UT-ITC-WRS: Department of Water Resources

Mission and strategy

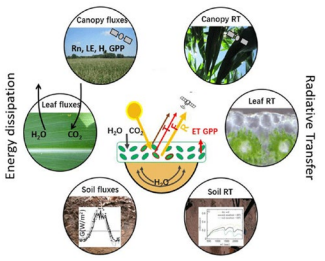
Mission
Create and share knowledge in satellite hydrology for solving society's problems in water resources and environment

Strategy
Interpret remote sensing and field observations with physically based models

1. Observation models

In-house remote sensing models:

- Open water: 2SeaColor (Salama and Verhoef 2015),
- Evaporation: SEBS (Su et al. 2002) and DATTUTDUT (Timmermans et al., 2016)
- Vegetation: SCOPE (van der Tol et al, 2009; 2021)
- Subsoil: STEMMUS (Zeng et al. 2011)



2. Measurements

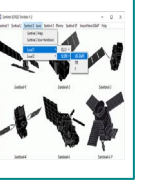
Long-term monitoring sites
Satellite data product validation (SMAP, SMOS, FLEX).

3. Computation infrastructure

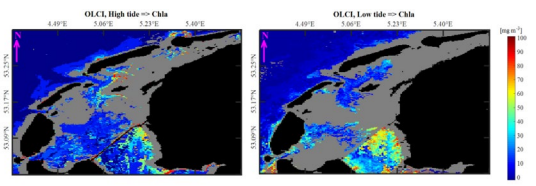
- GeoNETCast: Rapid access to satellite data
- Toolboxes in ILWIS
- Majisys
- Data, code and models in repositories
- Linux server
- Contribution to ITC's geospatial computing platform CRIB.

MAJISYS

geospatialhub



Scientific and societal impact



Chlorophyll in tidal systems with 2SeaColor (Arabi et al 2020)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Hydrology and Earth System Sciences

Validation of SMAP L2 passive-only soil moisture products using upscaled in situ measurements collected in Twente, the Netherlands

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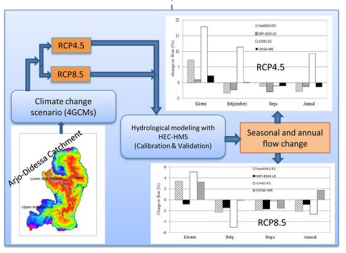
Satellite data validation (van der Velde et al., 2021)



Climate change scenarios on river basins (Bekelle, Haile, Rientjes, 2021

Goals 2030

1. Able to provide spatial evaluations of water, energy and biochemical budgets
2. Our models are the standard in operational satellite data retrieval
3. Generated scientific knowledge for solving water problems in densely populated coastal areas and shallow water
4. Improved understanding of the effects of human activities on water and climate

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