

# Galileo

The European Programme for  
Global Navigation Services

## Environment



**Galileo will play an important role in protecting the environment. It will contribute to tracking pollutants, dangerous goods and icebergs, mapping the oceans and cryosphere, and studying the tides, currents and sea levels. It will help to monitor the atmosphere, water vapour for weather forecasting and climate studies, and the ionosphere for radio communications, space science and even earthquake prediction. In nature, the movements of wild animals can be tracked to help preserve their habitats.**

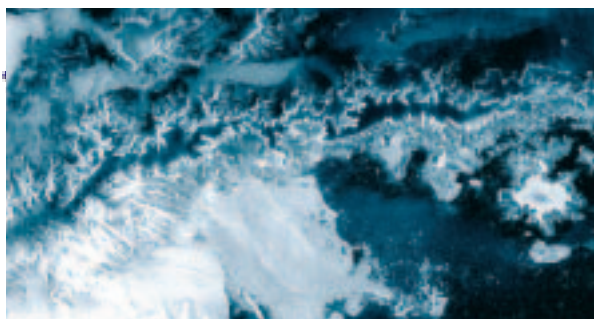
### *Some examples of practical uses of Galileo*

#### **\* Environment monitoring**

A great deal of information can be learnt from the signals coming from the Galileo satellites. The navigation signals can be efficiently used for accurately determining atmospheric profiles over wide areas, including density, pressure, moisture content and wind patterns. Continuous measurement of atmospheric parameters will provide valuable data for weather forecasting and – over the longer term – for climate monitoring.

The Galileo system will also help in studies of the sea and oceans, including surveys with buoys floating on currents and tides.

Other Earth sciences will benefit from Galileo. It can give information for continuous monitoring of the ice caps and for the movements of icebergs. Experiments have already shown the efficiency of satellite navigation for tracking recent glacier meltdown caused by a volcanic eruption beneath the ice sheet, when the data



can help to predict the movement of the ice and flood water. It can be used in vulcanology, the study of tectonic movements, and the study and prediction of earthquakes. Galileo could even be used for surveying archaeological sites.

#### **\* Natural sciences**

The use of Galileo can be extended to biology and animal behaviour, with the great advantage of



continuously tracking wild animals. A miniaturised receiver can be attached with a collar to monitored or protected animals, to follow the movement and migration of species that might be in danger. Ethologists and biologists will benefit greatly from this technique. This is important for the study of behaviour and for the monitoring and preservation of habitats.

**\* Protection of marine resources**

Satellite navigation technologies are used for research in oceanology, hydrography and marine ecology. The study of fish stocks, based on scientific analyses, marine

**Galileo**



surveys and data collection, help the management of fisheries, increasing yields and improving sustainability. Satellite navigation technology will be valuable for surveying areas with fishing restrictions in order to protect non-target species, juvenile fish and sensitive habitats. The authorities can use the data collected by the scientific community to establish wide protection zones for fisheries. To this end, Galileo will provide wide benefits as a standard tool for international harmonised data-collection, while contributing to a harmonised approach for evaluating the global stock.

**\* Environment safety**

Galileo will make our lives safer and allow us to protect the environment more effectively. For example, oil transportation will be managed using this new infrastructure, with the advantage of dramatically reducing the risks to the environment. In the case of oil spills or intentional dumping, perpetrators will be easily identified.

Secure transport of nuclear waste and other dangerous goods will increase the safety of the population and the environment.

**Galileo Benefits**

- valuable tool for atmospheric research
- easy-to-collect data for environment monitoring
- powerful system for studies of the Earth
- new instruments for tracking and controlling sensitive areas or potentially dangerous activities
- a tool for wildlife studies

**How is Galileo different from other systems?**

- √ increased accuracy, service guarantees, certification and liability of the service operator
- √ traceability of past performance and operation transparency
- √ increased availability of signals in demanding environments

Galileo: The European Satellite Navigation Programme is a joint initiative of the European Commission and the European Space Agency. Galileo will offer positioning and timing services worldwide.

For additional information, please contact the Galileo Joint Undertaking: [JU@galileo-pgm.org](mailto:JU@galileo-pgm.org)