

Monitoring of SDG 6 indicators in Portugal and Denmark with EO-based algorithms

Walid Ghariani¹, Radoslaw Guzinski¹, Pedro Ribeiro², Alkiviadis Koukos¹, Nuno Grosso², Catarina Duarte³, Miguel Miranda³, André Valente³, Mafalda Carapuço³
¹DHI, ²Indra Deimos, ³AIR Centre

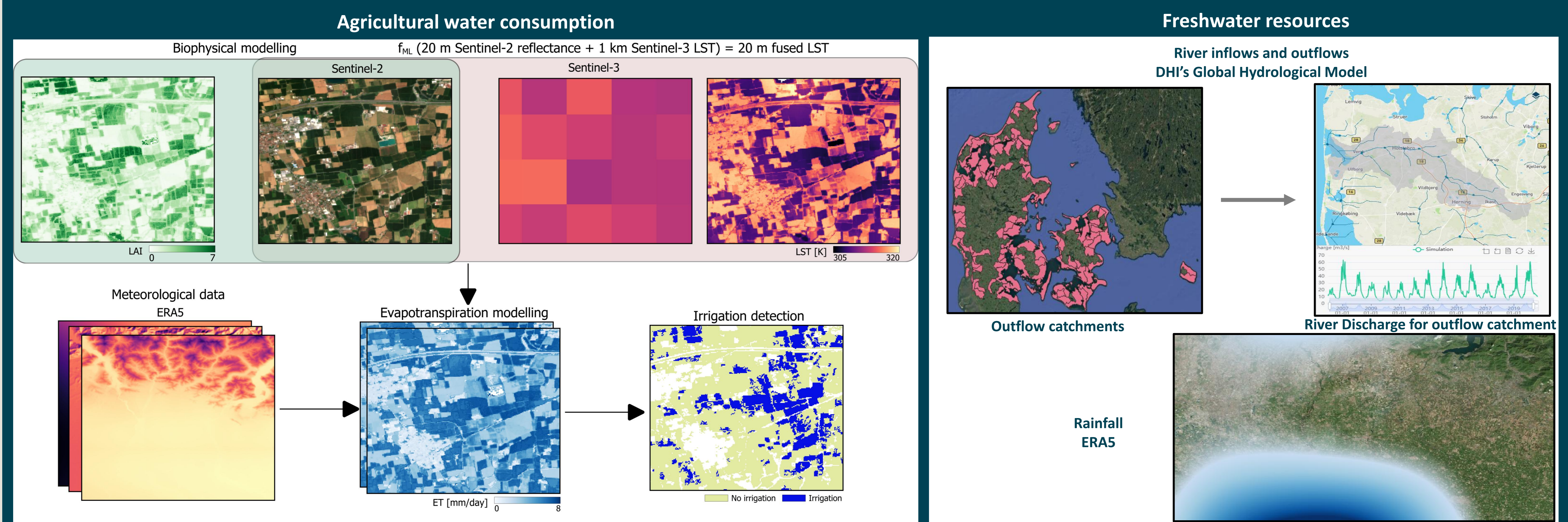
EO4SURE (Earth Observation for Sustainable Use of Resources) focuses on the implementation of Earth Observation (EO) pipelines to support the reporting of the United Nations Sustainable Development Goals (SDGs) related to the preservation of inland, coastal and ocean water resources and their associated environments. The integration of EO on the national reporting of the SDGs can allow for a more comprehensive tracking of time changes, due to the availability of continuous high-quality satellite data. It can also ensure full compatibility among different reporting countries, minimizing the need to compare different approaches for the definition of SDG performance indicators.

Indicator 6.4.2 will be fed by calculating total freshwater withdrawal (with a focus on irrigated agriculture) and total available freshwater resources. This pipeline includes the modelling of actual evapotranspiration, mapping spatial and temporal extents of irrigated agriculture, and the use of a hydrological model to estimate water inflows and outflows at a national or regional level.

Indicator 6.6.1 will focus on mapping of wetland ecosystems using classes from Global Ecosystem Typology. The changes in spatial extent of those wetlands will then be monitored at a monthly timestep with 10 m spatial resolution.

Case studies are being developed in Denmark and Portugal in close collaboration with key users, including Statistics Denmark, Statistics Portugal, and the Portuguese Environment Agency. Planned demonstrations in 2026 covers Denmark nationwide and focuses on the Algarve region in Portugal. Beyond SDG reporting, the solutions support the EU Water Framework Directive and contribute to sustainable water management and ecosystem protection.

Indicator 6.4.2 - Level of water stress: freshwater withdrawal as a proportion of available freshwater resources



Indicator 6.6.1 - Change in the extent of water-related ecosystems over time

