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AN INTEGRATED EU SPACE FOR CLIMATE ACTION: SUCCESS STORIES OF EUROPEAN
SATELLITE APPLICATIONS IN SUPPORTING THE EU GREEN DEAL

Abstract

Space data constitute an indispensable resource for comprehending, monitoring, mitigating, and adapting to climate change, playing a pivotal role in facilitating the green ecological transition in Europe and beyond.

Over the past decades, European space capabilities have proved instrumental in addressing the diverse challenges posed by climate change in the region, while advancing the objectives of the EU Green Deal and the UN 2030 Sustainable Development Goals. Focusing on creating a climate-resilient Union and transitioning to a greener economy, the objectives set in the EU Green Deal aim to transform key sectors, from energy, transportation, agriculture, to industry while promoting biodiversity and improving the quality of life for European citizens. The EU Climate Law of 2021 underlines the importance of robust and objective assessments of climate change based on the latest scientific, technical, and socioeconomic findings, emphasizing the importance of evidence-based decision-making data provided by Earth Observation activities.

Given the acknowledgment of space activities and data within the EU policy framework, the objective of this study is to amplify their efficacy and demonstrate their invaluable contributions to Europe's climate resilience through the showcase of real-life examples. The contribution of EU's space applications and services to the mission and goals introduced in the EU Green Deal, empowers the intertwining nature between the European space ecosystem and the sustainability priorities of the Union, focused on reaching climate neutrality, biodiversity and ecosystem restoration, sustainable mobility, and several more objectives within the next 25 years. Emphasizing the importance of space for climate and sustainability, this paper showcases the interconnected forces of the European space actors in supporting the EU Green Deal objectives and green policy implementation by leveraging the complementarity between their respective strategies.

Through the description of specific successful cases where Earth Observation and space data contribute to enhancing climate resilience in Europe, the main objective of this study is to showcase those instruments and the technical capabilities currently available, as well as the methods and examples on how to maximise their potential. From rethinking urban space by mapping air pollution, to helping ships reduce their carbon footprint, those stories will focus on the challenge, solution, and result, providing practical and useful information by sharing best practices from the user's perspective.