Copernicus Applications for Next-Generation Forest Monitoring

FUTUREFOR

European forests, covering nearly 40% of EU27 land area, are vital for biodiversity, climate regulation, and human well-being. At the same time, forests are increasingly affected by climate change, wildfires, storms, drought, pests and diseases.

FUTUREFOR, a Horizon Europe project developing next-generation forest monitoring applications based on Copernicus Earth Observation and advanced data analytics. The project aims to improve the availability, timeliness and accessibility of forest information and support evidence-based forest management, policy implementation and research.

What FUTUREFOR develops

- **Forest disturbance, regeneration and restoration monitoring:** Earth Observation-based approaches to detect and characterise changes in European forests.
- **Wildfire risk assessment:** Dynamic assessment of wildfire risk combining information on vegetation, fuel conditions and other environmental factors.
- **Near-real-time wildfire detection and monitoring:** Enhanced satellite-based approaches supporting rapid detection and monitoring of active fires.
- **Forest biomass estimation:** Improved biomass information derived from satellite and complementary Earth Observation data.
- **High-resolution forest monitoring for Ukraine:** Developing Earth Observation-based forest information supporting forest monitoring and European integration.
- **Forest Digital Twin:** Integrating forest monitoring data and services to explore forest conditions, changes and risks and support evidence-based decision-making.
- **Future observation platforms:** Exploring UAV and stratospheric platforms as complementary sources of forest information.

Together, these developments demonstrate how Copernicus and complementary Earth Observation technologies can provide more timely, detailed and accessible information on European forests.

From forest observations to actionable information

FUTUREFOR connects Earth Observation research with practical forest monitoring needs and integrates different information sources through a Forest Digital Twin. The project demonstrates how new and existing data sources can support forest authorities, public services, forest managers and researchers in understanding forest condition and change, assessing disturbances and risks, and supporting evidence-based decisions.

FUTUREFOR unites experts from seven European countries, including

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Website: https://www.futurefor.eu
Contact: info@riscognition.com

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