

## 2-year Postdoctoral position: deep emulators of marine plankton dynamics, IMT Atlantique/Odyssey, Brest France

**Positions:** 24-month position in INRIA Odyssey group, IMT Atlantique/Lab-STICC, Brest, France

**Expected starting date:** From April 2023.

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**Context and objectives:** This postdoc position is opened in the INRIA Odyssey team (<https://team.inria.fr/odyssey/>) at IMT Atlantique/Lab-STICC. The successful candidate will also join the OceaniX group at IMT Atlantique/Lab-STICC (<https://cia-oceanix.github.io/>), a group dedicated to physics-informed AI for the monitoring and surveillance of the oceans. OceaniX chair gathers an interdisciplinary group with expertise in numerical modeling, applied math deep learning, remote sensing and ocean science to leverage AI technologies and paradigms to address key challenges in ocean modeling and forecasting, observing system design and control, surveillance and monitoring of maritime activities. OceaniX chair also benefits from strong academy-industry partnerships (e.g., Ifremer, CNES, CLS, NavalGroup, Eodyn, OceanDataLab).

In the context of the newly-funded ANR project DREAM (Deep leaRning approaches to Elucidate phytoplAnkton cliMate induced variability). This postdoc will explore, propose and assess deep learning schemes for the emulation of marine plankton dynamics conditionally to geophysical drivers. The specific focus comprises purely data-driven emulators (e.g., CNN, GAN,...) as well as physics-constrained deep emulators (e.g., neural ODE/PDE, variational settings,...). Numerical experiments will exploit both simulation, remote sensing and in situ datasets. The successful candidate will benefit from and contribute to the multidisciplinary interactions within the project team, especially with AI scientists (Prof. R. Fablet and L. Drumetz, IMT Atlantique/Lab-STICC/Odyssey), geoscientist (Dr. O. Pannekoucke, Meteo France/ENM) and ocean scientists (e.g., Dr. E. Martinez, IRD/LOPS; Dr. M. Lengaigne, IRD/MARBEC).

The position will be based in Brest, a city at the forefront of marine sciences research and development in France, with major research organisations and industry partners.

**Skills:** Applications are encouraged from candidates with a Ph.D in applied math/machine learning/data science and a strong interest in interdisciplinary and marine science as well as a PhD in ocean science/geoscience and some previous experience in machine learning. Candidates should have a strong interest and commitment to research. Creativity with an aim towards independent research is highly emphasized.

**Application:** Send CV, statement of research interests and the contact information of at least two references to [ronan.fablet@imt-atlantique.fr](mailto:ronan.fablet@imt-atlantique.fr) and [elodie.martinez@ird.fr](mailto:elodie.martinez@ird.fr). Review of applications will begin immediately and continue until the position is filled.

**Specs:** The position will initially be funded for a 2-year period and could be renewed upon scientific outcome and funding availability. The net annual salary will range from 30,000€ to 36,000€ per year depending on experience. This position is open to non-EU citizens.