

Training Opportunity for Luxembourgish Trainees

Reference	Title	Duty Station
LU-2021-OPS-S4)	Small Satellite Missions for Space Weather Monitoring	ESOC
<p><u>Overview of the mission:</u></p> <p>This Traineeship opportunity will be in ESA's Space Weather Office, which is part of the Space Safety Programme. Space Weather Office is responsible for planning and implementing all space weather related activities in Space Safety. The current activities within the Office include development of the Space Weather Service Network, new space weather models, applications and tools for the space weather nowcasting and forecasting, and space-based measurement systems for monitoring the solar activity and the space environment in the vicinity of the Earth. The space segment activities include flying space weather instruments onboard other satellites, development of dedicated small satellites and nanosatellites for space weather monitoring and also implementation of big space missions like the Lagrange mission for space weather monitoring from L5 point.</p>		
<p><u>Overview of the field of activity proposed:</u></p> <p>Monitoring of the Earth's and Sun's environment is an essential task for the now- and forecasting of Space Weather and the modelling of interactions between the Sun and the Earth. Due to the asymmetry and complexity of Earth's magnetosphere, the involved particle environment and its dynamics, it is necessary to capture the state of the magnetic field and the particle distribution in a sufficiently large number of sampling points around the Earth, such that it allows state-monitoring and modelling of the involved processes with sufficient accuracy and timeliness.</p> <p>ESA is implementing a space weather monitoring system, including the establishment of a Distributed Space Weather Sensor System (D3S) to observe the effects of solar activity within Earth's magnetosphere. An important aspect for the realisation of observation systems for Space Safety is the need of high reliability, sufficiently long lifetime and low data latencies as the data will be used in operational purposes. Two precursor hosted payload missions of D3S have been realised with a radiation monitor and a magnetometer flying on two different GEO satellites providing near-real time information on current space weather conditions and an additional radiation monitors will fly on a GEO mission in 2021. In addition to hosted payload missions ESA is studying options for dedicated small satellite constellations.</p> <p>In this project you will contribute on various aspects of the implementation of D3S; following the small satellite mission studies, working on the monitoring of the hosted payload missions that are ongoing as well as coming up in the next year, and working in the consolidation of the observation requirements.</p>		
<p><u>Required education and skills:</u></p> <ul style="list-style-type: none"> • Master's degree in a technical or scientific discipline • Good interpersonal and communication skills • Ability to work in a multi-cultural environment, both independently and as part of a team • Fluency in English and/or French, the working languages of the Agency 		