Map of Germanyâ€™s Agricultural Landscape

Combining images captured by the Copernicus Sentinel-2 mission and the US Landsat-8 satellite between October 2015 and the end of 2016, this land-cover classification map shows different crops across Germany. A total of 2.2TB of data were used to generate the map, which distinguishes between 21 land cover classes and includes 15 specific crop types.

Clear pixels from all the satellite images were used to create a time series of 45 composites, each capturing the surface reflectance over a 10-day period, which can be related to crop type. Latest machine-learning software allowed this detailed map to be generated for the entire country.

While this early version of the map is still to be improved on, validation over the Brandenburg, Mecklenburg-Vorpommern and Bayern regions indicate an overall accuracy of 76%, with several crop types such as rapeseed, maize and sugar beet achieving accuracies of over 90%.

Use of the Agricultural Geospatial Data

Having such detailed, spatially explicit, wall-to-wall results on land cover and crop types is a valuable source of information for a range of applications. Uses include supporting policies such as the EU Common Agricultural Policy, modelling biochemical fluxes and pollution, analysing land-use change, conserving biodiversity and managing natural resources.

Europe’s Copernicus Sentinel-2 mission provides information for monitoring vegetation. Its multispectral camera has 13 spectral bands and is the first of its kind to include three bands in the ‘red edge’, which provide key data on vegetation state. The mission was designed to provide images that can be used to distinguish between different crop types as well as data on numerous plant indices, such as leaf area, leaf chlorophyll and leaf water – all essential to monitor plant growth accurately.