

Training Opportunity for Belgian Trainees

Reference	Title	Duty Station
BE-2019-HRE-OM	Space Medicine/Human Research Database management	EAC (in collaboration with ESTEC)
<p><u>Overview of the unit's mission:</u></p> <p>Human spaceflight is one of the key activities undertaken by ESA on behalf of its Member States. The primary function of the Space Medicine Team (HRE-OM) located at EAC is to maximise the operational effectiveness of ESA astronauts through the career-long management of their physical, social and mental health. In order to fulfil this function, HRE-OM provides services to the ESA Astronauts designed to support and promote long-term health, including ground-based preparation, in-flight support/health monitoring and countermeasure provision, in addition to post-flight rehabilitation. These services are delivered through a combination of HRE-OM support staff specialist knowledge, the use of medical hardware and the continuous evaluation of effectiveness and best-practice.</p> <p>The Human Research Office (HRE-HRO) located at ESTEC seeks to provide opportunity for European scientists to investigate the physiological adaptations associated with the space environment, both on the ISS but also via access to a portfolio of ground-based analogue platforms including long-term head-down best rest.</p>		
<p><u>Overview of the field of activity proposed:</u></p> <p>HRE-OM's services require a variety of periodic tests and assessments both on Earth and during ISS missions that can determine the operational status of an astronaut. These tests also provide the HRE-OM with a mechanism to evaluate the effectiveness of its current practices and thus continually refine the services it provides to ESA's astronauts on the ISS, in addition to helping define the requirements for maintaining astronaut health in future mission scenarios.</p> <p>HRE-HRO as part of the ground-based analogue research programme has, in collaboration with international partners developed a set of standardized baseline measures with the aim to facilitate the systematic evaluation of the respective effects of different analogues and factors such as exposure duration, nutrition and the employment of various countermeasures.</p> <p>However, to date the considerable volume of operational data from crew members, and the baseline data from ground-based analogues has not been collated into database structures suitable for data mining. As a result a key objective of both the HRE-OM and HRE-HRO has been to develop suitable databases and exploit them.</p> <p>In order to optimize procurement the HRE-OM and HRE-HRO have worked together to define a set of requirements and processes to facilitate creation of independent data management systems that share technical heritage and structure, even though they cannot - for data protection reasons - be integrated into a single database.</p> <p>The final database software solution is due to be delivered following pilot evaluation and so the proposed National Trainee (NT) position is to build and optimize data import processes in order to ensure 100% accurate and efficient (automated) population of the respective databases. By working on both databases simultaneously it is envisaged that any optimization processes developed for one, can also be applied (where appropriate) to the other. Furthermore, we hope this will allow creation of a standardised interrogation procedure allowing ESA medical operations, and in the case of the ground-based analogue data, also the European scientific communities to exploit the unique datasets acquired over the last few decades.</p> <p>Therefore the NT will contribute to finalising the database structures and processes, archiving current data, managing the integration of new data in addition to generating and employing data interrogation strategies.</p> <p>The NT will be supported by members of staff within the HRE-OM and the HRE-HRO and thus the position represents a unique opportunity to work with the HRE-OM and HRE-HRO to take a giant leap towards population-data driven decision making in order to meet the challenges of human spaceflight in, and beyond LEO.</p>		
<p><u>Required education:</u></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> <p>Applicants should have recently 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 possess experience/skills relating to database management and programming.</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>Experience with data generated by standard physiological and medical tests is desirable, but not essential.</p>		