Overview of the unit's mission:
The Advanced Concepts and Studies Office is ensures the overall coordination, coherence and performance of program and corporate studies in support to the preparation of the Agency's future activities, in line with its long-term strategic objectives and priorities, manages the General Studies Programme (GSP, www.esa.int/gsp), in support of all the Agency's programmes and in particular of the Director General and the Strategy Department (DG-S), supports the selection of activities; and manages the Advanced Concepts Team (ACT, www.esa.int/act), in charge of beyond the horizon multidisciplinary research for space, exploring new approaches to space related R&D (including competition, prizes, games), research for disruptive innovation, developing an expert network at academic level, and providing a capability for fast first look analysis of problems, challenges and opportunities.

Within the European Space Agency, the ACT is engaging in collaborative research relations with university institutes and research centres, focusing on advanced research topics of potential strategic interest to the space sector and in experimenting with new forms of teamwork. In order to achieve this goal a multidisciplinary research environment is provided, in which young scientific and engineering post-doctoral and post-graduate researchers carry out work on emerging technologies and innovative concepts. Candidates are strongly encouraged to visit the website of the team to obtain more information about the team in preparation of their application and interview.

Overview of the field of activity proposed:
Statistical methods are used throughout every stage of a mission development, and are employed extensively afterwards to make the most of the data collected. The fact that statical methods proliferate so widely in the space sector, new methods could quickly lead to important innovations. This field has benefited extensively in recent years through the advantages in computer processing power. These advances have allowed development of more complicated techniques such as machine learning or data mining. Other new numerical methods are also being developed to analyse data with a lower computational load. This can be done either by improving the efficiency of algorithms, or the use of parallelisation.

The successful candidate will perform research in the field of computational statistics and especially its applications to space systems. These will focus on applying techniques not previously use for space to analyse data in situ. This will improve the possibility of instruments to adjust without the lag or delays associated with data transmission. These methods will also pave the way for increased autonomy on robotic exploration missions.

Statistics is used extensively throughout all the sciences, and this puts statisticians an unique place to facilitate collaboration between disciplines.

The successful candidate will be a member of the Advanced Concepts Team (http://www.esa.int/act) and is therefore expected to contribute to the development and the assessment of new concepts and technologies for space applications in close interaction with ACT researchers who work on a broad range of disciplines including, informatics, artificial intelligence, climate modelling, energy systems, fundamental physics, biomimetics, computational management science and mission analysis. Based on her/his detailed background and interests and the opportunities and needs of the team, the successful candidate will be involved in a number of other ACT initiatives (including studies conducted via the Ariadna scheme, http://www.esa.int/ariadna) and participate in reporting and communicating results of the team (internally and externally).

Required education:
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, specifically in mathematics. Applicants should have a good theoretical background and strong interest in statistics.
Applicants should show a genuine interest in applied academic research, together with sound analytical skills, avid curiosity and a natural aptitude to self-motivation and teamwork. 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.