Postdoctoral position in remote sensing of Sargassum macro algae

Subject: 12-month Postdoctoral fellowship (renewable) in ocean remote sensing

Deadline for application: **February 16th, 2020**

Area of expertise: Atmospheric sciences, satellite observations, ocean remote sensing

Context: The postdoctoral position is to join the CEMS team of the CNRM laboratory (http://www.umr-cnrm.fr/). CNRM is the research laboratory of Météo-France (the French meteorological service) and contributes through the CEMS team to the observation of ocean, atmosphere and cloud through spaceborne remote sensing techniques.

In the last decade, Sargassum (brown algae) proliferation has become a major concern in the West Indies region with significant impacts on public health, environment and local economy. So much so that Météo-France has been commissioned by the French Ministry for the Ecological and Inclusive Transition to provide operational bulletins of Sargassum stranding forecasts to the authorities of the French Islands in the West Indies. From a scientific point of view, there are two main aspects to achieve this request: Sargassum detection using satellite remote sensing techniques and trajectory forecasting using a drift model. The postdoctoral position offered is focussed on the detection aspect.

Satellite remote sensing methods already exist for Sargassum detection, they are based on spectral indices using visible to near infrared bands available on medium to high resolution sensors currently flying on a number of satellites for instance MODIS on board Aqua and Terra, OLCI on board Sentinel-3A and 3B or MSI on board Sentinel-2A and 2B.

Objective and key responsibilities:

The objective of the open position is to scientifically contribute to seting up the future operational service of Sagassum detection at Meteo-France. This includes several tasks:

1. Implement and verify existing algorithm to compute relevant indices (including algorithm correction) and understand their limitations in the context of forecasting the stranding of Sargassum.

2. Carry out research to improve the current methodologies: attention will focus on false detections and misses of Sargassum raft (due to cloud coverage mostly).

3. Carry out research to adapt the methodologies to other sensors if relevant.

The selected candidate will have to transfer the suitable methodologies to the software development and operations teams: this does not entail the coding of the whole processing chain, but rather to provide the algorithms in the form of python programs and suitable support (scientific verification of the product of the processing chain) and documentation.

The selected candidate will be encouraged to publish and communicate her/his original findings in international conferences and in scientific articles.

Workplace: The candidate will integrate the "Ocean" team of the Centre d'Etude en Météorologie Satellitaire (CEMS) attached to the Centre National de Recherche Météorologique (CNRM-UMR 3589 Météo-France / CNRS). The work will be done at the CEMS in Lannion (Brittany, France).

Duration : 12-month renewable.

Qualifications and experience required: The candidate must hold a PhD in remote sensing or related domain. Good skills in English and French language (oral and writing) and in Linux and scientific programming (Python) are required.

Personal attributes: The candidate will have to demonstrate scientific curiosity, autonomy, team spirit, responsiveness, analytical skills and rigor in the interpretation of results and their formatting. She/he will have to be able to report their activity to the project team.

Salary: The gross monthly salary is between 3280 € and 3890 € based on experience. This includes French social security.

How to apply: Interested candidates should send the following documents by e-mail to Stéphane Saux Picart (stephane.sauxpicart@meteo.fr) and Pascal Brunel (pascal.brunel@meteo.fr):
- Curriculum Vitae detailing research experience and other skills. A list of publications and communications in conferences is mandatory;
- Application letter explaining research interests and motivation for the job;
- The names and contact details of two referees (recommendation letters shall be appreciated but are not compulsory);