

Training Opportunity for Belgian Trainees

Reference	Title	Duty Station
BE-2016-OPS-L(1)	Space Weather service performance analysis	ESOC
<p>Overview of the unit's mission:</p> <p>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.</p> <p>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.</p> <p>The programme is active in three main areas:</p> <ul style="list-style-type: none"> • 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 		
<p>Overview of the field of activity proposed:</p> <p>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.</p> <p>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.</p> <p>As part of ESA's SSA Programme, the Space Weather (SWE) Segment is developing a network of space weather resources geared towards owners/operators of infrastructure in space and on ground. These build heavily on existing expertise and prototype services already running within the member states. The SWE network is intended to enable end-users in a wide range of affected sectors to mitigate the effects of space weather on their systems.</p> <p>In order to provide reliable products to end-users, it is crucial to understand the strengths and potential limitations of the various elements underpinning these products, including the scientific assumptions and algorithms on which they may be based. Prototype services frequently operate as capability demonstrators and a full verification of their ability to reproduce/predict elements of the space environment under a range of space weather conditions has yet to be completed. As part of the SWE segment's network development work, a thorough test and validation of all products will be conducted as new elements are progressively integrated.</p> <p>This challenging project will focus on evaluation of space weather prototype service performance and functional testing of newly developed space weather products under a range of conditions. A range of statistical techniques will be evaluated and applied to existing prototype service output, and the results evaluated</p>		
<p>Required education:</p> <p>Applicants shall have a degree in space physics with a good understanding of statistical techniques. Good computer skills including experience in IDL or comparable programming language used for data analysis would be an advantage.</p> <p>Applicants should have just completed, or be in their final year of a University course at Masters Level (or equivalent) in a technical or scientific discipline.</p> <p>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.</p> <p>Applicants must be fluent in English and/or French, the working languages of the Agency. A good proficiency in English is required.</p>		