

# Environment monitoring services in Europe



Europe is one of the most urbanized continents on Earth. More than half a billion people live in European Union countries and this number is increasing. Approximately 75% of the population lives in urban areas and, consequently, some of them have reached the dimension and the importance of global cities. Although the rate at which the population is increasing is quite low, European urban areas are characterized by a significant sprawl phenomenon, which has the most important impact on natural and rural environments. This also affects biodiversity since it decreases habitats, the living space of a number of species, and fragments the landscapes that support and connect them. Furthermore, urban sprawl has a direct consequence on the increase in greenhouse gas

emissions, on the reduction of air quality and on noise pollution, on the increase of surface run-off. To sum up, it reduces the quality of the life and the security of European citizens.

**# Since the 1980s the need for European Institutions to monitor land cover and land cover change on the continent has arisen #**

The European Environment Agency (EEA) is the European Union

authority devoted to monitoring the environment of Europe. Many initiative have been taken with this aim by EEA, and, one of the more recent is GIO-land, an operational project with the aim of producing several land cover dataset using satellite images. In 2011 within the framework of the pan-European component of the project, the production of five high resolution layers (HRL) regarding five land cover classes in 39 European countries started (32 EEA member countries plus six Balkan countries and Turkey).

Artificial surfaces, forest areas, agricultural areas (permanent grasslands), wetlands, and bodies of water are the five land cover classes to be mapped. The output is composed by a series of raster maps related to these classes. Planetek Italia leads a consortium

formed by Geoville and Planetek Hellas for the production of Lot 4: Imperviousness and forest in Southern Europe, partim West and Central Mediterranean region (1.202.046 km<sup>2</sup>). This lot includes the following countries: Albania, Bosnia and Herzegovina, Croatia, Cyprus, Greece, Italy, Kosovo under the UN Security Council Resolution 1244/99, Montenegro, Malta, Portugal (including the Azores and Madeira), Spain (including Balears and Canaries). The Copernicus services are considered “public goods” and, thus, full and open access to the five HRLs will be organized at the end of the project, which is foreseen for the end of the year 2014.



**Project resources and video:**  
[www.planetek.it/eng/projects/geoland2](http://www.planetek.it/eng/projects/geoland2)

Planetek is promoting and supporting the upcoming Global Change Research Symposium to be held in Ostuni, Brindisi, Southern Italy on September 16-18, 2014. The Symposium will bring international leading scientists from relevant fields to discuss the theme of how global change research can support management decisions and interventions, needed to mitigate different stressors and protect ecosystem services and human well-being. Planetek will contribute with presentations, providing examples of successful case studies on remote sensing applications (including LIDAR).



**Event page:**  
[www.global2014.it](http://www.global2014.it)



## The Copernicus European Earth monitoring program

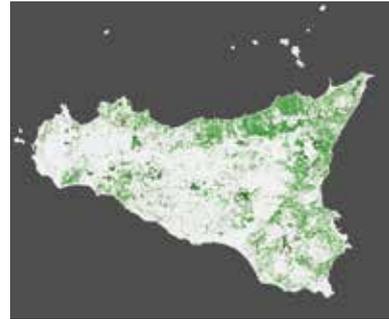
Copernicus is the European programme for the collection of environmental information through Earth Observation (EO) data. This programme, previously named GMES (Global Monitoring Environment and Security) aims at providing information to European Member States on the status of the environment, integrating different data sources such as EO data and in situ.

There are six themes: land, water, atmosphere, climate change, emergency and security. For each theme many applications have been analysed including territorial planning, agriculture, forestry, health, transport, protected areas, civil protection, marine and coastal zones, among others.

Copernicus users are the public authorities and planners who address laws for environmental protection and who act in case of emergency.

The Copernicus programme is coordinated by the European Commission. The European Space Agency is responsible for the infrastructure for the space component and the EEA, with cooperation of the Member States, is responsible of the in situ component.

Planetek has been participating in Copernicus since 2008 in the Geoland2, SAFER, G-Mosaic, Aquamar and BIO\_SOS projects, and is the Service Provider for GIO Land.



Above images: maps of dominant leaf type for Sicily, Italy (broadleaved trees and Coniferous trees).

Below images: Maps of the artificial areas of the two biggest cities of Spain. The darker is the red, higher is the impervious fraction of the pixel (values from 1 to 100%).

