



Print / INPE

Institutional
Internationalization
Project at INPE:
novel opportunities
for academic and
research cooperation

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CAPEES

Largest and most important governmental agency that supports graduation and pós-doctoral courses in Brazil.

Main activities:

- Evaluation of all "*stricto sensu*" graduation courses in Brazil;
- Access and dissemination of scientific production;
- Investments in the formation of high-level human resources in the country and abroad;
- Fostering international scientific cooperation;
- Promoting continuous training of teachers for basic education

Budget evolution (last 15 years):

- 2019 = R\$ 4,25 billion
- 2009 = R\$ 1,93 billion
- 2004 = R\$ 579 million

What's PrInt / INPE ?

The PrInt/INPE project aims to consolidate INPE as a leading institution with internationally recognized academic activities as well as technological development. This will help our Institution achieving its mission to produce science and technology in Earth and Space Science in order to offer singular products and services for the benefit of Brazil.

CAPEES Grant Call No. 041 / 2017

Main Objective:

Select proposals for internationalization actions from any Brazilian university or research institute with graduation courses

Overall Budget:

Up to R\$ 300 million / year

Duration of the Grant:

5 years (2019 - 2023)

<https://www.capes.gov.br/cooperacao-internacional/multinacional/programa-institucional-de-internacionalizacao-capes-print>

Specific Objectives

- Promote development, implementation and consolidation of a strategic plan for the internationalization of the Institute's graduation courses based on **seven priority thematic areas**;
- Maintain and expand the existing international research networks at INPE as well as foster the creation of new networks to improve the quality of academic production;
- Expand the internationalization actions, encouraging the consolidation of research projects in cooperation to institutions abroad;
- Maintain and expand the academic training of human resources through the mobility of professors and students, with emphasis on doctoral students, postdoctoral students, from Brazil to abroad and from abroad to Brazil;
- Expand and consolidate INPE as an institute with an international environment;
- Integrate several actions of each graduation course to support INPE's internationalization effort.

Strategic Thematic Areas

INPE has 7 (seven) graduation courses, each one leading on a thematic area:

- Space Engineering and Technology (ETE)
- Astrophysics (AST)
- Applied Computing (CAP)
- Space Geophysics (GES)
- Remote Sensing (SER)
- Earth System Sciences (CST)
- Meteorology (MET)

ETE

AST

CAP

GES

SER

CST

MET

Space Missions

Graduation Courses: ETE, CAP, MET, SER, CST, GES, AST

Countries: Germany; Argentina; China; Colombia; Spain; U.S; Netherlands; Israel; Italy; Portugal; United Kingdom and Russia.

Description: This topic includes R & D from all segments of a space mission within the scope of its theses and dissertations:

- (1) subsystems/payloads and even complete satellites;
- (2) launchers;
- (3) ground systems (command and tracing, mission center and operation center).

Instrumental Astrophysics

Graduation Courses: AST, GES, CAP, ETE

Countries: Germany; Argentina; Australia; Belgium; Bolivia; Canada; Chile; China; Colombia; South Korea; Ecuador; Spain; U.S; France; Netherlands; Hong Kong; Hungary; India; Italy; Japan; Mexico; Paraguay; Peru; Poland; Portugal; UK; Russia; Switzerland; Taiwan; Uruguay and Venezuela.

Description: INPE's Astrophysics has as its characteristic to be the most focused in the development of astronomical instrumentation. Instrumental development encompasses the entire electromagnetic spectrum, from the radio range, through the infrared and optical bands to the high energy range. INPE also leads the only Brazilian project for a gravitational wave detector. The constitution, formation, evolution and phenomenology of diverse astrophysical objects are investigated through the collection / analysis of observational data, the development of astronomical instrumentation and theoretical models.

Data Modeling and Analysis of Earth and Space

Graduation Courses: CAP, ETE, MET, SER, CST, GES, AST

Countries: South Africa; Germany; Argentina; Brazil; Canada; Chile; China; Cuba; Spain; U.S; France; Netherlands; India; Ireland; Italy; Japan; Mexico; Portugal; UK; Russia and Sweden.

Description: Space and Earth data are those that allow the understanding of Earth and Space as dynamic systems composed of subsystems (such as the atmosphere, forests and urban areas, geosphere, oceans, interplanetary environment, etc.) that interact at different spatial and temporal scales. **These data are used in applications for the systematic monitoring of environmental resources with impact on health, urban development, food security and to monitor impacts and changes in climate and the environment.** These data are collected by sensors of various types, purposes and characteristics, created and deployed so that the measured systems can be understood through the application of scientific knowledge.

Heliophysics

Graduation Courses: GES, AST, CAP, ETE, MET, SER

Countries: South Africa; Germany; Argentina; Australia; Austria; Belgium; Canada; Chile; China; Cuba; Spain; U.S; France; India; Italy; Japan; Mexico; Nepal; Nigeria; United Kingdom and Sweden.

Description: Heliophysics can be understood as an extension of Geophysics. It focuses on the interconnections between the Sun, interplanetary space and the planets. The theme Heliophysics aims at qualifying, in an international standard, personnel coming from engineering and exact sciences to work on research, development and teaching at Universities and research institutes, as well as R&D in private companies. Of special interest are the disciplines related to solar physics, planetary physics, interplanetary medium, magnetospheres, ionospheres, atmospheres and planetary magnetic fields and other bodies.

Satellite Applications for Sustainable Development

Graduation Courses: SER, ETE, CAP, MET, CST

Countries: South Africa; Germany; Argentina; Australia; Austria; Belgium; Canada; Chile; China; Colombia; Denmark; Spain; U.S; Finland; France; Netherlands; India; Ireland; Italy; Japan; Mexico; Norway; New Zealand; Peru; Poland; Portugal; UK; Russia; Sweden and Switzerland.

Description: In the global discussions on environmental change, sustainable development, health and food security, Brazil has a leading position in the development of satellite monitoring and geoprocessing techniques for natural resources, development of technologies for image processing, analysis of satellite data and provision of services. The competent acting of the leaderships formed within this thematic line, through the development of state-of-the-art knowledge, will strategically assist Brazil to fulfill its international targets that includes identifying and implementing actions on mitigation; impacts, vulnerabilities and adaptation; research and development; as well as education, training and communication. These actions will also have a direct impact on the National Strategy for REDD + in Brazil (ENREDD+), which formalizes actions to prevent and control deforestation and forest degradation and to promote sustainable development.

Global Environmental Changes

Graduation Courses: CST, ETE, CAP, MET, SER, GES

Countries: Germany; Argentina; Belgium; U.S; France; Netherlands; United Kingdom and Sweden.

Description: The recently announcement of the Sustainable Development Goals (SDG) aim to guide the agendas and policies of the member states of the United Nations (UN) by the year 2030. Research in this priority topic can significantly contribute to the production of relevant indicators for some SDGs and the development process sustainable development of the tropical region. In this context, it is proposed to **develop interdisciplinary research in scientifically-based solutions and technologies that promote the path towards a sustainable, safe and socially fair development, particularly in the tropics, minimizing negative impacts of environmental changes in socio-economic and natural systems vital to environmental sustainability and human well-being,** as regards access to food, water, energy and health.

Tropical Meteorology

Graduation Courses: MET, SER, CST, CAP, GES

Countries: Germany; Argentina; Australia; Bolivia; Cape Verde; Canada; Chile; Colombia; Cuba; Spain; U.S; France; Netherlands; India; Israel; Italy; Japan; Mexico; Paraguay; Peru; UK; Sweden and Switzerland.

Description: The region of South America has much of its extension in the tropical region, where there is a domain of meteorological systems that interact with the Amazon rainforest, the largest tropical forest in the world. **The interaction between tropical and mid-latitude systems makes the theme unique and with great internationalization potential. Brazil has one of the largest collections of observational data from the tropical region, mainly from field experiments, with emphasis on the Amazon.** Research developed and in development using this data together with parametrization of numerical models by the best specialists allows INPE to be a pole of research in the area of tropical modeling.

Budget

The INPE project was approved by CAPES (Grant Call No. 041/2017) **without any restriction with a final budget of \$ 1.80 million** in 5 years (2019-2023).

Approximately \$ 38.6 thousand were allocated to Work Missions Abroad designated exclusively to the PII-INPE Management Group and \$ 40 thousand to pay publication taxes of academic articles.

The following benefits linked to the 7 thematic areas are available:

- Work Missions Abroad;
- Project Maintenance;
- Scholarships Abroad:
- PhD Internship;
- Junior Visiting Professor;
- Senior Visiting Professor;
- Training in Short-Term Courses (Schools for Students);
- Scholarships in Brazil:
- Young Talent;
- Visiting Professor;
- Post-Doctorate.

Overall Team

Management Group

Antonio F. Bertachini de A. Prado - ETE / INPE

Dirceu Luis Herdies - MET / INPE

Kleber Pinheiro Naccarato - CST / INPE

Rafael Duarte Coelho dos Santos - CAP / INPE

Celso von Randow - CST / INPE

Alisson Dal Lago - GES / INPE

Odylio Denys de Aguiar - AST / INPE

Luis Eduardo O. C. de Aragão - SER / INPE

Steven Jay Goodman - UAH / USA

Barry Clark Barish - CalTech / USA

Alexander Sandor Szalay - JHU / USA

Rosaly Mutel Croce Lopes - JPL / NASA / USA

International Cooperation Project Coordinators

Ieda Del'Arco Sanches (SER)

Cláudia Vilega Rodrigues (AST)

Cristiano Max Wrasse (GES)

Walter Abrahão dos Santos (ETE)

Simone M. Sievert da Costa (MET)

Karine Reis Ferreira Gomes (CAP)

Angélica Giarolla (CST)

For Further Details



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