

## Traineeship Opportunity for “Young Graduate Trainees”

Reference	Field of specialisation	Duty Station	Closing Date
<b>ESA/YG-ESTEC(2015)007</b>	<b>SAR Applied Electromagnetics</b>	<b>ESTEC</b>	<b>15 December 2015</b>

### Overview of the Division’s mission

Sentinel-1 is the Synthetic Aperture Radar (SAR) Earth Observation mission of the Copernicus Space Component. It is a polar-orbiting C-band imaging SAR satellite constellation designed to work in a pre-programmed conflict-free operations mode to systematically image global landmasses, coastal zones, sea-ice, polar areas and shipping routes at high resolution, as well as covering the global oceans with vignettes.

Sentinel-1 provides an all-weather day-and-night supply of SAR imagery for Copernicus user services. The Sentinel-1 mission is implemented through a constellation of identical C-band SAR satellites comprising the current A and B units. Sentinel-1A was successfully launched on April 3rd, 2014 and the launch of Sentinel-1B is scheduled for the second quarter of 2016.

The Copernicus Sentinel-1 Mission will ensure the reliability of operational Earth monitoring services. In particular, the systematic SAR data acquisition enables the build-up of long data time series supporting especially applications such as soil moisture and SAR interferometry (InSAR) surface monitoring.

The Sentinel-1 ground coverage and revisit frequency are dramatically improved with respect to the ERS-1/2 SAR and ENVISAT ASAR. The two-satellite constellation offers a six day exact repeat orbit cycle and conflict-free operations based on two main operational modes, that are the Interferometric Wide Swath (IW) and the Wave mode (WV). In comparison with its predecessors the Sentinel-1 mission represents an n-fold evolution of capability.

### Overview of the field of activity proposed

The proposed Young Graduate Trainee’s (YGT) activity will focus on the analysis of SAR data time series acquired by Sentinel-1A and Sentinel-1B (once in orbit) with the objectives:

- a) to analyse the performance evolution of the Sentinel-1A and Sentinel-1B instruments particularly for the implementation of inter-satellite SAR interferometry and related applications;
- b) to derive predictions for the end-of-life mission application performance for the constellation;
- c) to evaluate the adequacy of the Sentinel-1A/-1B SAR system performance for deriving geophysical parameters with sufficient accuracy considering calibration methods and including the implementation of geophysical retrieval algorithms, e.g. for soil moisture estimation, surface displacement mapping and sea-ice classification, and
- d) to support the Sentinel-1B SAR system calibration and performance verification during the Sentinel-1B in-orbit Commissioning by analysing Sentinel-1A & B data.

The Young Graduate Trainee will use (and if necessary upgrade) the Sentinel-1 *Commissioning Phase Analysis Facility* (CPAF). The CPAF was procured during the Sentinel-1A/-1B development and is used for the end-to-end performance verification and SAR system calibration during ground tests and for in-orbit commissioning activities.

### Educational and other requirements

Applicants should have just completed, or be in their final year of a University course at Master’s Level (or equivalent) in remote sensing, geophysics, electromagnetics or in a related engineering or scientific discipline. Previous experience in SAR remote sensing or radar data processing and calibration or development of geophysical retrieval algorithms, and familiarity with the development of software would be an asset.

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.

**How can I apply?**

Please fill in the [online](#) application form.

Please note that only one application may be submitted for the YGT Scheme.

The YGT Scheme is open to recently qualified young men and women  
who are nationals of one of the following states:

Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy,  
Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland, and the UK,  
or Canada as a Cooperating State, Bulgaria, Latvia, Lithuania, Slovakia and Slovenia as European Cooperating States  
(ECS).