

Researcher - Professor in the field of Earth Observation, Data Science, and Solar Energy
Permanent position, available immediately

Institution: MINES Paris (Ecole Nationale Supérieure des Mines de Paris)
Assignment: Centre Observation, Impacts, Energie (O.I.E.)
CS 10207 - F-06904 SOPHIA ANTIPOLE CEDEX, France
Website: <http://www.oie.minesparis.psl.eu>

JOB PROFILE DESCRIPTION

The Center Observation, Impacts, Energy (O.I.E.) within the Department Energy and Processes (DEP) of MINES Paris - PSL is seeking a teacher-researcher in the field of data science applied to solar energy. This position offers a unique opportunity to contribute to cutting-edge research and teaching in a rapidly expanding field with significant impact.

Main Responsibilities of the Selected Candidate:

- Research: Working closely with the O.I.E. team, the candidate will be responsible for conducting (contributing, supervising, seeking funding, publishing, etc.) advanced research at an international level, both academically and in partnership, in the field of data science derived from Earth Observation (satellite observation, in-situ measurements, numerical weather and atmospheric models), applied to solar energy. This research includes the design and implementation of models for characterizing and forecasting surface solar radiation, based on the analysis of massive data from Earth Observation. It will enable, for example, the optimization of photovoltaic systems and their integration into electrical transport and distribution systems.
- Teaching: The candidate will contribute to, be responsible for and create teaching activities (lectures, projects, tutorials, practical work) at various levels of higher education, including the civil engineering program at MINES Paris - PSL, PSL master's programs, post-graduate master's programs and professional training programs at MINES Paris - PSL, and potentially, in the medium term, for undergraduate engineering bachelor students. The topics of these teachings may cover fundamental and advanced principles of data science derived from Earth Observation, with applications to solar energy, notably.
- Thesis Supervision and Student Mentoring: The candidate will supervise and advise students engaged in research projects in the field of solar energy and data science and will be involved in supervising and directing doctoral theses.
- Interdisciplinary Collaboration: The candidate will collaborate with other researchers and departments within MINES Paris - PSL, as well as with external academic partners or socio-economic sectors locally, nationally, or internationally, to develop interdisciplinary research projects aimed at addressing challenges related to solar energy using data sciences.
- Institutional Service: The candidate will also be expected to contribute to institutional service by participating in academic committees, recruitment activities, and other activities aimed at supporting the missions of the O.I.E. center within the DEP department of MINES Paris - PSL.

Required Qualifications:

- Ph.D. in data science, solar radiation, atmospheric sciences, meteorology, or related fields.
- "*Habilitation à Diriger des Recherches*" (accreditation to supervise research) or international equivalents to the status of professor or research director.
- Proven expertise and a strong academic/industry network in the application of data science to solar energy or related fields (atmospheric sciences, meteorology, remote sensing), with solid experience in modeling, data

analysis, and programming in Python, C, C++ under Linux and Windows environments.

- Established and international research track record, demonstrated by responsibilities in national and international scientific projects and publications in renowned peer-reviewed international journals, and presentations at international conferences.
- Experience and capabilities in supervising and mentoring higher education students in general and doctoral students in particular.
- Proven teaching experience at the graduate level, preferably in the field of data science and energy.
- Ability and willingness to work collaboratively within interdisciplinary and multicultural teams.
- Excellent written and oral communication skills, directed towards both the academic and socio-economic worlds.
- Fluency in spoken and written English is imperative, and proficiency in French is a plus.

APPLICATION FILE

The application package will include the following:

- A cover letter,
- A detailed CV,
- A list of publications,
- A description of past research and teaching activities with a proposal for future trajectory in line with that of the O.I.E. center.

Centre O.I.E - MINES Paris,
CS 10207 - F-06904 SOPHIA ANTIPOLIS CEDEX, France,
Attention: Head of the Center, Thierry RANCHIN,
And/or by e-mail at: thierry.ranchin@minesparis.psl.eu

THE CENTER OBSERVATION, IMPACTS, ENERGY (O.I.E), MINES Paris - PSL

Context:

In coherence with its educational mission, [MINES Paris - PSL](#) engages in a broad spectrum of research activities covering a wide range of scientific disciplines. The eighteen research centers are organized into five departments: Earth and Environmental Sciences, Energetics and Processes, Mechanics and Materials, Mathematics and Systems, and finally Economics, Management, and Society.

The research at MINES Paris - PSL aims for both academic excellence and socio-economic impact. This research-oriented model is developed in close interaction with the socio-economic world, including private or public sector companies, as well as institutions and public administrations. MINES Paris is the leading Grande Ecole in France in terms of volume of partnership research contracts with industries, supported by [ARMINES](#), the [MINES Paris Foundation](#), or MINES Paris itself. This unique positioning has allowed MINES Paris to expand its teams (through the recruitment of lecturers/researchers on indefinite-term contracts funded by its own resources via the contractual research association ARMINES) and enables it to maintain long-term experimental and digital platforms that are both unique and recognized for their quality by its partners.

The Center for Observation, Impacts, Energy (O.I.E.), located on the Pierre Laffitte campus of MINES Paris – PSL in Sophia Antipolis. The center's personnel consists of 8 permanent scientists, 8 postdoctoral researchers, 8 doctoral candidates, and an administrative assistant. The O.I.E. Center is a joint research team between MINES Paris and ARMINES. Its activities lie at the intersection of energy, the environment, and Earth observation. The center studies and models

"renewable energy" resources and the environmental impacts associated with their utilization, drawing on fundamental and applied scientific disciplines (mathematics, metrology, physics, environment, etc.) and information and communication technologies. Databases and web services are crucial channels for disseminating the team's knowledge.

The O.I.E. Center's work aligns with strategic axis No. 3 of the Energetics and Processes Department (DEP) of MINES Paris, focusing on the integration of renewable energies.

The O.I.E. Center contributes to three main areas of activity:

1. Development of energy-specific meteorology for the assessment and prediction of renewable resources, particularly solar energy.
2. Analysis and decision support in terms of reducing environmental, social, and economic impacts of transportation, production, and energy usage.
3. Dissemination of scientific data through web services in an international collaborative environment (OGC, GEOSS, IRENA, IEA).

The center's research is linked to the assessment, modeling, and utilization of renewable energy resources, addressing temporal and spatial aspects through data science. The goals include improving the precision and reliability of estimates from Earth observation data (satellite and airborne data, in-situ, and models), enriching existing databases, and expanding the number of estimated variables for different energy conversion methods.

The general objectives of O.I.E. are to address scientific challenges related to spatiotemporal variability, precision, and uncertainty propagation in the assessment of renewable energy resources. The aim is also to facilitate the transfer of knowledge to students, the scientific community, industry professionals, and decision-makers involved in renewable energies and the energy transition.