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Press release

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Exploring Antarctica on a sailing ship: mapping out biodiversity and identifying the microplastics that put it in jeopardy

In just a few weeks, Belgian and French researchers led by Bruno Danis (Marine Biology Laboratory, Faculty of Sciences, ULB) will set sail for Antarctica. Their goal is to take a census of marine biodiversity and to study the presence of plastic in the Southern Ocean. The mission's novelty is that it will be carried out… on a sailing ship!

On February 19, nine Belgian and French researchers will set sail for Antarctica. Under the leadership of Bruno Danis, from the **Marine Biology Laboratory (ULB Faculty of Sciences)**, they will depart from Ushuaia (Argentina) and reach the Gerlache Strait—on the Antarctic Peninsula—in March. The mission's novelty is that the researchers will embark… on a sailing ship! This type of ship has less impact on the environment and is nimble enough to reach areas that have not yet been explored by the massive icebreakers used by other research teams.

The goal of mission 'Belgica 121' is to observe how Antarctic marine ecosystems respond to climate change, especially in shallow waters. '*Antarctic marine ecosystems used to be well preserved, but they are now bearing the brunt of rapid environmental changes*', explains Bruno Danis. '*These changes manifest as an increase in water temperatures, changes in salinity, and a rapid melting of glaciers bordering the ocean. All this has direct effects on biodiversity!'* In order to study this, the researchers will take a census of biodiversity in these areas, which are highly exposed to rapid warming. They also intend to produce a detailed list of marine habitats up to 100 metres below sea level, as well as an inventory of organisms living on the ocean floor, using a combination of 'traditional' techniques (SCUBA diving, sample collection by hand in shallow water, dredging, grappling, etc.) and more modern ones (drones, remote-controlled submersible, 3D imaging, isotopic and genetic studies).

In addition, the research team will study the presence of microplastics in the Southern Ocean, in areas impacted by tourism. As they drift with the current and degrade in water, have plastic microparticles reached this environment that is—one would assume—still untouched by human activity? '*A number of articles published recently suggest this is the case, sadly*', explains Bruno Danis. '*Detecting and quantifying potential plastic contamination, and determining its distribution between the various components of marine systems (water, sediments, and organisms), are some of the steps required to estimate the impact of this anthropogenic pollutant on ocean ecosystems.*' In collaboration with other institutions, the team will take a closer look into contaminants (e.g. metal and persistent organic pollutants) that plastics appear to disperse over large areas.

The expedition is part of several initiatives, including projects 'Recto' and 'vERSO', funded by BELSPO's BRAIN-Be program *(watch the presentation video on project vERSO: https://tinyurl.com/ULB-VERSO)*.

The mission will run until March 28 (return in Belgium). A documentary film, made possible by a crowdfunding campaign, will be produced about the research journey and released at the end of 2019.

For more information: http://belgica121.be/
Follow Bruno Danis on Twitter: @marinebiologybe

Composition of the team:

- Ben Wallis, Ocean Expeditions *(Skipper)*
- Bruno Danis, Université Libre de Bruxelles *(Lead Scientist)*
- Camille Moreau, Université Libre de Bruxelles
- Charlène Guillaumot, Université Libre de Bruxelles
- Francesca Pasotti, University of Gent *(Lead Diver)*
- Franz Heindler, University of Leuven
- Henri Robert, Royal Belgian Institute of Natural Sciences
- Henrik Christiansen, University of Leuven
- Quentin Jossart, Vrije Universiteit Brussel
- Thomas Saucède, University of Burgundy

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