Job Title: Internal Research Fellow (PostDoc) on EO missions for Geohazards applications

Req ID **6441** - Posted **14/05/2018**

EUROPEAN SPACE AGENCY

Research Fellowship Opportunity in the Directorate of Earth Observation Programmes.

ESA is an equal opportunity employer, committed to achieving diversity within the workforce and creating an inclusive working environment. Applications from women are encouraged.

Post
Internal Research Fellow (PostDoc) on EO missions for Geohazards applications
This post is classified F2.

Location
ESRIN, Frascati, Italy

Our team and mission
The postholder will report to the Head of the Enterprise Section in the Data Applications Division within the Science, Applications and Climate Department of the Directorate of Earth Observation Programmes. In the execution of the tasks, the postholder will work in close cooperation with other staff of the Directorate of Earth Observation Programmes.

The Data Applications Division is a dynamic R&D team leading research and development activities, in partnership with European and international industry and academia, aiming at advancing science, developing novel applications, supporting industry growth and contributing to establish an European ecosystem of exploitation platforms to maximize the impact of European missions in society.

Overview of the field of research proposed
There is considerable interest in the application of state of the art EO based analysis techniques to the Disaster Risk Management (DRM) domain. The principal risk areas addressed include geohazards (earthquakes, landslides, volcanism, subsidence) and hydro-meteorological hazards such as flooding. In the domain of geohazard risks, there is important scope to develop innovative uses of terrain motion techniques based on Optical imagery (e.g. feature detection, recognition and tracking with precise image correlation) and Radar imagery (e.g. interferometric processing of Synthetic Aperture Radar data). These developments make use of novel approaches enabled by advances in ICT capabilities such as for instance high performance Cloud based computing and machine learning. ESA Research & Development activities in this domain are generally conducted in support of international collaborations such as CEOS WG Disasters including the ESA originated Geohazards Lab initiative.

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

Field(s) of activities/research
The candidate will be involved in the following activities:

1. Support the supervision of current and future **ESA data exploitation projects related to geohazard science.** Primary focus is on terrain motion mapping using both Optical and SAR interferometric (InSAR) data with both heritage missions (ERS, Envisat), new ESA/EC missions (Sentinel-1 & 2) and third party missions (ALOS-1/2, CosmoSymed, TerraSAR-X) that are of direct relevance to the geohazards science community. Participate to relevant ESA activities engaging science users (such as e.g. FRINGE, CEOS WG Disasters, etc.);
2. Support **validation activities and scientific animation addressing hosted processing tools** and new EO based processing chains with a focus on Cloud processing environments such as the Geohazards Exploitation Platform (GEP) originated by ESA in the context of the ESA Thematic Exploitation Platforms (TEP) and within the CEOS WG Disasters. This includes support to the scientific promotion of techniques using Sentinel-1 (e.g. advanced InSAR) and Sentinel-2 (e.g. image correlation techniques) and dedicated demonstration activities. Contribute to the definition of requirement for the evolution of the GEP in the context of the CEOS WG Disaster;
3. Elaborate and test the definition of methods to harmonize access and use of EO data and associated tools and processing chains with the aim to achieve a **better scientific understanding of precise terrain motion measurements** and collaborate with relevant scientific initiatives (e.g. the Geohazard Supersites & Natural Laboratories, the Geohazards Lab initiative within CEOS) to help achieve better acceptance and adoption of satellite EO;
4. As a dedicated research project, elaborate and test the definition of **new methods combining EO data with non EO data and modelling** to address scientific requirements from relevant scientific networks in the geohazards domain.

Technical competencies
Knowledge relevant to the field of research
Research/publication record
Ability to conduct research autonomously
Breadth of exposure coming from past and/or current research/activities
Interest in space and space research
Ability to gather and share relevant information

Behavioural competencies
Innovation & Creativity
Continuous Learning
Communication
Relationship Management
Self Motivation
Problem Solving
Cross-Cultural Sensitivity

Education
Applicants must have completed their PhD (or equivalent) studies in Physics, Engineering or Earth Science with research experience and peer-reviewed publications in relevant topics for the fields of research proposed. In particular, the candidate shall demonstrate to be familiar with the use of Optical and Synthetic Aperture Radar data for geohazard risks and in particular with EO based terrain motion mapping.

Additional requirements
Experience with computing programing and image processing tools and software will be an asset.
Applicants should have good analytical and communication skills and should be able to work in a multi-cultural environment in an autonomous manner.
The working languages of the Agency are English and French. A good knowledge of one of these is required. Knowledge of another Member State language would be an asset.
Preference will be given to applications submitted by candidates within five years of receiving their PhD.

Other information
For behavioural competencies expected from ESA staff in general, please refer to the ESA Competency Framework.

The Agency may require applicants to undergo selection tests.

The closing date for applications is 11 June 2018.

In addition to your CV and your motivation letter, please add your proposal of no more than 5 pages outlining your proposed research in the "additional documents" field of the "application information" section. Candidates are asked to arrange for 3 reference letters, to be sent by the referees themselves, before the closing date to temp.htr@esa.int. Please ensure your name is mentioned in the subject of the e-mail.

If you require support with your application due to a disability, please email contact.human.resources@esa.int.

Please note that applications are only considered from nationals of one of the following States: Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland, the United Kingdom and Canada and Slovenia as well as Bulgaria, Cyprus, Latvia, Lithuania, Slovakia as European Cooperating States (ECS).
Priority will first be given to candidates from under-represented Member States.

In accordance with the European Space Agency's security procedures and as part of the selection process, successful candidates will be required to undergo basic screening before appointment