Research Fellowship in Atmospheric Composition Research applied to ADM-Aeolus and EarthCARE

EO Mission Management Division
Directorate of Earth Observation Programmes

ESRIN, Frascati, Italy

ESA/RF-ESRIN(2017)001

Overview of the Division's mission

The research fellow will conduct its activity as part of the Earth Observation Programmes Directorate within the ESA EO Mission Management Division) which is responsible amongst other for the mission management of Earth Explorers missions, for the development of the Payload Data Ground Segment of the Earth Explorers missions and for the management of sensor performance, data and product quality of EO missions, including Earth Explorer missions.

The research fellow will join the section in charge of the sensor performance, data quality, algorithm development, calibration and validation for the ESA EO missions.

The *Sensor Performance, Products and Algorithms* (SPPA/EOP-GMQ) section at ESA's Earth observation center ESRIN has a wide range of functions around the objective of serving the end users of earth observation missions with the best possible product quality. Among the tasks managed by the section are the in-orbit *sensor calibration, product validation and verification* activities and the routine *quality monitoring* of data generated by the missions scientific payload, but also the *improvement of processing algorithms* during the exploitation phase of a mission.

Overview of the field of research proposed

The research field is associated to the exploitation of the *ADM-Aeolus* and *EarthCARE missions,* -the two next missions from ESA's *Earth Explorer* program:

1. ADM-Aeolus, ESA's Atmospheric Dynamics Mission, will carry the first direct detection Doppler wind Lidar in space. It is a core mission within ESA's Living Planet program, with a launch readiness scheduled for Q4 2017. The mission will deliver highly accurate single line-of-sight wind profiles, posing demanding requirements on the instrument performance, alignment stability as well as the platform attitude control. The 3 year mission life-time and the planned use of products by operational users (such as NWP centers) in near real-time, in addition to the scientific user community, further highlight the importance of sufficient characterization, calibration and validation efforts, in all phases of the mission, to meet the mission requirements.

2. Next in line is EarthCARE, ESA's cloud, aerosol and radiation mission, with a scheduled launch

readiness in 2018/19, developed in a joint venture with JAXA. With it's cutting edge HSRL LIDAR and Doppler Radar as well as a multispectral imager and a broadband radiometer, it is the most complex Earth Explorer mission to date, whose highly branched data processing chains are designed to best exploit the synergy of the different instruments.

The candidate will be involved in the following activities:

- Exploring novel calibration algorithms, products, and tools to maximise the impact of the ADM-Aeolus and EarthCare missions...
- Study novel approaches and developments related to the calibration and validation of the mission products.
- Dedicated research on the potential evolution of the mission(s) processing algorithms and tools and their impact on the scientific return.
- Exploring potential synergies between ADM-Aeolus and EarthCARE related developments and activities regarding product quality.

Who can apply

The programme is open to suitably qualified women and men. Preference will be given to applications submitted by candidates within five years of receiving their PhD.

The Research Fellow Programme is open to nationals of the following states: Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Greece, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland, and the UK, Slovenia as an Associate Member or Canada as a Cooperating State, Bulgaria, Cyprus, Latvia, Lithuania, Slovakia as European Cooperating States (ECS).

Required qualifications

- PhD or equivalent in EO Remote Sensing, Atmospheric Physics, Meteorology, Engineering or Applied Science, with research experience in relevant topics for the field of research proposed.
- Experience with EO remote sensing algorithm development and EO product validation.
- Familiarity with the ADM-Aeolus and EarthCARE missions and their objectives would be an asset.
- Good analytical and communication skills and ability to work in a multi-cultural environment in an autonomous manner.
- Track record with atmospheric dynamics, cloud and aerosol remote sensing, radiative transfer, LIDAR and/or EO algorithm development an asset.
- Applicants must be fluent in English and/or French, the working languages of the Agency. A good proficiency in English is required.

How to Apply

Please fill in the online application form attaching to it, **in one document only,** your CV, motivation letter and your research proposal.

Candidates must also arrange for up to **three letters of reference** to be sent by e-mail, before the deadline, to **temp.htr@esa.int**. The letters must be sent by the referees themselves with the candidate's name mentioned in the subject of the email.

Applications satisfying the general conditions for eligibility and submitted **by 7 July 2017**, will be evaluated and successful applicants will be invited for an interview. All applications will be considered until the available post is filled.

Interested candidates are highly encouraged to visit the ESA website: http://www.esa.int/