FICHE DE POSTE

Fonctions : **Post-doctoral researcher on global distribution of plankton traits**

Emploi-type : Post-doc

Les activités qui composent la fiche de poste sont appelées à évoluer en fonction des connaissances du métier et des nécessités de service

Présentation de Sorbonne Université

Pour transmettre les connaissances, comprendre le monde et relever les défis du 21e siècle, une nouvelle université est née le 1er janvier 2018, issue de la fusion entre les universités Paris-Sorbonne et Pierre et Marie Curie. Sorbonne Université est une université pluridisciplinaire, de recherche intensive et de rang mondial. Ancrée au cœur de Paris, présente en région, elle est engagée pour la réussite de ses étudiants et s'attache à répondre aux enjeux scientifiques du 21e siècle. www.sorbonne-universite.fr

Présentation de la structure

The Laboratoire d'Océanographie de Villefranche (LOV ; http://lov.obs-vlfr.fr/) is located close to Nice, on the French Riviera. It belongs to one of the three marine stations of Sorbonne Université. With about 90 permanent staff, the LOV generates and analyses a large quantity of marine data, including imaging, genomic, and satellite data to study the ocean.

The COMPLEx (COMPutational PLAnkton Ecology) team gathers about fourty members studying marine plankton by collecting data with quantitative imaging instruments and high throughput genomics that informs advanced numerical analysis methods (modeling, statistics, machine learning). Plankton encompasses all organisms roaming with marine currents. Those organisms are responsible for producing some of the oxygen we breathe, storing the carbon we emit, feeding the fish we eat; plankton is therefore a major building block of Earth's ecosystem. COMPLEx strongly interacts with the Quantitative Imaging Platform of Villefranche (PIQv; https://sites.google.com/view/piqv), which oversees the operation of the tools that the team develops. Those tools include imaging sensors, such as the Underwater Vision Profiler or the ZooScan, as well as an increase number of software packages to process and control the quality of the data generated by the instruments, sort images taxonomically (https://ecotaxa.obs-vlfr.fr/) or store and distribute data on the abundance of marine snow particles. The team has a long experience of interactions with engineers and computer scientists, in academia and the private sector, to develop these tools.

Missions and main activities

The person hired for this position will work within the context of the European project BlueCloud2026 (https://blue-cloud.org/blue-cloud-2026), for a period of 18 months starting in fall 2023. The aim is to study the distribution of marine plankton's functional traits at global scale. The team was involved in the first instance of the BlueCloud project and build some foundations for this new work

Mission : The postdoc will be in charge of developing Species Distribution Models (SDM, also called environmental niche models) at global scale for marine plankton. The objective is to estimate plankton's functional traits extrapolated at global scale through SDM. Among the main functional traits relevant for plankton (Martini et al. 2021), the first traits to be targeted will be opacity/transparency.

Main activities :

- Step 1: link transparency to community composition through imaging and metabarcoding based on Tara Oceans data. This work will build upon recent developments at LOV.

- Step 2: collate larger dataset at global scale to document key plankton traits, including transparency.
- Step 3: extrapolate with SDMs at yearly scale and possibly monthly/seasonal scale.
- Step 4: describe the variations of transparency within a few taxonomic groups of interest.
- Step 5: disseminate the results through scientific publications and communication during workshops and conferences, including the BlueCloud2026 meetings.

Other activities : The post-doc will collaborate with Sakina-Dorothée Ayata at the LOCEAN in Paris and Meike Vogt at ETHZ in Zurich (Switzerland). She/he will also interact with the other participants of the Blue-Cloud2026 project, especially during online and face-to-face regular meetings.

Supervision of personnel : No
Nb of personnel supervised per category: X A ; X B ; X C

Knowledge and skills*

Transversal knowledge required :

- Basic knowledge in numerical ecology, marine biology, and/or oceanography; ideally knowledge of plankton
- Good writing skills and oral expression in english (at least B2)
- Scientific rigour and curiosity

Technical skills :

- Required: PhD in numerical ecology, marine biology, or oceanography
- Required: good programming skills (preferentially in R or Python)
- Required: experience in statistical modelling, ideally in machine learning techniques
- Required: publication of at least one research article in a scientific journal as first author
- Optional: previous experience(s) in niche modelling
- Optional: experience in the use of cloud computing infrastructures

Peoples skills :

- Both autonomy and teamwork abilities
- Collaboration in an international context

Exposition aux risques professionnels, conditions particulières d'exercice et formations réglementaires

Exposition aux risques professionnels :
☒ Non
☐ Oui **:** *si oui, indiquer les informations relatives aux risques physiques (port de charge, machines dangereuses, vibrations...), biologiques, chimiques, rayonnements ionisants ou non ionisants. Si l'agent est exposé aux produits dangereux dont les CMR, il doit impérativement disposer d'une Fiche Individuelle d'Exposition téléchargeable sur intranet dans la rubrique « Prevention-des-risques-professionnels/fiche-individuelle-d-exposition-aux-agents-chimiques-dangereux ».*

Special conditions:
Contract for a minimum of 18 months(to be adapted depending on salary). Gross salary between 2604€ and 2987€ per month depending on initial diplomas and experience. Paid vacation up to 55 days per year.
The laboratory is located in Villefranche-sur-mer, close to Nice, and has direct access to the sea.

**Conformément à l'annexe de l'arrêté du 18 mars 2013 (NOR : MENH1305559A)*

For more information on the offer and/or to apply (with a CV and cover letter), please write to lionel.guidi@imev-mer.fr.