SUPCOM



SUP'COM Contributions ALTOS/PRIMA

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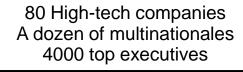
Technopolitan environment

Located in the heart of a technopolitan environment conducing many synergies between training, production and R & D.



















COSIM

Research at SUP'COM

Laboratories

MEDIATRON Mobile Networks and Multimedia

CN&S **Network Security**

GRES'COM Innovative and Green Communication Systems

Communication, Signals et Imag

Innovation of Communicant and Cooperative Mobiles **INNOV'COM**

ALTOS KOM, 25-26 May, 2021 - PRIMA,

Les Unités de Recherches

URSN Cyber-security







Skills in RDI Techniques

Content: Signal, image, speech

Services developement

Signal processing Image processing **Audio processing** Wireless communication

Sup' Com

Wireless networks **Mobile networks** Réseaux de capteurs sans fil **All-Optical Routers Switched Optical Networks**

communication **Optical communication** Radiocommunication Micro-wave techniques **Architectures of digital** processing embedded systems

Radiocommunications





Outline

- The ALTOS Team
- Contribution in WP1
- Contribution in WP2







The Team

- Riadh ABDELFATTAH (SAR image processing : Interfero & Polar) WP1 & WP2
 - ✓ Meriem BARBOUCHI (Postdoc)
 - ✓ Chayma CHAABANI (PhD)
 - ✓ Master (to be hired)

- Sadok EL ASMI (Stochastic modeling) WP1
 - ✓ Julie CARREAU (LISAH & IRD)
 - ✓ Nesrine FARHANI (PhD student)
 - ✓ Hela HAMMAMI (PhD student)







Task 1.1: object geometries and landscape structures (leader: IRTA).

- Climate variability.
 - Targets: climate spatiotemporal structures.
 - Methodological innovations: disaggregation of climate model simulations using multivariate
 - statistics on various data (in-situ, remote sensing, high resolution meteorological model simulations) using stochastic weather generator with SAR images.
 - Study areas: Cap Bon, Merguellil.

Collaborations with Mediterranean partner: LISAH, CESBIO

Spatial variability in soil infiltrability (Pre-processing and integration of SAR Sentinel-1 data)





Task 1.2: landscaping features, agricultural practices and connectivities (leader: LARI).

- Crop biomass.
 - Targets: times series of biophysical variables along with final yield.
 - Methodological innovations: joint use of remote sensing data Sentinel-1 & 2 satellite data and TerraSAR-X satellite data along with statistical analysis.
 - Partners: SUPCOM, INRGREF.
 - Study areas: Cap Bon

Collaborations with Mediterranean partner **UCAM**

Land use. (times series of Sentinel satellite data long with objectoriented classification methods,)







Task 2.1: water and chemical fluxes (leader: CERTE)

- Evapotranspiration, soil moisture and crop growth.
 - Targets: vegetation water status across growth cycle, yield, water use efficiency.
 - Methodological innovations: joint use of eddy covariance / sap flow / isotopic measurements and optical / radar / thermal infrared remote sensing data, joint use of times series from in situ and remote sensing data.
 - Partners: INRGREF, SUPCOM, CESBIO, LISAH, UCAM, UNICA, IRTA.
 - Study areas: Cap Bon, Merguellil, Tensift, Segre, Orroli.

Collaborations with Mediterranean partner UCAM, LISAH, CESBIO

- Validation on the test site in Morocco,
- Integration of SAR data within the Evapo. Model developed by CESBIO







Task 2.2: characterization of spatial heterogeneities (leader: CESBIO).

- Landscape scale heterogeneities induced by soil, topography and canopies.
 - Targets: water fluxes in heterogeneous landscapes.
 - Methodological innovations: joint use of eddy covariance data at sub-catchment scales (few tenths of hectares), of scintillometry data across field transects, and of remote sensing data with embedded metric to kilometric resolutions à analysis of spatiotemporal dynamics.
 - Partners: INRGREF, SUPCOM, CESBIO, LISAH, UCAM , UNICA, IRTA.
 - Study areas: Cap Bon, Merguellil, Tensift, Segre, Orroli.

Collaborations with Mediterranean partner UNICA, IRTA, CESBIO

- Multi-scale analysis (wavelet discrete transform)
- joint use of sap flow sensors (installed in both tree roots and trunks),





