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Caroline Herschel Framework Partnership Agreement for

Copernicus User Uptake

Supporting use of Sentinel data through code sharing and knowledge exchange

Country: United Kingdom
Main driver: To facilitate more efficient and innovative use of Sentinel data across the UK public sector through code sharing and peer support
Contact point: earthobs@jncc.gov.uk
Partnerships: Defra, CEDA
Further information: https://jncc.gov.uk/our-work/copernicus-project/

Overview

Defra's Earth Observation Data Service and JNCC's Simple ARD Service launched in 2020, producing Sentinel-1 and Sentinel-2 analysis-ready data (ARD) for England, Scotland and Northern Island. Data from both services is available via the Centre for Environmental Data Analysis (CEDA) Archive. These services offer data visualisation and download, but it is more efficient to access the data programmatically via an application programming interface (API).

User consultation highlighted barriers to API use and identified a need for example scripts and peer to peer support. This project aimed to increase use of ARD via API by setting up code sharing and knowledge exchange platforms.

Work Involved

JNCC conducted research to inform the choice of platform, including a user survey which received 40 responses from 24 organisations. A GitHub repository (repo) was set up to share code in any language for processing or analysing Sentinel-1 and Sentinel-2 ARD. Two Jupyter Notebooks demonstrating use of the Defra EO Data Service API were produced and added to the GitHub repo. A Slack workspace was created to facilitate discussion and knowledge exchange amongst users of Sentinel-1 and Sentinel-2 ARD. Members are welcome from all sectors, and users with a UK environmental public sector e-mail address are pre-authorised. JNCC held a webinar on 24 September 2020 demonstrating the GitHub repo and Slack workspace, promoting good practice for participation.

Key Outcomes and Expected Impact

The code sharing webinar attracted 49 attendees from 36 organisations. Videos and slides are available on the event resource page.

The GitHub repo is organised in three sections: tutorials and functions, marine and coastal applications and terrestrial applications. Over 40 scripts have been shared to date, contributed by fourteen authors from seven organisations.

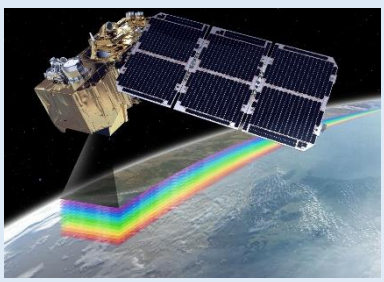
The Slack workspace currently has 57 members who contribute to discussions in six channels: applications, CEDA, cloud-computing, EO-data-service, general, and resources-events-training. On 22 March 2021, the Slack workspace was used for a dedicated drop-in session during which the EO Data Service developers answered questions and demonstrated analytical workflows.

Policy relevance

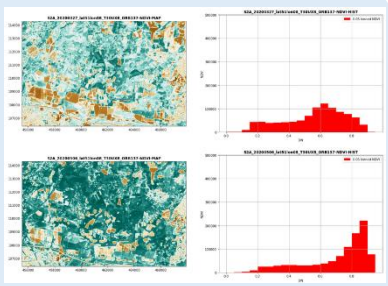
The GitHub repo contains examples of analytical workflows producing information to support upland management, marine and terrestrial protected site monitoring and agri-environment scheme delivery. Greater knowledge exchange will increase UK public sector capacity to use ARD as part of the evidence base for policy areas such as nature conservation, sustainability goals, climate change mitigation, disaster resilience and natural capital assessment.

Future work

Ongoing promotion of the Slack workspace and GitHub repo will create a larger user base and increase code sharing. Development of scripts demonstrating use of the CEDA API is a particular priority. Use of these platforms will be monitored in order to evaluate their impact.



Sentinel-2 satellite © ESA



NDVI map and histogram produced from Sentinel-2 data using a Jupyter Notebook available on the GitHub repo

Sentinel-1 and Sentinel-2 data for Scotland processed by JNCC's Simple ARD Service

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