement a module describing the mineral and organic SPM and in particular to:

1. parametrize the effect of waves in the erosion-resuspension process of SPM;
2. modulate these parameterizations considering the variability of the characteristics of benthic communities (e.g. biodeposition);
3. parametrize the aggregation and settling process in the water column;
4. Assess the impact of environmental changes on SPM dynamics and water clarity.

In addition to the scientific project described here above, the successful candidate will have to:

- Travel to project and international scientific meetings
- For the PhD candidate, to follow the Doctoral Formation mandatory for obtaining a PhD.

Requirements for application

- **For PhD candidate:** Applicants must have completed a master's degree (with minimum cum laude) in a field closely related to physics, engineering or equivalent.
- **For post-doc candidate:** Applicants must have a PhD in oceanography/meteorology with an expertise in numerical modelling. Candidates must be non-Belgian citizens and should not have lived and/or worked in Belgium for more than 24 months during the past 3 years.
- A capacity and interest to work in different fields of marine science including physics, biogeochemistry, ecological processes, data assimilation techniques.
- Talent for computational scientific work is necessary. The coupled model system will be implemented on HPC tier-1.
- Very good written and verbal English communication skills are required.
• Good communication skills for communicating results to different audience including general public in relation to dissemination activities.

Our offer
• A 4-year (for the PhD) and 3-year (for the post-doc) full time contract starting as early as possible
• An attractive salary.
• The successful candidate will benefit from a dynamic working environment benefiting from the research projects of the two groups in different fields of ocean physical and biogeochemical modelling connecting modelled predictions with observations and end-users requirements (e.g., Horizon Europe NECCTON, the Marine Copernicus international program, H2020 BRIDGE, H2020 DOORS, EU Digital JPI Ocean and Climate CE2COAST).
• Enjoyable living and working conditions. Both host institutions (in Belgium and Germany) offer comprehensive and innovative training programs, which enable early-career scientists to carry out their research in the best possible conditions, in compliance with the European Charter for Researchers. The candidate will also work closely with Prof. Karline Soetaert (NIOZ) for integrating information on the benthos in benthic-pelagic coupling.

How to Apply: The candidate should send by e-mail his/her curriculum vitae, full transcripts of Bachelor and Master studies (including notes), a covering letter of motivation, together with two references (name and email address), to Marilaure Grégoire and Joanna Staneva (email: mgregoire@uliege.be, joanna.staneva@hereon.de). The position will remain open until filled; but the selection will start from January 31st, 2023.

ULiege is strongly committed to promoting equality and diversity, and is labelled HRS4R for Human Resources ‘Excellence in Research Award’ for institutions (https://euraxess.ec.europa.eu/jobs/hrs4r). All appointments will be made on merit.

HEREON is strongly committed to promote severely disabled persons and those equaling severely disabled persons who are equally suitable for the position will be considered preferentially within the framework of legal requirements.