

Sentinel-2A Ready To Start Its Watch

Sentinel-2A is due to be launched next Tuesday, 23rd June, from French Guiana. It's the second satellite in the joint European Union and European Space Agency Copernicus programme, following [Sentinel-1A's launch in April 2014](#). Sentinel-2A carries a Multispectral Imager (MSI) that has 13 spectral bands:

- 4 visible and near infra red spectral bands with a spatial resolution of 10 m
- 6 short wave infrared spectral bands with a spatial resolution of 20 m
- 3 atmospheric correction bands with a spatial resolution of 60 m

It's advantages over the US Geological Survey Landsat-8 mission includes the higher spatial resolution, and that Sentinel-2A is the first in a pair of satellites that will operate in tandem; Sentinel-2B is due to be launched next year. The key advantage of having an identical paired satellite constellation is that they can map the Earth much faster. On its own Sentinel-2A will return to the same point above the Earth, referred to as the revisit time, every 10 days; whereas it's currently 16 days for Landsat-8. However, when Sentinel-2B is added the revisit time will halve to only 5 days at the equator. This improvement is hugely significant for the development of time critical applications. Also, there are [plans to work Landsat-8 and Sentinel-2](#) together to provide an even higher repeat coverage of around twice a week

When both Sentinel-2 satellites are operational, they will acquire over 1 Tb of data every single day, and currently this data has [ESA Sentinel-2](#):

- **Land Use & Land Cover (LULC) Monitoring** – Providing data on how land on the planet is used, and helping to monitor how this changes over time. For example, monitoring deforestation, desertification, reforestation, drying up of wetlands, urban creep and flood mapping amongst others. The European Commission leads the way in this type of monitoring with the CORINE Land Cover Project, which has produced European wide maps for 1990, 2000, 2006 and 2012 that classify 44 different types of land; available through the [Copernicus Land Service](#).
- **Plant Health** – Providing information on vegetation and growth such as leaf water content, which will be particularly helpful for farmers in determining when, and how much, to water crops to improve yields. Also wider uses such as the leaf area index (LAI), which is one of the Essential Climate Variables used by the United Nations to monitor climate change.
- **Inland and Coastal Water Management** – Providing higher resolution ocean colour data than available from ocean colour missions, such as MODIS and VIIRS, that supports the monitoring of water quality. Using products such as Chlorophyll-a to help the identification, and mapping, of harmful phytoplankton algal blooms, and turbidity to measure water clarity.
- **Disaster Mapping** – Supporting a variety of disaster situations through the [Copernicus Emergency Management Service](#).

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The Copernicus satellite programme offers an exciting new data source and is made available free of charge to users, making this a critical resource for everyone working in the Earth observation industry. Every company needs to look at what new products and services they could develop from Copernicus data, or how they can make existing processes more efficiently and effectively. If you don't, you can guarantee someone else will. How are you going to use Sentinel-2A data?