

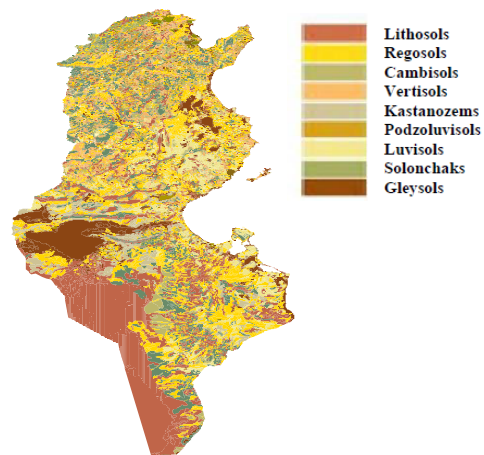


## Organic carbon stocks and their dynamics in arid desert soils in the Jerid oasis agrosystems (Southwest Tunisia) ( ALLAGUI Wajdi )

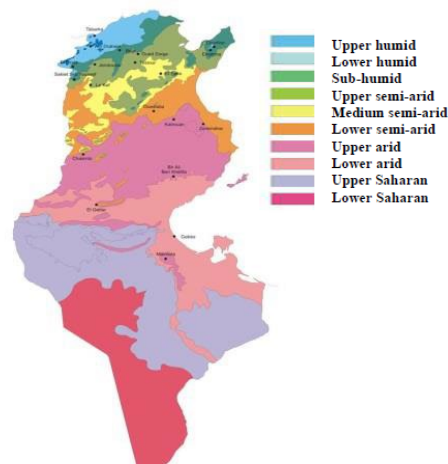
All over the globe, soil health and agrosystems sustainability are threatened by several stress factors such as climate change, pollution, loss of soil organic matter (SOM), erosion, salinization, and the reduction in available water quantity and quality. Semi-Arid and Arid Regions (SAAR) experience simultaneously many of these stressors

### Hypothesis

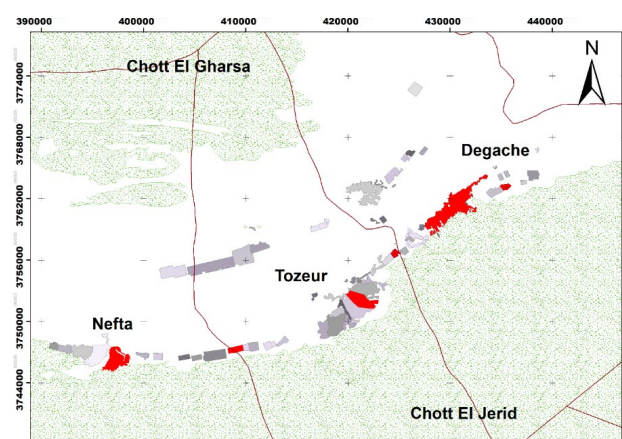
- 1/ Management practices and geoclimatic factors significantly influence the stabilization and dynamics of soil carbon and nutrient stocks in Tunisian oases.
- 2/ Topography affects the dynamics of soil organic matter (SOM) within these systems.



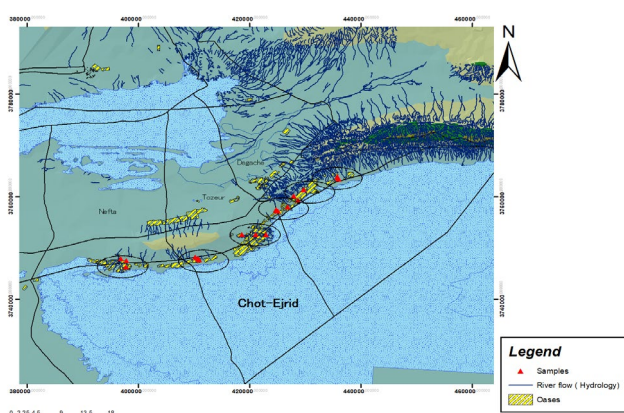
Tunis Soil Map



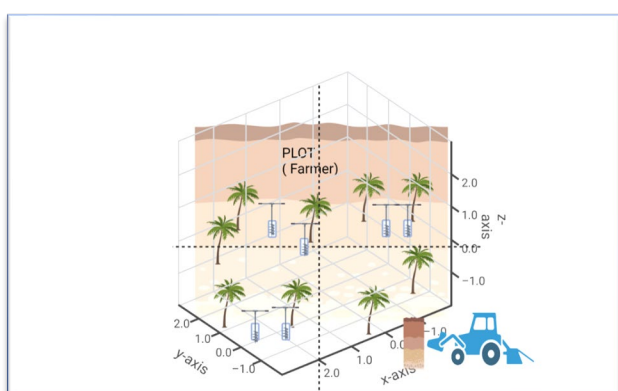
Tunis Climate Map



Study Area Selected ( for soil sampling)

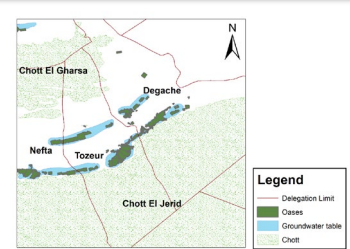
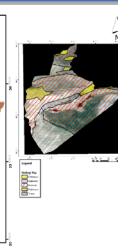
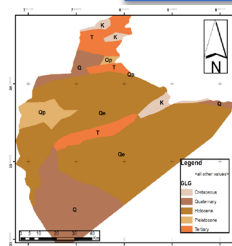


Legend  
▲ Samples  
River flow ( Hydrology)  
Oases



### Objective

- 1/ Characterize soil organic and inorganic carbon stocks in arid oasis agricultural systems.
- 2/ Evaluate sources and stabilization processes of carbon stocks.
- 3/ Understand pedogenic and biogeochemical processes influencing carbon stocks.
- 4/ Enhance agricultural sustainability and resilience against climate change and land degradation.



### Methodology

#### Subproject 1: Dynamics of Soil Organic Carbon and Soil Inorganic Carbon in Oasis Systems

Carbon Analysis:

Physicochemical  
Characterization

#### Subproject 2: Biotic versus Abiotic Aggregate Formation as Drivers for Soil Organic Carbon Stabilization

Stability  
Measurements

Biological  
Assessments

#### Subproject 3: Development of a High Throughput Technique to Quantify Gypsum in Soils

Analytical Techniques

Validation

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