



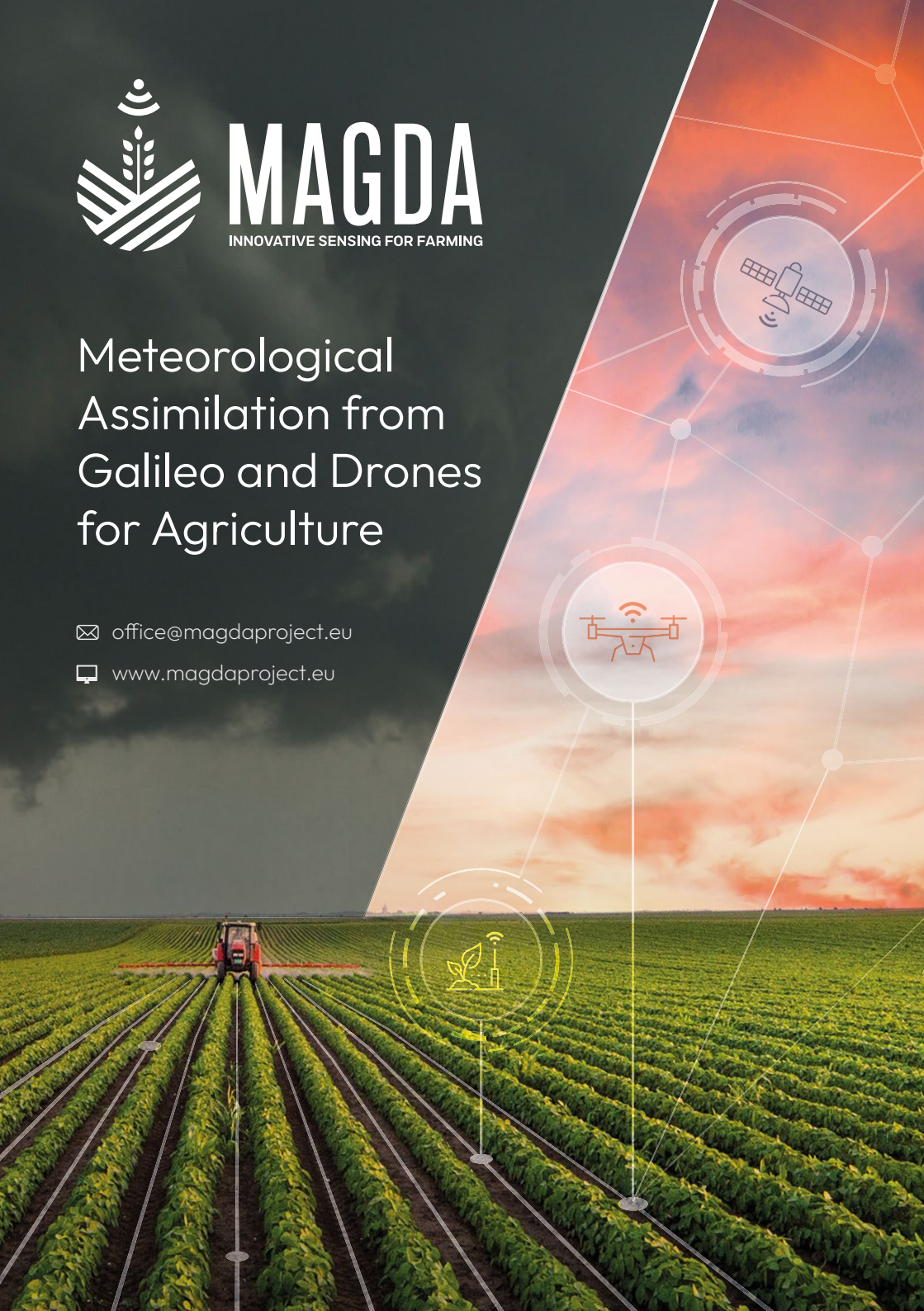
MAGDA

INNOVATIVE SENSING FOR FARMING

Meteorological Assimilation from Galileo and Drones for Agriculture

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Project Background

The overall objective of the MAGDA project is to provide valuable weather and irrigation information directly to farmers and agricultural operators, by exploiting the strengths of atmosphere and soil sensing technologies.

MAGDA aims at developing a toolchain for atmosphere monitoring, weather forecasting, and hydrological modelling with Europe's Global Navigation Satellite System (GNSS) Galileo and the European Union's Earth Observation (EO) programme Copernicus at its core. The major method is the assimilation of spaceborne, weather drone-derived and ground-based sensor data into very high-resolution numerical weather prediction models, which will also drive a hydrological model.

The project's product will be the provision of severe weather warnings and irrigation as well as crop advisories to farmers by a dedicated dashboard or by interfacing with a Farm Management System. The user-orientated system can be deployed by farmers or farmer associations directly at their premises, continuously feeding local ground and lower atmosphere observations to tailored weather forecasts and hydrological models.

The developed system will increase food security and sustainable water management in Europe.

MAGDA Objectives



EXPLORE the untapped potential of assimilating GNSS-derived, drone-derived, Copernicus EO-derived datasets, and in-situ weather sensors



DEVELOP high-resolution and short-range numerical weather forecasts and hydrological models for irrigation performance and water accounting



PROVIDE valuable information about severe weather and irrigation operations directly to farmers and agricultural operators



ENABLE augmented short-term weather forecasts and irrigation advisories to farmers by a dedicated dashboard and Application Programming Interface



DEPLOY sensors, GNSS and drones, to monitor atmospheric variables at high spatial resolution in the vicinity of large farms and cultivated areas



VALIDATE very-short range nowcasting systems for the prediction of severe weather in support of precision agriculture activities



INCREASE awareness and impact through effective and measurable communication and dissemination activities



MAGDA

Project Facts

Duration
11/2022 to 04/2025

Programme
Horizon Europe

Reference
101082189

Coordinator
GReD

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