



Acronym	MONIMATSCH
Full Title	Integrating LTSEr MATSCH Mazia into a European forest monitoring network
Partner(s)	Eurac Research, Italy
Grant Theme	Pilots of long-term climate impact forest monitoring sites: Providing temporally resolved ecosystem-level information on the effects of climatic drivers on forest structure and function in near real-time
Start Date	April 2025
Duration	18 months
Description	European mountain forests provide essential ecosystem services but face significant challenges due to climate change, such as elevated temperatures, more extreme weather events and more frequent disturbances. To assess the impact of changing climate conditions on tree growth and water use, elevation transect of forest research including four different conifer species (<i>Larix decidua</i>, <i>Pinus nigra</i>, <i>Picea abies</i>, <i>Pinus cembra</i>) has been established within the LTSEr platform Matsch Mazia in an inner-alpine dry valley in the Northern Italian Alps. These sites are equipped with automatic dendrometers, sap flow sensors, and microclimate stations. The MONIMATSCH project aims to integrate these sites into the European ForestWard Observatory for stress nowcasting. To this end we update our dendrometers and integrate our remotely accessible soil moisture and microclimate sensors into the project database. Additionally, we combine classical forest mensuration according to the Italian National Forest Inventory, with hemispherical canopy photography, UAV-based and airborne LiDAR to analyse forest structure and carbon stock in detail at plot-, stand- and regional scales. Finally, we will set up litter traps and measure soil physical properties and nutrient availability to get information on carbon and nutrient cycling. Overall, this project will provide nowcasting stress data and enhance the understanding of its causes and consequences for some of the most abundant and important conifer species in the Alps from a transect reaching from water-limited conditions at the valley floor to a temperature-limited ones at the forest line.



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