



European
Commission

European Big Data Hackathon 2025

Earth Observation: from Space to European Statistics

Brussels, 6–11 March 2025



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STRESS

Sentinel Tool for Regional Ecosystem Stress Screening



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Goal & Policy relevance

Goal: Provide forest-stress data

The project is in line with EUs guideline on sustaining the quality of life, more precisely

- the **protection of our natural world**, where forests play a vital role in regulating our climate, storing carbon and providing sustainable materials
- **Climate adaption and preparedness**: maintaining healthy forests will help to mitigate impacts driven by climate change such as flash-floods, landslides
- Providing **data for early warning systems**



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Methodology

1. Temporal resolution: 2017-2024 for Apr. - Sep.
2. Spatial resolution: 100 m
3. Datasets
 - Sentinel-2 Time Series (monthly mean composites)
 - NDVI, EVI, LWC, LCI
 - ERA5 Temperature Data (monthly mean)
 - NUTS3 regions
 - Corine LC: forest mask
4. Calculate **delta** between months of current year (2024) to months from the baseline (2017-2023)

CDSE

Kareel et al., 2021, Sepulcre-Canto et al. 2012

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Novelty of this approach

1. Map environmental-induced stress of forests
 - does not solely rely on droughts
 - Includes parameters that display the status of forests
2. Monitor forest health on a fine scale in near-real time



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