

Announcement of Opportunity

Invitation to Tender:

Consultant to support EODH DataStreams

1. INTRODUCTION

On behalf of the new EO Data Hub, the National Centre for Earth Observation (NCEO) is pleased to announce an invitation to tender for a Consultant with the primary purpose of identifying commercial data streams; their conditions and functionalities for data access, acquisition and search; their pricing structures. In addition, the Consultant will support the management of User Pilot Projects, in particular with understanding and consolidating their requests and utilisation of data streams.

The newly commissioned EO Data Hub (EODH) has the objective to deliver an innovative, pre-operational pathfinder data and analysis project, delivering a national 'point of access' for UK EO data offerings from distributed public and commercial sources. It will implement a uniquely UK offering whose federated, centralised software approach and data analytics capability brings value across the breadth of UK EO sector users. The EODH:

- Builds on current EO infrastructure provision whilst looking forward to new satellite missions and other data sources;
- Provides adaptive and scalable software implemented in the cloud to access and transform data streams;
- Supports new EO transformational tools (core and user-provided) to produce analysis-ready data systems and merged products via a modular container-based approach to software. It builds on current infrastructure whilst looking forward to new missions;
- Improves EO data access and discovery, interoperability, transparency, and trustworthiness, including a dedicated Quality Assurance Service.
- Will enable unified but flexible UK access to EO data from across multiple (public and private) sources, through common and accessible interfaces for a broad set of data users by implementing a hub which can access a wide variety of public, scientific and commercial data,
- Is a national UK asset which provides the first phase in dedicated national data infrastructure for Earth Observation.

The EODH has been funded by the National Environment Research Council (NERC), part of UKRI, through the Copernicus transition, national project funding provided by the Department for Science, Innovation and Technology (formerly BEIS)^{1 2}. The consortium is led by NCEO (including CEDA @ STFC RAL Space and U. Leicester staff), the Satellite Applications Catapult (SAC), the Met Office, the National Physical Laboratory and the UK Space Agency.

1.1 EO Platforms and the EO Data Hub (EODH) Concept

Over the last decade, the *Platform* concept has developed and matured in the EO sector as a means to bring together data and computational resources into a unified virtual work environment for users³. The EODH builds on this approach and will offer a software framework operating in a (public) cloud environment. This suite of software services will include - but not be limited to - identity and access management, a searchable catalogue for data and other resources, capability to assemble data pipelines to transform data into value-added and/or analysis-ready data products. This software system is the key to unlocking the wide variety of data in a data stream layer, an extendable architecture in which any number of data sources can be integrated. An important feature of this UK EO Hub system is that it will interface, by intent, to public service data (state-funded through space agencies), commercial datasets e.g. from constellations, and UK scientific data as described above through Application Programming Interfaces (APIs), allowing data discovery and data access using open standards-based interfaces. Critically, the datasets will be given a “trusted” approval status through a Quality Assurance Service running in the Hub software in parallel to the data search function.

A further crucial element is that the automated workflows of the Hub will allow code containers (encapsulating algorithms or tools) that can transform the data into forms that the user can exploit more easily. These containers can be Hub-provided functions, user-supplied code or open-source routines; our aim is to provide some key tools centrally through experts in our organisations, ranging from data formatting to atmospheric correction and cloud clearing.

Finally, the **Hub capabilities will support the development of web-based applications which build upon the data access and processing functionality provided by the Hub to implement thematic area-specific portals and analysis environments for users.** These applications are intended to give end-users the ability to interrogate key products, customise data, request expert support, develop value-added products and support decision making, all tailored to the specific application scenario or theme.

¹ <https://www.gov.uk/government/publications/earth-observation-investment>

² <https://www.nceo.ac.uk/article/uk-government-commits-close-to-400-million-to-earth-observation-research-and-industry-projects/>

³ <https://docs.ogc.org/bp/20-089r1.html>

For this pathfinder project, the EODH will support the development and operation of up to three web-based applications/portals as part of the national government-supported asset, one of which will be a climate data-driven offering and the other two of which will be directed at user-driven priority sectors. To these will be added more focused, user-commissioned web applications offering specific services to collaborative and customer bases.

2. CONSULTANT DATA STREAM CALL DESCRIPTION

The purpose of the current call is to identify and engage a Consultant with experience of working with commercial data providers and data streams to support the initial work on data streams for the EODH and to support management of the data aspects of user pilot projects. The end outcome will be an initial, structured analysis of commercial data provision, guided by criteria for key relationships and success factors alongside needs expressed by the pilots. There are three main objectives:

- 1) To conduct a critical appraisal of available commercial EO providers, examining the ways in which the EODH can access their data sets, order data acquisitions, and work with APIs and catalogues.
- 2) To identify key providers and success factors, including analyses of optimal set-ups for researchers, industry and government (and their combinations)
- 3) To work with and support management of EODH user pilot projects, with a remit of understanding their data needs, providing advice on implementation with iteration, and consolidating their data requirements.

Monies are available up to a limit of £30,000 excluding VAT, ideally to support three months of activity at a minimum ten days of effort per month.

The selected consultant will work with NCEO (both at U. Leicester and STFC RAL Space) and with relevant personnel from the Satellite Applications Catapult.

2.1 PROJECT ACTIVITIES

Appropriate Consultants for this call will be reasonably experienced, i.e. have pre-existing knowledge of EO and of working with commercial EO providers (see next section). The project activities will exemplify commercial data streams for a data hub/and or platform delivery, being able to deliver on the following needs:

- A critical appraisal of available commercial EO data sets, particularly those currently available, against criteria to be agreed at the KO mtg
- A survey of agreed commercial EO data providers, including: a) their ability to provide archived data with searchable catalogues (e.g. APIs, STAC-compliant); b) their ability to provide NRT or tasking data; c) conditions of licence for R&D, govt and commercial; d) compatibility with EO Data Hub expected operations including feasibility of bulk image processing.

- A summary of ESA third party mission activities in respect of commercial EO data
- Discussions in 1-to-1 meeting with key commercial providers on suitability for EO Data Hub and recommendations for agreements
- Liaison with and management of user pilot projects on their data stream requirements and the place for commercial EO data in their projects
- Assessment of Geospatial Commission's data pilot project.

The consultant is expected to:

- a) Claim finance by invoice under U. Leicester's contracting agreements
- b) Maintain flexibility in working arrangements
- c) Participate in other project datastream engagement activities during the period of work.
- d) Act for the EO Data Hub during the project, maintaining confidentiality of discussions and documents unless agreed otherwise.

2.2 Experience and expertise of Consultant(s)

The ideal consultant will have experience in the following areas:

- An understanding of remote sensing instrument types, particularly those applicable to commercial EO.
- Experience of satellite EO data exploitation of more than one type.
- Experience of commercial and other EO data sets.
- Project design and delivery experience, e.g. management, leadership, strategy, data provider engagement, user co-ordination etc.
- Knowledge or ability to decipher the market and opportunities for commercial EO data acquisition, access and licensing.
- Good communication and marketing skills
- Good standard of report writing.
- Ability to work within a team and to work with external project teams (the user pilot projects)

2.3 PROJECT BUDGET AND DELIVERABLES

The total budget available for the call is £30,000 (excl. VAT) with a start date of 31st March 2023 and an end date of 30th June 2023.

The call is released on 23rd March 2023 **with a closing date of 29th March 2023 at 13.00.** Proposal selection will take place immediately, in anticipation of rapid contracting to meet the intended start date.

Deliverables:

D1: Signature of the contract and agreed working delivery (31/03/2023)

D2: Initial tabulation of commercial sources of EO data (31/03/2023)

D3: Initial assessment of available commercial EO data stream (30/04/2023)

D4: Interim report on EO Data Hub considerations for commercial EO data streams and likely success criteria. (31/05/2023)

D5: Final report on EO Data Hub and operation with commercial EO data streams, accounting for Geospatial Commission data pilot project. (23/06/2023)

D6: Consolidated report on EO data stream usage from the user pilot projects. (15/06/2023)

Milestone payment Plan:

Milestone	Deliverables	% payment
M1: by 31/03/2023	D1	25
M2: 31/03/2023	D2	25
M3: 23/06/2023	D3, D4, D5, D6	50

3. GUIDELINES FOR PREPARING AN APPLICATION

Applicants are required to submit their bid by email to the EO Data Hub, including the application form in section 8 in a cover letter, by 13.00 on Wednesday 29th March. Email to: nceo-datahub@leicester.ac.uk

The package should consist of:

- A cover letter.
- The completed application form in section 8.
- A main proposal of no more than 4 pages of A4 (12 point, Arial) covering
 - Proposed candidate(s) to provide expert support
 - Candidate(s) relevant experience and expertise
 - Motivations for proposing a candidate for this role
 - Track record of the organisation
- A separate, less than 1-page, statement of financial costs, giving daily rates for the named personnel, total days and any meeting or other costs.
- A CV (no more than 2 pages) for the proposed Candidate

In the cover letter please include:

- A brief summary statement of the candidate and ability to cover the work.
- A committing offer to the University of Leicester, who will contractually administer the contract on behalf of the UK EO Data Hub consortium and on behalf of NCEO.

4. CONTRACTUAL INFORMATION

Award(s) will take the form of a contract between the University of Leicester, NCEO and the Consultant's lead organisation.

The award will be made on a firm fixed price basis. Any IP generated (i.e. Arising IP) during the course of the project will, in principle, belong jointly to the Consulting Organisation, NCEO and the University of Leicester.

Payments will be as per the milestone payment plan and will include VAT.

Invoices can be submitted on receipt of a purchase order from the University of Leicester. Invoices for M1 and M2 should be within one week of 31st March 2023 and ideally sooner. The final invoice should be within one month of M3.

5. ASSESSMENT OF PROPOSALS

The review panel will consist of EODH personnel. Proposals will be evaluated against the person specification above and ability to complete the indicated tasks.

6. PROJECT REPORTING

The main reporting requirements are covered by the project deliverables. In addition, the consultant will be expected to work closely with the EODH team including weekly telecons, reporting on actions. All final approved reports of the work, following review by the EODH, are due within one month of completion of the work, i.e. by 23rd July 2023 along with the final invoice.

7. ELIGIBILITY

Bids are welcomed from a variety of organisations including academia, industry and government research institutes, ideally located in the UK.

8. APPLICATION FORM

The Application Form below should be completed and submitted with the Cover Letter.

Title of Project	
Lead organisation	
Identified consultant	
Financial request (excl VAT)	£
No of days of effort	
Lead contact name and email	
Company reference number	
Postcode	