

**INFORMATION CALL 2019**  
**DOCTORAL INPhINIT FELLOWSHIPS PROGRAMME – INCOMING FRAME**

**PhD POSITION OFFER FORM**

**Position**

1. Project Title/ Job Position title:

The role of SGD on the preservation of *Posidonia oceanica* meadows in the Mediterranean Sea.

2. Area of Knowledge: (choose one option)

Physical Sciences, Mathematics and Engineering

3. Group of disciplines: (choose one option)

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

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

It is now recognized that vegetated coastal habitats play a globally significant role as sinks of carbon dioxide (CO<sub>2</sub>). Their significance has led to a rapid growth in the interest to evaluate the amount of organic carbon (C<sub>org</sub>) that these ecosystems sequester, as a first step to evaluate the potential of vegetated coastal habitats to mitigate CO<sub>2</sub> emissions ("Blue Carbon" approach). Seagrasses meadows are being rapidly lost due to multiple anthropogenic disturbances such as eutrophication blooms, anchoring and changes in climate.

Submarine groundwater discharge (SGD) is defined as "direct groundwater outflow across the ocean–land interface into the ocean", including both fresh groundwater flow originating from inland recharge areas and seawater that circulates through the coastal aquifer driven by different mechanisms (e.g. wave or tidal pumping, seasonal oscillation of the water table, density differences). SGD can occur in the form of coastal and submarine springs, and as a diffusive, non-point source discharge occurring over broad spatial scales. Because SGD usually has greater concentrations of nutrients than surface waters, even relatively small volumetric flows can represent a large contribution to the nutrient flux to the sea, sometimes rivaling that of riverine sources.

Excess nutrient additions or contaminants through SGD to coastal waters can lead to unwanted outcomes, such as algal blooms, red tides or damage to coral reefs.

The aim of this project is to evaluate the role that SGD plays in transferring nutrients and other dissolved species (trace metals, pollutants) into seagrass meadows, as well as the effects that these SGD-driven chemical fluxes have in the growing of *Posidonia oceanica*. To evaluate this influence, the proposed PhD project will study pristine and human-affected seagrass meadows in Balearic Islands, South of Italy and Mediterranean Iberian Peninsula.

5. Job position description (màx. 2.000 caràcters)

The candidate will be hosted by the "Marine and Environmental Biogeosciences - MERS" research group (2017 SGR 1588) at the Institut de Ciència i Tecnologia Ambientals at the UAB and will develop his/her PhD Thesis under the Environmental Science and Technology PhD program. The background of the candidate is preferably in Environmental Sciences, Biology or Geology. The candidate will participate and benefit from the activities of the host research group and institution (ICTA), such as:

- i) participating in ICTA courses on the development of scientific skills
- ii) attending graduate and master-level courses at the UAB relevant for his research (e.g. oceanography, statistics)
- iii) contributing to co-supervision of degree and Master projects,
- iv) being involved in the preparation of funding applications for future projects,
- v) participating in teaching activities for the degree on Environmental Sciences at the UAB.

The candidate will also participate in all the steps of a science project: design of the study, sampling, sample analysis and quantification, interpretation of the results, writing research papers and communicating these results to scientific and non-scientific audience. She/he will participate in several underwater sampling surveys. The candidate will thus acquire all the necessary skills and expertise to develop a science research career on natural sciences.

The candidate will be co-advised by two/three senior scientists and will be integrated in the host group team. The candidate will work with a multidisciplinary, multi-institution research team, including physicist, chemist, geologist, biologist or oceanographers from different institutions such as CSIC (IMEDEA, ICM, CEAB) or universities (UB, UPC, UIB). The candidate will also collaborate with international institutions and he will be encouraged to conduct short-term stays abroad, in order to broaden his/her scientific horizon and to obtain the International mention for his PhD Thesis.

## **Group Leader**

1. Title: Professor Agregat de la Universitat Autònoma de Barcelona
2. Full name: Jordi Garcia Orellana
3. Email: Jordi.Garcia@uab.cat
4. Research project/ Research Group website (Url):
5. Website description: <http://ictaweb.uab.cat/personal>

## **Other relevant websites (optional)**

1. Url:
2. Website description: