



Acronym	IMAGEFORDIST
Full Title	Disturbance monitoring in Southern European forests
Partner(s)	Agencia Estatal Consejo Superior de Investigaciones Científicas, Spain (<i>coordinator</i>) School of Agriculture University of Lisbon, Portugal Universidad de Valladolid, Spain Aristotle University of Thessaloniki, Greece
Grant Theme	Characterization of European forest disturbances
Start Date	May 2024
Duration	24 months
Description	Forest disturbances driven by global change pose significant challenges for ecosystem services. Monitoring these disturbances is paramount for understanding their current regimes and developing strategies to mitigate their adverse impacts. IMAGEFORDIST addresses this need by developing a scalable, open-access approach to forest disturbances, carbon loss and forest cover recovery mapping in Southern Europe. To fulfil this objective, a consortium led by CSIC (Spain) and ISA (Portugal), with support from AUTH (Greece) and UVa (Spain) brings together diverse expertise and skills. IMAGEFORDIST employs the 3I3D-GEE algorithm to produce comprehensive change maps from Landsat (2003-2023) and Sentinel-2 (2016- 2023) composites in 12 representative European forest types. In the second step, forest disturbances are classified using machine learning models within these forest types. A comprehensive training and validation database is compiled through photointerpreting aerial orthophotos and satellite imagery. Finally, carbon loss, forest recovery and disturbance drivers are evaluated using 2003-2023 disturbance maps. Carbon loss and forest cover recovery models will be developed using specific field survey data, while above-ground carbon estimation will integrate NFI data, vegetation indices and 3I3D parameters based on spectral trajectories. Disturbance drivers will be assessed modelling disturbance probability as a function of stand conditions, forest type, climate, and socio-economic factors. IMAGEFORDIST's approach offers a tool for annual disturbance mapping across Europe using accessible and freely available data and remote sensing techniques, and for increasing the knowledge about disturbance regime drivers and its effects in European forests.



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