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JOB DESCRIPTION

Vacancy reference:	SRF30959
Post Title:	Earth Observation Scientific Programmer
Grade:	Grade 6 or Grade 7
School/Department:	SMPCS / Meteorology
Reports to:	Prof Christopher Merchant
Responsible for:	None

Purpose

To advance Earth Observation projects in Prof Merchant's group in the areas of climate and thermal remote sensing, by undertaking a range of data analysis, coding and visualisation tasks

Main duties and responsibilities

This role involves bringing strong coding skills to a variety of investigations in the context of a thriving remote sensing team quantifying the climates of Earth. The main duties will be:

- Co-design of scientific analysis tasks relating to exploitation of Earth Observation (EO) data generated by Prof. Merchant's team for studies in climate science.

- Scientific programming and visualisation to implement these scientific analysis tasks, typically involving manipulation of large EO and scientific datasets to answer specific questions.

- Scientific programming to advance sea, lake and land surface temperature retrieval from current satellite missions, particularly the Sea and Land Surface Temperature Radiometer (SLSTR).

- EO and model data analysis to address questions in climate science relating to sea, land and lake temperatures, clouds and atmospheric aerosols.

- Working as part of a team to facilitate scientific research by contributing to the writing of robust, accessible, maintainable scientific code in a collaborative setting.

- Visualisation of datasets to support scientific publication and public communication.

- Contributing quantitative analyses and graphics to peer-reviewed papers in collaboration with other team members.

- Further coding and analysis tasks that may arise, as requested by Prof. Merchant, such as working on field data collected by drone surveys.

If we appoint experienced candidate at Grade 7, additional responsibilities will include:

- Development of the communication and data dissemination capabilities of the group, particularly its strategy for online presence.

- Support the personal development of team members in the area of scientific programming.

- Make significant contributions to gaining funding through research proposals, including leadership of specific proposals.

Supervision received

Role will be generally supervised by Prof. Merchant, with day-to-day collaborative interactions at implementation level with other members of the team as appropriate to the tasks in hand.

Supervision given

None.

Contact

In the course of work, the post-holder can expect contact with at least: National Centre for Earth Observation, European Space Agency, EUMETSAT, the European Centre for Medium Range Weather Forecasting and the Met Office.

Terms and conditions

Full time. Fixed term appointment of 22 months.

This document outlines the duties required for the time being of the post to indicate the level of responsibility. It is not a comprehensive or exhaustive list and the line manager may vary duties from time to time which do not change the general character of the job or the level of responsibility entailed.

Date assessed:

PERSON SPECIFICATION

Job Title	School/Department
Earth Observation Scientific Programmer	**SMPCS / Department of Meteorology**

Criteria	Essential	Desirable
Skills Required	• Excellent scientific programming skills • Data crunching, analysis and visualisations skills using Python and shell scripting • Code collaboration and use of version control software • Technical/scientific writing	• Use of high-performance computing systems • Developing interactive web applications (**essential for Grade 7**)
Attainment	• Bachelors degree in a quantitative discipline • PhD in a quantitative subject, or > 4 years relevant experience in data analysis / scientific programming at an equivalent level of challenge	• Relevant vocational training in scientific programming / data analysis
Knowledge	• Python programming for data analysis and graphical visualisation • Unix and scripting	• Good knowledge of Fortran • Earth observation / remote sensing • Physical principles underlying remote sensing in infra-red wavelengths • Appreciation of climate / Earth system science • Data and metadata standards, netCDF tools, etc • Interactive web design relevant to data dissemination (**essential for Grade 7**)

Relevant Experience	• Roles involving quantitative data analysis and coding • Undertaking projects with a high level of autonomy	• Familiarity with collaborative code working using Github or equivalent (**essential for Grade 7**) • Projects involving handling of large (multi TB) data, using Python • Proposal writing for funding (**essential for Grade 7**) • Working with satellite data
Disposition	• Able to plan and work to deadlines, maintaining focus • Flexibility • Keen to work on a diverse set of small-to-medium size tasks • Enthusiastic problem solver, seeing tasks to a conclusion	• Collaborative mindset, willingness to share knowledge using excellent communication skills (**essential for Grade 7**) • Happy to network externally • Keen to learn across a broad front of knowledge (coding and scientific) • Willing to invest upfront effort to develop maintainable long-term solutions to problems (**essential for Grade 7**)
Other		

Completed by: C J Merchant	Date: 28/11/2019