

## LARGE-SCALE EXPLOITATION OF SATELLITE DATA IN SUPPORT OF INTERNATIONAL DEVELOPMENT

### → IRRIGATION SYSTEM DESIGN

Satellite Earth Observation (EO) is a powerful technique for collecting spatial information relevant for irrigation system design. It adds spatial detail on soil, crop and topography to basic design criteria, such as water application, irrigation frequency and operation restrictions. For example using satellite data we can map the land cover prior to investment, identify areas of importance needing protection, assess the suitability taking into account weather and soil, and assess risks such as floods.

Irrigation system design does not only involve the construction of new systems but also extensions, rehabilitations, and upgrades of existing systems. Changing environments require constant redesign to conserve water and improve services.

### Suitable areas for irrigation development and their potential

The service consists of maps that show which areas are relevant and suitable for interventions while at the same time indicating which areas need to be protected. Insight in the spatial variability helps to prioritize investments and select the most appropriate irrigation techniques and practices. For example land cover maps give valuable insight of the landscape as it is, and the ecosystem functions present. Evapotranspiration maps -the current water consumption –help to calculate the impact of interventions on the water balance, determine best practices in physical irrigation design and irrigation water management for sustainable water use, and allows more effective sampling and placement of probes. Water productivity maps show the spatial variation to determine fitting solutions and prioritize actions.

#### DESCRIPTION

This service assists irrigation system design by mapping spatial variation of land cover, water consumption and water productivity

#### USE

- › Irrigation system design
- › Irrigation management
- › Probe placement
- › Sampling strategy

#### INPUT PRODUCTS

- › Irrigated area
- › Land cover
- › Actual evapotranspiration
- › Potential evapotranspiration
- › Transpiration deficit
- › Water productivity
- › Elevation
- › Soil maps
- › Air temperature
- › Relative humidity
- › Precipitation

#### SPATIAL RESOLUTION AND COVERAGE

From local (field-level) up to regional scale (irrigation scheme level)

#### BENEFITS

Make decisions in planning and design for site specific conditions

#### DELIVERY FORMAT

- › Vector and raster formats

#### FREQUENCY

- › Single date for selected baseline year(s)

