JECAM Argentina

JECAM/GEOGLAM Science Meeting

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JECAM
Joint Experiment for Crop Assessment and Monitoring

GEO GROUP ON EARTH OBSERVATIONS

Site Description

- Location: 100 Km NE from Buenos Aires city
- Topography: Gently rolling (ca. 2%)
- Soils: composed mostly of Mollisols (deep A horizon -30 cm- with high SOC).
- Drainage class/irrigation: Well drained. Irrigation < 5%
- Crop calendar:
  - Maize: October/March
  - Early soybean: November/April
  - Wheat-soybean: June/December - May
- Field size: mean 20 Ha
- Climate and weather: Humid temperate (1000 mm pp)
- Agricultural methods used: No till continuous agriculture

Project Objectives

- Land use changes / Crop type identification:

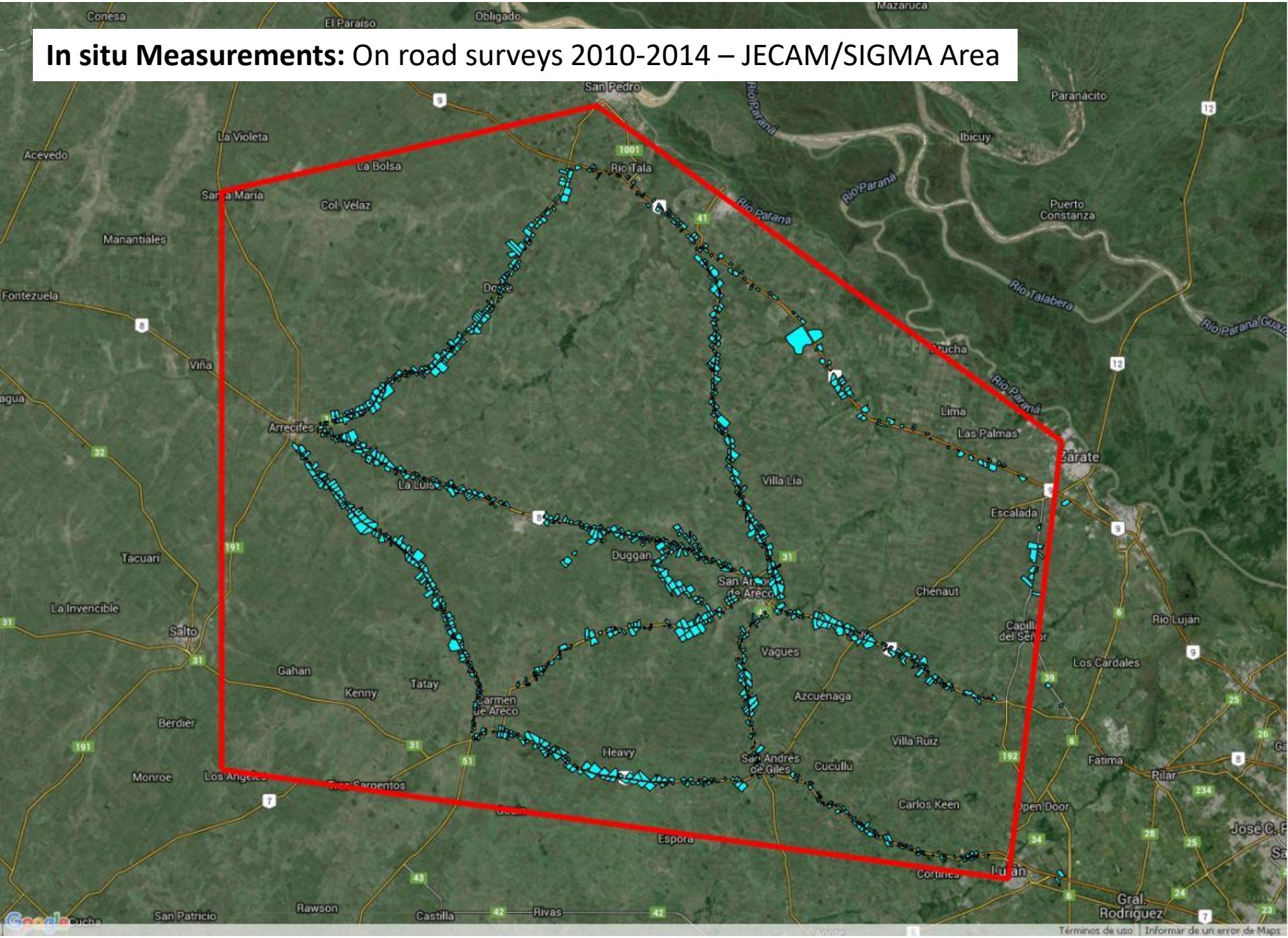
  - Crop rotations: description, drivers and environmental impacts.

- Biophyisical parameters estimation using multiple satellite data sources:

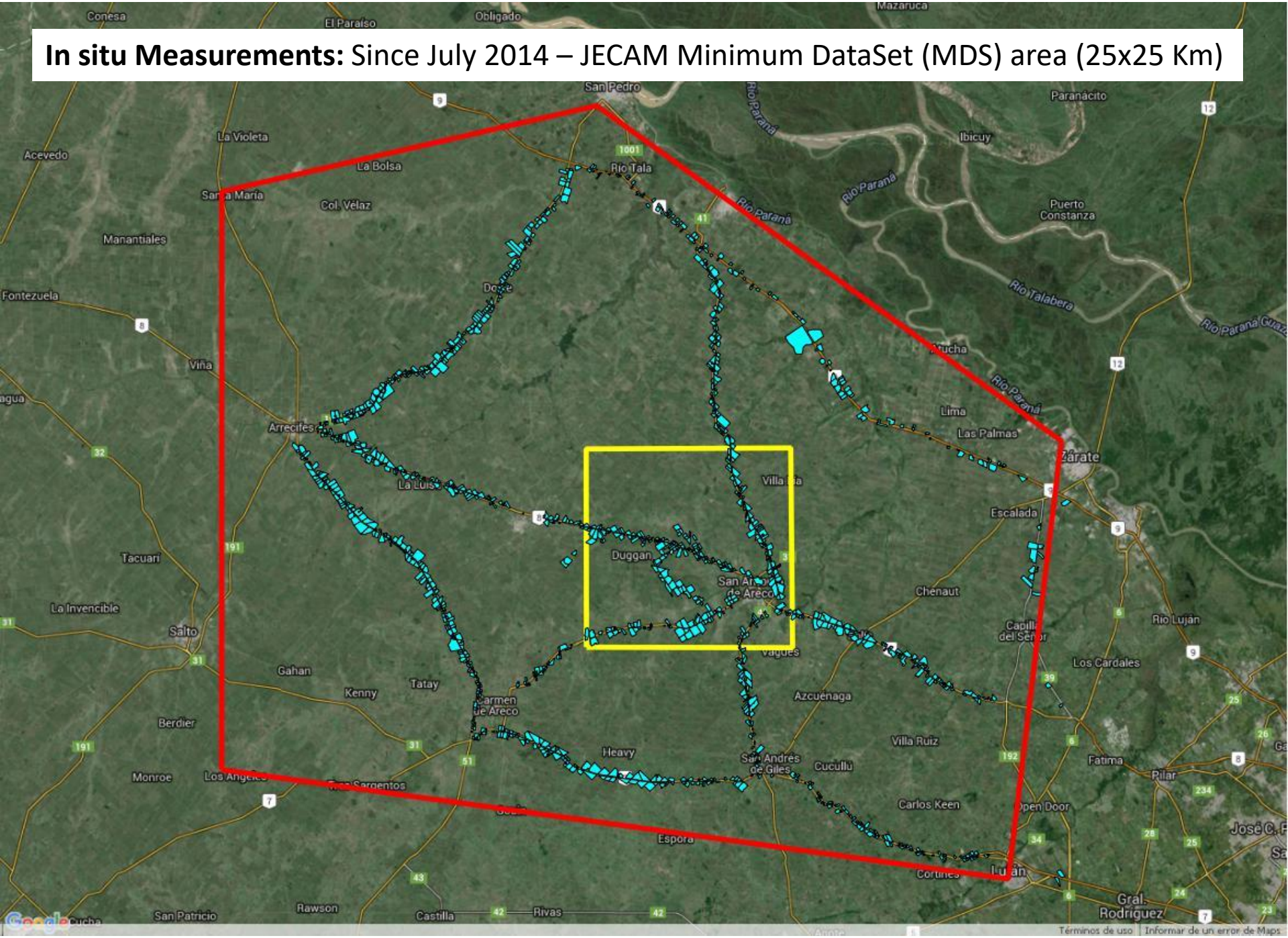
Biophysical parameters	RS data
Wet / dry biomass	HR optical
Yield	MR optical
LAI / green cover	RADAR
height	

- Soil Moisture

In situ Measurements: On road surveys 2010-2014 – JECAM/SIGMA Area



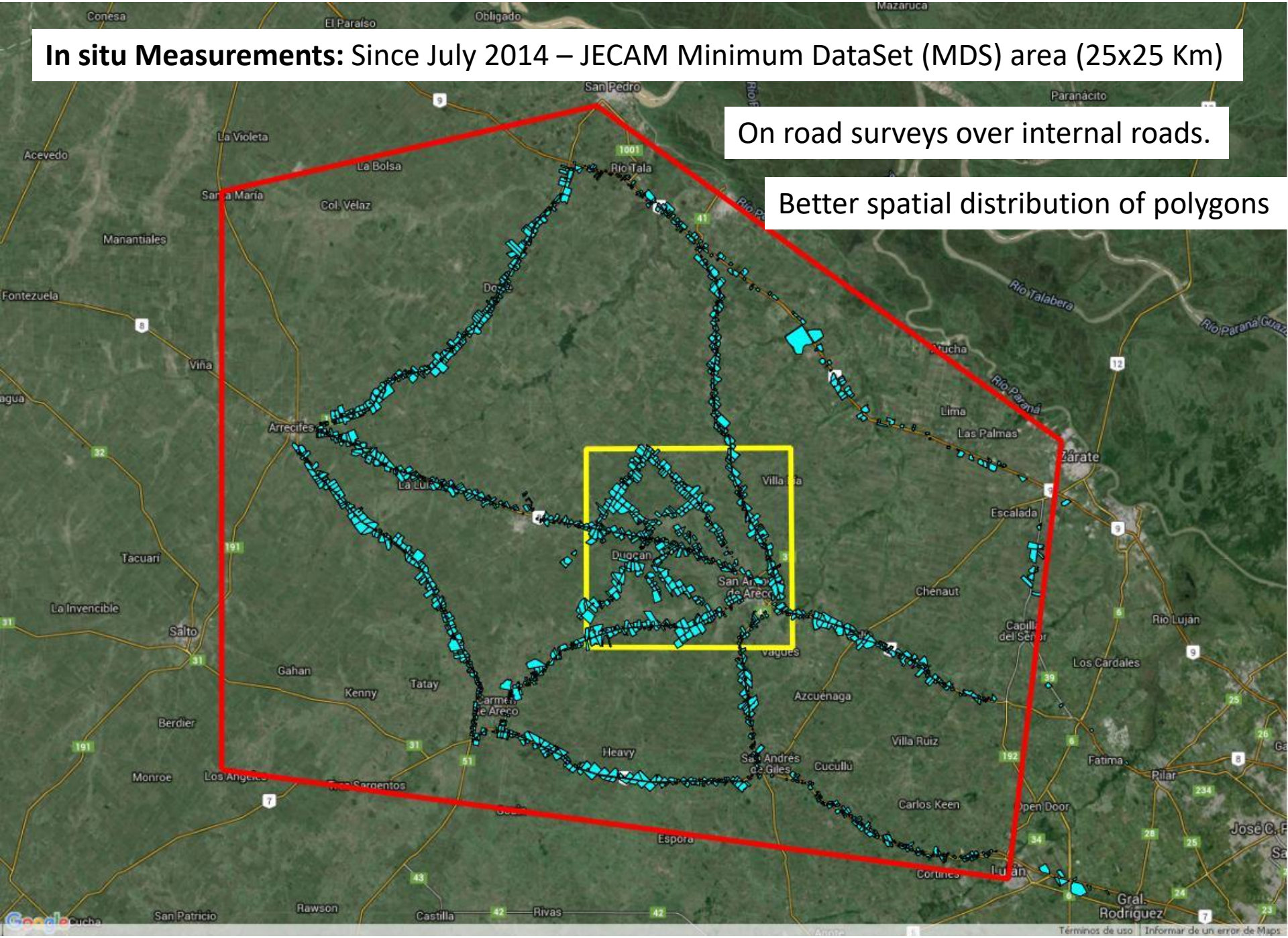
In situ Measurements: Since July 2014 – JECAM Minimum DataSet (MDS) area (25x25 Km)



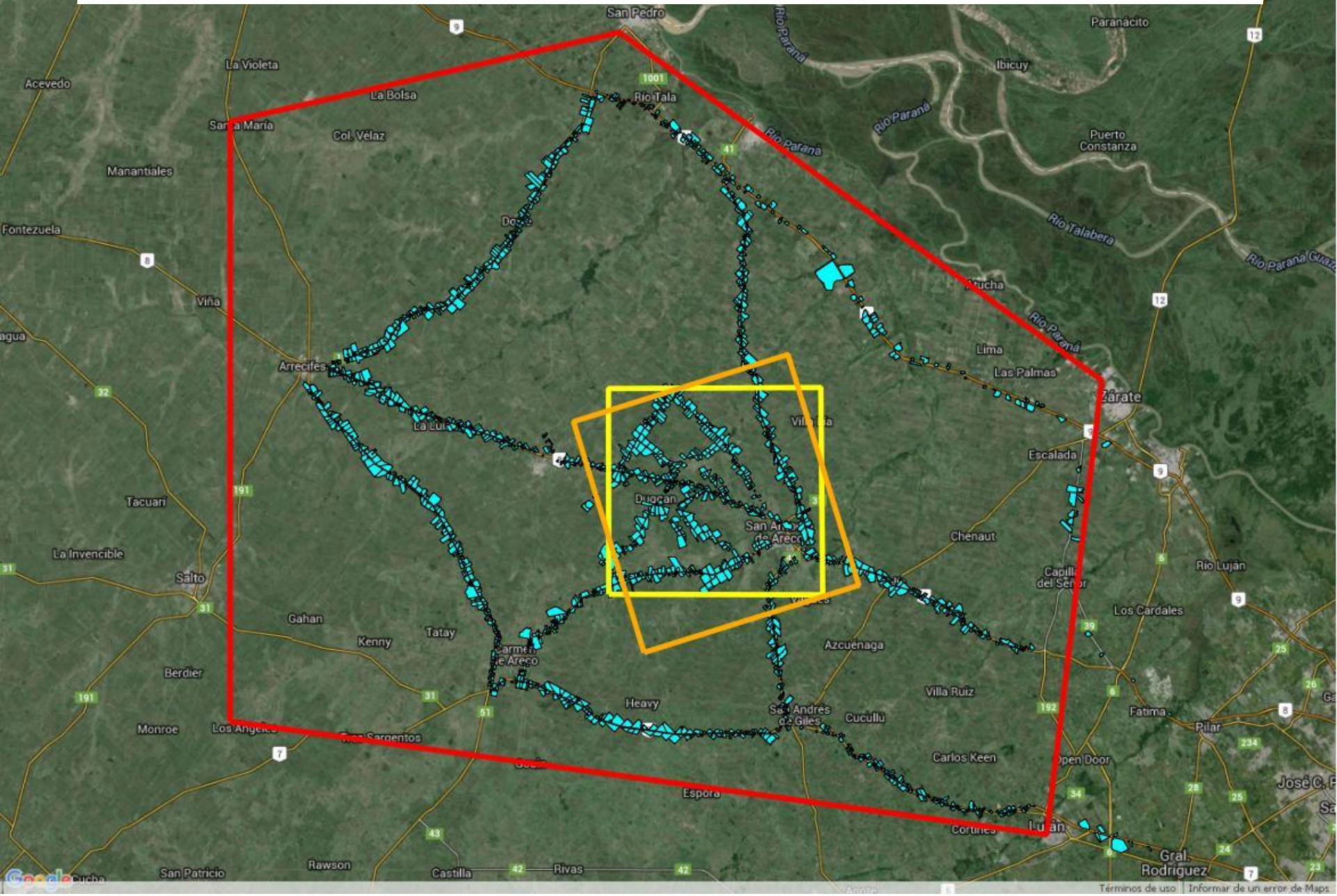
In situ Measurements: Since July 2014 – JECAM Minimum DataSet (MDS) area (25x25 Km)

On road surveys over internal roads.

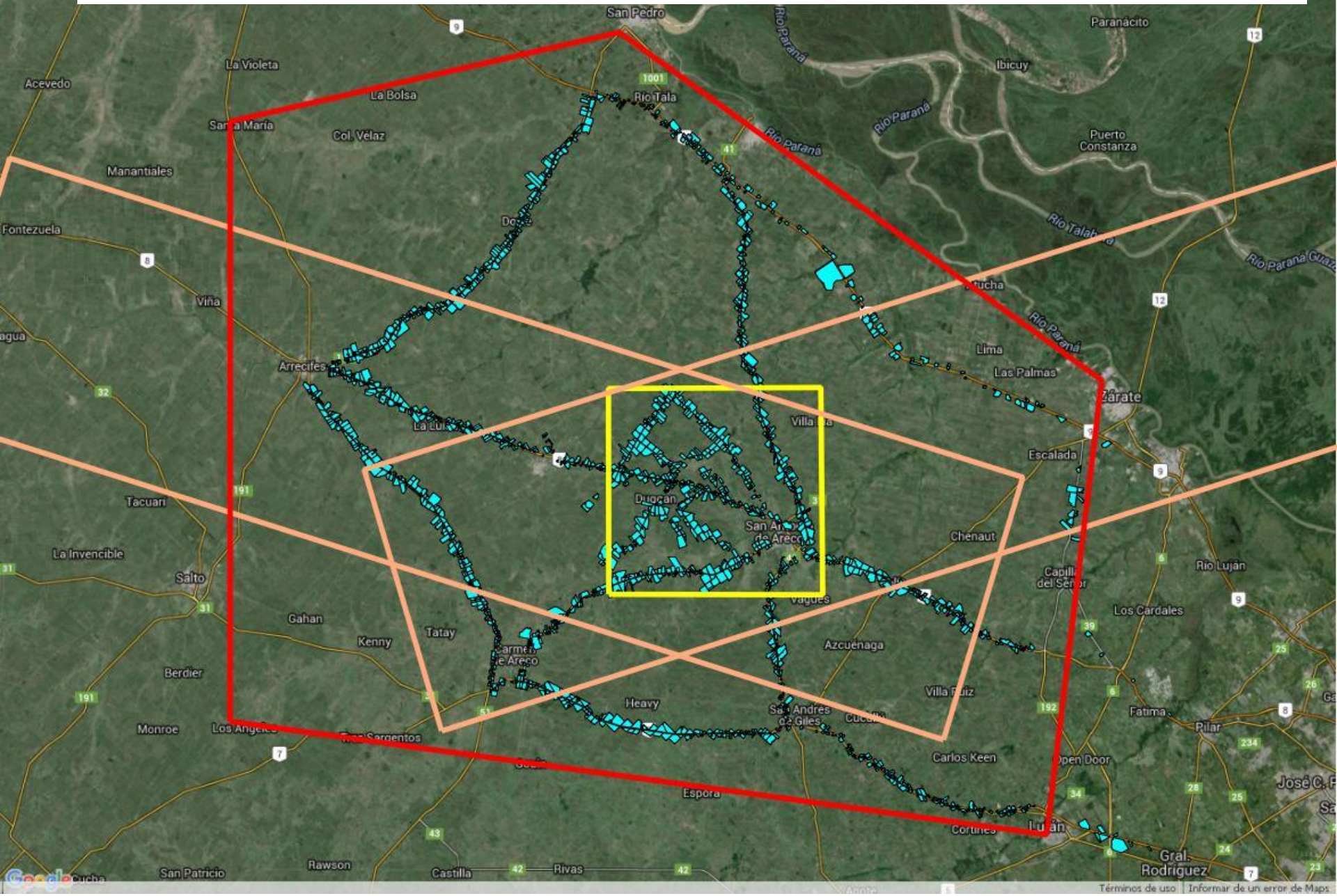
Better spatial distribution of polygons



RS2 Fine QuadPol (FQ) Acquisitions (October 2015) coincident with JECAM MDS area

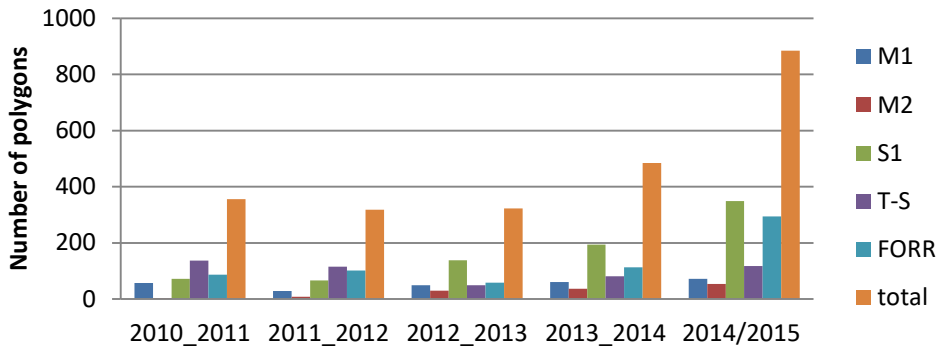


RS2 WIDE (W3) Acquisitions (October 2015) coincident (in part) with JECAM/SIGMA area

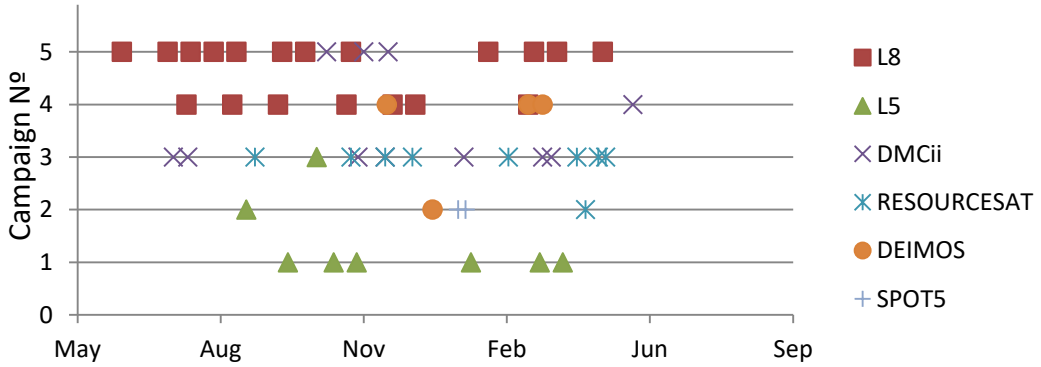


Summary of Land use / crop type activities (2010-2015)

Number of fields per Class:



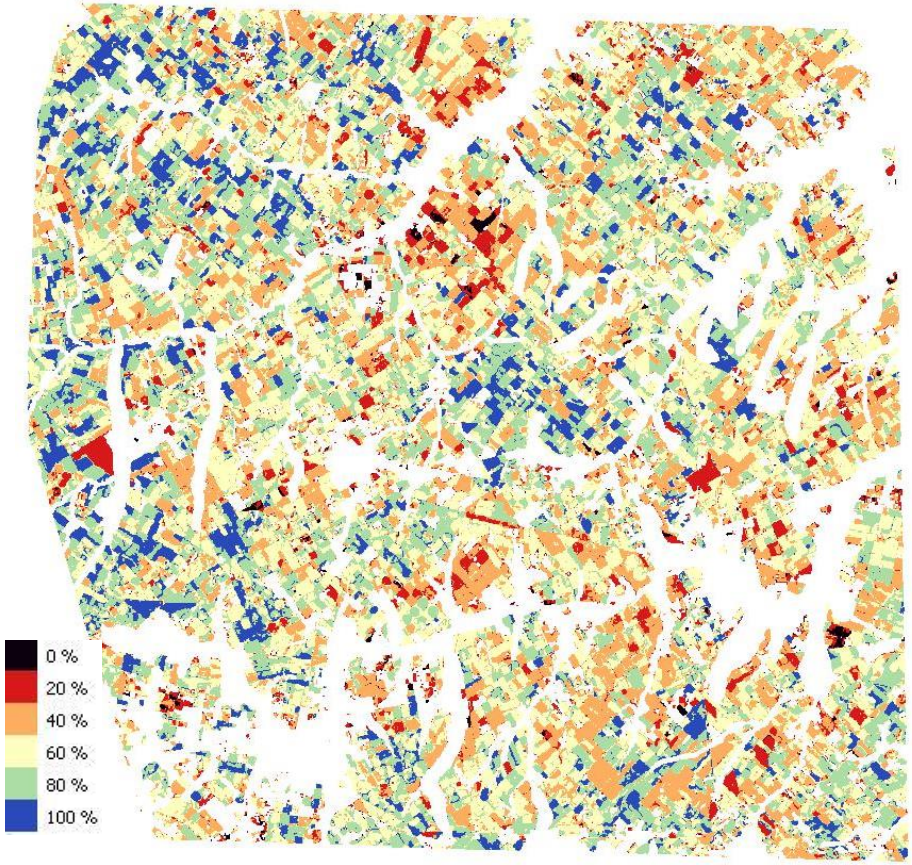
Optical HR Images acquired over the study area for the 5 Campaigns:



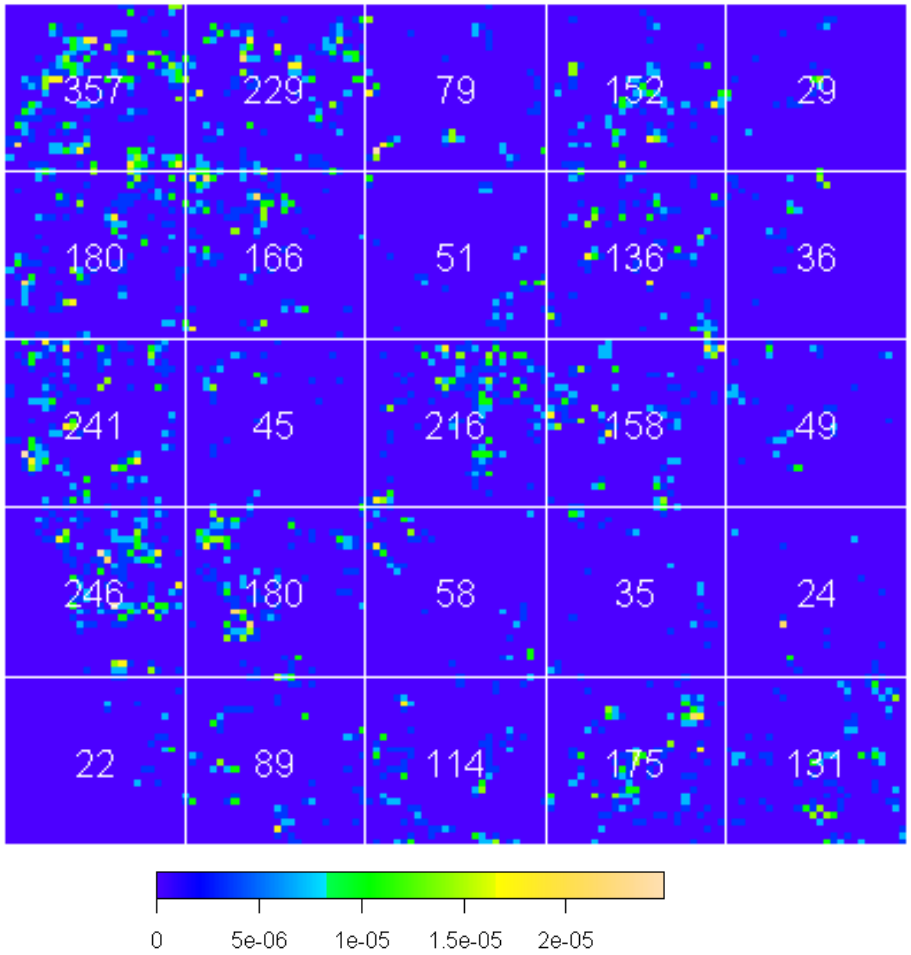
Classification accuracy:

Campaign	2010/2011	2011/2012	2012/2013	2013/2014	2014/2015
Overall Accuracy	0.91	0.88	0.87	0.96	0.90
Kappa coef.	0.87	0.82	0.56	0.95	0.86

Proportion of early soybean (S1) in a 5 years crop rotation:



Density of field with continuous early soybean (S1) crop rotaion over 5 years:



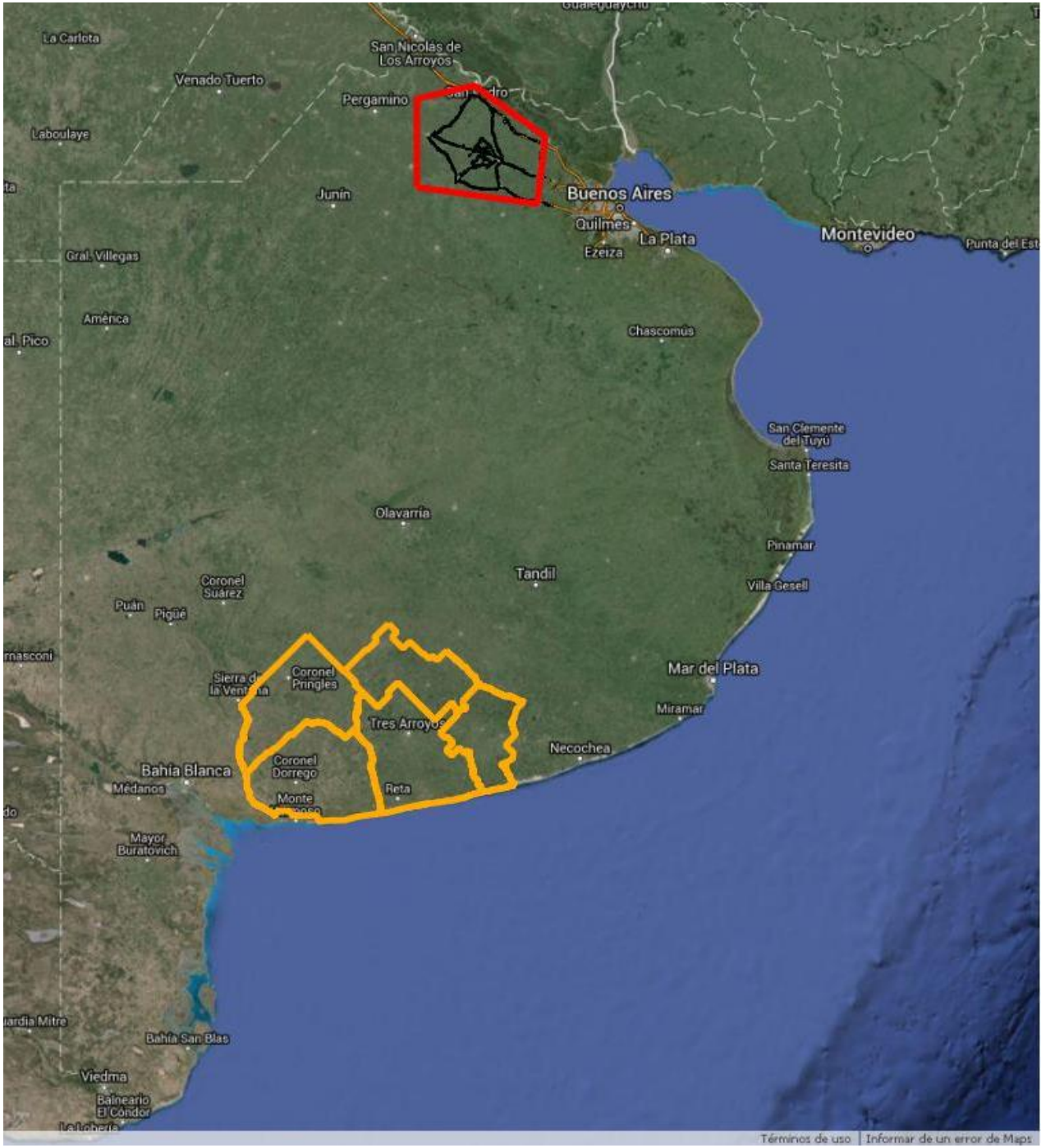
Publications status:

- BRDF Correction od MODIS 250 m daily time series. Testing in San Antoinio de Areco (published in Remote Sensing of Environment – de Abelleyra & Verón, 2014)
- Intercomparisson of cropland methodologies experiment. Joint activity among 6 JECAM/SIGMA site partners (sent to Remote Sensing)
- Crop rotation analysis in the rolling pampas from 2010-2015 (In preparation)
- Crop biophysical parameters estimation using remote sensing (In preparation)

New and current activities.
From local to regional crop type classification.
Colaboration with MINAGRI (Argentina)

- Testing the ability of local developed methods (JECAM San Antonio de Areco) for classification in other regions (e.g. South Buenos Aires)
- Availability of Ground truth in new regions since 2010 (for some counties)
- Lower acquisition frequency than for JECAM sites.

Lack of images for some periods (no LANDSAT images from Nov-2011 to April 2013).



Thank you!