2 Research Engineer Positions on Remote Sensing of Land Surface Variables

Where: CNRM laboratory (Météo-France/CNRS), Toulouse, France
Application deadline: November 19th, 2021
Duration of contract: 1 year - renewable subject to performance
Start: March 1st, 2022

Context

Surface albedo (the ratio of reflected to incoming solar radiation) was defined an Essential Climate Variable by the Global Climate Observing System from the World Meteorological Organization due to its impact on the Earth's climate. Surface albedo may vary significantly in space and time as a result of natural processes (snowfall, vegetation growth) and human activities (deforestation, agriculture). Remote sensing from space in the visible and near infrared wavelengths offers a unique tool to measure and monitor the variations of the albedo of the Earth's surface.

The CNRM laboratory of Météo-France has been working on the remote sensing of land surface albedo for more than 20 years. This work has been mainly done in the framework of the LSA-SAF program (https://landsaf.ipma.pt/), which aims to provide reliable geophysical information on land surfaces from data provided by EUMETSAT satellites. In particular, CNRM is responsible of the research, development, and validation activities related to the estimation of land surface albedo and incoming solar radiation from several spatial missions (e.g. MSG/SEVIRI, Metop/AVHRR). The satellite-derived information provided through the LSA SAF program is used by the scientific community to help decision makers in the definition of environmental policies, for example.

Job description

With the upcoming arrival of the next generation of EUMETSAT spatial missions (e.g. MTG-I/FCI, Metop-SG/VII and Metop-SG/3MI), the CNRM is looking for two motivated research engineers to take in charge the evolution of the existing codes describing the algorithms for the retrieval of surface albedo and incoming radiation. The work will be done in the framework of the next CDOP-4 phase of the LSA SAF program from 2022 to 2027. The successful candidates:

- will adapt the codes to the future spaceborne sensors, implement the latest algorithm improvements, and validate the obtained results with reference data.
- will contribute to the writing of technical documentation, the review processes that are undergone to declare a satellite product operational, and the teleconferences within the LSA SAF consortium.
- will join a team of research engineers and scientists working on the observation of land surfaces through spaceborne remote sensing.
- may be involved in other research activities of the team.

Required skills

The desired candidates should hold an engineer of M.Sc. degree in computer sciences, physics, mathematics, or a similar field. The holding of a PhD in quantitative remote sensing is a plus. The desired candidates should have good programming skills for the processing of large volumes of data. Preferred programming languages are Python and Fortran. A good proficiency in Linux command shell and Git is required. A good level of English is mandatory for reading and writing technical documents, as well as to participate to teleconferences.

Practical aspects

The successful candidates will be based at CNRM. Toulouse is a vibrant city that is recognized world-wide for its aerospace industry and research centers. The gross monthly salary will be between 3280 and 3890 euros commensurate with experience. This includes French social security.

Application procedure

Candidates should send the following documents to xavier.ceamanos@meteo.fr:

- Resume detailing relevant experience, technical skills, and scientific publications.
- Motivation letter.
- The names and contact details of three referees.