

An agro-meteorological e-service for supporting efficient agricultural water management in Morocco

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Climate change and increasing water scarcity represent major challenges for agricultural systems and water-resource management in Morocco. In this context, access to reliable, localised, and up-to-date agro-meteorological information has become a key enabler for improving water-use efficiency and strengthening the resilience of agricultural territories.

This e-service was developed to provide users with real-time climatic information, as well as decision-support tools aimed at promoting sustainable and efficient water management. The platform integrates localised meteorological data, short-term weather forecasts, and agro-meteorological indicators such as reference evapotranspiration (ET_0), cumulative precipitation, and chilling hours. It also incorporates remote-sensing products, including the Normalised Difference Vegetation Index (NDVI), the Standardised Precipitation Index (SPI), and the Standardised Precipitation-Evapotranspiration Index (SPEI).

A key feature of the system is the estimation of crop water requirements based on local climatic conditions and field-specific agronomic characteristics. This approach enables the calculation of irrigation requirements and supports farmers in optimising irrigation scheduling and water applications. The service also provides early-warning mechanisms for extreme weather events that may affect water availability and crop performance.

The results highlight the potential of digital technologies, climate data, and remote-sensing tools to support more efficient agricultural water management. The presented experience demonstrates how agro-meteorological e-services can contribute to the transition towards a more climate-resilient agriculture while promoting the sustainable use of water resources.