Training Opportunity for Belgian Trainees

Reference	Title	Duty Station
BE-2016-OPS-L(5)	**Space Weather Opportunities for an L5 Mission**	**ESOC**

Overview of the unit's mission:

The objective of the SSA programme is to support Europe's independent utilisation of, and access to, space through the provision of timely and accurate information, data and services regarding the space environment, and particularly regarding hazards to infrastructure in orbit and on the ground.
The SSA programme will, ultimately, enable Europe to autonomously detect, predict and assess the risk to life and property due to remnant man-made space objects, re-entries, in-orbit explosions and release events, in-orbit collisions, disruption of missions and satellite-based service capabilities, potential impacts of Near Earth Objects, and the effects of space weather phenomena on space- and ground-based infrastructure.
The programme is active in three main areas:

- Survey and tracking of objects in Earth orbit - comprising active and inactive satellites, discarded launch stages and fragmentation debris that orbit the Earth
- Monitoring and forecasting space weather - comprising conditions originating from the Sun that can affect communications, navigation systems and other networks in space and on the ground
- Watching for near-Earth objects - comprising natural objects that can potentially impact Earth and cause damage and assessing their impact risk and potential mitigation measures

Overview of the field of activity proposed:

This training opportunity will fall within the scope of the Space Weather segment of the SSA programme and will focus on performance analysis and testing of space weather applications newly developed within the framework of the SSA programme.
Space weather refers to the environmental conditions in the Earth's magnetosphere, ionosphere and thermosphere due to the Sun and the solar wind that can influence the functioning and reliability of space-borne and ground-based systems and services or endanger property or human health.
As part of ESA's SSA Programme, the Space Weather (SWE) Segment is developing a network of space weather pre-operational services geared towards owners/operators of infrastructure in space and on ground with the aim of enabling end-users in a wide range of affected sectors to mitigate the effects of space weather on their systems. In parallel the SWE segment is also investigating the measurement infrastructure requirements, which will further enable and lead to improvement of these services in the future. Particular focus is currently on missions operating at the L1 and L5 lagrangian vantage points.
This challenging project will review best practice and current developments in the area of solar and Heliospheric physics modelling, targeting space weather prediction. These assets will be compared with current L1/L5 measurement requirements for these domains. Through the development of targeted use cases, the project will provide a preliminary assessment of the anticipated steps forward in space weather forecasting that could be enabled by an L1/L5 mission on a 10-15 year timescale.

Required education:

Applicants shall have a degree in space physics. Good computer skills and a background in solar/Heliospheric physics would be an advantage.
Applicants should have just completed, or be in their final year of a University course at Masters Level (or equivalent) in a scientific or technical discipline.
Applicants should have good interpersonal and communication skills and should be able to work in a multi-cultural environment, both independently and as part of a team.
Applicants must be fluent in English and/or French, the working languages of the Agency. A good proficiency in English is required.