

Sentinel's Milestone and Millstone

There was be a significant milestone achieved for the European Commission's Copernicus Programme with the launch of the Sentinel-1B satellite. It was the fourth satellite launched, and will complete the first of the planned constellations as the second Sentinel-1 satellite.

It was launched on 25th April from French Guiana. In addition, to Sentinel-1B, three student cubesats were onboard the Soyuz rocket. Students from the University of Liege, Polytechnic of Turin, Italy, and the University of Aalborg have developed 10cm square cubesats as part of [ESA's 'Fly Your Satellite!' programme](#) which will be deployed into orbit.

Sentinel-1B is an identical twin to Sentinel-1A which was launched on the 3rd April 2014, and they will operate as a pair constellation orbiting 180 degrees apart at an altitude of approximately 700 km. They both carry a C-band Synthetic Aperture Radar (SAR) instrument and together will cover the entire planet every six days, although the Arctic will be revisited every day and Europe, Canada and main shipping routes every three days.

Sentinel-1 data has a variety of applications including monitoring sea ice, maritime surveillance, disaster humanitarian aid, mapping for forest, water and soil management. The benefits were demonstrated this week with:

- [Issuing a video](#) showing the drop in rice-growing productivity in Mekong River Delta over the last year; and
- The [multi-temporal colour composite of land coverage of Ireland](#) as shown at the top of this post. It was created from 16 radar scans over 12 days during May 2015, where:
 - The blues represent changes in water or agricultural activities such as ploughing, the yellows represent urban centres, vegetated fields and forests appear in green and the reds and oranges represent unchanging features such as bare soil.

With this constellation up and working, the revisit speed has the chance to be the game changer in the uptake of space generated data.

Sadly there's a millstone hanging around the Copernicus Programme neck hindering this change – accessing the data remains difficult for commercial organisations.

Currently, selecting and downloading Sentinel data is a painful process, one that mostly either does not work, or is so slow you give up on it! This has been created by the size of the datasets and popularity of the data that's free to access for everyone worldwide.

There are a number of ways of getting access to this data, with varying success in our experience, including:

- [EU's Copernicus Hub](#) - Operational, but slow to use. Once you have selected the data to download, either manually or via a script, the process is extremely slow and often times out before completing the downloading.
- USGS - Offers Sentinel-2, but not Sentinel-1, data via it's [EarthExplorer](#) and Glovis interfaces. The download process is easier, but the format of Sentinel-2 makes searching a bit strange in Glovis and it's only a partial representation of the available acquisitions.
- The UK Collaborative Ground Segment Access, despite signing an agreement with ESA in March 2015, has not yet been made available for commercial entities.
- It is possible to apply for access to the academically focused [STFC Centre for Environmental Data Analysis \(CEDA\) system](#), which provides FTP access, and that has good download speed's for the data that's available.
- [Amazon's archive](#) of Sentinel-2 data which has good download speeds, but is cumbersome to search without the development of software i.e. scripts.

There are also further services and routes being developed to facilitate searching and downloading from the various archives, e.g., there's a QGIS 'Semi-Automatic Classification' plugin and [EOProc SatCat](#) service for Sentinel-2. With the Sentinel-3A data coming online soon the situation will get more complex for those of us trying to use data from all the Sentinel missions.

Getting the satellites into space is great, but that is only the first step in widening the use of space generated data. Until the data is put into the hands of people who use it to create value and inspire people, the Sentinel data will not fulfill its full potential in widening the use of space generated data.