



Argentine National Space Plan



ITU International Satellite Symposium 2017
S.C.de Bariloche, Argentina 29 to 31 May 2017

fhisas@conae.gov.ar



The Argentine Space Program

- ***“To go to space to know Earth better”***
- ***“An opportunity for the national technology development”***



The National Space Program

Information cycles for:

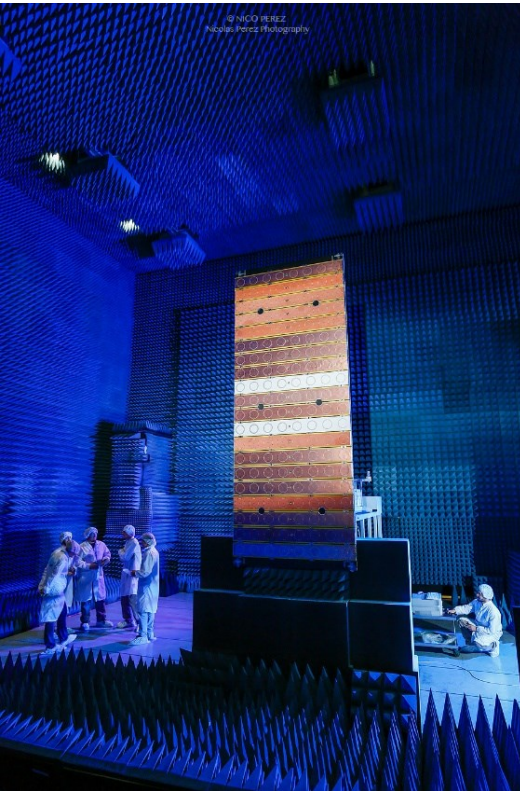
- ***agriculture, fishing and forest activities***
- ***climate, hydrology and oceanography***
- ***monitoring of the environment and natural resources***
- ***cartography, geology and mining production***
- ***disaster management***
- ***health applications***
- ***national security***



CETT: Centro Espacial Teófilo Tabanera



CETT (Laboratorios)



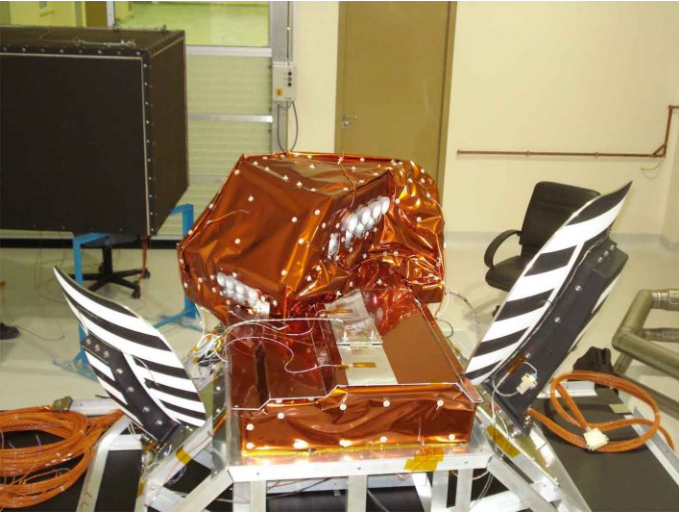
**Environmental
Test Facilities**





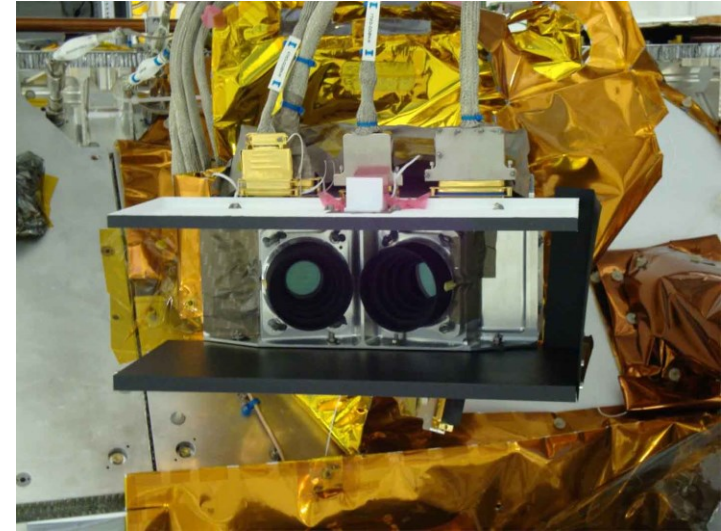
CONAE in Space





MWR

Institutions:
CONAE
UNLP
IAR
CIOF
GEMA



HSC

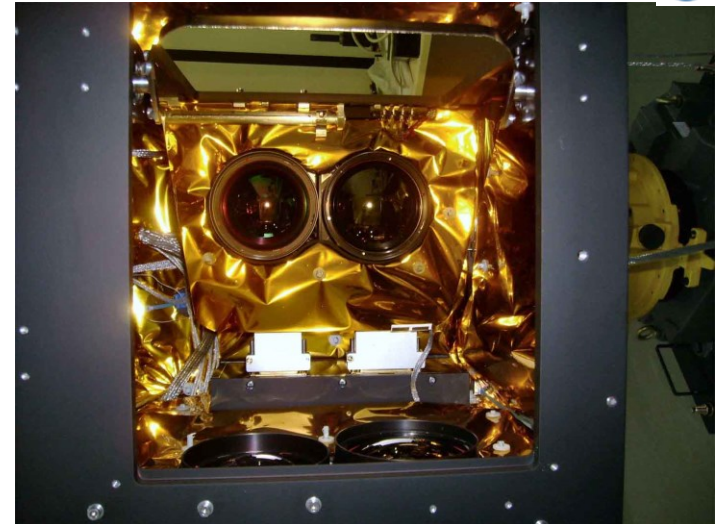


DCS

TDP

Companies:
INVAP
VENG
STI
DTA
CRUX

NIRST

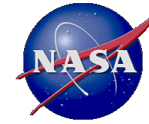


Solar Panels (CNEA)



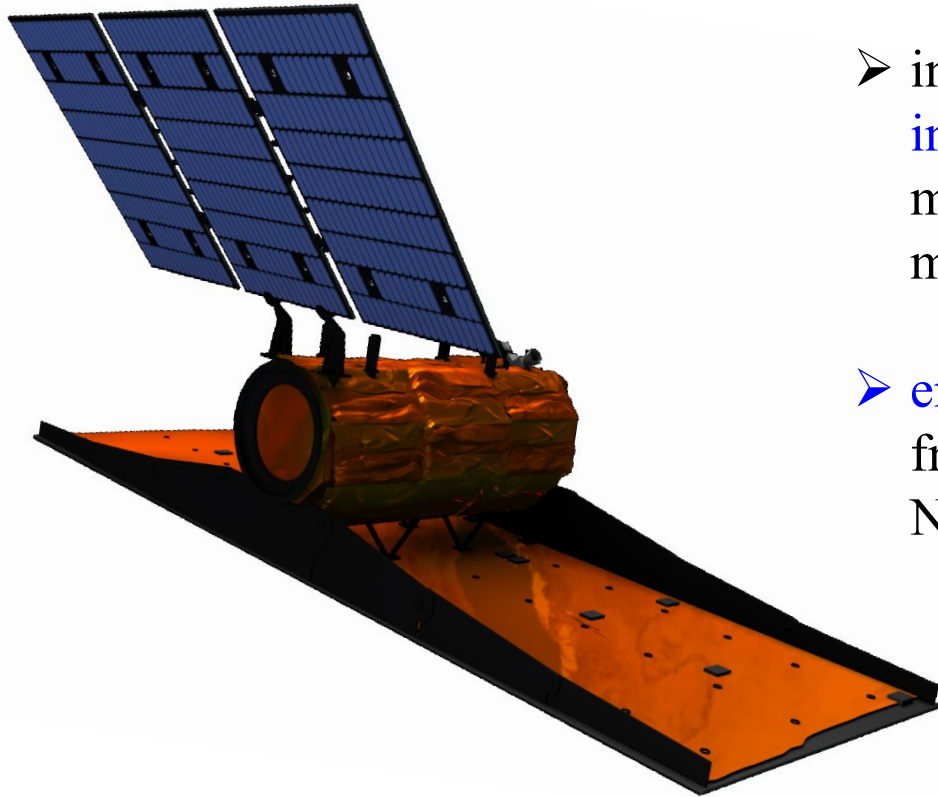


Integration Room (INVAP)



INVAP, Bariloche, June 14, 2010.
SAC-D/Aquarius Integration





- **soil moisture maps** (hydrology- including floods, agriculture, climate and health)
- information extraction using SAR **interferometry** capability (terrain modeling, terrain displacement mapping, volcanology, etc.)
- **emergencies** and other applications from the Information Cycles of the National Space Program



CONFIGURATION:

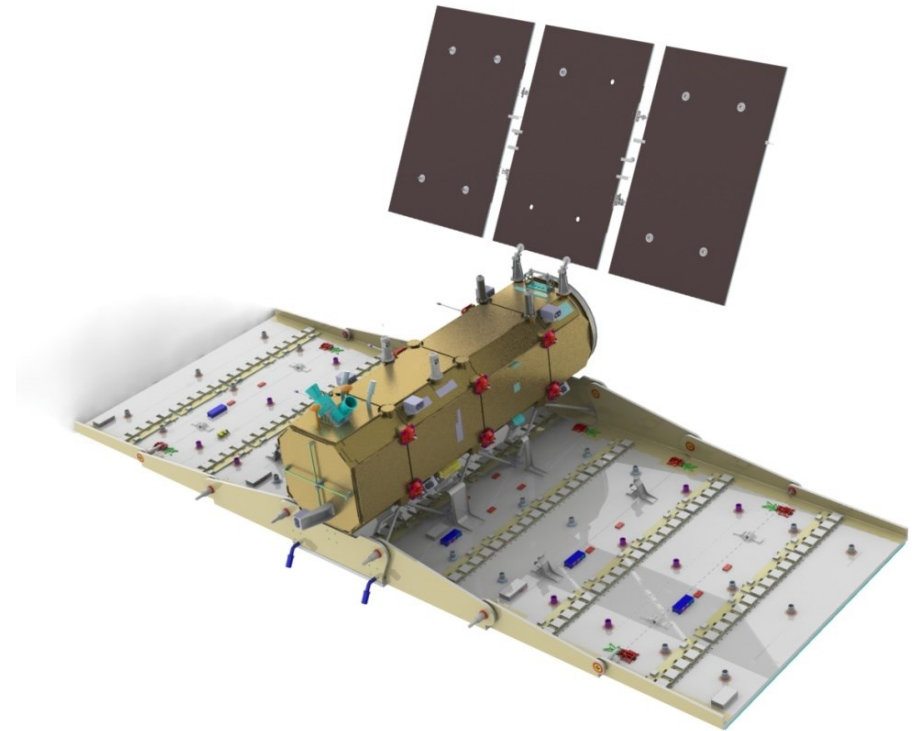
- Two Satellites with L-Band SAR Instrument as main instrument
- Orbit : 619.6 km
- Near Polar Sun-synchronous frozen orbit, 06:00 am ascending node

DIMENSIONS:

- h = 4.468m Φ 2.965m stowed envelope
- 10m x 3.5m (35m²) SAR Active_Phase Array antenna
- 15m² foldable solar array wing

MASS BUDGET:

- 2800 kg wet mass at launch (+200kg system margin)

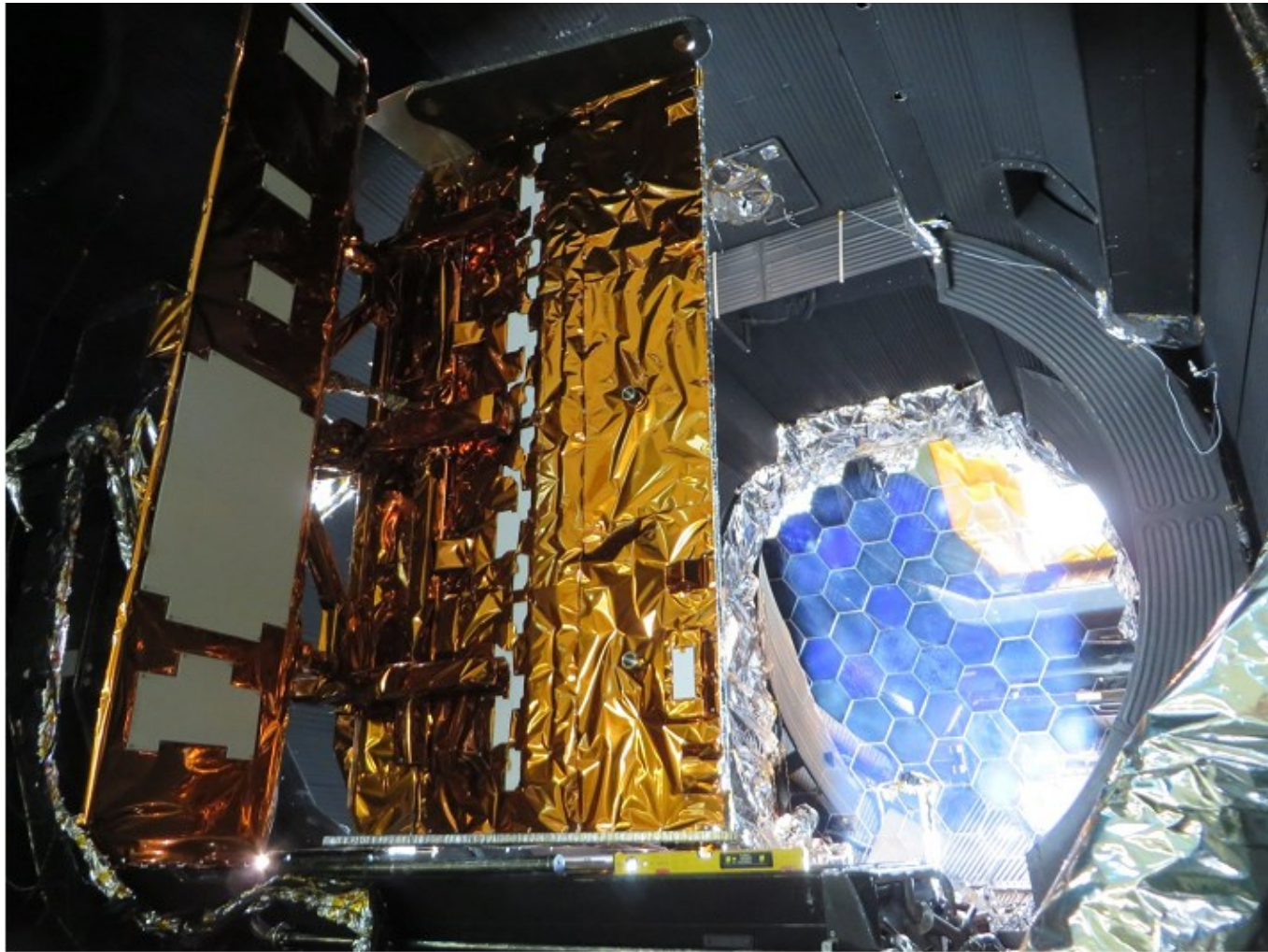


Project Status





Solar Simulator Test Campaign Finalized



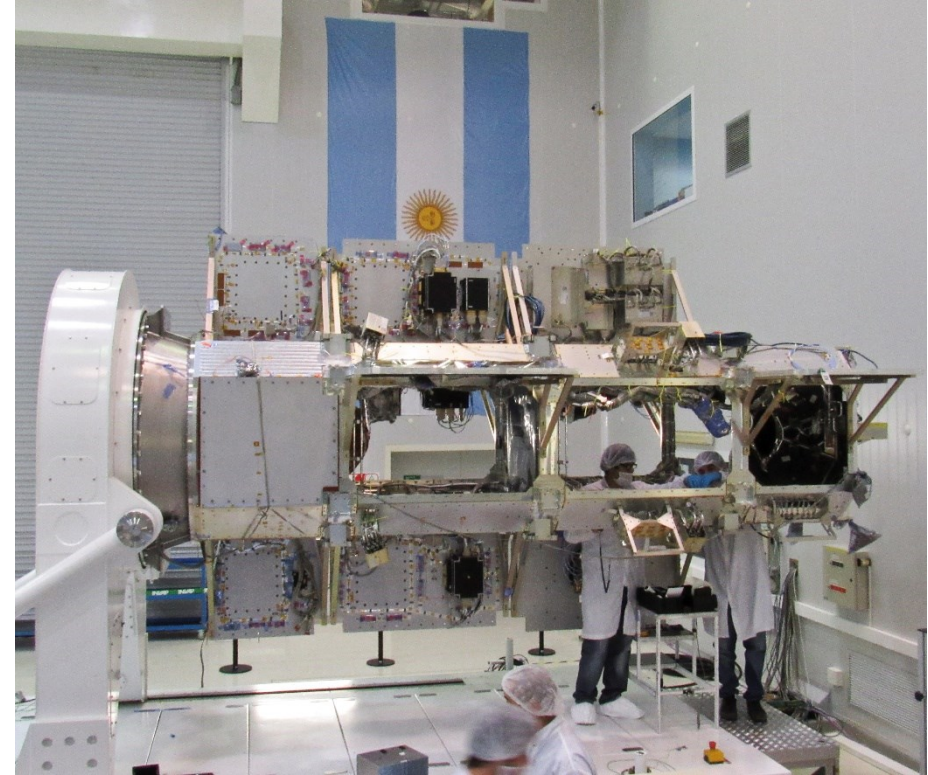
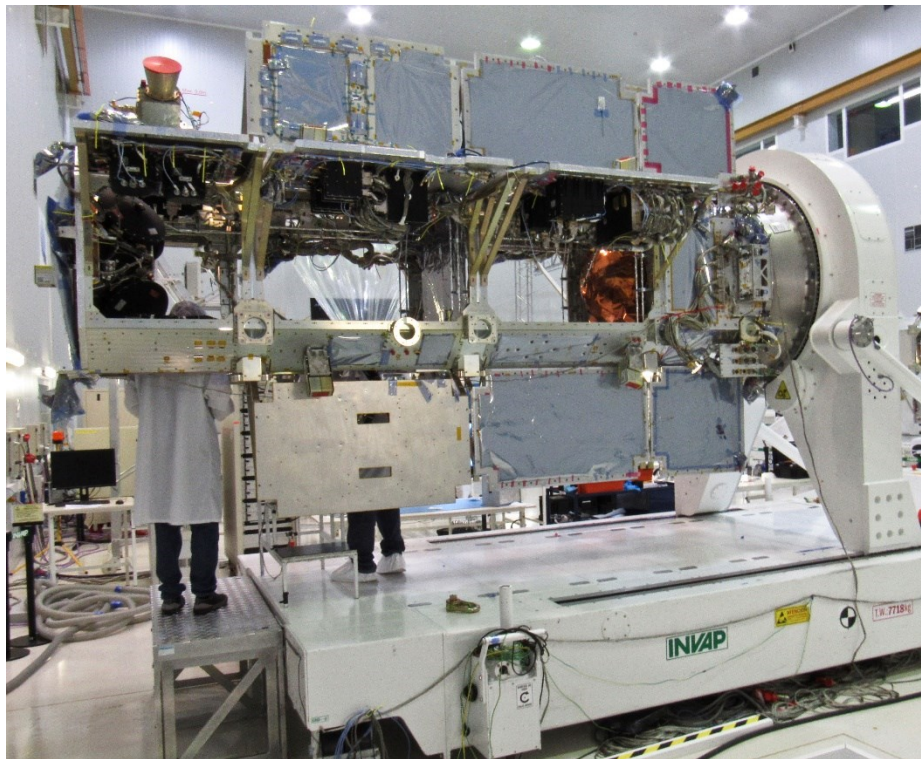
IABG
(Germany)

SAR Antenna Panels at LIE (CONAE – CETT)



Mayo 2016

Platform Integration of SAOCOM 1A INVAP S.E. Bariloche



SAOCOM 1A launch March 2018
SAOCOM 1B launch 1 year later



Constellation of 6 satellites with SAR instruments on board, 4 italian in X band (**COSMO-SkyMed**) and 2 argentinean in L band (**SAOCOM**):

- **Multiband synergy** (X & L)
- **High revisit** (12 hs)

Benefits:

- Excellent **synergy** between **X** and **L** band data, which represents a key for satisfying the different user needs
- Significant improvement in the accuracy of the **discrimination** among the different surface components
- Significant improvement in the **geophysical parameters quantitative knowledge**
- **Very high revisit** for monitoring events of fast evolution
- Improvement in **cartographic** and **change detection** studies



SABIA-Mar 1 and 2

Objective:

To study the Oceanic Biosphere, its changes along time, and how it is affected and reacts to human activities.

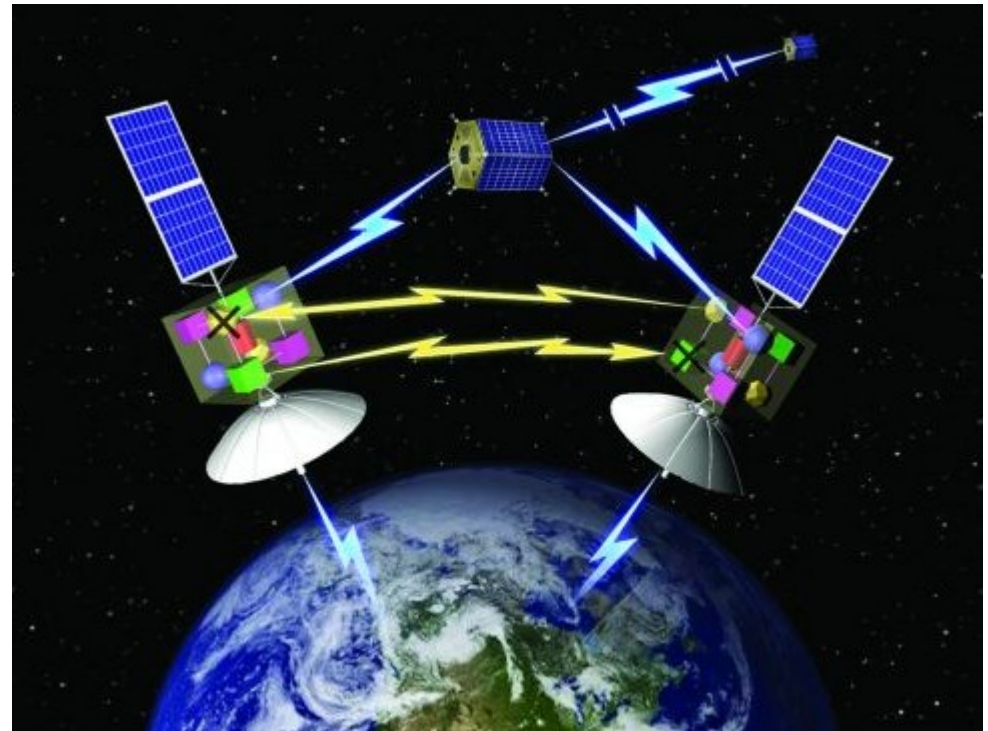


Main Payloads:

- Super-spectral Camera, with 19 bands in the Visible, SWIR, and Thermal ranges, with 200m pixel resolution, and daily repetition rate, for coastal studies and south American continental territory.
- Similar, but with 1 km pixel resolution, daily repetition rate and global coverage.



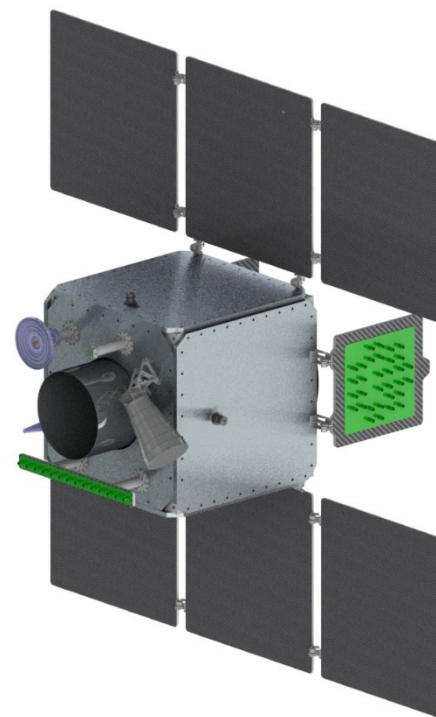
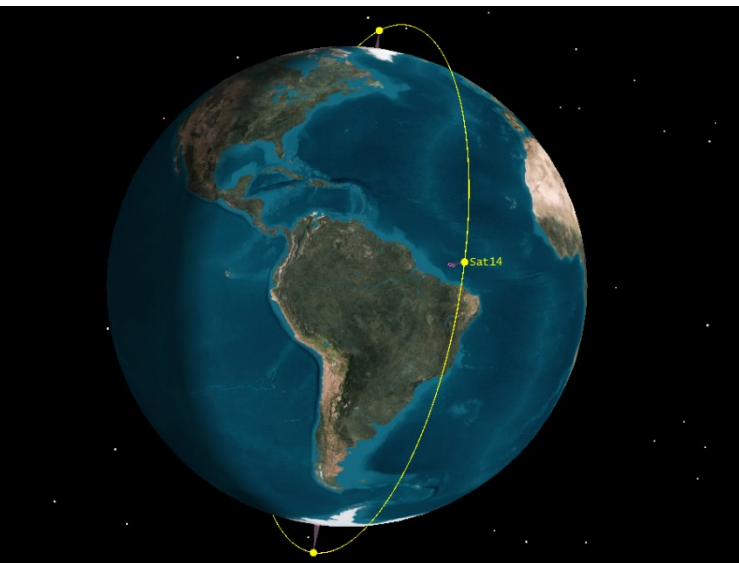
1. Small satellites in a network
2. Cluster concept
3. Sharing of Resources
4. Distributed Processing
5. Distributed Payloads
6. Advanced Communications



- Flexible to requirement changes
- Flexible to changes in technology
- Shortens the Mission cycle times
- Lower Mission costs



Next Steps (3): SARE AR-1



High Resolution Mission (1 meter panchromatic, 5 meters multispectral)
4 Satellites in polar sun synchronous orbit
Revisit time better than 8 days



Next Steps (4): Launch Vehicle TII



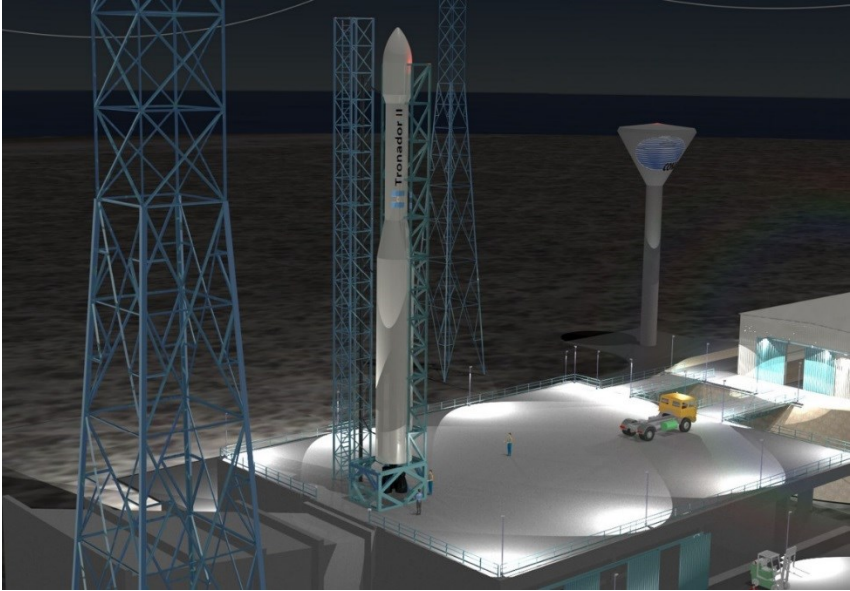
Main Characteristics:

Length and weight: 28 m and 67 ton
Empty : 5,1 ton
Diameter : 2,5m
Thrust 1st stage : 90ton
Thrust last stage : 4ton

TII Requirements

- **Polar Orbit**
- **Altitude 600 km**
- **Weights up to 250 kg**
- **Under Development in Argentina**
- **Launch site in Argentina**

Next Steps (6): Launch Base





Thanks