

Researcher in statistics applied to ecosystem assessment - Nantes - IFREMER

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Unité de recherche Ecologie et Modèles pour l'Halieutique

Location : Nantes, Pays de la Loire, FR

Duration: 9 mois

Deadline for candidating: 21/11/2019

The Institute and the recruiting department

Through its research work and expert advice, Ifremer (French research institute for the exploitation of the sea) contributes to knowledge of the oceans and their resources, to monitoring of marine and coastal environments and to the sustainable development of maritime activities. Ifremer is a source of knowledge, innovation, monitoring data and expertise of the seas, both in terms of public policy and socio-economic activity.

Created in 1984, Ifremer is a French public institute of an industrial and commercial nature. It is supervised jointly by the Ministry of Higher Education and Research and the Ministry of the Environment, Energy and Marine Affairs.

- **The recruiting department**

The EMH unit acquires knowledge and develops methods for the ecosystem approach to fisheries, in particular for integrated ecosystem assessment. Its research project is structured around three thematic axes: Mechanisms and responses of ecosystem components to pressures, Integrated assessment of the state of ecosystems and Evaluation of integrated management strategies. In addition, there is a fourth group of activities related to the "Système d'information halieutique" (SIH – fisheries-related data system), expert advice and quality.

Description of the position :

The EMH unit contributes to the development and application of statistical methods for the understanding and evaluation of marine ecosystems submitted to multiple pressures. In the context of European public policies (CFP –common Fisheries Policy, MSFD – Marine Strategy Framework Directive, SP – spatial planning) knowledge on the state and dynamics of ecosystem is key for decision support. The dynamics of the components of the ecosystem and their pressures is characterised by multiple interactions and spatio-temporal distributions at various scales. Available observations on marine ecosystems are diverse and of variable

quality. In particular, some components are scarcely or even not observed. Nonetheless, bio-geo-chemical oceanic models or ecosystem models enable the estimation or simulation of some of these compartments.

The hired person will strengthen the capacity to carry out statistical analyses oriented toward integrated ecosystem assessment particularly for the Bay of Biscay and Celtic Sea.

Main missions:

- Review of the relevant statistical methods to carry out integrated assessment using observations of various quality, multi-dimensional, temporal, spatial, at various scales, including model outputs
- Development/adaptation/application of models and methods for statistical inference of marine ecosystem state and dynamics

Main activities:

- Propose a methodological alternative to ITA (Integrated Trend Analysis) for the Bay of Biscay and Celtic Sea. Particular consideration should be given to graphical models and associated network dynamics.
- Contribute to the ICES working groups EAWESS and INTRA to present the novel approach
- Participate to the methodological reflection around statistical methods in the projects where EMH is involved (e.g. MACCO, DEFIPEL, PAMPA, AMBIO)

Educational background and training:

PhD in applied statistics

- Statistics (frequentists, bayesian, multi-variate, spatial, deep-learning)
- Modeling (state-space models, networks, graphical models)
- Experience in the field of living resources and its management, environment, medical
- Fluent English

Personal skills

- Ability to exchange with researchers in the fields of ecology and fisheries sciences
- Autonomy, rigor and curiosity

Short-term position: 9 months full time

To candidate

Deadline: 21/11/2019

Through the ifremer website exclusively (reference: PV-2019-708)