# EO data-derived platform development for exploration of Scottish fires

**Code:** 21/14

**Company:** Omanos Analytics

**Location:** Remote-working, UK

**Company Description:**

Omanos Analytics is a Glasgow-based space technology company combining satellite data analysis with community intelligence and other ground-data sources to identify and monitor the social and environmental impacts of large infrastructure projects, in order to provide a more accurate, more accessible, and more comprehensive set of insights into the realities on the ground. This ultimately helps reduce risk to affected communities, the environment, governments, and investors. Omanos specialises in remote or complex regions where satellite data is traditionally not used, and where in-person site monitoring is difficult, dangerous, and/or expensive. Previous work has spanned mining, hydrocarbons, geothermal, logging, agriculture, sugar and rubber plantations; looking at issues like forced displacement, water access, and mobility in countries from Guinea to Cambodia to Turkmenistan. Omanos' data products have been instrumental in a range of scenarios, including an arbitration case heard by the Compliance Advisory Ombudsman for the World Bank's commercial investment arm.

The company has a multi-disciplinary team with experience spanning data analysis, astrophysics, geophysics, engineering, software development, aid work, media, human rights and security management.

Clients and partners include the UK Satellite Applications Catapult, the European Space Agency (ESA), the UK Space Agency, Scottish Enterprise, and a range of international NGOs and other SMEs. Omanos developed its "Community Earth Observation Intelligence Service" (CEOIS) with support from ESA's EO for Science and Society programme in 2019-2020, building a flexible, scalable data service delivering bespoke products designed for applications supporting social and environmental causes with a focus on low infrastructure and complex regions.

**Project Description:**

VIIRS Nightfire provides detection and characterisation of nighttime combustion sources, providing scientists with freely available csv-format data on position, intensity, and temperature of detected fires. We aim to develop an online platform for the geospatial visualisation and exploration of these detections.

An online interactive platform will enable:

- Quick and easy exploration of the data for the layperson, making the VIIRS Nightfire resource more accessible to groups concerned with the environmental impacts of wildfires and gas flaring
- Scoping and user survey for future addition of data layers to give social and environmental context to fire detections.
- Increasing awareness of the prevalence of difference causes of fire and publicity of the value of space data in the support and monitoring of environmental risks

The intern will conduct research into creation of an interactive database and browser-based platform for the exploration of VIIRS Nightfire data.

This research will be put into action with the development of a prototype web-platform for the display of geospatial data and a software pipeline for automated satellite data access, handling, and processing into the platform.

The project will be geographically focused on Scotland as an initial use case allowing preliminary development in a specific region of interest whilst including detections from a range of combustion sources (such as wildfires, controlled burning of grouse lands and gas flaring from fossil fuel processing).

The intern will plan for future development beyond the Scotland use case, research into the inclusion of additional environmental data layers and expansion of the platform for global coverage.

**Applicant Specification:**

Student (preferably postgraduate) of engineering, maths, physics, computer science or equivalent

**Minimum Requirements:**

- Experience and knowledge of web-development and software development in Python and/or Javascript
- Excellent written and verbal communication skills.
- Interest in developing online tools and platforms for geospatial data exploration.
- Good experience in programming for automation of data handling procedures.
- Enthusiasm for expanding the use and understanding of satellite data and its use in aid of environmental and humanitarian work.

**Preferred Additional Requirements:**

- Understanding of Earth observation and remote-sensing data analysis
- Experience in developing online tools and platforms for geospatial data exploration.
- Experience or familiarity with GIS techniques

**Further details:**

8 weeks minimum fixed term contract to be agreed with successful candidate. Virtual Induction Event to be held on 21 June, 2021. Ideally to complete before the start of the next academic year. Salary is £1,333 per calendar month gross.

**Closing Date for Applications: 5pm Tuesday 4 May**

Applications should be made through the online form attaching a CV, before the closing date. Please note that elements of the form left incomplete will be deemed to render the application ineligible. They will be checked for eligibility and forwarded to the employer.