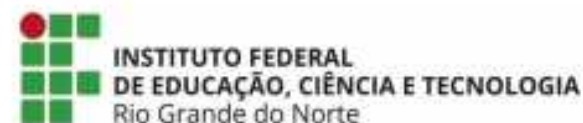


Fostering Environmental Data Collection with GOLDS Constellation

Fátima Mattiello-Francisco, Manoel Carvalho, Marcos Santos, Giuliani Garbi
Head of INPE's Regional Centers

UN/Brazil Symposium on Basic Space Technology
"Creating Novel Opportunities with Small Satellite Space Missions"

NATAL, BRAZIL
11 - 14 SEPTEMBER 2018

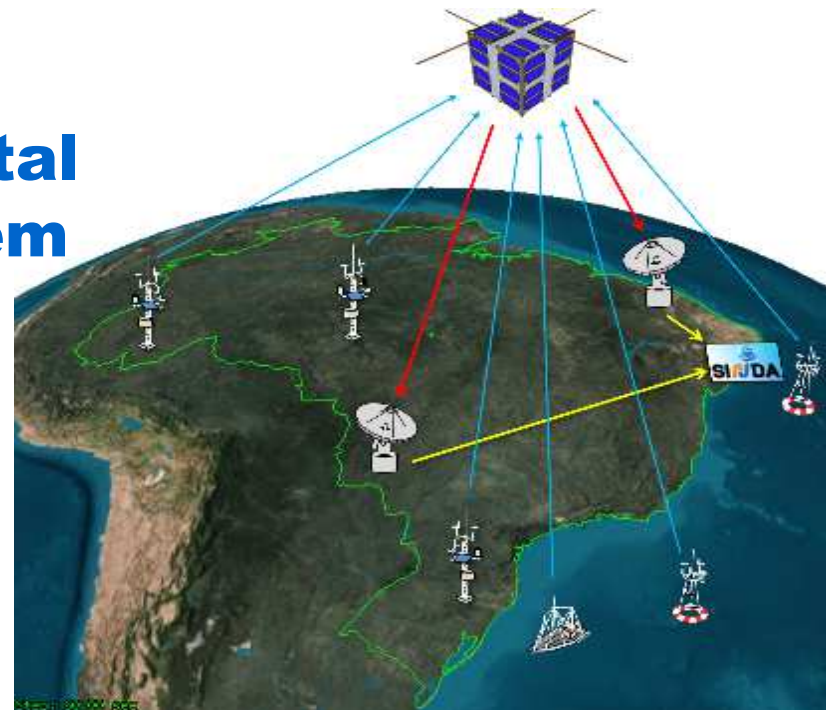




What is GOLDS?

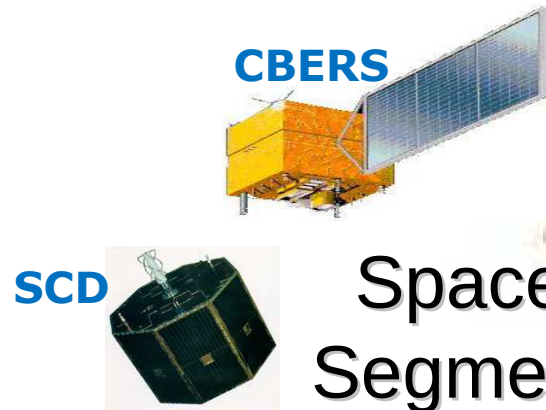
- ⌘ A collaborative Cubesat constellation-based for environmental data collection
- ⌘ Joint initiatives on the modernization of the **local data collection system**

Brazilian Environmental Data Collection System (BEDCS)





Brazilian Environmental Data Collection System



Space Segment

Ground Segment

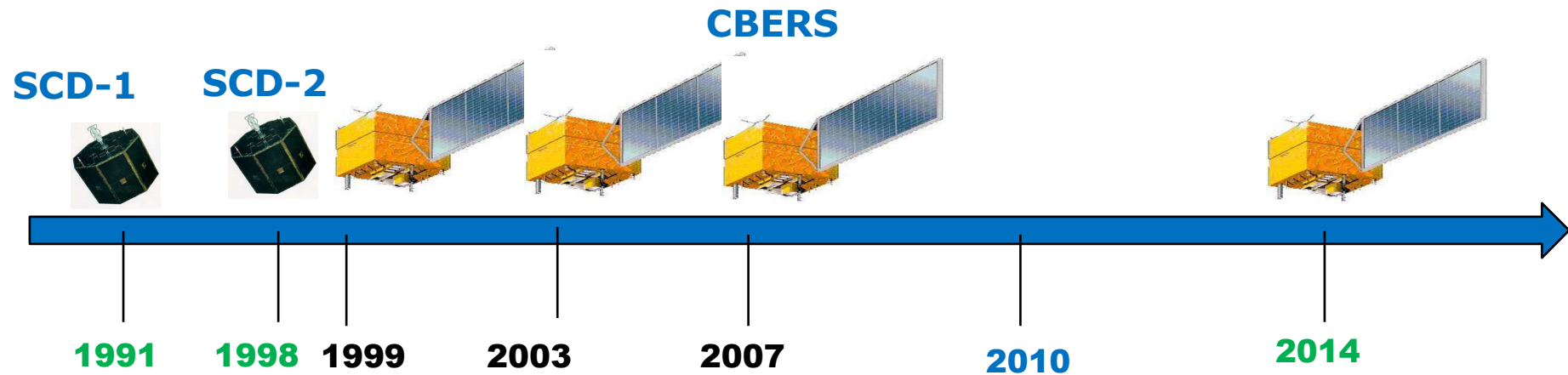
User Segment

Data Collection Platform (DCPs)





Space segment timeline



Analogic

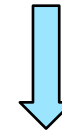
3,8 Kg

256 x 210 x 105



**Data Collection
Transponder**

**CubeSat
standard**



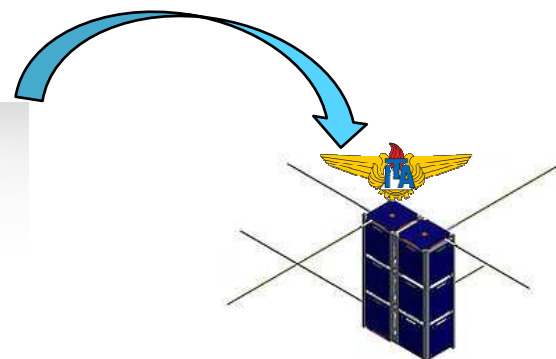
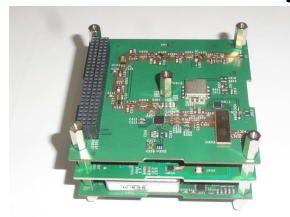
Motivation

- ⌘ acquire capacity
- ⌘ miniaturize DCT
- ⌘ keep the service at low cost
- ⌘ open BEDCS for R&D

NanosatLAB



Data Collection Transponder payload



2010

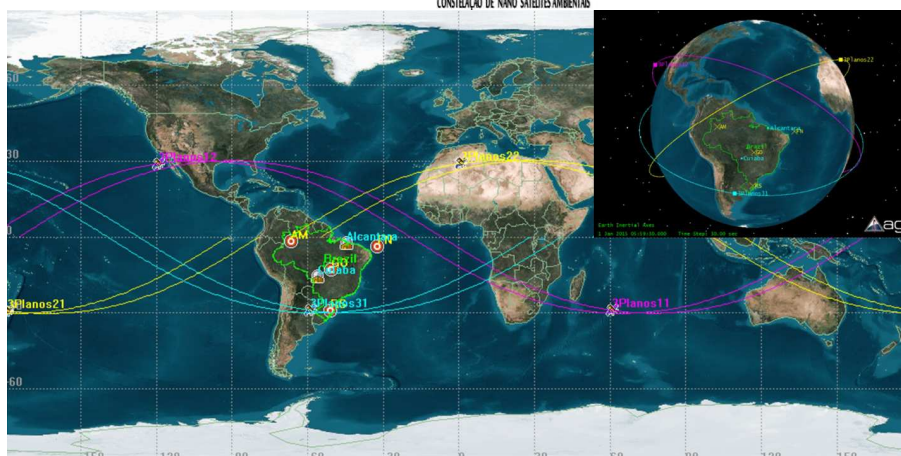
2012



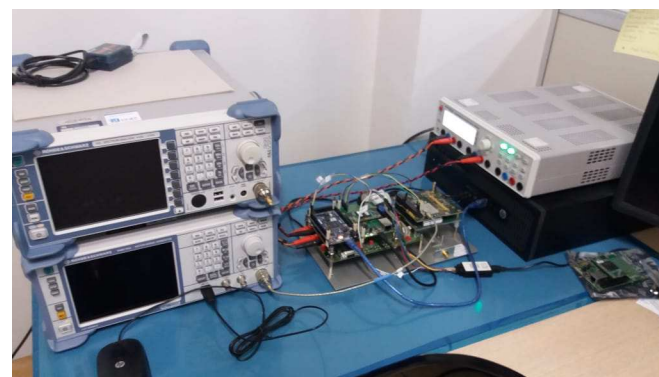
CONASAT
CONSTITUIÇÃO DE NANO SATELITES AMBIENTAIS

2014

2018



Nanosatellite constellation

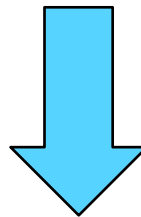


Data Collection Decoder payload



Considering...

- ⌘ Data Collection Decoder has been developed for Cubesat
- ⌘ A constellation carrying the decoder as payload is necessary to cope with DCP revisit
- ⌘ The nanosatellite orbit in the constellation cannot be precisely defined in a well established formation flight
- ⌘ Short lifetime requires replacement
- ⌘



Collaboration is a MUST



Global Open Collecting Data System GOLDS

- ⌘ A collaborative Cubesat constellation-based for environmental monitoring
- ⌘ How should it work???

Scenario:

- user application: using DCP network, data storage and access that properly meets **user business**
- space infrastructure: keeping the constellation alive with the addition of new Cubesat mission, which carries the **DC decoder** as one payload.



GOLDS...

- ⌘ Provide data for scientists, government institutions and private companies in the country
- ⌘ Useful in different applications: weather forecasting, studies of ocean currents, tides, atmospheric chemistry, agricultural planning, monitoring of the watershed, river and rain gauge data, monitoring fishing vessel route, among others
- ⌘ Open several possibilities for business and science cooperation in space applications



Think about...

e-mail: fatima.mattiello@inpe.br