



Acronym	HALO-FARM
Full Title	Hybrid Aircraft Earth Observation for Forest Resilience Monitoring
Partner(s)	Hybrid-Airplane Technologies GmbH, Germany
Grant Theme	Characterization of European forest disturbances
Start Date	May 2024
Duration	24 months
Description	HALO-FARM aims to enhance the ForestWard Observatory's capabilities in Central Europe by deploying the unique h-aero hybrid aircraft to gather high-resolution remote sensing data on forest disturbances. Haero's extended flight endurance of up to 5 hours, 3 kg payload capacity, vertical take-off and landing ability, and ultra-low noise enable it to unobtrusively monitor forests at altitudes of 100-200 m, bridging the gap between satellite and ground observations. The project conducts aerial surveys across a representative sample of 500 ha of forest in Germany and Austria, collecting multispectral imagery at 10 cm resolution to detect and characterize disturbances such as windthrow, bark beetle outbreaks, and drought stress. This remote sensing data will be integrated with ground plot measurements of tree mortality, canopy loss, and regeneration to develop robust models quantifying carbon impacts at the landscape scale. HALO-FARM will advance the h-aero platform's autonomous flight capabilities and demonstrate its operational readiness for wide-area forest monitoring. The resulting maps, metrics and models will strengthen the Observatory's capacity to deliver near real-time, decision-relevant information to forest managers. With strong industry and research partners, HALO-FARM showcases an innovative solution for scaling up climate-smart forestry.

