European Success Stories in EO and GNSS

How European Actors Turn Space Technologies into Real-World Solutions

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ASTRAIOS

Bridging Space and Society

Earth Observation (EO) and **Global Navigation Satellite Systems (GNSS)** have quietly become part of our daily lives. Beyond maps and navigation apps, these technologies now underpin how societies **respond to climate change**, **manage natural resources**, **anticipate crises**, and **design more resilient policies**.

The **ASTRAIOS project** was created to strengthen the bridge between academia, industry, and society. Its ambition is simple yet essential: demonstrate how space-based technologies translate into concrete value on Earth. Through **education**, **dialogue**, and **real-world success stories**, ASTRAIOS highlights the people and organisations that turn satellite data into action.

This book presents a selection of such journeys. Entrepreneurs, researchers, engineers, and innovators share how **EO and GNSS** have shaped their projects, their decisions, and their vision for the future. Together, these stories illustrate how space technologies are becoming **strategic tools** for public authorities, industry, and society at large.

Smarter Forest Management Powered by Space

Forests are increasingly exposed to droughts, pests, and extreme weather events. For François Caron, Co-Founder of GoodForest, this growing vulnerability raised a simple question: how can forest managers detect problems early enough to act?

GoodForest was built at the intersection of environmental commitment and technological opportunity. By combining Earth Observation data and artificial intelligence, the company monitors forest health on a weekly basis across thousands of hectares, identifying early signs of stress or disease that are often invisible on the ground.

For public and private forest owners alike, this shift is strategic. EO does not replace field expertise; it enhances it by bringing scale, consistency, and anticipation. Looking ahead, GoodForest illustrates how satellite data can support climate-resilient forestry policies across Europe.

“Earth observation allows us to move from long-term planning to continuous, adaptive forest management”

François Caron,
Co-Founder of GoodForest

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Turning Water into a Strategic Resource

Water availability and quality are no longer taken for granted. For Roxelane Cakir, Founder and CEO of Hetwa, this challenge became the starting point of a journey from academic research to operational decision-support tools designed for territories facing increasing water-related risks.

Hetwa combines Earth Observation data, hydrological models, and machine learning to create digital twins of watersheds. These tools provide public authorities, utilities, and industries with a clearer understanding of water systems, enabling them to assess long-term impacts of climate change and land-use decisions.

In a context where prevention is becoming as important as emergency response, Hetwa illustrates how Earth Observation can support evidence-based water governance and long-term planning, helping decision-makers act earlier and more effectively.

“We want to move from reacting to crises to anticipating them”

Roxelane Cakir,
Founder and CEO of Hetwa

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Precision Intelligence for Land and Agriculture

GrapeHawk was founded by Pierre Mattei, CEO and Co-Founder, with a clear conviction: land and agricultural management deserve the same level of precision as advanced industrial systems. Trained in space technologies and remote sensing, Pierre's journey led him from satellite data to the field, where he witnessed first-hand the challenges faced by farmers and land managers.

By integrating Earth Observation data, GNSS positioning, drones, and artificial intelligence, GrapeHawk transforms raw spatial data into actionable insights for agriculture and environmental monitoring. Satellite imagery provides a large-scale view, while drones and precise positioning deliver high-resolution information where and when it is needed.

These solutions support better resource allocation, reduced environmental impact, and more informed decision-making. GrapeHawk's trajectory illustrates how EO and GNSS have become operational tools that scale across sectors and territories, supporting more sustainable land management practices.

"EO and GNSS are at the core of what we do. Satellite data gives us the big picture, and drones with precise GNSS allow us to bring that information directly to the field"

Pierre Mattei,
CEO and Co-Founder

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Earth Observation at the Heart of Crisis Response

In disaster management, speed is critical. For Jérôme Maxon, Engineer at the Regional Image Processing and Remote Sensing Service (SERTIT), the challenge is clear: deliver reliable geospatial information fast enough to support emergency response and decision-making.

Through operational services such as the Copernicus Emergency Management Service, SERTIT provides rapid mapping of floods, fires, earthquakes, and other natural hazards. By transforming Earth Observation data into actionable maps within hours, the team supports civil protection authorities during the most critical phases of a crisis.

SERTIT's experience highlights the strategic role of Earth Observation in civil protection policies, where satellite data has become an integral part of operational procedures, enabling faster, more informed, and more coordinated responses.

"In emergency response, the value of information lies in how fast it reaches decision-makers"

Jérôme Maxon,
Engineer at SERTIT

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From Earth Observation to Earth Action

Earth Observation is evolving rapidly, driven by advances in artificial intelligence. For Sabrina Ricci, AI Ecosystem Coordinator at theESA Φ-lab, the challenge is not only technological, but strategic: how to transform EO data into actionable knowledge faster and closer to decision-making.

At the ESA Φ-lab, AI is integrated across the EO value chain, from data processing to experimentation with new algorithms and onboard intelligence. This approach accelerates the transition from raw satellite data to operational insights that can support environmental monitoring, risk management, and public policies.

By fostering collaboration between space experts, AI researchers, and users, the ESA Φ-lab illustrates how EO can become a catalyst for innovation and more policy-relevant solutions.

"Today, we should talk about Earth action rather than Earth observation"

Sabrina Ricci,
AI Ecosystem Coordinator at the ESA Φ-lab

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Translating Space into Value

For Grazia Fiore, the success of Earth Observation does not depend solely on technology, but on its adoption by users. Her work at FDC focuses on bridging the gap between space capabilities, market needs, and public decision-makers.

By supporting the uptake of satellite-based services across sectors, FDC helps transform EO from a technical asset into a practical tool for policy, industry, and society.

Her experience highlights a key lesson for the European space ecosystem: innovation only creates impact when it is understood, trusted, and effectively used.

“Innovation only matters when people are ready to use it”

Grazia Maria Fiore,
Satellite Applications Consultant at FDC

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Making Supply Chains Visible from Space

Sustainability requirements are reshaping global supply chains. For Sebastian Vogler, Founder of Beetle ForTech, Earth Observation offers a powerful way to bring transparency and accountability to commodity production.

Beetle ForTech uses satellite data to monitor land-use change and environmental impacts linked to supply chains. This objective and scalable information supports companies and institutions in meeting sustainability commitments and regulatory obligations.

By aligning EO technologies with emerging policy frameworks, Beetle ForTech demonstrates how satellite data can support responsible production and more transparent global markets.

“Satellite data allows us to connect what happens on the ground with global sustainability requirements. Space technologies make invisible impacts visible, and therefore actionable, here on Earth”

Sebastian Vogler,
Founder of Beetle ForTech

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Proactive Water Management with Earth Observation

Rather than responding to emergencies, WaterShed Monitoring focuses on prevention. For Sarah Goubet, Project Manager, anticipating risks is essential to managing water resources in a context of climate change and increasing pressure on ecosystems.

By combining Earth Observation data with environmental analysis, WaterShed Monitoring continuously monitors watersheds to detect early signs of stress, pollution, or flood risk. This continuous, basin-wide view enables earlier intervention and more informed decision-making for public authorities and stakeholders.

WaterShed Monitoring illustrates how EO can support proactive environmental management and more resilient territorial planning, turning satellite data into actionable intelligence on the ground.

“Earth observation allows us to monitor water ecosystems continuously and at scale, which helps protect public health and anticipate risks rather than simply reacting to crises”

Sarah Goubet,
Project Manager at WaterShed Monitoring

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Turning GNSS into Life-Saving Solutions

For Titouan Parand, GNSS became tangible through life in the mountains. A former competitive alpine skier, he later turned to computer science and joined the ActInSpace hackathon in 2018, where he became involved in a project focused on avalanche rescue.

This experience marked his entry into the world of GNSS, revealing its potential to address life-critical situations. His first ventures applied satellite positioning and complementary signals to locate people buried under snow, before expanding to a geolocation platform for outdoor and sporting events, supporting safety and rapid response in complex environments.

Today, Titouan runs a design and development studio in Paris, supporting startups in health, environment, and employability. While his current activities extend beyond space, he remains eager to launch new ventures in the future, potentially again leveraging EO and GNSS technologies as new opportunities emerge.

“GNSS showed me how satellite positioning could literally save lives”

Titouan Parand,
Founder of X-Studio

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ISU: Educating, Connecting and Empowering the Global Space Ecosystem

Founded in 1987, the International Space University (ISU) is the only university in the world entirely dedicated to space education. With its Central Campus in Strasbourg, hubs in the United States and the Asia-Pacific region, and partnerships with leading space organisations worldwide, ISU relies on a truly unique international network.

Over more than 35 years, ISU has educated over 6,000 alumni across 110 countries, including astronauts, entrepreneurs, industry leaders, and senior figures from public institutions. Together, they actively contribute to shaping today's global space ecosystem, bridging disciplines, cultures, and sectors.

Beyond education, ISU plays a key role in fostering innovation and knowledge transfer. Its startup incubator, located on the Strasbourg campus, provides an ideal environment for launching space-related ventures. By combining multidisciplinary expertise in research and development, business, and finance, the ISU Startup Incubator supports startups at the intersection of technology, entrepreneurship, and societal impact.

Within this vibrant and collaborative environment, startups benefit from direct interaction with ISU faculty, international experts, space agencies, and industry stakeholders, as well as from continuous exchanges with ISU students. This dynamic ecosystem encourages the emergence of future technological, commercial, and strategic collaborations, strengthening links between academia, industry, and public actors.

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The stories gathered in this book reveal a **common trajectory: EO and GNS**S are evolving from **specialised technologies** into **strategic infrastructures for society**.

Through **ASTRAIOS**, academia and industry come together to share knowledge, inspire new vocations, and accelerate the adoption of space-based solutions. Looking ahead, the project aims to strengthen these bridges, ensuring that **EO and GNSS** continue to support **evidence-based policies**, **innovation**, and **resilience**.

These **success stories** are not endpoints, but milestones in a longer journey, one where **space technologies** help shape a **more sustainable and informed future on Earth**.

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