

# SAOCOM

## Cal/Val Sites

Marc Thibeault (lead of science team)

CONAE

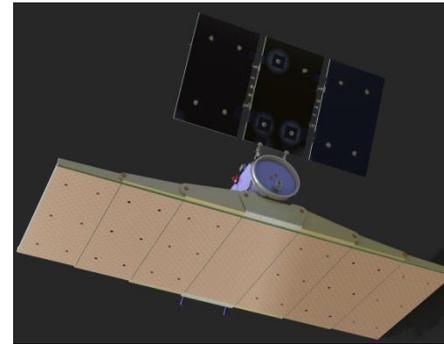
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Alvaro Soldano (lead of field team)

Lucas Achaval, Luciano Romaldi (field work),  
Roberto Zanvettor (met data), Analia Oviedo (phenological  
data), Julian Pucheta (network)

# Description of the Project Supporting the Site

The SAOCOM Project consists of two identical L band SAR satellites in the 2014-2015 timeline.

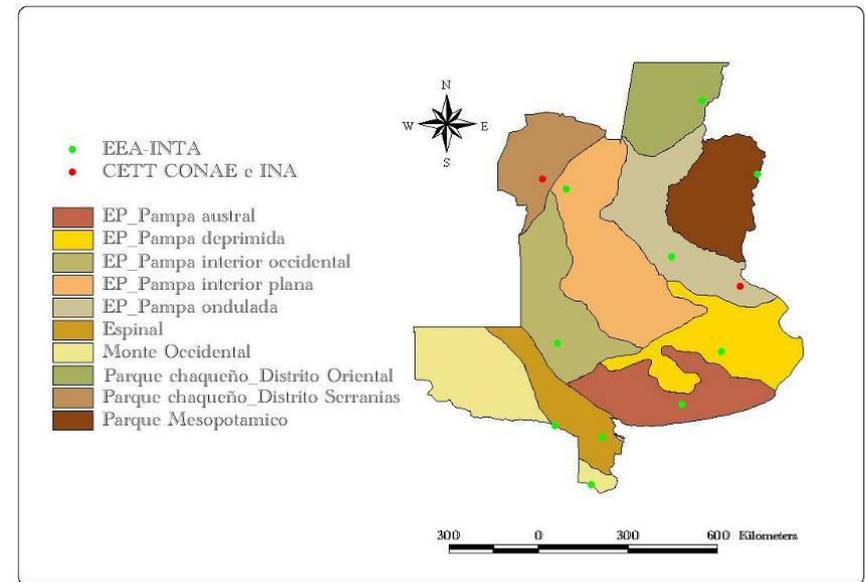
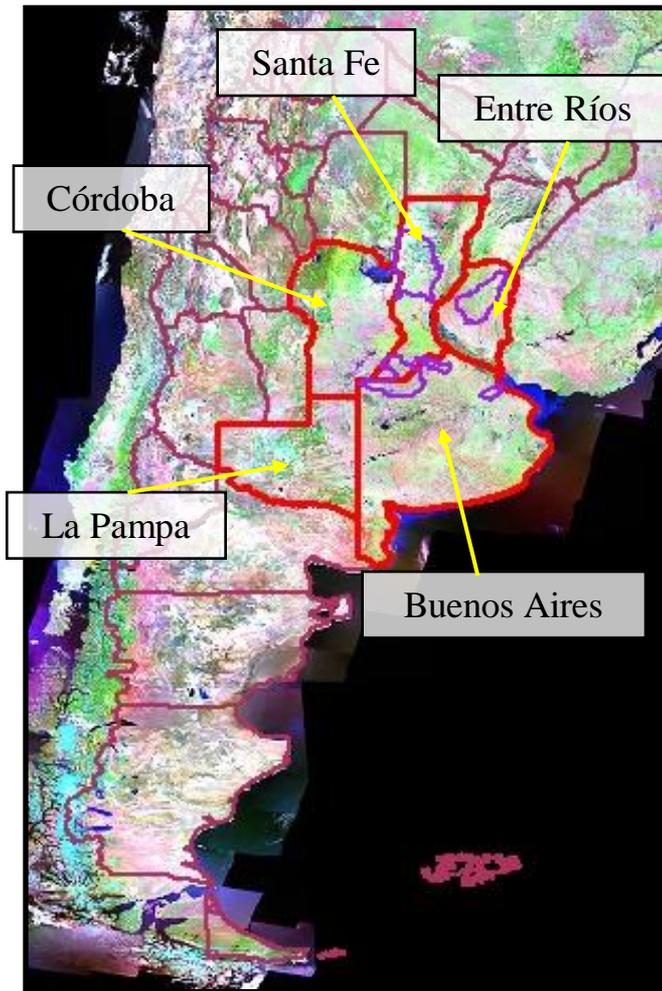


One of the main objectives of the mission is to produce advanced product related to agricultural and hydrological activities.

Estimation of the superficial Soil Moisture over the region of interest is one of the principal products that will feed the other advanced applications (mainly via data assimilation).

# Research Focus: Production of a Soil Moisture Map operatively using L band SAR over the Pampa region and assimilation of data in CSM and Hydrological Model.

The Pampea Region, originally a temperate sub humid grassland, is the main cropland area of Argentina with approximately 83 millions of hectares. Experimental sites were selected considering the phytogeographical subregions.



Actual sites:



# Site Description: CETT (1)

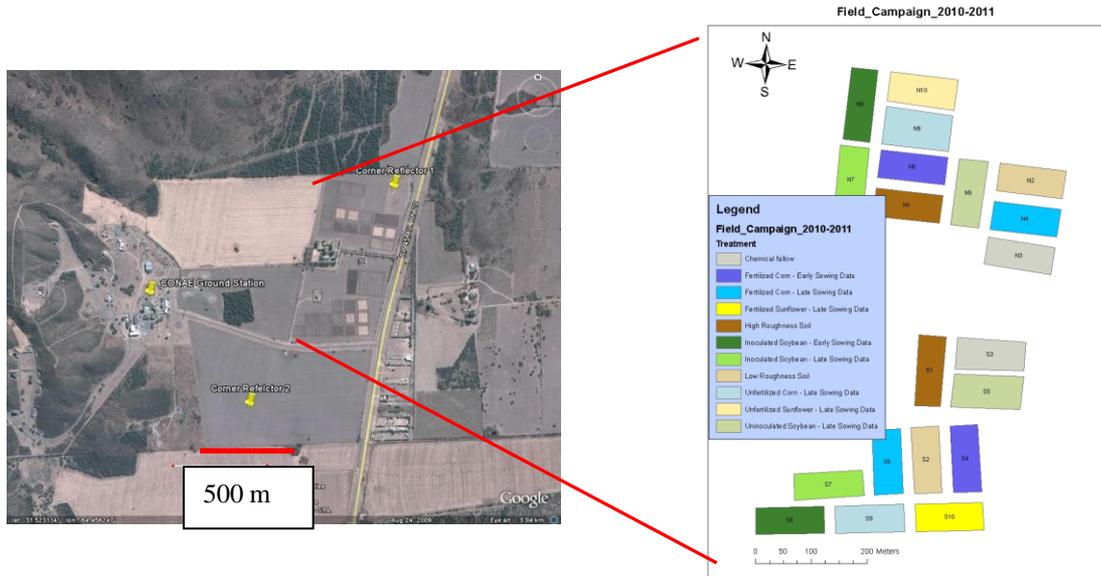
Test bed site.

- Test different type of sensors (soil moisture, canopy wetness, profile)
- study impact of roughness, row direction, crops
- Twenty 50 m x 120 m plots
- Equipped with corner reflectors
- network topology
- dedicated full time field team
- airborne SAR data



Historical records at the site? 2 years but with some holes.

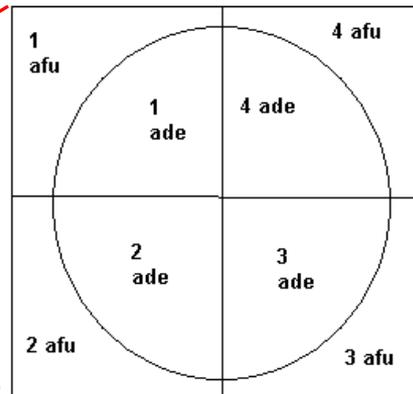
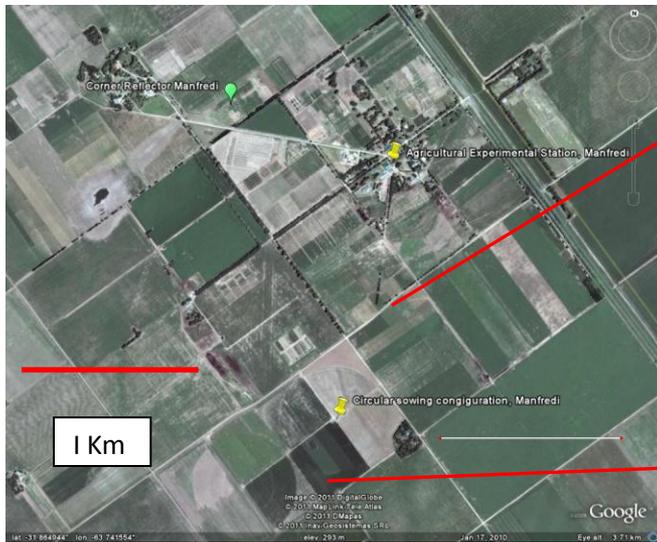
# Site Description: CETT (2)



Lat.: -31.521028, Long.: -64.452068 (aprox. 800 x 500 m)

- Automatic sensor canopy moisture Dielectric Leaf Wetness Sensor.
- ECHO 5 (2 by plots SUR sector) and ECHO 10 soil moisture sensor
- Hydra Probe (2 by plots) North sector (fixed network)
- Routine and intensive Gravimetric measurements
- Routine and intensive Hydra Probe measurements together with gravimetric
- Meteorological station on site
- Diviner tubes installed and regular profile up to 1.5 m depth are done
- Phenological measurements on crops (wheat, maize, soybean, sunflower)

# Site description: INTA Manfredi



Lat.: -31.872331, Long.: -63.741421 (center); about 600 m diameter

- Automatic sensor canopy moisture Dielectric Leaf Wetness Sensor.
- ECHO 5 and ECHO 10 soil moisture sensor but they are replaced by
- Hydra Probe (1 by plots, 8 plots)
- Routine and intensive Gravimetric measurements
- Routine and intensive Hydra Probe measurements together with gravimetric
- equipped with one corner reflector
- Met station, soil texture from Manfredi soil Institute
- Phenological measurements on crops (wheat, maize)

# Site description: Bell Ville / Monte Buey



Upper Left Corner, Lat.: -32.372980, Long.: -62.869978

Lower Right Corner, Lat.: -33.033488, Long.: -62.314256

90 km diagonal

Nine puntual sites, two with 6 hydra probes, the seven others with 2

Some depth profiles up to 1.5 m with Diviner probe

Some phenological measurements.

Met data

# Site description: Cululú Bassin



Colonia Vignaud: Lat.: -30.6773, Long.: -61.9446

Ataliva: Lat.: -30.69851, Long.: -61.4214

Hydra probes, freatic probes

Met data

# Issues (1)

- All 4 sites are existing. Already two more is coming up (Venado Tuerto, Azul) and we planned to in integrate soon Pergamino, Anguil. We are also soon in negotiation with the Meteorological National service and Santa Fe province We also have two years of uninterrupted soil moisture and met data at INA near Buenos Aires.
- Data latency: Not much of an issue but our plan is to integrate all data in network and have all data online into a web GIS sometimes next year (prototype in June this year).
- Plan for GSM 0-5 cm validation for SM. Already doing it

# Issues (2)

- Plan for scaling points to footprints: No but ...
- Ideas for improvements: Get more sites and capture the heterogeneity of the region of interest. We also create a national science team with academic group that are interested in Soil Moisture measurements to work under a unique protocol and exchange of data (Santa Fe University, Institute of Astronomy and Space Physics, National Technical University of Venado Tuerto).
- What do you want from SMAP? Collaboration, expertise review, Field and tower data