



Data Spaces and geodata workflows for environmental protection

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The concept of Data Spaces has gained traction in recent years. Major representatives emerged which have the technological maturity as well as support by relevant decision and policy makers (e.g. the International Data Spaces Association (IDSA) or Gaia-X). These follow different architectural approaches. In this session we want to illustrate the challenges of integrating the Data Space architectures with established concepts of Spatial Data Infrastructure.

During the next 4 years, the ENFORCE project (Empower citizens to join Forces with public authorities in protecting the Environment) is dedicated to fostering sustainable practices and ensuring environmental regulatory compliance by integrating citizen science with innovative technologies. By employing Living Labs and citizen science methodologies, ENFORCE will create innovative tools that bridge the gap between data reporting, monitoring, and policy enforcement. The project integrates data collection (e.g. Copernicus satellite data), analysis, and stakeholder participation to meet these goals. ENFORCE will leverage geospatial intelligence and explainable AI to enhance environmental governance. These tools and strategies will be tested and refined at eight pilot sites in seven countries, supplemented by capacity-building and policy recommendation efforts.

The design and development of a geospatial information infrastructure that supports the envisioned data workflows is a key challenge addressed by ENFORCE. This infrastructure will prioritize the integration of OGC API-driven systems into the Data Space ecosystem, forming a central component of the project's agenda. Through development of a blueprint architecture for integration, the project will identify gaps and missing components in current systems, aligning with standards such as the FAIR principles and open data. The concepts will be facilitated in an ENFORCE "Tools Plaza", an innovative platform providing data science and analytical capabilities for environmental compliance workflows.