

A new twist on R&D procurement activity - using high resolution space data to turn things around within the public sector

Sara Huntingdon, SSGP Manager, 14 November 2018

The UK Space Agency's Space for Smarter Government Programme (SSGP) works with UK companies, institutions and government departments to communicate, facilitate and demonstrate the value of satellite derived applications to the UK Public Sector.

Following an innovative open competition, SSGP has procured access to an unprecedented amount of high-resolution archive satellite imagery as a trial to allow government departments to work with and understand what information can be derived from satellite systems.

The archive will include up to three years' worth of imagery covering Great Britain and Northern Ireland including a significant proportion of the shoreline at less than 5m per pixel resolution.

The two categories of data procured are high resolution optical and synthetic aperture radar (SAR). The satellite imagery has been purchased under a multi-user, multiple re-use, research and development licensing arrangement.

Airbus Defence and Space and Telespazio-Vega UK Ltd are initially providing access to satellite data from the SPOT, Pleiades and COSMO-SkyMed constellations. Data will be made available to those granted special access through the SEDAS portal, which is hosted by the Satellite Applications Catapult.

This flexible licencing approach allows a broad range of government end users, researchers and companies working on public sector challenges to develop, demonstrate and test

early concepts and applications in a R&D context.

SSGP are trialling this approach to see if there is a demand for higher resolution optical and radar satellite data and applications within the UK Public Sector and to overcome some of the perceived barriers to early application development within the SME community.

Optical data is provided by a passive satellite sensor, like an advanced camera in space.

An optical sensor measures the sunlight refracted through the earth's atmosphere, some of which reflects off the surface of the earth and back up to the satellite. The resulting data, in bands of red, green and blue, forms an image in true colour and represents the surface of the earth from where the light is bounced. This produces an image similar to a digital photograph.

On the majority of satellites, data is also collected in a range of wavelengths such as near infrared, for example, enabling the satellite to see bands of light which are not visible to the human eye.

Using analysis techniques, it is possible to determine such information as the height of a structure, the health of a crop and exposed geology of a landscape, plus many other applications.

Radar data is the product of an active satellite system. An active satellite transmits a signal in the form of a wave length that is reflected off the surface of the earth and collected as backscatter by the same

satellite as it transits through its orbit. As the backscatter interacts with objects and vegetation on the surface, it reflects in slightly different ways enabling the resulting backscatter to then be processed to produce an image of the surface of the Earth.

Radar satellites are not affected by cloud cover and can image at night. The active sensors do not detect colour in the same way as optical satellites and the image returned is black and white.

Some typical applications for satellite radar data are ground movement, surface water identification, crop phenology and change detection, however far more applications are available.

SSGP anticipate that the data purchased under these contracts will be made available to support and enable the development of ideas and satellite applications which could ultimately benefit the UK Public Sector.

SSGP will facilitate data access to public sector bodies who may already be familiar with handling geospatial data sets but who may not have hands on experience using space data.

The programme will also be organising a series of events, joint initiatives and open competitions through the life of this contract to enable and stimulate new application development activities with the space sector and wider industry players, in response to public sector requirements.

This will include public sector hackathons, data challenges and open calls for projects, plus events linked to SSGP's published themes. These cross-cutting themes include Disaster Risk Management, Emergency Services, Energy and Infrastructure.

SSGP is adopting this new flexible approach to stimulate demand, enable application uptake opportunities and to increase outreach across a wide range of public sector bodies. By providing free access to the data and creating

opportunities to engage much earlier and share ideas between the UK Public Sector and wider supply chain, we hope to generate additional momentum to help achieve the Agency's stated growth ambitions for the UK Space Sector. This trial could influence future application development and service design activities for and within the public sector and feed lessons learnt into wider government initiatives.

In order to reach new stakeholders and raise awareness amongst the next generation of public servants, an education campaign is also a key component of this trial.

Working initially with GIS teams, professional functional leads, trade organisations and selected development programmes, SSGP will promote the use of this space data by signposting and, where required, developing additional training offerings to optimise the use of this data. This will complement our existing, free to attend, 1 day "[Introduction to Satellite Applications for the Public Sector \(ISAPS\)](#)" course which provides a basic overview of the three types of satellite application technologies and how they can be used in public sector delivery.

Once the data has been downloaded and SEDAS interface tested, we will contact parties who have expressed an interest to begin accessing the data. This is subject to conditions of use and signing an end user licence agreement. All conditions will be clearly set out in the registration process. For those who do not wish to access the data directly, but who wish to work alongside SSGP to exploit this opportunity or would like to know more please also register an interest.

Not sure how to register an interest? Please contact the SSGP team via ssgp@ukspaceagency.gov.uk outlining your interest, your organisation, and any existing level of experience using space data. The team will respond to acknowledge your request and to discuss next steps.