

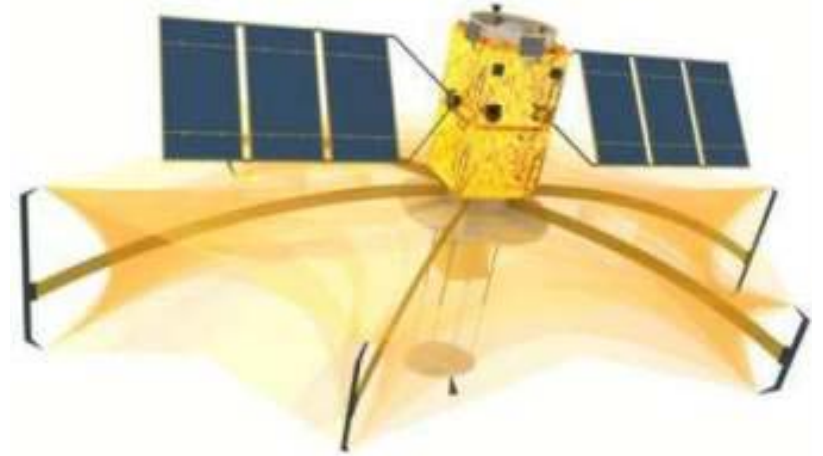


Opportunities of Studies in master and doctoral levels in the fields of GNSS at INPE

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INPE (National Institute for Space Research, Brazil) - MISSION



- To promote and evaluate research, technological development and human capability in the field of space activities and their applications.
- To contribute towards the country's scientific, technological and industrial development, monitor its agricultural and environmental resources and help to promote sustainable development and improvements to the population's quality of life.
- To develop, build, launch and operate the Brazilian satellites.

GETTING KNOWLEDGE FROM DATA

SATELLITES

Space missions for Earth observation, universe exploration and data communication



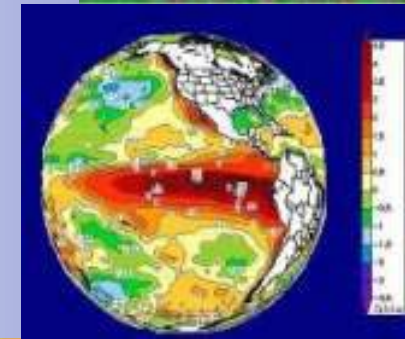
GROUND SYSTEMS

Control, reception, processing and distribution of space data



MATHEMATICAL MODELS

Space and Earth Science



KNOWLEDG ACCESS

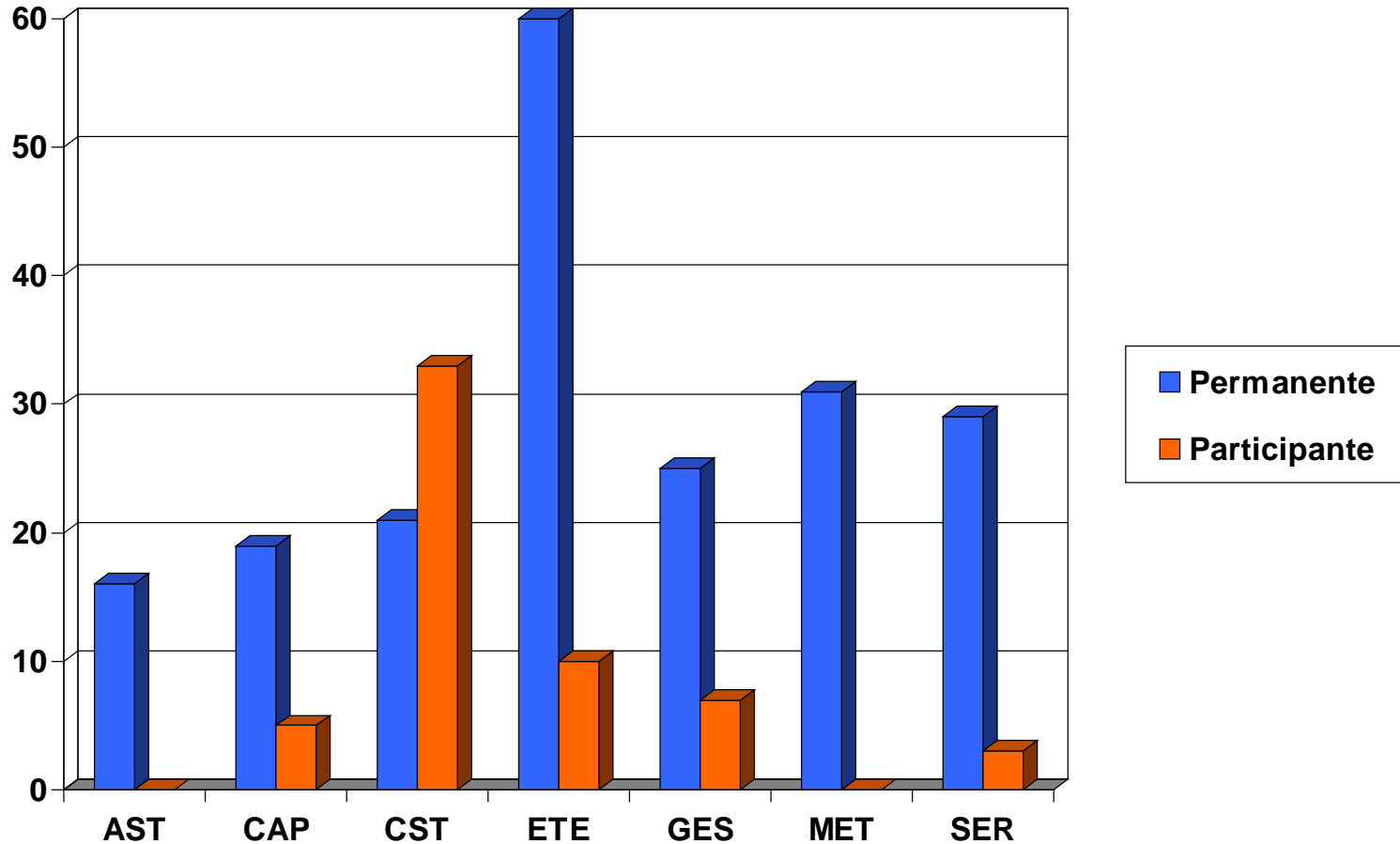
Make sensitive data available to the society



Graduate Program

- Astrophysics
- *Applied Mathematics and Computation*
 - High performance Computing
 - Computational Modeling
 - Information extraction, processing and analysis
- *Earth Science*
 - Integrated Earth system models
 - Studies of Impacts, Adaptation and Vulnerability
 - Technologies for Mitigation and Adaptation
 - Ecological Policy of Global Change and Regional Development
- Meteorology
- Remote Sensing
- Space Engineering and Technology
- Space Geophysics

Faculties 2015

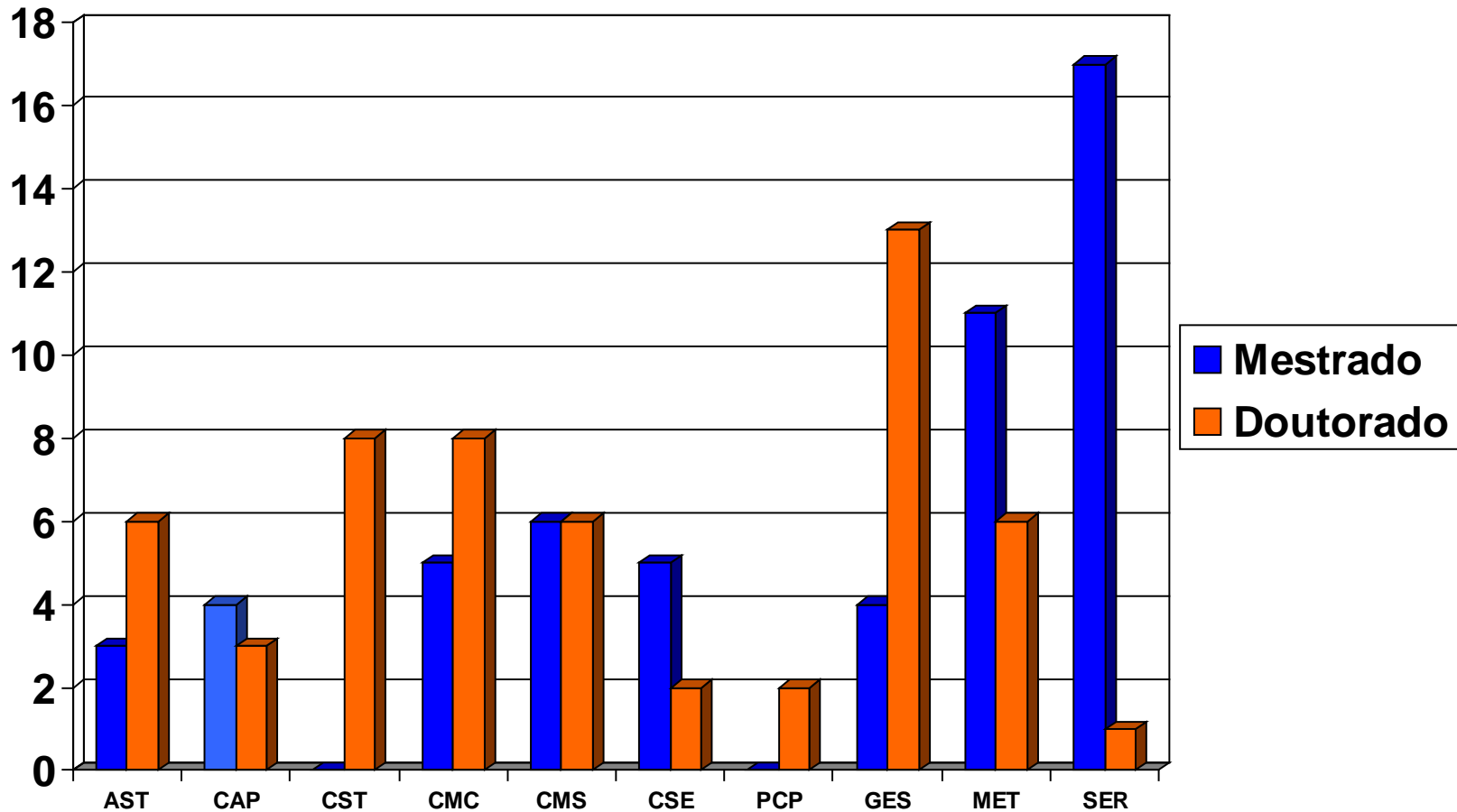


Permanents: 199

Participants: 66

Total : 265

Masters and Doctors Formed in 2015

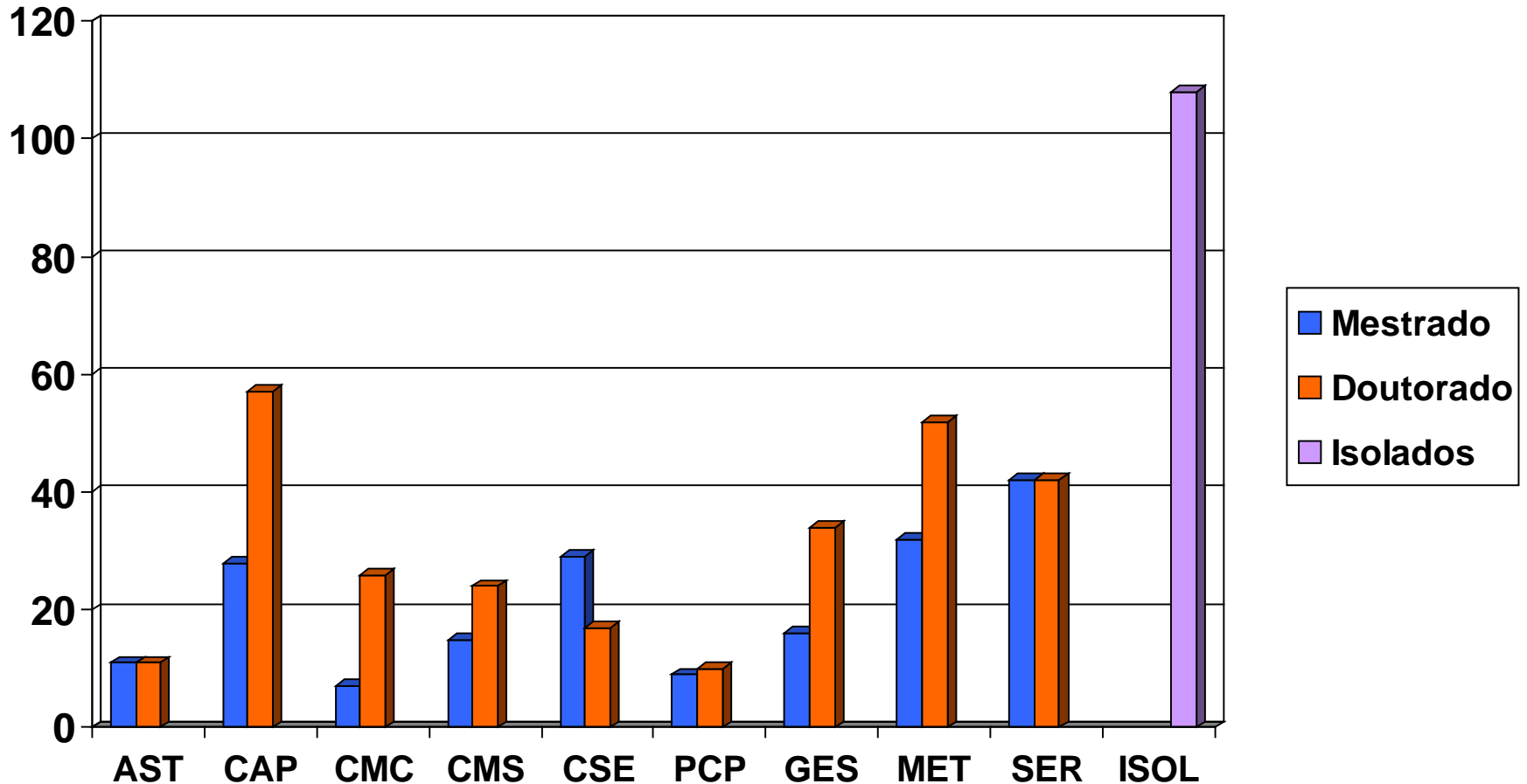


Masters: 55

Doctors: 55

Total: 110

Number of Students in Graduate Programs in 2015



Students in Master Program : 189

Students in Doctoral Program: 293

Others: 108



General Rules

The usual actual requirements and duration are:

- 1) Two years for the master program, usually eight months taking classes and sixteen doing a research to be submitted to a committee of professors;
- 2) Four years for the doctoral program, with around twelve months used to take classes and 32 to develop an original research, which has to result in a Dissertation to be submitted to a committee of professors. The program has also a "qualifying examination", covering all aspects of the main courses.



International Participation

The course has now about 10% of international students, and is working to increase this international participation.

Classes in English expected to start soon in several Courses.



GNSS Activities

The course in Space Engineering and Technology has been working in activities related to GNSS for many years.

Among these activities, some are related to the space system itself, like orbit determination of satellites, orbital maneuvers, attitude and orbit control, etc.

There are also studies related to applications, like the use of a space qualified receiver of one of the GNSS systems inside a user satellite, to make a more accurate orbit determination of this satellite.



GNSS Activities

Thesis and Dissertations about those topics have been developed in the Institute for a long time.

In more recent years, studies related to the discard of the satellites belonging to a GNSS system, at the end of their lifetimes, are under way.

Some proposals using the solar radiation pressure to de-orbit a GNSS satellite have been made, with interesting academic and practical results.



Collaboration with INPE

Academic:

There are no tuitions fees;

It is possible to have students from abroad for full or partial programs;

Students of full programs can have scholarships;

It is possible to pay for Brazilian students to make full or partial programs abroad;

It is possible to pay exchange of professors in both directions (send and receive).



Collaboration with INPE

Projects:

It is possible to have international projects for basic and applied research, as well as development of large structures like satellites;

Example:

There is a long project with China for the CBERS satellite series;



CBERS: China Brazilian Earth Resource Satellite

The CBERS program was born from a unique partnership between Brazil and China in the space technical scientific sector.

It is a powerful tool to monitor the huge territories with remote sensing satellites.

The CBERS program looked at first for only two remote sensing satellites, CBERS-1 and 2.



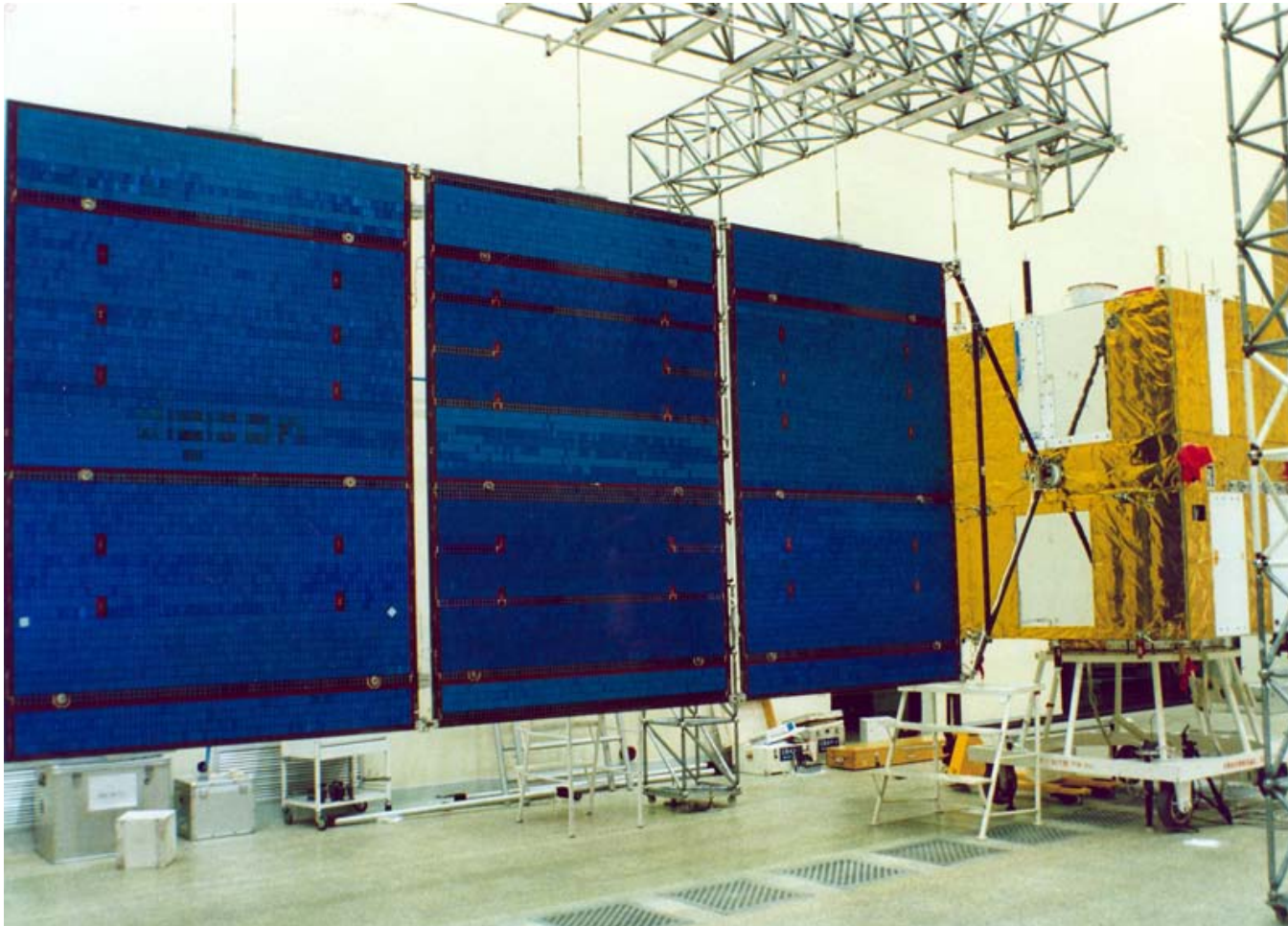
CBERS: China Brazilian Earth Resource Satellite

The successful launch and the perfect functioning of the CBERS-1 and CBERS-2 expanded the series.

The CBERS-3/4 operate in a sun-synchronous orbit, recurrent and frozen, with:

- Inclination: 98.504 degrees
- altitude: 778 km
- Local time in descending node: 10:30 a.m.
- Eccentricity: 1.1×10^{-3}
- Argument of Perigee: 90
- Orbital period: 100.26 minutes

CBERS: China Brazilian Earth Resource Satellite



Conclusions

INPE is an Institute devoted to space research;

It has engineering and academic activities;

There are possibilities of collaborations in both aspects;

Contact: www.inpe.br