



MINISTÉRIO DA CIÊNCIA E TECNOLOGIA  
**INSTITUTO NACIONAL DE PESQUISAS ESPACIAIS**

# INPE

## Agency Report



# Outline

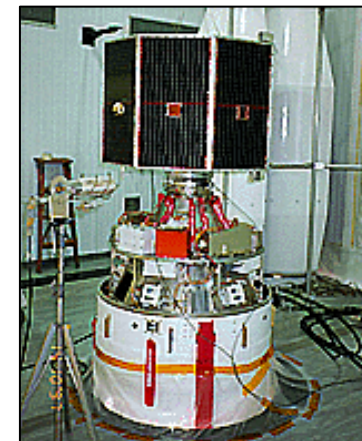
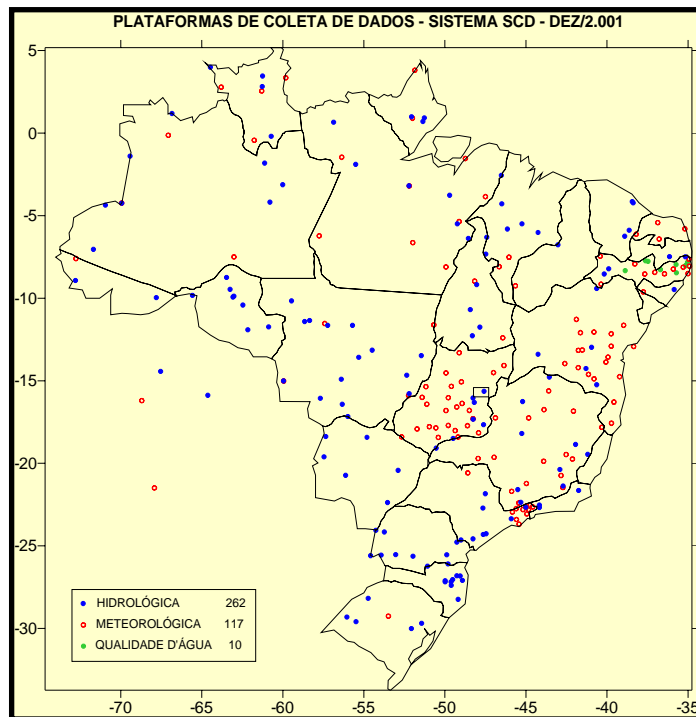
- Satellites
- Planned INPE's Launching Schedule
- INPE's Facilities and Satellite Reception Station



# ■ INPE SATELLITES

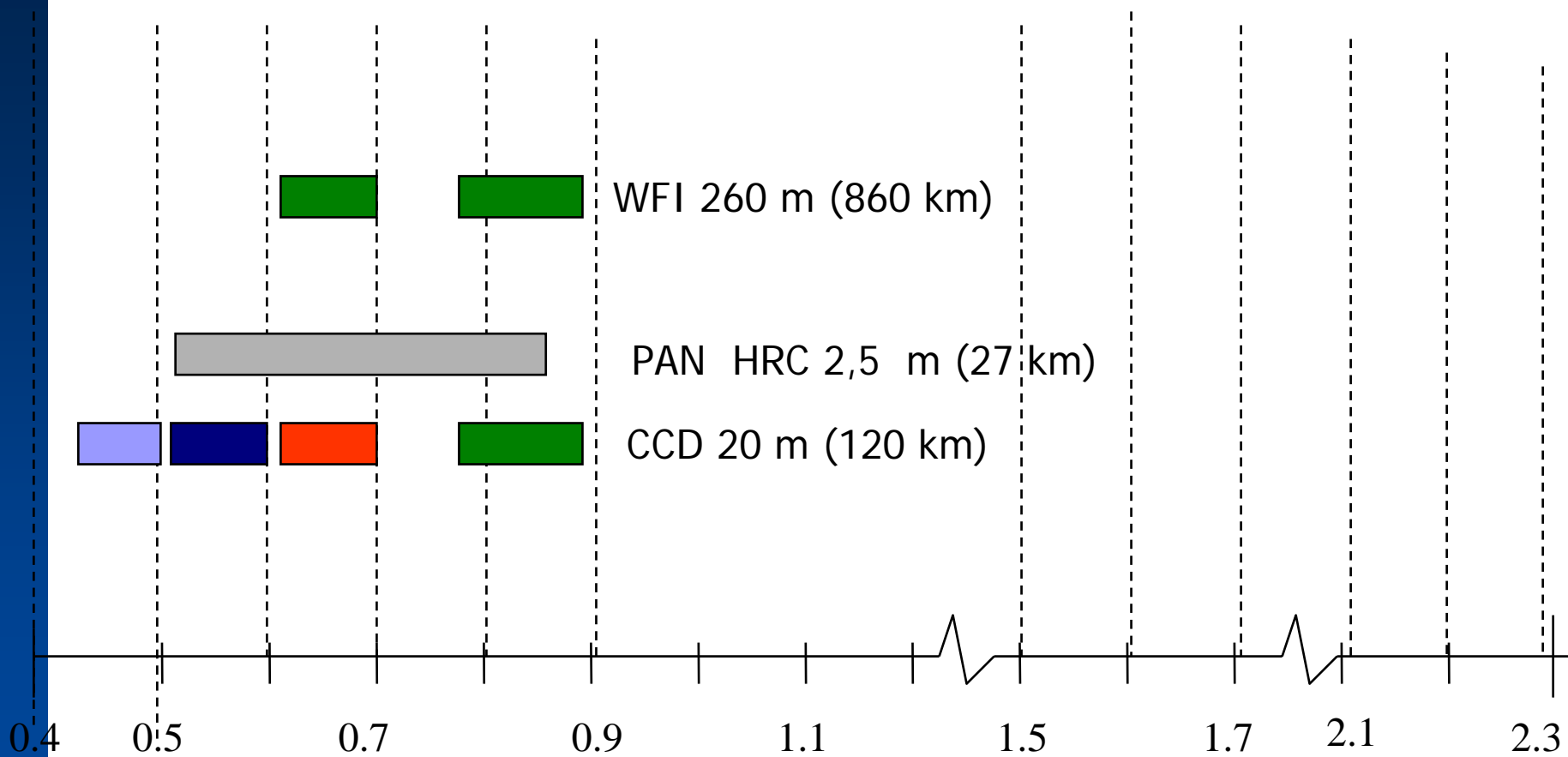
# Data Collecting Satellites – SCD 1 & SCD 2

The satellites SCD 1 & SCD 2 operate the Brazilian Data Collecting System – for collecting environmental data through data collecting platforms scattered around the country.





# CBERS-2B Sensor Configuration



Successfully launched 19 September

# Assembly of CBERS-2B at INPE





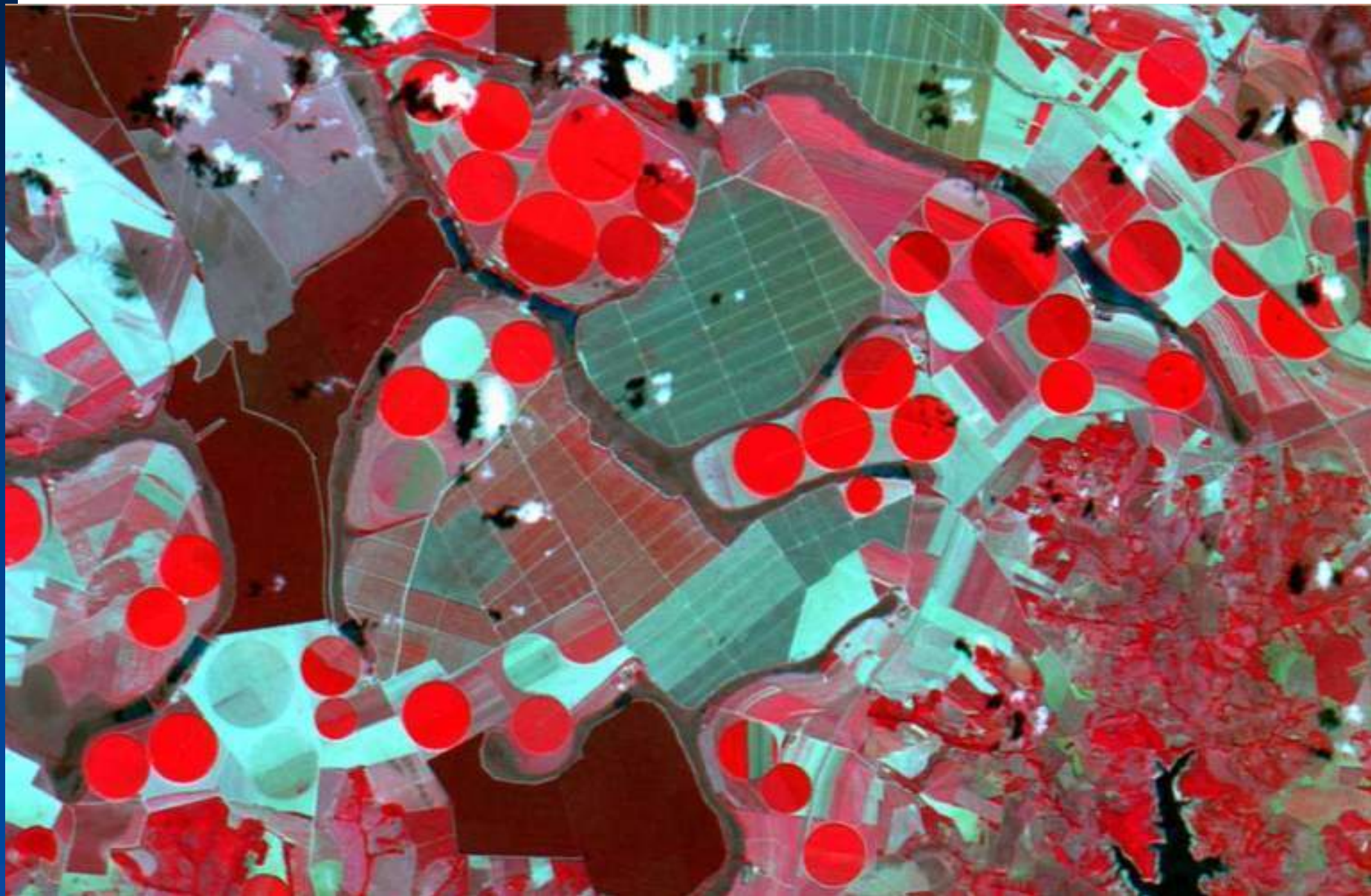
## Distribution of CBERS Imagery (01/05/04 a 01/03/06)

Number of scenes distributed (145 Mb/image)	300.000
Institutions	5.200
Scenes per week	2.170
Average required time	10 min

- **Brasil and China agreed to grant a no-access fee of CBERS2-B to African countries (direct downlink, real time).**
- **South Africa and Spain will use their ground stations to receive, process and distribute CBERS data.**



# CBERS-2 CCD, Minas Gerais, Brazil



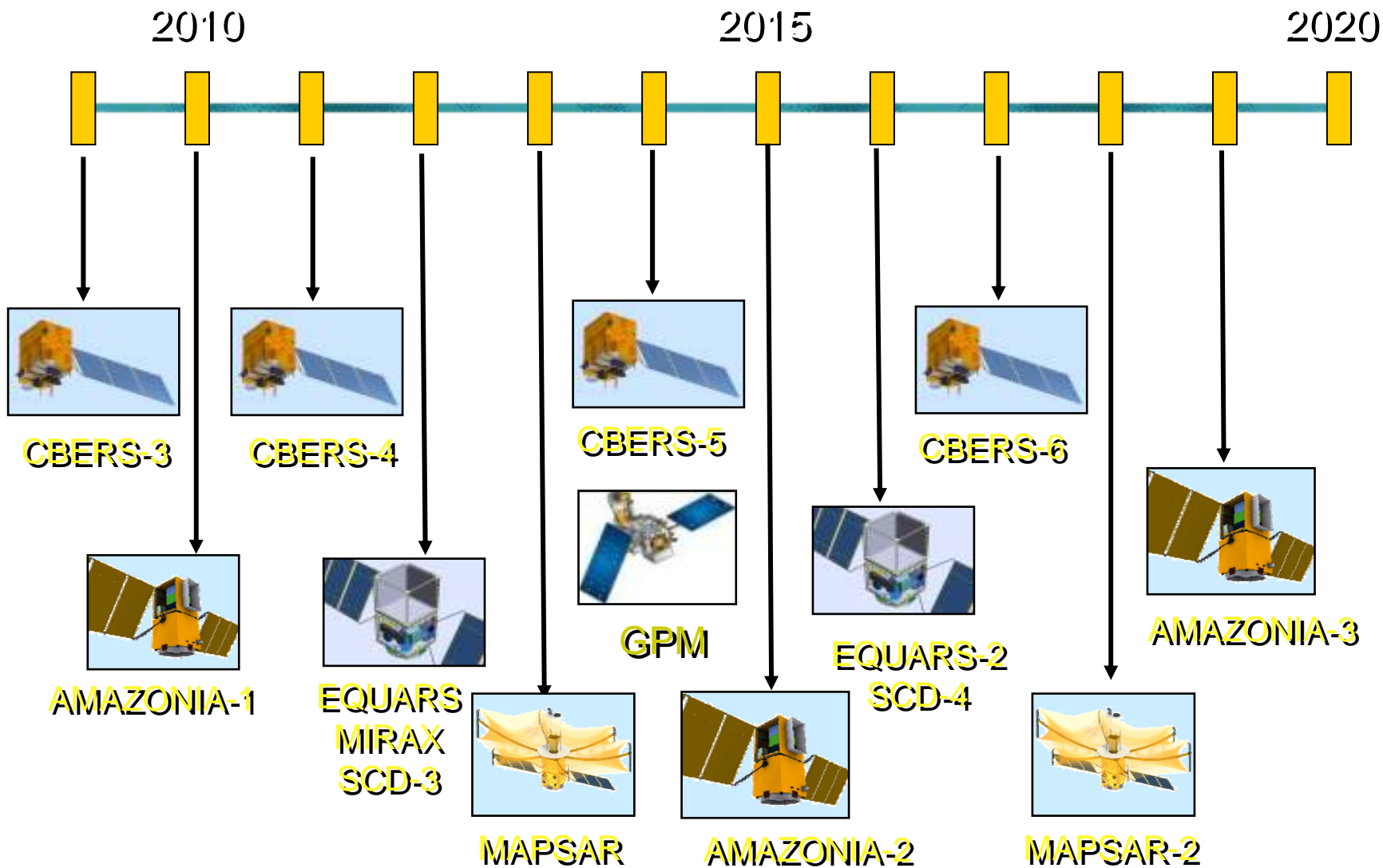




# ■ Planned INPE's Launching Schedule

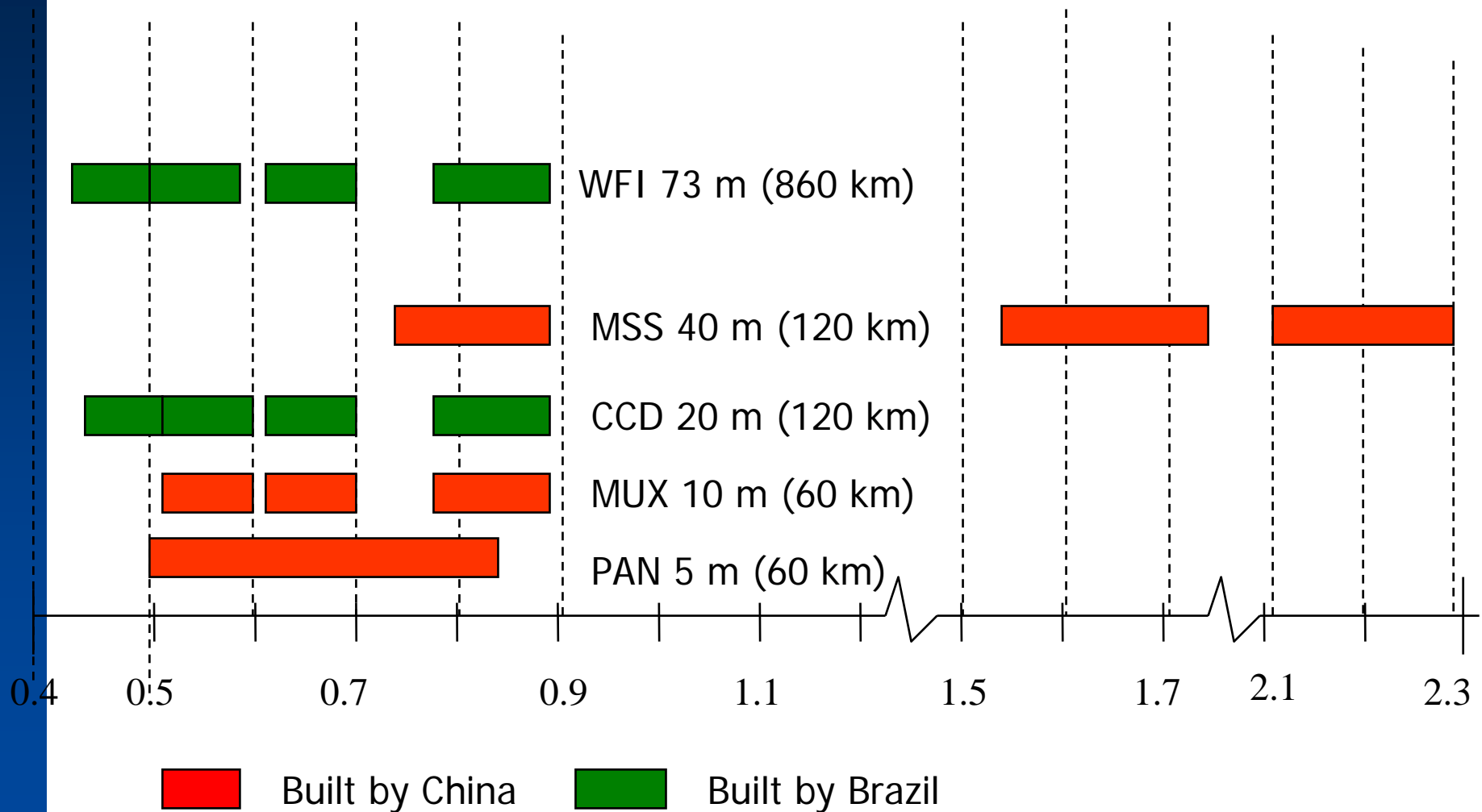


# PLANNED INPE's LAUNCHING SCHEDULE



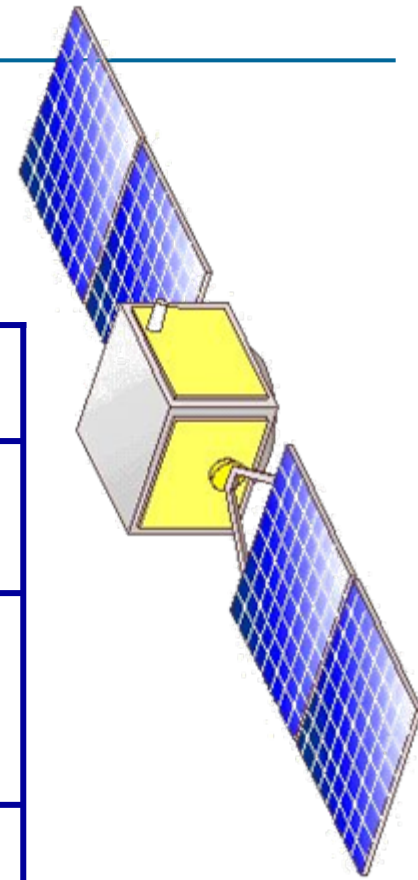


# CBERS 3 – 4 Sensor Configuration



μm

# Multi-Mission Platform



Mass	185 Kg
Power Consumption	150W
Available power for the payload	180W (80W during eclipse)
Orbit inclination	0 a 90
Orbit altitude	400 Km a 1500 Km
Stabilisation	3 axis

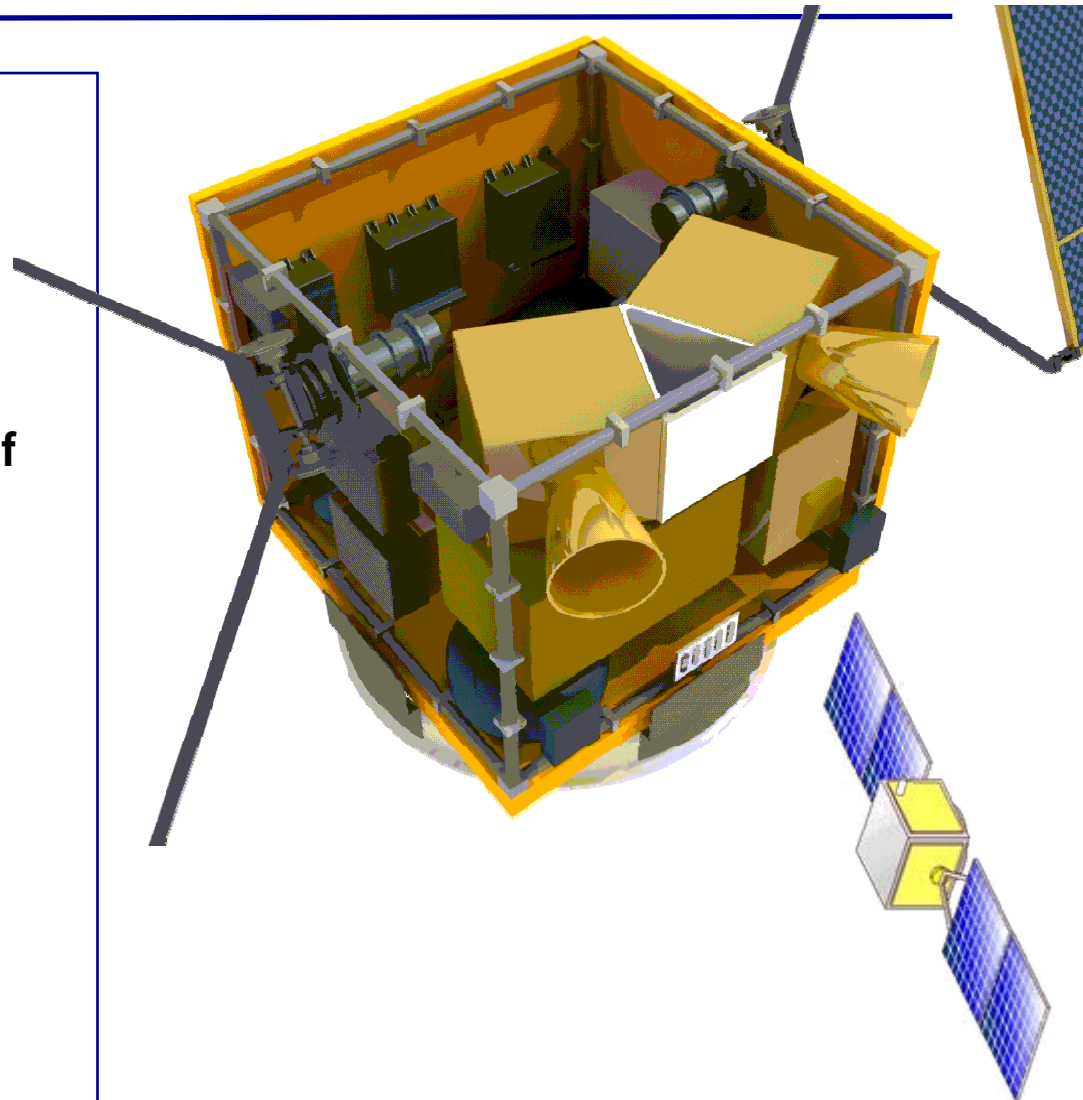
# Remote Sensing Satellite – AMAZON 1

- **PMM equipped with CCD camera and a data collecting transponder.**

- **Polar orbit.**

- **Main applications:**

- **Agriculture – Surveying of cultivated areas and productivity estimates;**
- **Water resources – monitoring of pollution in coastal areas;**
- **Disaster management.**





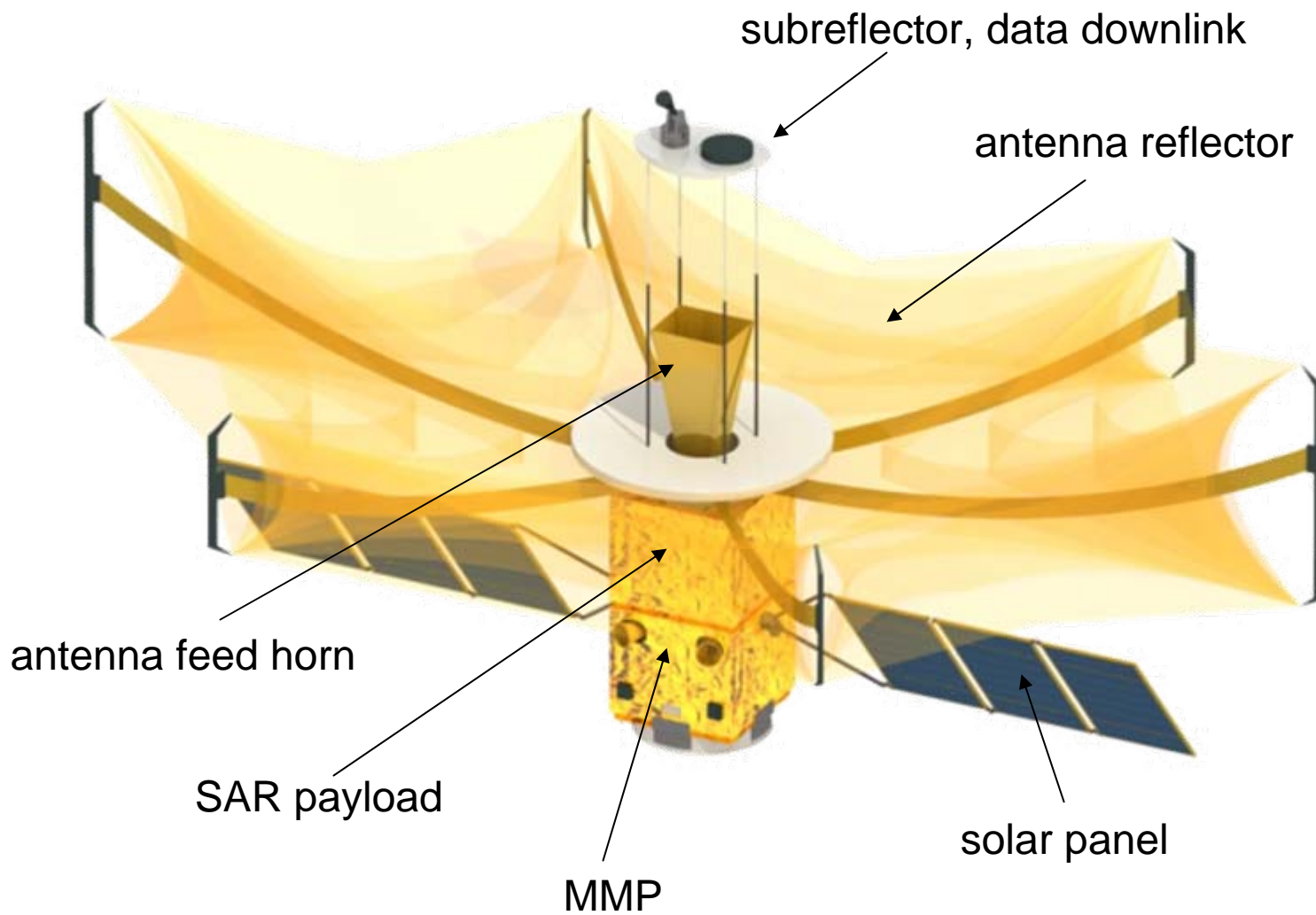


# AMAZON-1 optical payload

	<b>AWFI</b>
<b>Spectral bands (<math>\mu\text{m}</math>)</b>	<b>0,45-0,52 B</b> <b>0,52-0,59 G</b> <b>0,63-0,69 R</b> <b>0,77-0,89 NIR</b>
<b>Spatial resolution (m)</b>	<b>40</b>
<b>Swath (km)</b>	<b>800</b>
<b>Revisit period (days)</b>	<b>5</b>



# MAPSAR



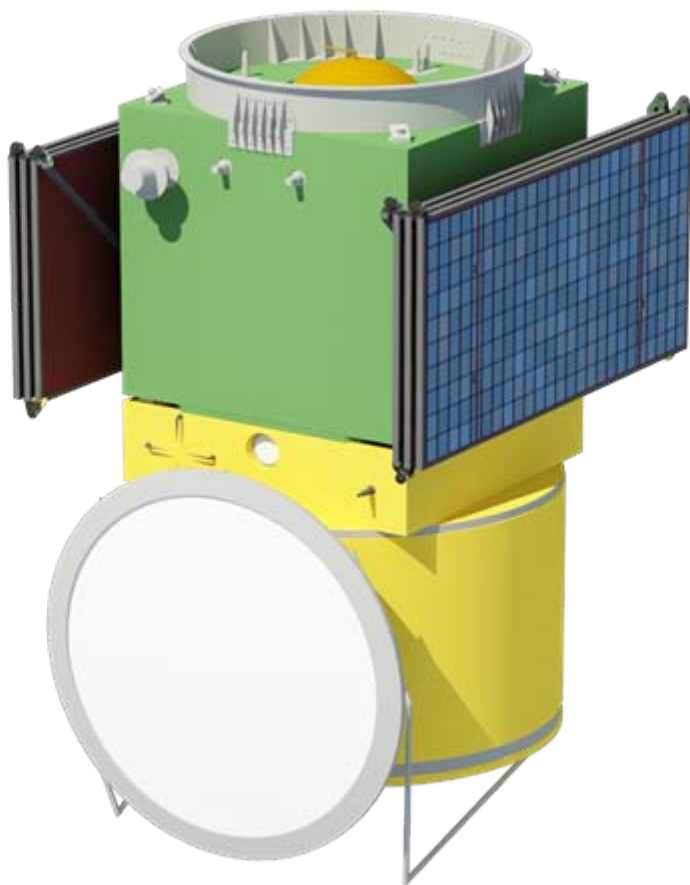


# MAPSAR payload

## Parameters

<b>Frequency</b>	<b>L band</b>
<b>Polarization</b>	<b>single, dual and quad polarization</b>
<b>Incidence interval</b>	<b>20° – 45°</b>
<b>Spatial resolution</b>	<b>3 – 20 m</b>
<b>Swath</b>	<b>20 – 55 km</b>
<b>Orbit</b>	<b>sun-synchronous</b>
<b>Coverage</b>	<b>global</b>
<b>Look direction</b>	<b>ascending/descending and left/right</b>
<b>Revisit period</b>	<b>weekly</b>
<b>Access to data</b>	<b>near real time</b>
<b>Add. requirements</b>	<b>Interferometry and stereoscopy</b>

# GPM-Tropical



**LAUNCHING  
CONFIGURATION**

**LIGHTNING DETECTOR**

**MICROWAVE RADIOMETER**

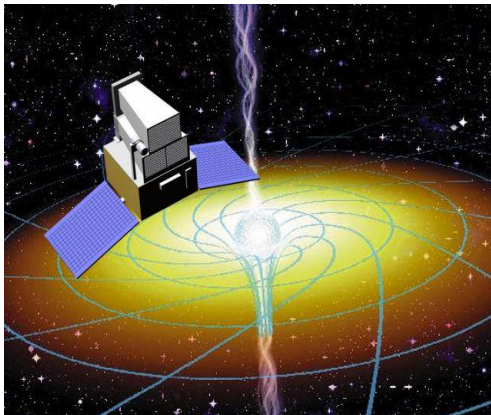


# Proposed GPM-Tropical - Satellite

- Passive Microwave Sensor, Conical Scanning of the type of GMI or MASDRAS
- Lighting Detector
- Equatorial orbit

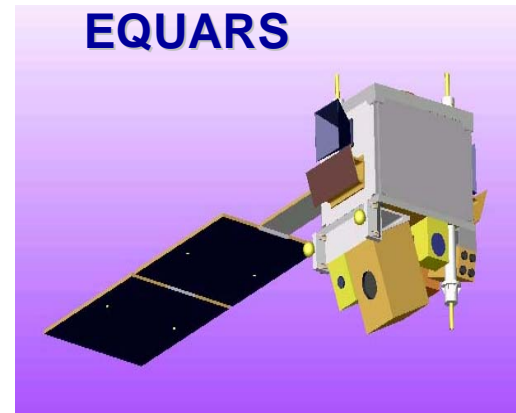


## MIRAX



**Monitoring of the nucleus of our Galaxy in the X-ray region of the spectrum.**

## EQUARS

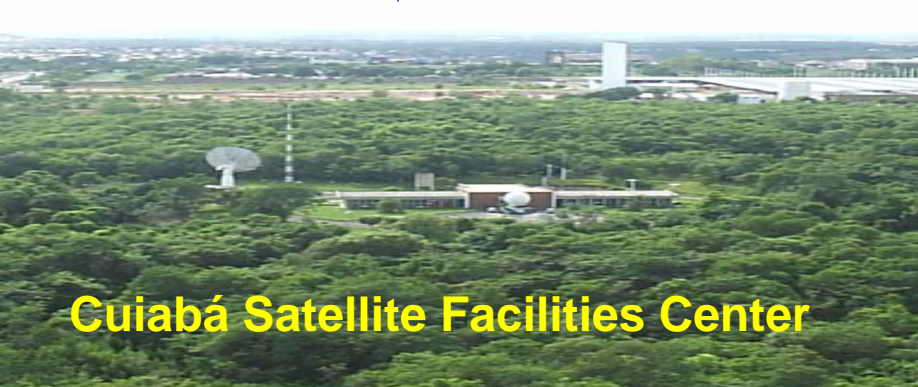
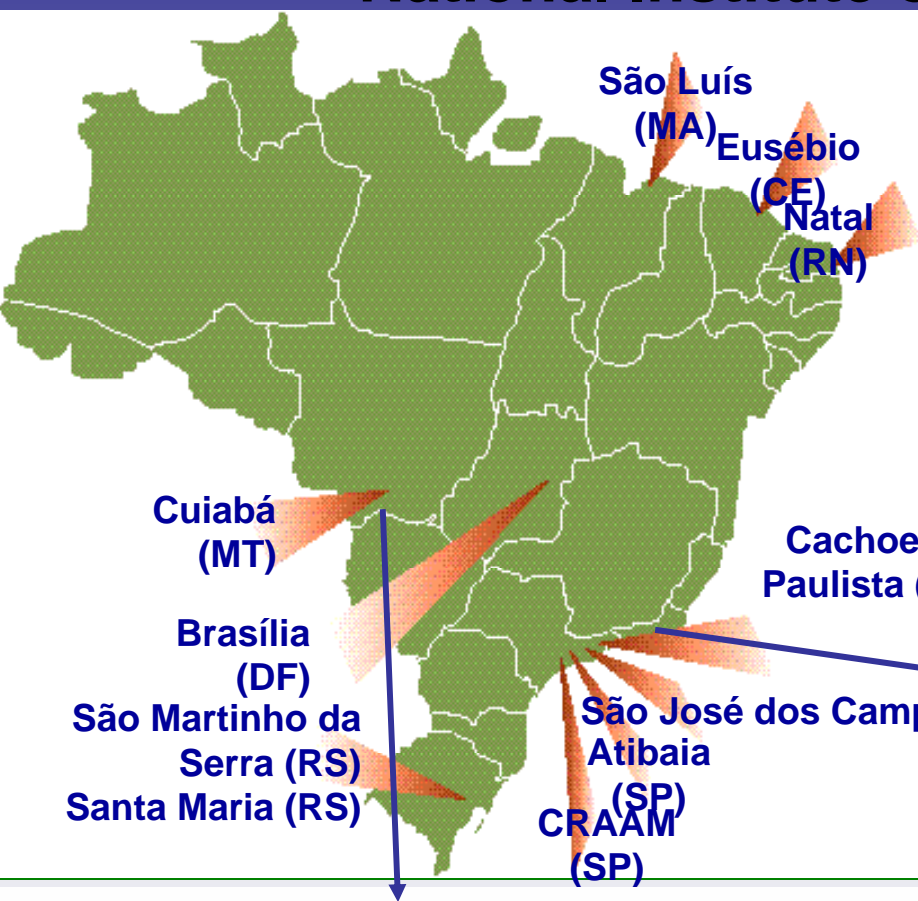


**Monitoring of the Atmosphere and Ionosphere in the Equatorial Region**



# ■ INPE's Facilities and Satellite Reception Station and Products

# Ministry of Science and Technology- MCT National Institute of Space Research - INPE





# INPE Satellite Reception Stations



**NOAA/HRPT**



**AQUA-MODIS/AIRS/AMSU/AMSR**

**TERRA-MODIS**

**EUMETCast/**

**MSG -HRIT SEVIRI**

**— CUIABÁ**  
**— CACH. PAULISTA**



**NOAA/  
HRPT**



**NOAA/  
HRPT**



**Geonetcast**



**GOES/  
GVAR**

To be installed this year – ENVISAT and METOP



# Remote sensing Data and Products

**Satélites Meteorológicos - Mozilla Firefox**

Arquivo Editar Exibir Histórico Favoritos Ferramentas Ajuda

http://satelite.cptec.inpe.br/

Guia rápido Últimas notícias

Ministério da Ciência e Tecnologia

**Satélites Meteorológicos**

Divisão de Satélites e Sistemas Ambientais

Cptec Tempo Clima Previsões Numéricas Satélite Ondas Energias Dados Observacionais Pesquisa & Desenvolvimento Pós Graduação English

Produtos	
Aerossóis - <b>Novo</b>	
Atraso Zenital Troposférico	
Classificação de Nuvens	
Coleta de Dados	
Descargas Elétricas	
Índice de Vegetação (NDVI)	
Índice Ultravioleta	
Monitoramento de Secas	
Nevoeiros	
Produtos MODIS	
Precipitação Satélite	
Precipitação Radar	
Queimadas	
Radiação Solar e Terrestre	
Sist. Convectivos - Tempestades	
Sondagens da Atmosfera	
Temperatura de Brilho	
Temperatura da Superfície do Mar	
Temp. Superfície Continental - <b>Novo</b>	
Vento na Troposfera	

**Imagem GOES atualizada a cada 15min.**

IIPE/CPTEC/DSA IOAA CPTEC 200706042015

**Animação**  
Clique e visualize América do Sul ~500 Kb

América do Sul Centro Oeste Norte Nordeste Sudeste Sul

**SIGMA**  
Sistema de Informações Geográficas Aplicado ao Meio Ambiente.

Pesquisa & Desenvolvimento DSA

Validações e Informações - Produtos DSA

Equipe DSA

**GOES-10 + MSG 3/3hs**

**ATENÇÃO - Informações**

GOES-10 - Saiba mais

**Novidades**

Workshop Internacional de Satélites Meteorológicos para Usuários Sul-Americanos  
Laboratório Virtual para Treinamento em Satélite e Utilização de Dados  
Curso On-line - O Uso de Produtos de Satélite (GOES-10, MSG e NOAA) **Novo**

**Imagens de Satélites**

Animações	Atuais e anteriores
- GOES	- GOES
- MSG	- MSG
	- NOAA's
Atendimento	- AQUA/TERRA

**Aplicações**

Desastres Naturais Meteorologia para a Agricultura Saúde Meio e Ambiente OCEANO Tempo

**Produtos de destaque da Estação**

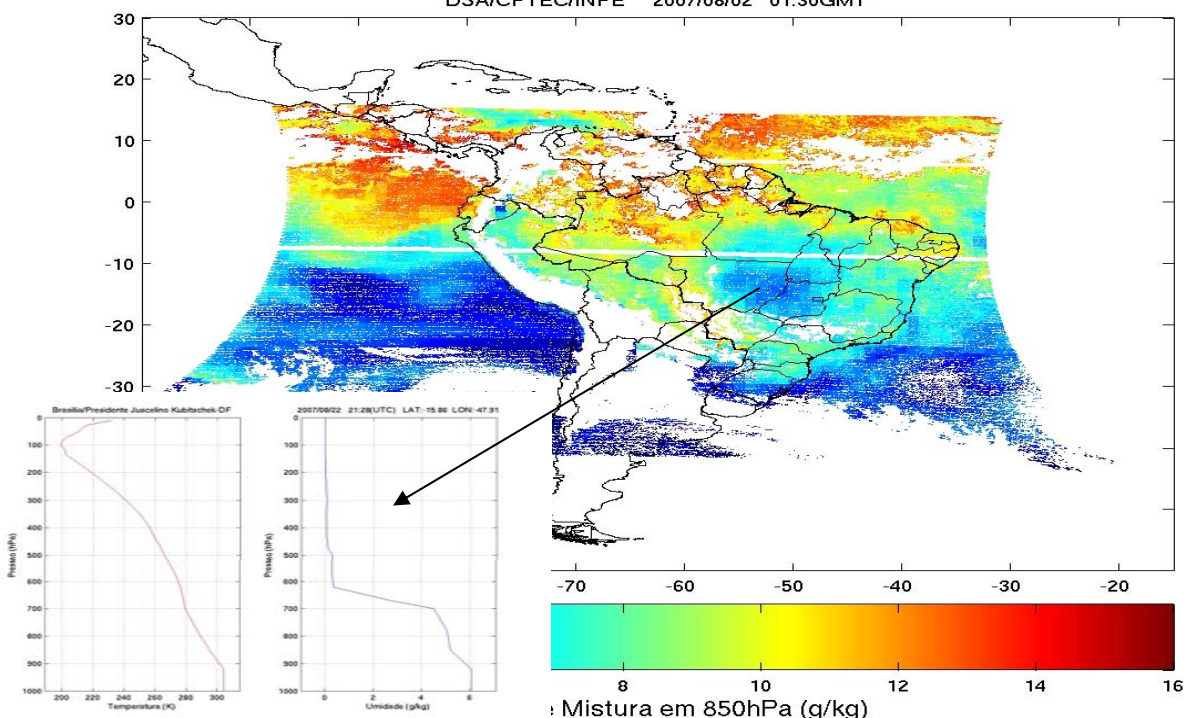
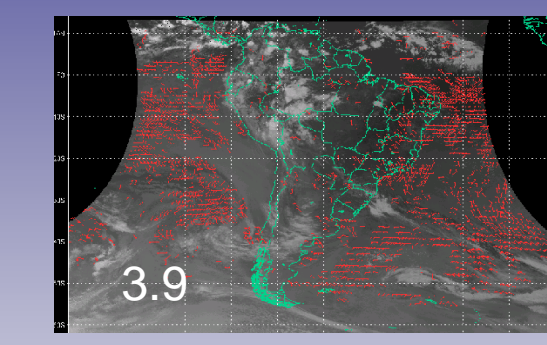
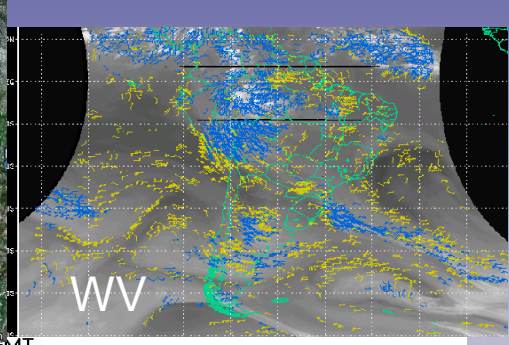
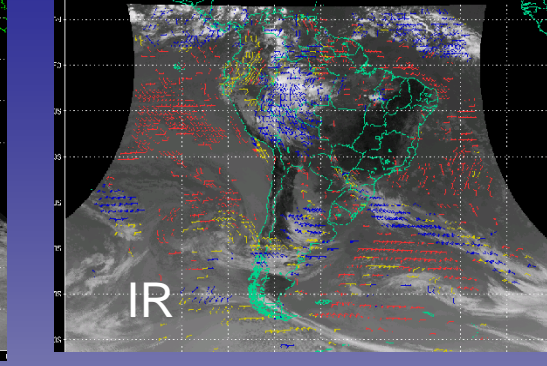
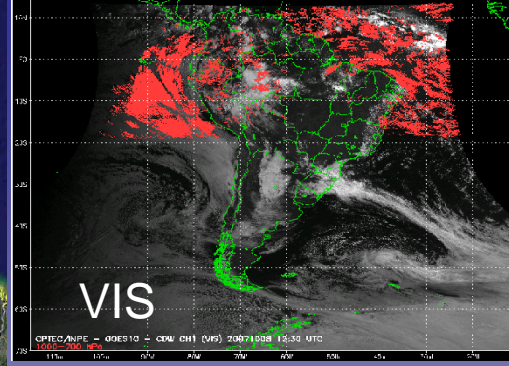
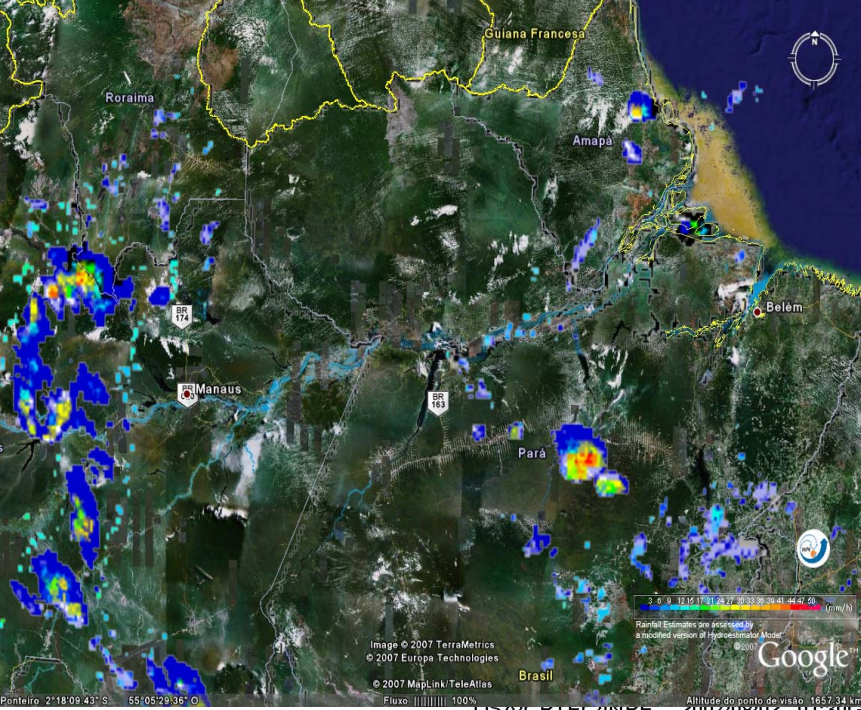
UV Descargas Elétricas Precipor Satélite Radiação Solar Vento

**Atenção:** Imagens no horário GMT

Operação-1 Webmail

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Comentários e/ou sugestões:  
satelite@cptec.inpe.br





# GOES-10 Products



Thank You

International TOVS Study Conference, 16<sup>th</sup>, ITSC-16, Angra dos Reis, Brazil, 7-13 May 2008.  
Madison, WI, University of Wisconsin-Madison, Space Science and Engineering Center,  
Cooperative Institute for Meteorological Satellite Studies, 2008.