Training Opportunity for Portuguese Trainees

Reference	Title	Duty Station
PT-2016-EOP-SE	**Retrieval and Assessment of Greenhouse Gas Essential Climate Variable data products**	ESRIN

Overview of the Unit missions:

The Earth Observation Services and Exploitation Division (EOP-SE), at ESA ESRIN, Frascati, Italy, aims to expand the use of Earth Observation data by scientists, public sector, and industry. The team maintains close contact with research groups worldwide, who exploit data from ESA and other EO missions, including Earth Explorers, Sentinels, commercial missions and archives. The team also liaises with public sector users in Europe, with international programmes, and supports value-adding industry to develop innovative EO-based applications and services.

Activities this year are focusing on the assessment and early exploitation of data coming from the first Sentinel missions S1A, S2A, S3A, and S5P, on developing new EO applications to support sustainable development, and on exploiting the archive of past ESA satellite observations for the generation of Essential Climate Variable global data products.

Overview of the field of activity proposed:

Your work will be linked to activities being performed within the ESA Climate Change Initiative (CCI) programme to generate long-term, consistent, global data products for the Greenhouse Gas 'Essential Climate Variable'. In CCI a dedicated team of expert research laboratories are analyzing time series of satellite observations from the European ENVISAT/SCIAMACHY, Japanese GOSAT/TANGO and USA OCO missions, to derive consistent, global, climate-quality records of CO_2 and CH_4 concentrations in the atmosphere. This calls for highly challenging activities such as: development of innovative retrieval algorithms, inter-comparison and selection of 'best' retrieval algorithms, development of data merging algorithms, geophysical data validation, detailed error characterization.

You will conduct a one-year project, focusing on one or more of the following topics:

    1) Improving existing retrieval algorithms
    2) Improving error characterisation of long-term CH_4 and CO_2 global data sets
    3) Performing data inter-comparisons (e.g. satellite /ground-based/climate model output)
    4) Developing new data merging algorithms (e.g. from different sensors)
    5) Documenting, publishing and presenting results.

The project will take account of scientific results, data and algorithms from the CCI GHG project,

You may also help organize thematic workshops, prepare training courses, dialogue with end users, and prepare communication materials such as web stories.

Required Education:

- Applicants should have just completed (conclusion not older than two years) or be in their final year of a university course at Master's level in a technical or scientific discipline.
- Candidates must be fluent in English or French, the official languages of the agency
- Remote Sensing Background for the retrieval of GHG (Carbon Dioxide and/or Methane) from satellite measurements.
- Scientific programming skills will be an asset.
- Candidates intending to use their ESA project to prepare for subsequent PhD work are welcomed.

Applicants must be capable of working autonomously and 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.