EU SPACE

FOR CONSUMER SOLUTIONS, TOURISM AND HEALTH

Making Europe fit for the digital age

#EUSpace

EUSPA
European Union Agency for the Space Programme

The EU Space Programme

Digital technology is changing people's lives. The EU's digital strategy aims to not only make this transformation work for people and businesses, but to do so in a way that ensures we achieve our Green Deal goal of becoming the first climate-neutral continent by 2050.

The EU Space Programme and its components are central to the Union's pledge to make Europe fit for the digital age, and space data presents a huge potential for consumer applications. In fact, Earth Observation (EO) data and GNSS-based applications have already become a ubiquitous part of our daily lives.

Consumer solutions such as mobile applications, wearables, drones and robotics address challenges in such focus areas as health, citizen safety and security, gaming and entertainment, sports and fitness, and tourism. With the significant amount of rich information provided by both EO and GNSS sources, application developers can create service and information layers that enable dozens of apps for various purposes.

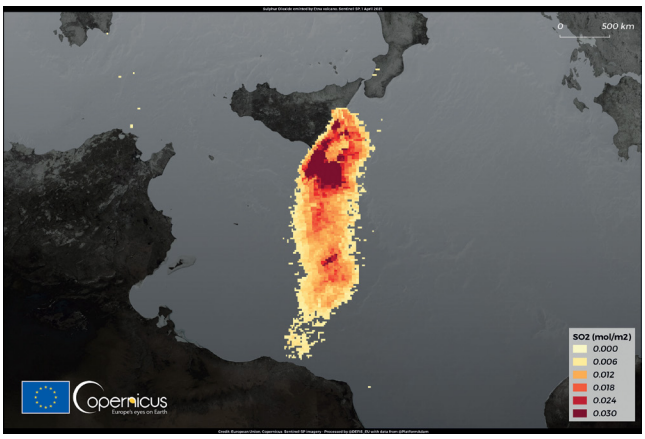
Today, GNSS data is used in combination with other technologies such as 5G, Wi-Fi, Internet of Things (IoT), Augmented Reality (AR) or Virtual Reality (VR), and Artificial Intelligence (AI). Copernicus data and services can provide a range of quantitative information in-app, including on climate conditions and forecasts, pollen and UV index levels, and water and air quality.

In the near future, the Galileo Open Service Navigation Message Authentication (OSNMA) will provide positioning authentication to sensitive applications such as mobile payments, workforce management and games. Moreover, the Galileo High Accuracy Service has been available as of January 2023 to applications that require an accuracy below 25cm, like drone operations.

Copernicus' portfolio of data and services central to app developers

The space and *in-situ* data provided by the Copernicus Atmosphere Monitoring Service (CAMS) measure the presence of harmful substances and particulate matter in the air (e.g., sulphur dioxide and PM 2.5). Measurements of air quality are used to inform analytics, such as air quality indexes, and to provide recommendations to users (e.g., to stay indoors and keep windows closed when air quality is very poor). Additionally, Earth Observation data is used in consumer UV monitoring applications to provide UV exposure measurements for specific locations and to inform analytics about safe levels of exposure.

Copernicus data and services, including Sentinel-2, Climate Service (C3S*), Copernicus Land Monitoring Service (CLMS) and Copernicus Marine Environment Monitoring Service (CMEMS), support the tourism industry by providing data, critical indicators and indexes for the assessment and planning of seasonal activities. For example, whereas CLMS provides high resolution data about snow cover for skiing holidays, CMEMS can provide data on ocean water quality for beach vacations. The Copernicus Emergency Management Service also supplies up-to-date information and forecast data about forest fires, which can have a devastating effect on tourism and national economies.



This image acquired by a Sentinel-5P satellite on 1 April 2021 shows the Sulphur Dioxide emitted by the Etna volcano in the evening of 31 March.
Credit: European Union, Copernicus Sentinel-5P imagery

Copernicus
Europe's eyes on Earth

Cutting edge applications depend on European GNSS (EGNSS)

Galileo and EGNOS support a wide range of location-based games on smartphones and tablets. This data is often combined with EO data to provide backdrop images for games, along with climate and air quality data for hyper-realistic in-game or app experiences.

EGNSS also enables a vast array of health applications, from patient monitoring to guidance systems for people with reduced mobility, the visually impaired and senior citizens. Friend locators embedded in social networks use GNSS to help us keep in touch and share travel information.

When embedded into fitness applications and wearable devices, GNSS monitors our exercise and performance, providing real-time information on speed/pace, elevation, distance travelled and steps taken. EO information is also being increasingly used by outdoor apps to provide information on snow coverage or forest elevations.

Copernicus in action: Helping allergy sufferers in Europe

Birch pollen is the dominant tree pollen in Northern and Central Europe and a major cause of allergic rhinitis, commonly known as hay fever. CAMS provides forecasts for both pollen and air quality that are updated daily in the Atmosphere Data Store. This data can be easily accessed and used by health professionals and allergy sufferers to make informed decisions regarding their health.

EUSPA: Supporting innovation in health and consumer solutions

Whether through funding, competitions, market intelligence, mentoring, training or skills development, EUSPA supports the development of space-based solutions for the health and consumer markets. For example, with EUSPA's backing, YourLox developed a smart locker that can be placed in public spaces. Leveraging data from the EU Space Programme, users can securely borrow sports and recreational equipment on-the-spot.

The 2021 #MyGalileoSolution winner 10Lines created a Galileo-enabled autonomous robot to deliver high calibre surface markings for parking lots seven times faster than current processes, while Biel SmartGaze is using EU Space data to create the first smart glasses for improving the mobility of the visually impaired.

EU Space can even help make the golf green greener. E20.GREEN developed an innovative application that combines space data with AI and IoT solutions to provide golf courses with an automated irrigation and mowing system. The company also developed a gamified application that golf courses can use to enhance their green space tasks, staff training and player engagement.

The potential for new innovative solutions and value-added services using space data is enormous. If you are a company interested in learning more about the EU Space Programme and how EUSPA can support your solution, please contact us at market@euspa.europa.eu.

EU Agency for the Space Programme

EUSPA provides safe and secure European satellite navigation services and promotes the commercialisation of Galileo, EGNOS, and Copernicus data and services. It also coordinates GOVSATCOM, the EU's governmental satellite communications programme and, as of 2023, is responsible for the Programme's Space Surveillance and Tracking (SST) Front Desk operations service. By fostering the development of an innovative and competitive space sector and engaging with the entire EU Space community, EUSPA contributes to the European Green Deal and digital transition, the safety and security of the Union and its citizens while reinforcing its autonomy and resilience.

The EU Space Programme

The EU Space Programme, composed of Galileo, EGNOS, Copernicus, GOVSATCOM, Space Situational Awareness (SSA) and IRIS^2, is the first integrated space programme created by the European Union to support its space policy, address societal challenges such as climate change and technological innovation, support the EU internal market – and more.

Galileo

Galileo is Europe's Global Navigation Satellite System. It provides accurate, reliable and precise positioning, navigation, timing and safety services. Galileo is designed to provide Europe and European citizens with independence and sovereignty while creating a multitude of services and applications across sectors, ranging from aviation and maritime to agriculture and location-based services.

EGNOS

The European Geostationary Navigation Overlay Service (EGNOS) is Europe's regional satellite-based augmentation system (SBAS) used to improve the performance of global navigation satellite systems like GPS and soon, Galileo. EGNOS uses a set of geostationary satellites and a network of ground stations to increase the accuracy of existing Global Navigation Satellite Systems.

Copernicus

Copernicus is the European Union's Earth Observation programme, looking at our planet and its environment to benefit all European citizens. It offers information services that draw from satellite Earth Observation and in-situ (non-space) data.

IRIS^2

The IRIS^2 Satellite Constellation is the European Union's answer to the pressing challenges of tomorrow, offering enhanced communication capacities to governmental users and businesses while also ensuring high-speed internet broadband to cope with connectivity dead zones.

GOVSATCOM

The EU GOVSATCOM initiative will ensure the long-term availability of reliable, secure and cost-effective governmental satellite communications services for EU and national public authorities managing security critical missions and infrastructures.

Space Situational Awareness

To mitigate collision risks between EU Space satellites and other spacecraft and debris, the EU established a set of capabilities through the Space Situational Awareness (SSA) component of the EU Space Programme. An integral part of SSA is Space Surveillance and Tracking (SST). SST uses a network of ground- and space-based sensors and other infrastructure to survey, track and protect EU Space assets from artificial space objects orbiting Earth (mostly debris from launchers or satellites).

Interested in learning more about EU Space for consumer solutions, tourism and health?

Download the EUSPA EO and GNSS Market Report here:

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LINKING SPACE TO USER NEEDS

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