

DOCTORAL INPhINIT FELLOWSHIPS PROGRAMME – INCOMING FRAME

INFORMATION CALL 2020

Position

1. Project Title/ Job Position title:
Dispersion and impacts of micro- and nano- plastics in the tropical and temperate oceans
2. Area of Knowledge: (choose one option)
 - **Life Sciences**
 - or
 - **Physical Sciences, Mathematics and Engineering**
3. Group of disciplines: (choose one option)

LIFE SCIENCES

Animal, Plant, **Environmental Biology**, Physiology, Ecology and Conservation

PHYSICAL SCIENCES, MATHEMATICS AND ENGINEERING

Geology, Earth Sciences, Environmental and Atmosphere Sciences, Mines, Geological Engineering, Oceanography, Hydrology

Chemistry and Chemical Engineering

4. Research project/ Research Group description (màx. 2.000 caràcters)

Recently the acceleration of microplastic pollution has increased the need to develop novel collaborative tools for synergistic problems affecting coastal and oceanic ecosystems. One of the main hurdles is the lack of standardized, comparable and integrated information on smaller (micro- and nano-) plastic pollution (including plastic fragmentation, abundance and microplastic/nanoplastic sources, regional hot- spots of accumulation, and transport at the land-sea interface). The PhD project will contribute to the newly funded i-plastic collaborative

project (<http://jpi-oceans.eu/news-events/news/jpi-oceans-partners-and-brazil-fund-five-international-joint-projects-cutting-edge>) aiming to assess the dispersion and impacts of micro- and nano-plastics in the tropical and temperate oceans, from the regional land-ocean interface to the open ocean. It will quantify the seasonal transport and dispersion in three selected estuaries (hotspots of plastic sources) and adjacent coastal waters and shorelines under distinct flow and climate regimes (i.e., tropical and temperate systems). In-situ monitoring will be performed in the selected system of the eastern and western Atlantic Ocean and Mediterranean Sea. The impacts on distinct commercially valuable species (as part of the human diet) from the target regions will be addressed through in-situ observations and laboratory experiments. Finally, the data generated during the i-plastic project will be used to feed regional models for the dispersion of micro- and nano-plastics, which in turn will be used to elaborate a model of their dispersion at the Atlantic scale. In this context, the project will provide missing knowledge concerning the fate of plastics in the ocean and the effects of smaller plastics on the ecosystems of different areas worldwide, by making projections to understand the impacts and dispersion of micro and nano-plastics in the next decades of the Anthropocene.

5. Job position description (màx. 2.000 caràcters)

The candidate could have a background in environmental and marine sciences, biological and physical oceanography and excellent analytical and statistical skills. They should have a high level of communication and writing in English language.

The specific strategy of this PhD project includes:

- To determine and characterize the state-of-the-art of the microplastic pollution in target regions considering both continental and oceanic areas.
- To conduct periodical sampling in freshwater systems connected to the assessments of the microplastic fluxes.
- To assess the concentrations and impacts of airborne microplastics close to the selected freshwater systems.

This project is focusing on specific sites in the Mediterranean Sea, Atlantic and Brazil. A main study area will be the Mediterranean that has a very high concentration of plastic debris due to its peculiar circulation with limited outflow of surface waters, coastline population density and intensive fishing, shipping, touristic and industrial activities.

The research will be carried out at the Institute of Environmental Study and Technology (ICTA) at the Universitat Autònoma de Barcelona (UAB) within the research groups 'Marine and Environmental Biogeosciences'.

Group Leader

1. Title: Professor Dr.
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4. Research project/ Research Group website (Url):
Marine and environmental biogeosciences research group (MERS)
5. Website description: : <http://ictaweb.uab.cat>

Other relevant websites (optional)

1. Url:
2. Website description: