Merguellil JECAM site (Tunisia)
CESBIO, INAT

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Site description

The Kairouan plain (300 Km^2) is located in the centre of Tunisia (North Africa). The site is mostly flat.

Climate: semi-arid with limited water resources

Temperature: average 19.2 °C

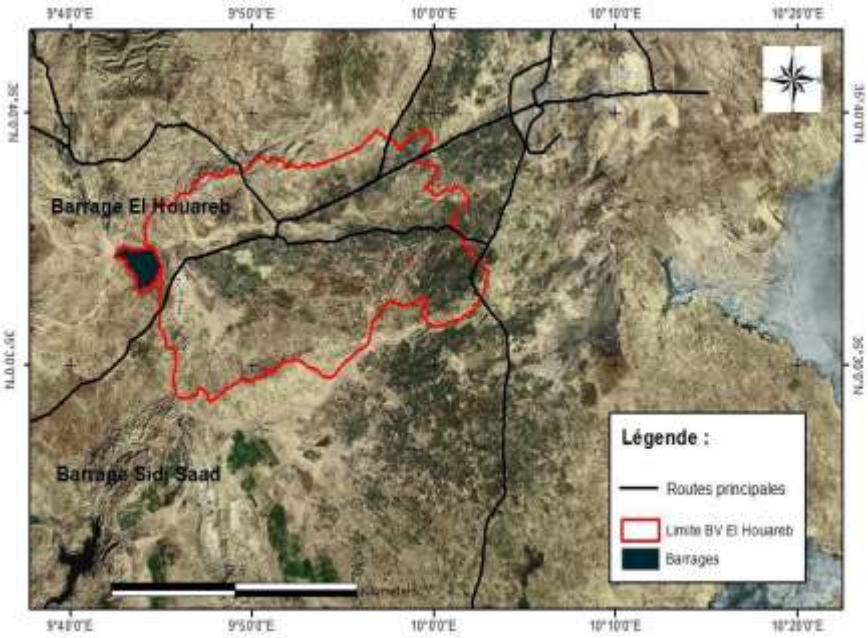
Rainfall: 300mm/y with high variability in time and space

Potential evapotranspiration (Penman-Monteith): 1600mm/year.

Soil texture: sandy soil mostly

Field size: from 0.5 to 5 ha

Crops: cereals (wheat, barley), olive groves (irrigated and rainfed), vegetables (winter, summer).



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In situ data 2013 and 2014 (will continue)

1) **Crop type surveys**
Three campaigns of 150 fields each for validation.

2) **Phenological stage and the Leaf Area Index (LAI)**
A set of 10 winter wheat fields was visited 5 times during the growing season. LAI measured using hemispherical photographs. Yield.

3) **Soil moisture, roughness, texture**
A field campaign was carried out during autumn in a sample of 15 bare soil fields, simultaneously to 10 radar acquisitions.

4) **Fluxes (H_20, CO_2)**
XLAS Scintillometer (4 km transect) and Eddy correlation measurements were conducted over the site (mixed irrigated landscape, wheat and olive groves).

5) **Irrigation data**
Plot (~200), farm (~30) and perimeter scale (~15)

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On going activities

• Crop identification (land use)

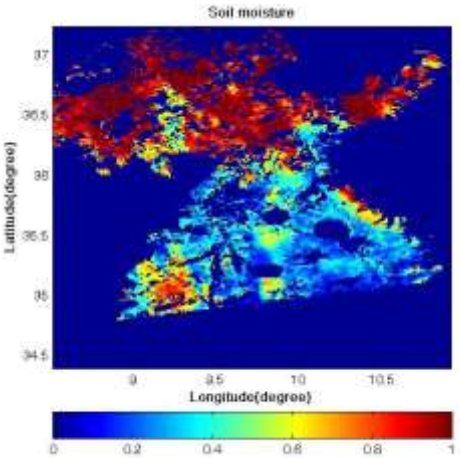
• Soil moisture and roughness estimation using SAR and optical data.
• Soil hydrodynamic and texture characterisation using optical and SAR data.

• Evaluation of TIR-based evapotranspiration products
• Estimation of evapotranspiration of complex covers (olive groves, …).
• Evapotranspiration and Irrigation monitoring using simple SVAT model (FAO-56) coupled with NDVI data.
• Analysis of drought monitoring indices

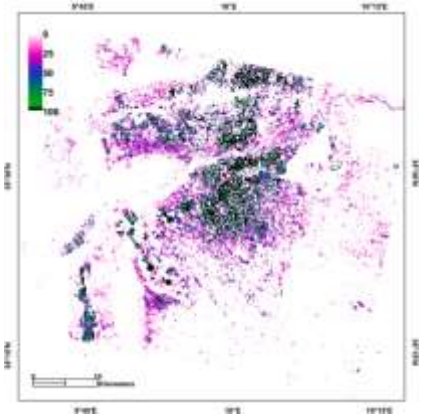
• Estimation of cereals yield using SPOT/HRV optical data and SAFY agrometeorological model

On going collaborations

• ANR-AMETHYST french project
• SICMED/MISTRALS french program
• TOSCA/CNES french program
• FP7-ImagineS (Implementing Multi-scale Agricultural Indicators Exploiting Sentinels)



Moisture mapping, 1km resolution
Zribi et al, 2014



Cereal yield mapping
Chahbi et al., 2014