INTEGRATED WATER RESOURCES MANAGEMENT OF SEBOU BASIN
MOROCCO

Project
Integration of geospatial data to develop a water resources management system for the Sebou Basin: contribution to climate change adaptation

Project Progress
The overall objective is the development of a prototype tool for environmental monitoring and water resources management to better characterize key hydrological variables in the Sebou Basin to support decision makers for a sustainable climate change adaptation. This is achieved through the fusion of environmental parameters derived from medium and high resolution satellite images with in situ measurements and numerical models.

The project is based on three components:

- Monitoring the impact of climate variability on water resources. The component is directly built on the skills developed during our TIGER Phase 1 project in the Souss-Massa Basin. In the second phase, we use new satellite-based techniques to better characterize and understand the different impacts of climatic variations on the territorial dynamics and their relationship to water availability and water use.
- Water balance Characterization for improved water productivity. An example is the use of the Surface Energy Balance System (SEBS) to estimate evapotranspiration (ET) at the basin level with special focus on the irrigated areas, providing information on the actual water consumption. This enables us to calculate the water budget with higher accuracy and considering its spatial aspects with more detail.
- Capacity building (operability).

The project team participates in various actions of training and coaching through the Tiger Capacity Building Facility

Results and further steps
The following scientific topics are covered:

- Hydrology: Energy balance, evapotranspiration, water balance
- Fusion of optical and radar imagery for flood rapid mapping and monitoring
- Estimation of water use by crops in irrigated sectors
- Water productivity (biomass) including rain-fed areas
- Monitoring and assessing climate change impacts on land use/land cover dynamics

The prototype system includes, among others, the following achievements: Land use/land cover layers, change detection routines, flood zones and vulnerability routines and layers, routines for assessing crop water use (SEBS) and demand.

An important aspect is sustainability. In terms of EO methods the TIGER Capacity Building Facility enabled the project team to transfer the gained knowledge to the beneficiaries in the basin. At the end, the local team should be able to make an operational and sustainable use of the project results. This will be ensured through integrating data from earth observation in the water management process to support the ongoing climate change adaptation measures.