FACULTAD DE CIENCIAS
FÍSICAS Y MATEMÁTICAS
UNIVERSIDAD DE CHILE

SPEL
Space and Planetary
Exploration Laboratory

SUCHAI - first satellite built in Chile

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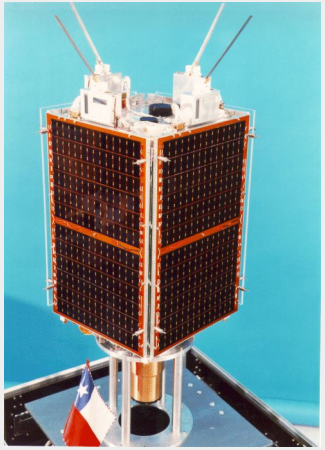
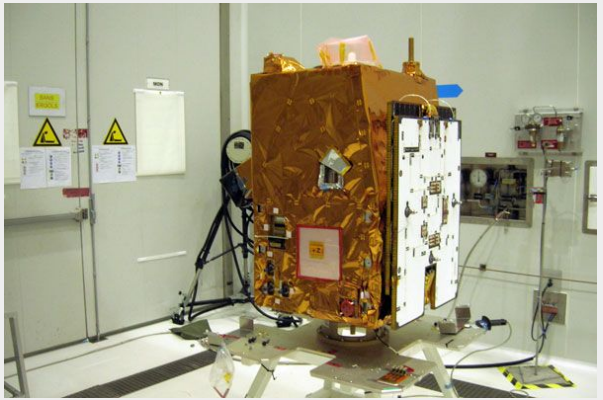
Chilean satellites

- 2 successes: Fasat-B (Surrey) and Fasat-C (Astrium)
- 1 failure: Fasat-A (Surrey)





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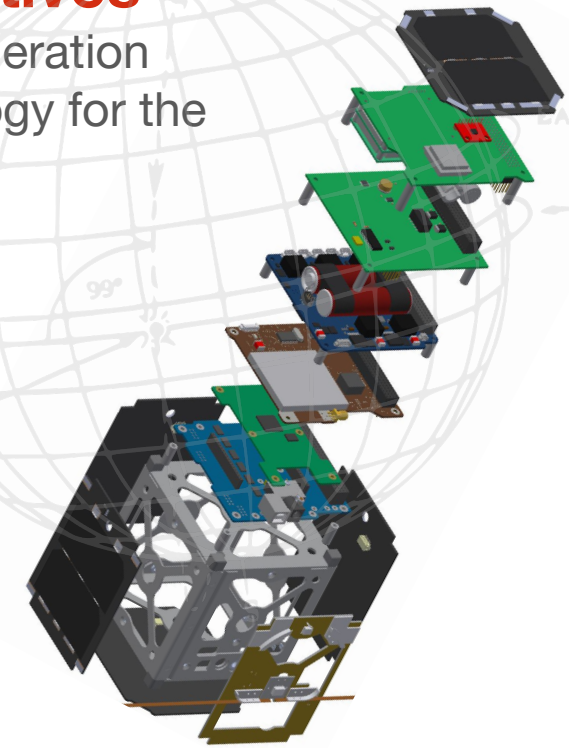
Objectives

Last generation technology for the country



Education

Development of human capital

Science

Scientific experiments in space environment

Technology

Integration and development of space technology in Chile

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Mission success level

A big challenge with different levels of success

4. Photography
Take a picture of the Earth (and download it)

3. Scientific data
Successful payload operation

2. Telecommands
Reception and execution of remote order (from our GND STN)

1. Listen to the beacon
Correct system operation

0. Put it into orbit
Successful launch

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What's going on the world…

- Cubesat has been the first artificial satellite of many countries
  - Colombia, Switzerland, Hungary, Poland, Romania, Austria, Ecuador, Estonia, Perú, Lithuania, Belgium, Finland, Ghana, Slovakia

(Source: project's web pages - wikipedia)

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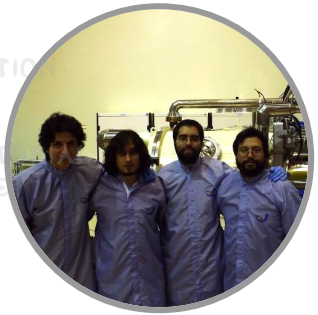
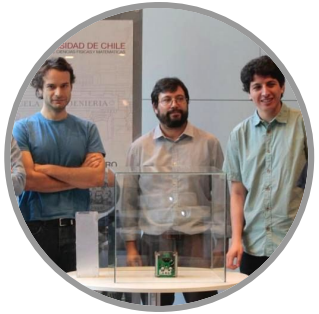
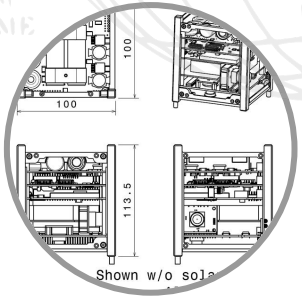
Timeline

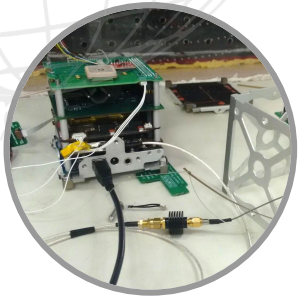




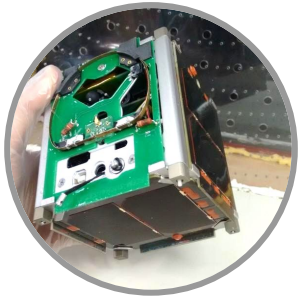
2009



2011



2013



2014

2016

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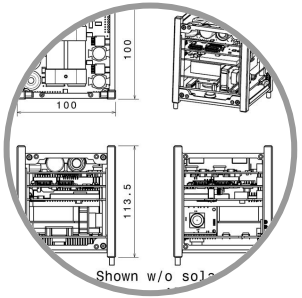
Beginning of the project

2010



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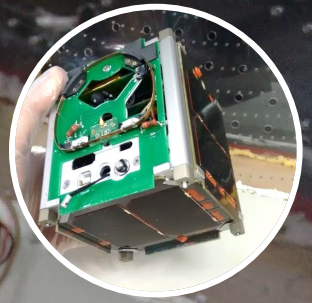
Last 10%...

2014



Final stages

2015

2016

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Sociedad
Tendencias

Primer satélite hecho en Chile será lanzado al espacio desde la India esta semana

- Este viernes, el Sochal I será puesto en órbita desde Centro Espacial Satish Dhawan.
- Se trata de un nanosatélite construido por investigadores de la U. de Chile.

Avisos Clasificados

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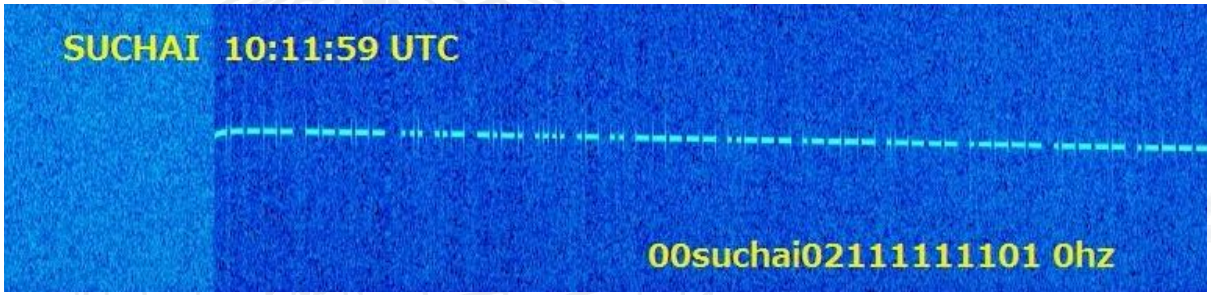

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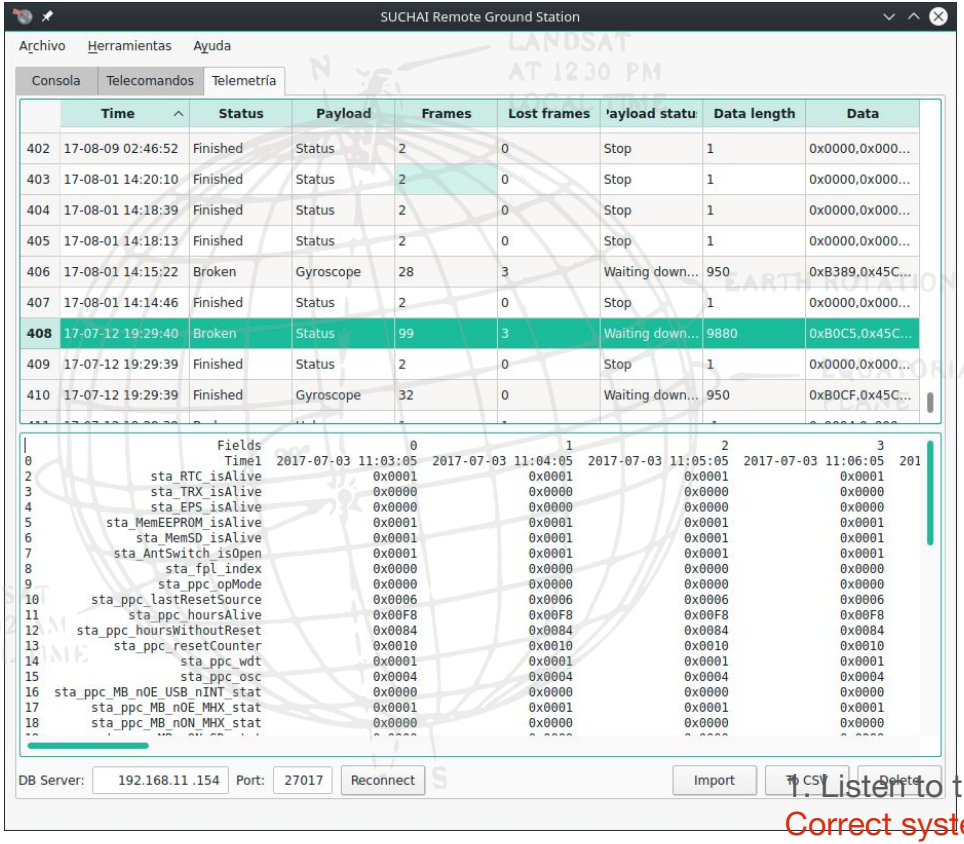

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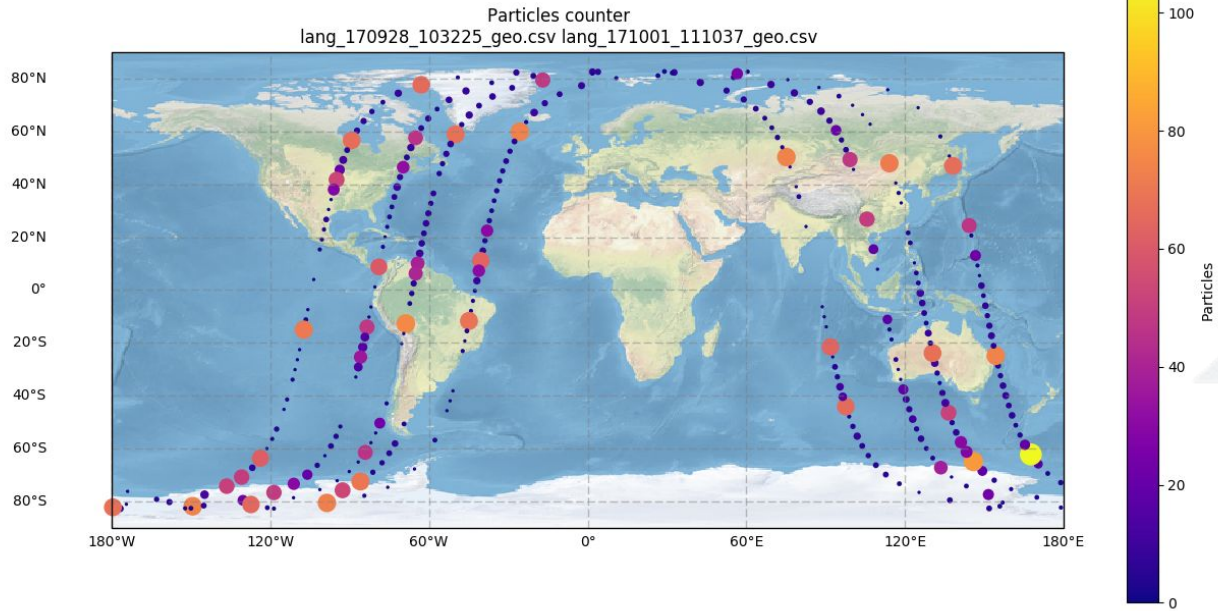

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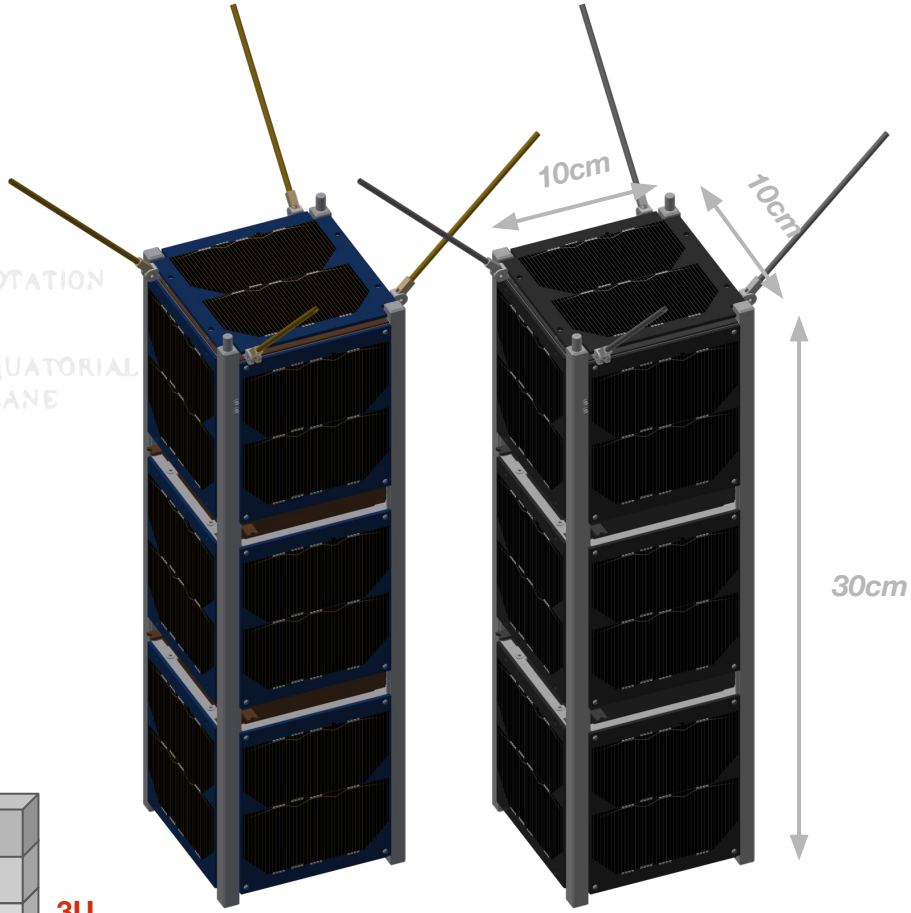
SUCHAI 2 & 3

New generation of satellites
for scientific purposes
(2 x 3U Cubesats)

x2 x3

x3



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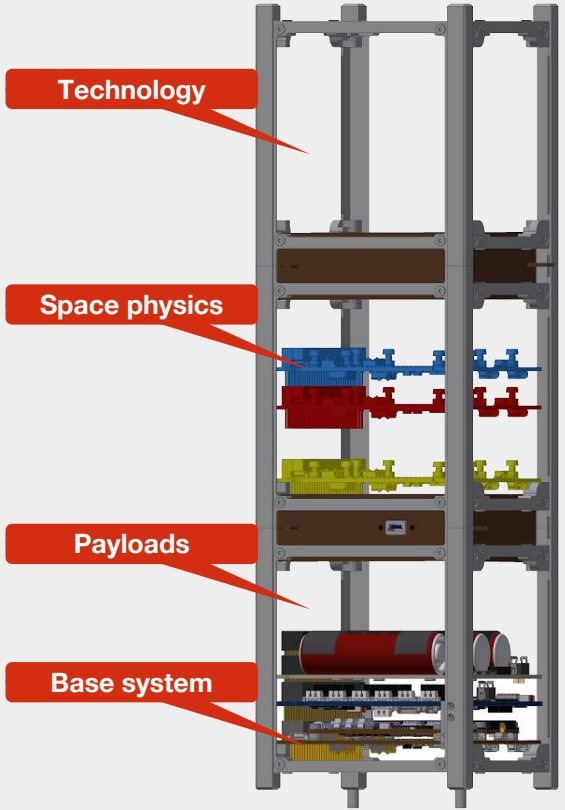
Payloads

- **Space physics**
  - Langmuir Probe
  - Magnetometers
  - Double band GPS
  - Femto satellite networks
  - Microgravity experiments
- **Technology**
  - Flight software
  - Failure forecast and detection
  - Passive thermal systems
  - Constellations
  - 60 GHz communication (ISL)
  - Positioning and star trackers
  - *Propulsion*
  - *Deorbiting system*



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What we learnt (not so technical)

- Cubesat democratized the access to space and we benefited from that
- Cooperation is key to success.
- To fail is part of the process and we need to learn to fail.
- There's no better way to train engineers than a hands on project
- A Cubesat is small, resource-limited platform but after all, is a KICK OFF for something bigger if there's a good continuation plan.
- We are conscious that space is a global resource therefore we have to be careful about using it.

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