



MINISTÉRIO DA CIÊNCIA E TECNOLOGIA
INSTITUTO NACIONAL DE PESQUISAS ESPACIAIS

Benefits of data sharing: The CBERS programme

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CBERS: China-Brazil Earth Resources Satellite

- **July 6th, 1988:** partnership agreement - INPE (The Brazilian National Space Research Institute) and CAST (Chinese Academy of Space Technology) for the development of **advanced remote sensing satellites**
- Three satellites have been launched since 1999; two more are currently under construction. CBERS data policy agreement considers that Brazil and China have autonomy to distribute data received by their respective ground stations according to their own rules.





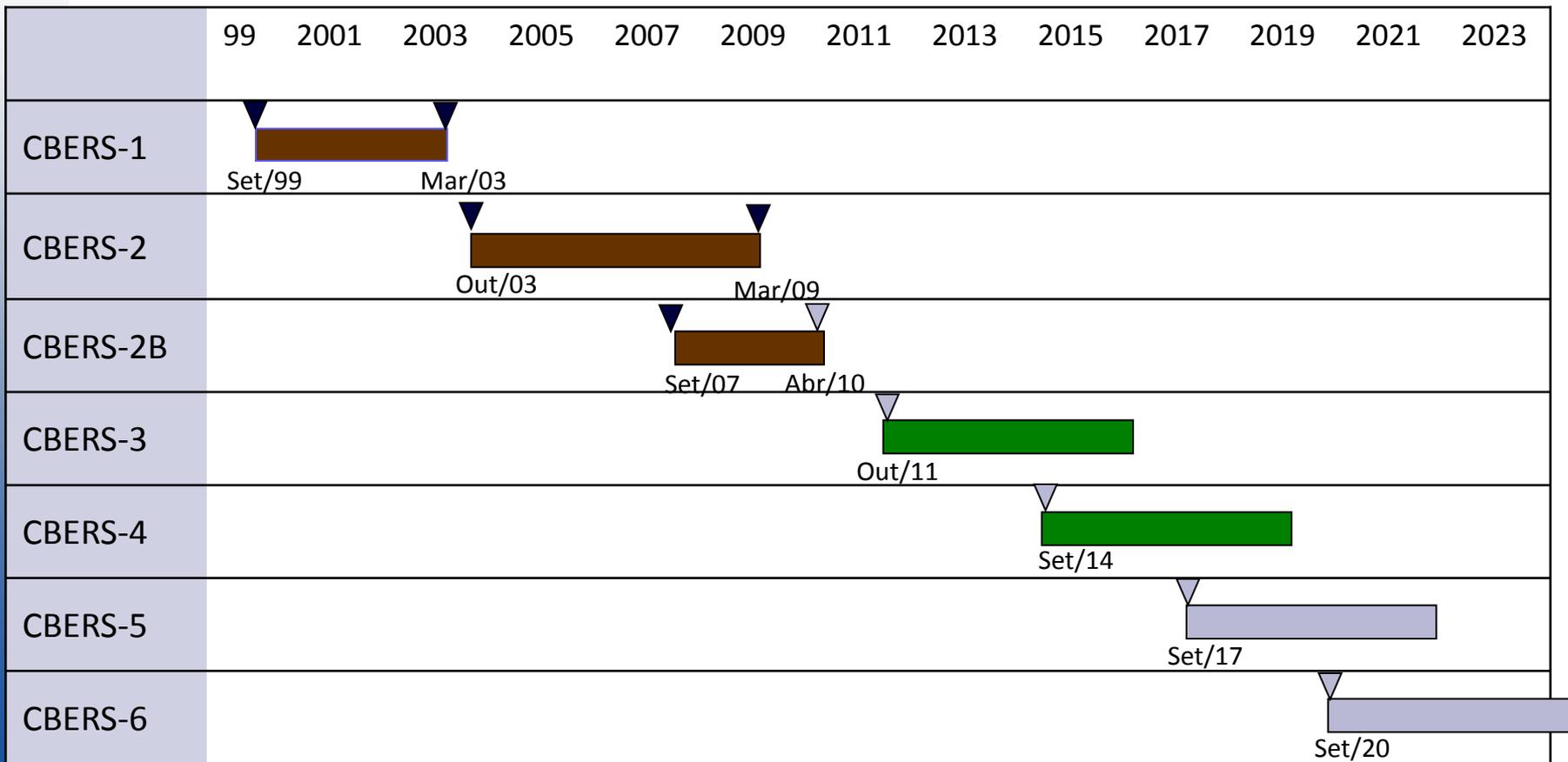
CBERS satellites produce global public goods



CBERS-2B Launch (19 September 2007)

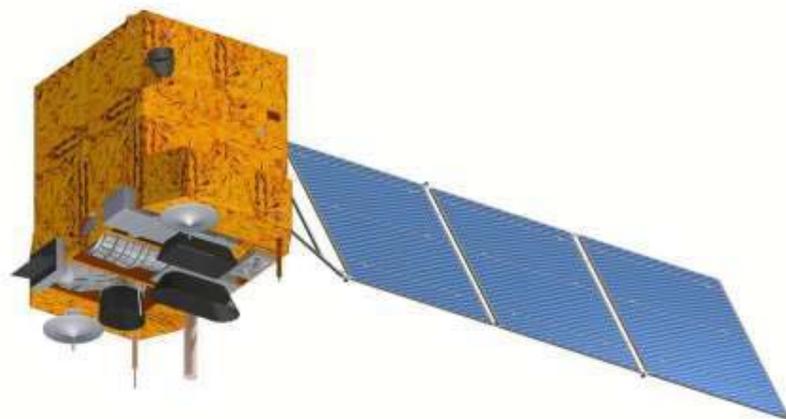


CBERS program timeline





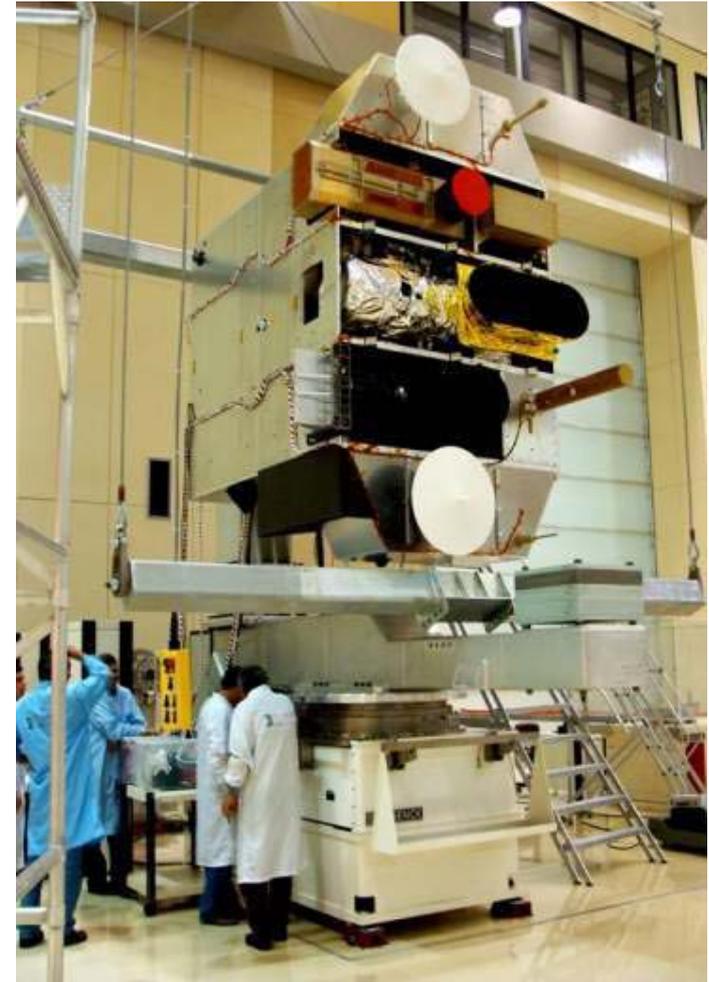
CBERS-3,4



A new generation of CBERS satellite: better instruments, longer lifetime



CBERS-3 Structural Model Tests (2008-2009)





CBERS-3 construction (2008-2010)



President Lula in Beijing inspecting CBERS-3 construction (20-05-2009)



Data Policy: previous situation...

Brazil used to charge users for each CBERS-1 image requested.

The user had to browse the images in a catalogue, choose those images he was interested in, fill in a request form, pay for the request and finally receive the images requested.

The number of CBERS-1 images sold was very low – **less than 1,000 images/year**. Even changes in price were ineffective to increase sales.



Data Policy: change in the situation

For CBERS-2 the policy changed to open and free access to the catalogue and to the full resolution images. A new catalogue and browse system was implemented.

Online registration: any user can browse the catalogue, choose as many images he wants, and download them for immediate use, with no bureaucracy and working on a simple and fast catalogue system.

CBERS Image Catalogue (Internet): access to all data

INPE Catálogo de Imagens

Cadastro Log In Carrinho Ajuda

Parâmetros Básicos

Satélite: CBERS 2

Instrumento: []

Intervalo de Tempo: Sazonal

De: 05 / 1999

Até: 05 / 2004

Cobertura de Nuvens Máxima: [] Q2 [] Q4

Click Look: Pequeno Grande

Município: [] Estado: []

Executar

Órbita: [] Ponto: []

Até: [] De: [] Até: []

Executar

Por Região: Norte: 10. Oeste: 90. Leste: 30. Sul: 40.

Executar

Interface Gráfica: Lat: 28.021 Lon: -54.936

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CB2CCD 162/131-2004-04-16	CB2IRM 162/131-2004-04-16	CB2CCD 162/131-2004-03-21	CB2IRM 162/131-2004-03-21
CB2CCD 162/131-2004-02-24	CB2IRM 162/131-2004-02-24	CB2CCD 162/131-2004-01-29	CB2IRM 162/131-2004-01-29
CB2CCD 162/131-2004-01-03	CB2IRM 162/131-2004-01-03	CB2CCD 162/131-2003-11-12	



Results Achieved

The distribution of CBERS data jumped to an astonishing **10,000 images/month**.

In the first year, more than 10,000 new users registered. Today, in Brazil, all the organizations linked to remote sensing, environment, agriculture etc. are CBERS users.

The same policy was adopted for CBERS-2B and will be adopted for CBERS-3 when it is launched.

More than 600,000 CBERS-2 and 2B images have already been distributed to over 35,000 users in more than 5,000 organizations.

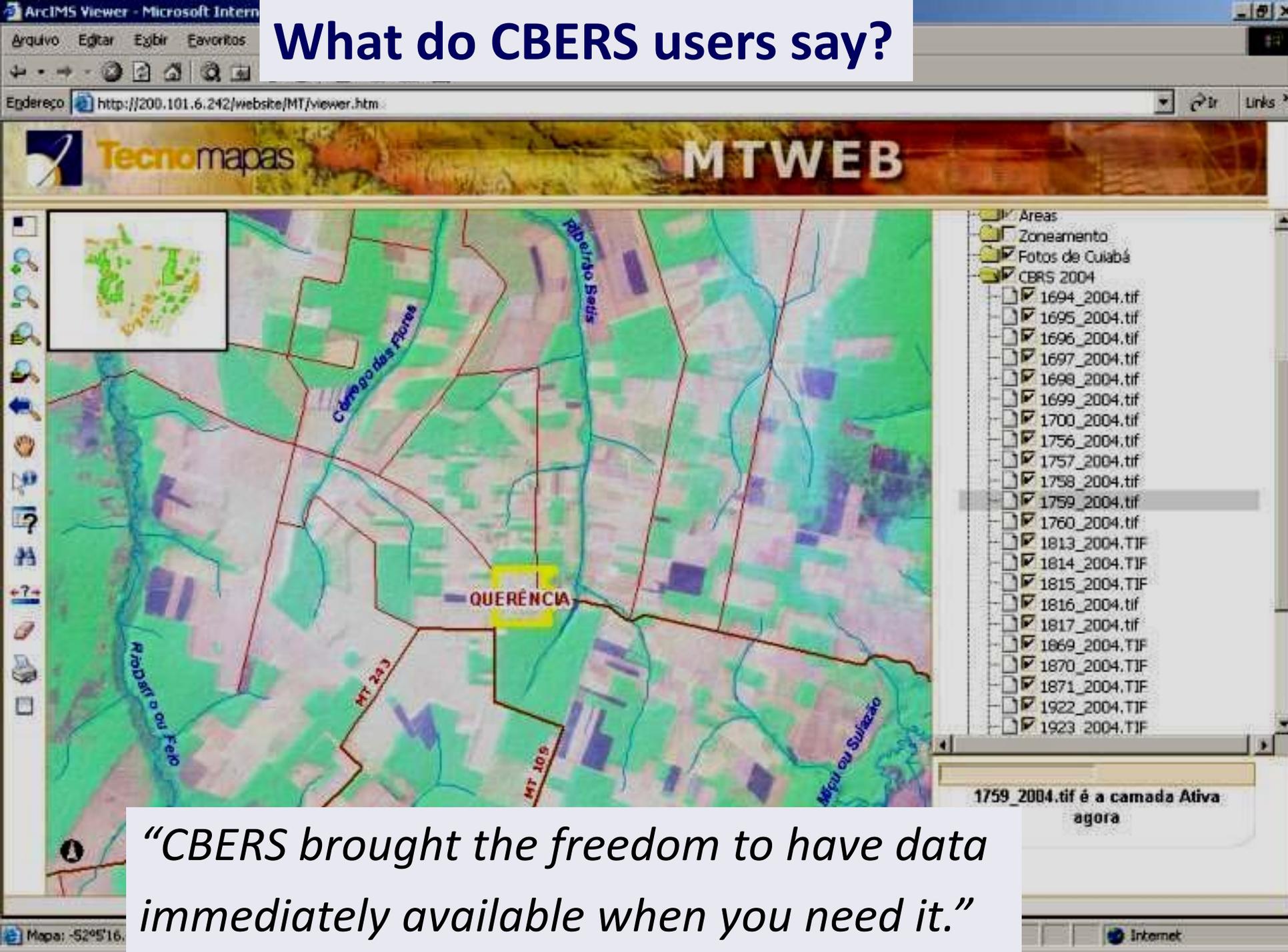
The same data policy has now been extended to neighboring countries under the footprint of the Cuiaba-Brazil ground station and for data acquired by CBERS around the world and archived at INPE's catalogue.



Benefits of change

- **Two surveys** have been conducted in order to measure the benefits of the policy of free access to CBERS data in Brazil.
- **More than 98% of the users agreed with the policy of open data access.**
 - Many new jobs were created
 - Increased number of projects, new small business, easy access to historical and current data, easy to make demonstration and proof-of-concept projects, etc.).
- **Impact in Education** - access remote sensing data.
 - More than 15% of papers presented in the last two Brazilian Remote Sensing Symposia used CBERS-2

What do CBERS users say?



“CBERS brought the freedom to have data immediately available when you need it.”

What do the private companies say about free CBERS data?

Enables new business development

Facilitates trial uses for new clients

Planning new applications becomes easier

Creates jobs by reducing cost of data buys

Increases quality by adding data previously unavailable



CBERS for Africa initiative

- Three countries have already signed agreements
 - South Africa (CSIR/SANSA), Spain (INTA), and Egypt (NARSS)
 - Hartebeeshoek has been recording raw data but there are issues in processing geometrically corrected data
 - Maspalomas became pre-operational in early September
 - Aswan is expected to begin operations soon.
- Gabon is working to set up a CBERS ground station
- Malindi, in Kenya, would complement coverage over Equatorial Africa



CBERS as a global satellite



CBERS ground stations will cover most of the Earth's land mass between 30°N and 30°S



The future of CBERS



CBERS satellites will provide information about global land change on the tropics



Thank you very much!

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