European Commission

Copernicus for Geographic Information Professionals

Copernicus

What data?

Earth Observation is a key source of information to develop geographic information and update it on a regular basis.

In this context, the Sentinel satellites, a family of Earth Observation missions designed to meet the operational needs of the European Commission Copernicus programme, can also be integrated in your daily work, whatever your area of interest (environment, land planning, agriculture, integrated coastal management, hazard prevention and mitigation, etc.)

Moreover, this satellite data is used, in combination with in situ data, to create the Copernicus Core Services. These services address 6 main thematic areas: Land Monitoring, Marine Environment Monitoring, Atmosphere Monitoring, Emergency Management, Climate Change, and Security, and offer geographic information which can be ingested into any standard GIS.

The data of the Sentinel satellites, and the Copernicus Core Services, are full, free and open.

Where?

- **Sentinel satellites:** scihub.copernicus.eu/dhus
- **Copernicus Land Monitoring Service:** land.copernicus.eu
- **Copernicus Marine Environment Monitoring Service:** marine.copernicus.eu
- **Copernicus Atmosphere Monitoring Service:** atmosphere.copernicus.eu

- **Copernicus Emergency Management Service:** emergency.copernicus.eu
- **Copernicus Climate Change Service:** climate.copernicus.eu

How?

- Copernicus Data and Services come in standard formats: e.g. NetCDF, shapefile, JPEG2000, …
- Some Copernicus Services are available as WMS/WPS.
- Copernicus Services are INSPIRE compliant.

- Free software available for Sentinel image processing: step.esa.int
- Third-party software available to download and process Sentinel imagery through QGIS and cloud solutions.

How much?

- Copernicus Services cover mostly Europe. Some global datasets are available.
- Resolution varies from product to product, with highest resolution of 10 meters.

- Copernicus Services are updated at different time scales – ranging from daily to every 6 years.

Space

Copernicus
Europe's eyes on Earth

Among other features, Sentinel-2 is designed to provide images that can be used to distinguish between different crop types, and to monitor crop status such as this leaf area index (LAI) map, of Central Bohemia in the Czech Republic.
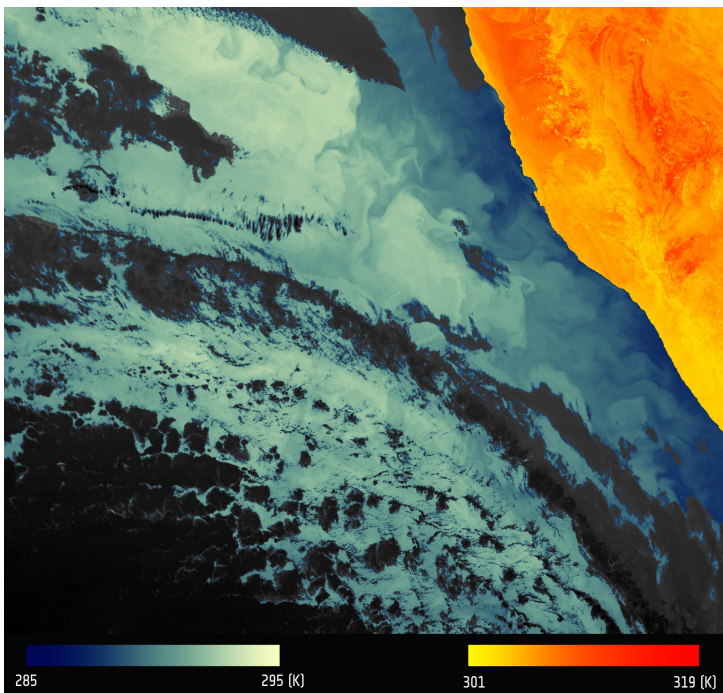© Contains modified Copernicus Sentinel data (2016), processed by ESA
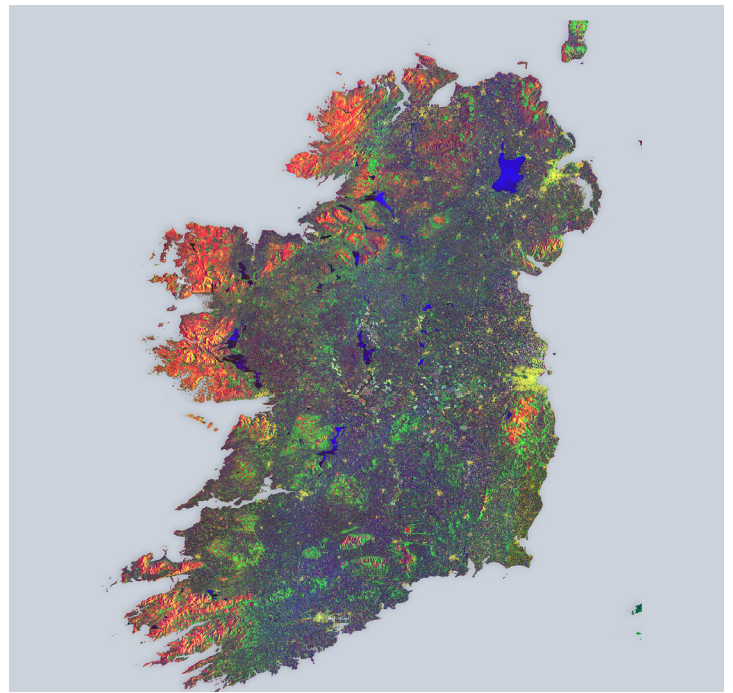
The Sentinel-1A SAR data over Ireland provided this multi-temporal colour composite of land coverage across the island. Different colours show changes that occurred within the 12 days' coverage.
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The first image from the Sentinel-3A Sea and Land Surface Temperature Radiometer (SLSTR) thermal-infrared channels depicts thermal signatures over a part of western Namibia and the South Atlantic Ocean. This image shows the 'brightness temperature', which corresponds to radiation emitted from the surface. Further processing is needed to turn this into an actual temperature map.
© Contains modified Copernicus Sentinel data (2016), processed by ESA
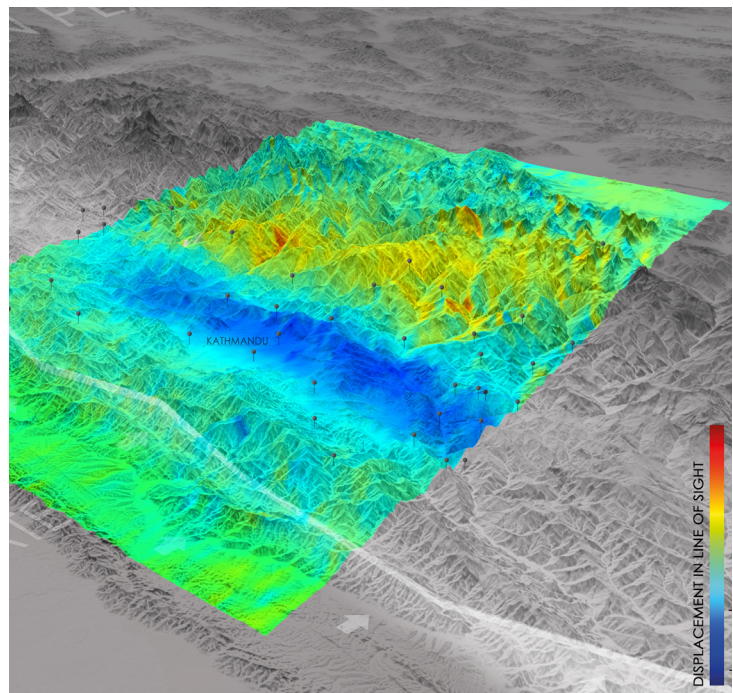
Based on data from the Sentinel-1A satellite, this image shows how and where the land uplifted and sank from the 7.8-magnitute earthquake that struck Nepal on 25 April 2015. This image was generated using data acquired by Sentinel-1A before and after the earthquake event. This image was originally released by the DLR German Aerospace Center.
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