

Postdoctoral position: Exploitation of the KM3NeT deep-sea infrastructure for Earth and Sea sciences

Contract

Position location: APC, 10, rue A. Domon & Léonie Duquet – 75013 Paris – France

Contract: Post-doctoral Researcher CDD (Contrat à Durée Déterminée)

Initial contract duration: 12 months

Starting date: as soon as possible

Salary (gross): 2700 € - 2900 € (depending on experience), including medical insurance, maternity leave and retirement benefits (+ contribution to transportation and lunch expenses).

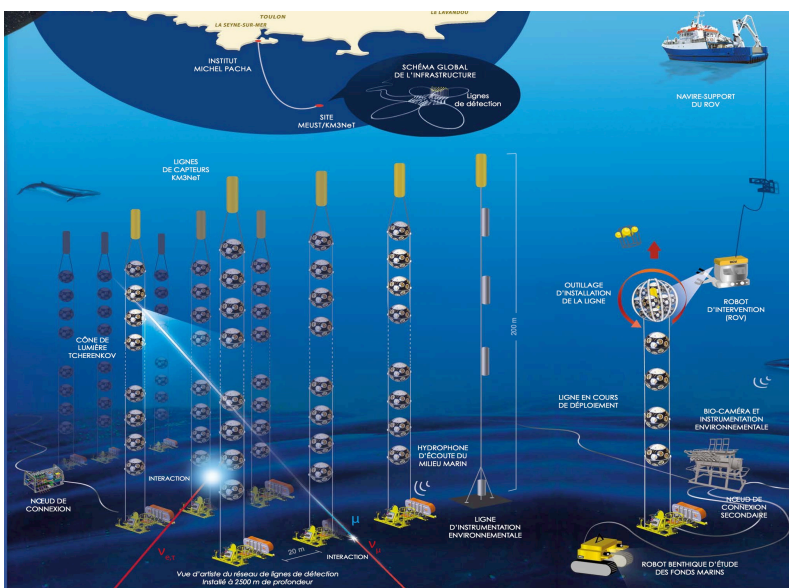
Job description

The position is funded by the Labex UnivEarthS (<http://www.univearths.fr>), an Excellence Research Program of the Université de Paris dedicated to the development of interdisciplinary projects in the fields of Earth Sciences and Physics of the Universe. The successful candidate will join the Interface Project ARGOS (*Astroparticle Research, Geology and Oceanography Studies*), which includes researchers from the Laboratoire AstroParticule et Cosmologie (APC) and from the Institut de Physique du Globe de Paris (IPGP). The candidate will be hosted in the Neutrino Team at APC and work in close collaboration with the Seismology and Marine Geoscience Teams at IPGP.

They will contribute to the exploitation and interpretation of multi-parameter data collected by the KM3NeT infrastructures, in line with their own field of expertise within sea sciences. They are expected to play an active role in bridging the APC and IPGP teams, by developing joint projects on research topics of interest for the IPGP Seismology and Marine Geoscience teams, possibly including new instrumental developments.

They will also participate to the commissioning and exploitation of the instruments hosted on the KM3NeT Calibration Unit, under responsibility of the APC team. As a member of the KM3NeT Collaboration, they will have the opportunity to present their work at collaboration meetings three times a year, as well as in international conferences relevant to their field of research.

KM3NeT, a next-generation deep-sea research infrastructure



KM3NeT (<https://www.km3net.org>) is a next-generation neutrino telescope being deployed on two abyssal sites in the Mediterranean Sea: ORCA offshore Toulon, France (EMSO Western Ligurian site) and ARCA close to Capo Passero, Sicily (EMSO Western Ionian site). Each detector will consist of a 3D matrix of photo- and acoustic sensors distributed along slender vertical lines (see picture), with permanent electro-optical cabling to shore, monitoring a water mass of either a few Megatons (ORCA) or a Gigaton (ARCA). Detection lines are being incrementally deployed on both sites and already provide data; the completion of the detectors is foreseen by 2025-2026.

Besides its neutrino physics program, the KM3NeT multi-site infrastructure has a unique potential for Earth and Sea Sciences that will be enhanced by the connection of dedicated instrumentation hubs developed in coordination with the European Multidisciplinary Seafloor and water column Observatory (EMSO), including cabled junction boxes and mooring inductive lines for water column monitoring, where new instrumentation can also be installed and tested in the future. By continuously monitoring the surrounding marine environment for the next decade, through multi-parameter measurements with a variety of sensors (optical, acoustic, physico-chemical, radioactivity, seismic...), KM3NeT will provide new opportunities for a variety of marine sciences studies, including oceanography, seismology, bioluminescence, bioacoustics...

The teams

APC is a leading laboratory in France in the field of Astroparticles and Cosmology, which participates in a wide array of ground- and space-based field experiments. **The APC Neutrino team** has been involved in the KM3NeT experiment, and its predecessor ANTARES, for almost 15 years, with important contributions to their science program (neutrino astronomy, neutrino fundamental properties, Earth tomography with neutrinos...) and key responsibilities in the collaborations. The group has been responsible for the design and construction of the Calibration Unit that will be deployed on the KM3NeT/ORCA (Toulon) site in February 2021.

IPGP is a world-renowned geosciences organisation associated with CNRS and the Université de Paris, that studies the Earth and the planets from their core to their outermost fluid envelopes through observation, experimentation and modelling. Particular focus is placed on long-term observations, which are essential in the study of natural systems. IPGP hosts powerful computational resources and next-generation experimental and analytical facilities with top-tier technical support. Its flexible structure facilitates interactions between 16 research teams working on the Institute's four main areas of focus: Earth and planetary interiors, Natural hazards, Earth system science and Origins. The researchers involved in the ARGOS project are members of the Seismology and Marine Geoscience Teams, with common interests in the study of seismic phenomena in the oceanic or marine environment and the development of related instrumentation (e.g. ocean bottom seismology, distributed acoustic sensing methods, seismic noise studies, vessel tracking,...).

Required skills

- PhD in oceanography/marine geoscience/marine biology or related discipline, with less than 3 years post-doctoral experience; interdisciplinary profiles are welcome.
- Operational knowledge of programming language/s (python, C++) for data analysis
- English (spoken and written); French (spoken and written) is a plus
- Ability for team working in an international and interdisciplinary environment
- Autonomy and proactiveness

Applicants are expected to provide **a Curriculum Vitae, a publication list, a cover letter and at least two letters of recommendation**. Please direct applications to **Dr Veronique Van Elewyck** (elewyck@apc.in2p3.fr) and **Dr Wayne Crawford** (crawford@ipgp.fr), co-coordinators of the ARGOS project. Priority will be given to applications received by **March 1st, 2022**, but they will continue to be accepted until the position is filled.

For questions please contact:

Veronique Van Elewyck
elewyck@apc.in2p3.fr
 Laboratoire Astroparticule et Cosmologie
 Bureau 545A
 10 Rue Alice Domon et Léonie Duquet
 75205 Paris Cedex – France

Wayne Crawford
crawford@ipgp.fr
 Institut de Physique du Globe de Paris
 Bureau 341
 1 Rue Jussieu
 75005 Paris - France