



INPE Space News

THE NEWSLETTER OF THE NATIONAL INSTITUTE FOR SPACE RESEARCH

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SÃO JOSÉ DOS CAMPOS - SP - BRAZIL

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EDITORIAL

Two years ago we published the first edition of INPE SPACE NEWS, a special issue with a summary of the institute's scientific activities in the Amazon region. In view of INPE's commitment to furthering international cooperation in space research and applications, the occasion of the International

Space Year in 1992 was considered as a very appropriate opportunity to continue with this publication on a bimonthly basis. The intention is to publish a 4-page bulletin with news from the Brazilian National Institute for Space Research (INPE), of interest to the international community.

INPE SPACE NEWS is being mailed to space agencies, governmental agencies, R&D

institutions, universities, private and state industries, specialized magazines and the international press. If you are interested in Brazilian space activities or know anyone that would like to receive our newsletter, please ask to be included in our mailing list. We are also interested in receiving news about space activities from all over the world, and in exchanging information.

INPE TO HOLD INTERNATIONAL SPACE YEAR CONFERENCE

INPE, together with the Joint Research Centre (JRC) of the Commission of European Communities, is organizing the World Forest Watch Conference on Global Forest Monitoring (WFW), to take place in São José dos Campos, São Paulo, between the 27th and 29th of May 1992. The WFW is an official project of the International Space Year (ISY 1992), whose activities are being coordinated by the Space

Agencies Forum for the ISY (SAFISY).

The main objective of the WFW is to present the latest results from global forest monitoring projects using satellite data, with special emphasis on tropical forests. The WFW will include about 40 technical presentations on subjects relating to the state of the world's major forests. These presentations will cover the status of spaceborne data for forest monitoring, the role and contribution of remote sensing for monitoring global change, and the role of space

agencies and other research organizations in forest monitoring. The Conference will also include a technical exhibition, and offer a training course on assessment and mapping of deforestation.

The WFW Conference is being organized with the support of the space agencies of Canada, Europe, Finland, France, Germany, Japan, Sweden, and the USA. Support is also coming from organizations in Argentina, Bolivia, Colombia, Ecuador, Peru, and Venezuela.

DEFORESTATION IN AMAZONIA AND IN THE ATLANTIC FOREST

During the WFW Conference, INPE and other institutions will present the latest results from three main projects: deforestation in the Brazilian Amazon (Prodes); deforestation in the entire Amazon Forest (PanAmazonia); and deforestation in the Atlantic Forest along the Brazilian coast. With the aid of satellite remote sensing techniques, INPE has been surveying the Amazon Forest since

1973. The study to be presented at the WFW meeting will detail deforestation rates up to the end of 1991.

PanAmazonia is a project headed by INPE, with participation by institutions from the Amazon countries, including Bolivia, Colombia, Ecuador, Peru, Venezuela, and probably the Guianas. The first results of the PanAmazonia project will show the present situation of the forest cover in this region, using Landsat

images from two periods - 1985 to 1987 and 1988 to 1991.

The Atlantic Forest used to cover a good part of 17 Brazilian states (out of a total of 27), but during the present century it has gone through a process of deforestation much more significant than that of the Amazon. The SOS Mata Atlântica Foundation (São Paulo, SP), with the support of INPE, is using Landsat data to show the present status of the Atlantic Forest.

FIRST BRAZILIAN MADE SATELLITE IS READY FOR LAUNCH

In December 1991, the Integration and Tests Laboratory (LIT) completed the entire test program of the flight model of INPE's first data collection satellite (SCD1), the first Brazilian made satellite. SCD1 is part of the Brazilian Complete Space Mission (MECB), a program established by the federal Government for the development of two types of experimental satellites for low Earth orbit applications, in

addition to a small satellite launch vehicle.

The Ministry of Aeronautics is in charge of the development and operation of the launch vehicle, and the implantation of a launch base at Alcântara, in the state of Maranhão (2.2S latitude). INPE is responsible for the development and in-orbit operation of two satellites for environmental data collection (SCD1 and SCD2), and two for remote sensing of the Earth (SSR1 and SSR2).

The main mission of SCD1 - scheduled to be launched some

time this year, by a Pegasus rocket from Orbital Sciences Corp., USA - is to transmit environmental data collected by ground-based automatic data collection platforms (DCPs). The DCPs will be operating in the Atlantic Brazilian coast. The satellite will also carry two additional payloads: a solar cell experiment for flight tests of Brazilian made solar cells, and an on-board computer that will serve to space qualify a computer for later use in more advanced satellites.

FEDERAL GOVERNMENT DECIDES TO CREATE THE BRAZILIAN SPACE AGENCY

President Fernando Collor de Mello will submit to National Congress for its approval a proposal for the creation of the Brazilian Space Agency (AEB).

The proposal is the work of an interministerial committee, specifically nominated for this purpose by the president in December, 1991. The AEB will continue and extend the work of the Brazilian Commission for Space Activities (COBAE), created in 1971 with the purpose of assisting the Presidency in

planning and implementing national priorities in space research. The AEB will be subordinate to the Secretariat of Strategic Affairs (SAE), at the ministerial level, and it will be in charge of coordinating and promoting space activities in Brazil.

INSTITUTE FOR RESEARCH ON GLOBAL CHANGE MIGHT BE INSTALLED IN BRAZIL

The experience acquired during the past three decades in remote sensing techniques, weather prediction and climate studies, and a well-established infrastructure, are the strongest arguments used by Brazilian representatives to have the Inter-American Institute for Global Change Research installed in INPE's facilities. The proposal for the creation of this Institute - together with two others for Europe/Africa and the Far East/South-West Pacific - was

presented by president George Bush during the White House Conference on Science and Economics Research Related to Global Change, in April 1990.

The main goal of these institutes is to carry out studies in various fields, with the purpose of contributing to man's understanding of global change phenomena. Since the White House conference, representatives from 21 Caribbean, North, Central, and South American countries, have participated in Planning Workshops for the establishment of the Inter-American Institute. Brazilian representatives, from

INPE and other government institutions, believe that they have been successful in demonstrating to their colleagues the advantages of having the central facility of the Institute based in Brazil.

Ministers and chancellors from the countries involved will meet in Brasília, between the 13th and 15th of May, to approve the creation of the institute, and to determine the extent of each country's participation. The Institute will operate as a network with a central facility and several research centers.



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Fernando Collor de Mello

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Address: INPE/CRI - Av. dos Astronautas, 1758 - Caixa Postal 515
12201 - São José dos Campos - São Paulo - Brasil
Telephone: (123) 41-8977 - extensions 593 and 364
Fax: (123) 21-8743 - Telex: (123) 3530

STRUCTURAL DESIGN OF CHINA-BRAZIL SATELLITE CONCLUDED

In mid February 1992, the structural design for the China-Brazil Earth Resources Satellite (CBERS) was delivered to INPE by specialists from the Chinese Academy of Space Technology (CAST). CBERS is being developed within a joint program being undertaken by the two organizations for the

development and construction of two earth resources satellites. INPE is making a request for proposal to contract a Brazilian industry for the construction of CBERS structure. These activities are part of the engineering development phase of the first CBERS satellite (Phase C).

The CBERS program is a result of an agreement signed between the People's Republic of China and Brazil on July 6, 1988. China is responsible for the

development of 70% of the project, which represents an investment of US\$ 105 million, and Brazil 30%, at a cost of US\$ 45 million, plus an additional US\$ 12 million, necessary to adapt ground station and data processing facilities. So far, Brazil has invested around US\$ 8.5 million in the project, and for 1992 the National Congress has approved a further US\$ 16 million.

INPE AND CNES DISCUSS COOPERATIVE AGREEMENTS

A group of eight French specialists from the Centre National d'Études Spatiales (CNES), Spot Image, and Intespace, met at INPE, during the last week of January, to discuss

the implementation of cooperative agreements between Brazil and France in the space field. The present cooperative activities include INPE's use of SPOT data for urban planning and basic cartography projects.

During the meeting, CNES invited INPE to participate in the

experimental phase of the S-80 System, a future constellation of 8 low orbit navigational positioning microsattellites. The system's experimental phase will start next July with the launching of the first satellite.

NASA SELECTS BRAZILIAN STUDENTS FOR TRAINING PROGRAM

Three Brazilian undergraduate university students have been selected by the United States National Aeronautics and Space Administration (NASA) to participate in the Space Life Sciences Training Program (SLSTP), to be held in honor of the International Space Year in 1992. The Brazilians are Márcio Flávio Dutra Moraes, electrical engineering student at the Aeronautics Technology Institute

(ITA); Marco Antonio Assfalk de Oliveira, electrical engineering student at the Federal University of Goiás (UFGO); and Savitri Gomes de Aguiar, medical student at the Federal University of Juiz de Fora (UFJF).

INPE received over 60 student applications for the training program. A preliminary selection of 6 students was made from 31 colleges and universities in 12 Brazilian states. The initial offer made to INPE, by the SLSTP Program, was for the inclusion of two Brazilians in the program, but the six students pre-selected were

so well qualified that the Program decided to make room for one more. The six-week SLSTP will take place this year, from mid-June to the end of July, at the Kennedy Space Center, Florida. According to material provided by the organizers, "the SLSTP is a competitive residence training program, that educates and trains undergraduate college students in the space life sciences and enhances their understanding of the relationship between the scientists and engineers who work in the space environment".

INSTALLATION OF INPE'S SUPERCOMPUTER FOR CLIMATE AND WEATHER STUDIES IS SCHEDULED FOR THIS YEAR

The NEC SX3/12 supercomputer purchased by INPE last year will be shipped to Brazil before the end of 1992, when it will be installed in a special building that is being constructed at INPE's facilities in

Cachoeira Paulista, an hour and a half drive from the institute's headquarters in São José dos Campos. The supercomputer is a key piece of equipment for INPE's Climate Studies and Weather Forecast Center (CPTEC), which, after an initial trial period, is expected to become operational by mid 1993.

The creation of CPTEC was approved by the Brazilian

Government in 1987 as part of an effort to improve weather forecasting and climate studies in Brazil. The main goal of CPTEC is to reach the stage of development already achieved by similar centers in Europe, Japan and the USA, with the capacity to make reliable long range weather forecasts, in close cooperation with these other centers.

INPE OPENS IT'S VISITORS CENTER

To improve public understanding of its activities, programs and projects, in March, INPE will inaugurate a Visitors

Center at its main campus in São José dos Campos. The Visitors Center will display mock-ups, models, photographs and panels to show the history of the institution and its main activities in the areas of Space and Atmospheric Sciences, Space

Applications in Meteorology and Earth Resources, and Space Engineering and Technology. INPE has the support of São José dos Campos Prefecture in organizational aspects of the Visitors Center.

UPPER ATMOSPHERIC SOUNDING ROCKETS LAUNCHED IN COOPERATION INPE - IAE

In cooperation with the Institute of Aeronautics and Space (IAE) of the Brazilian Ministry of Aeronautics, INPE continues its program of rocket sounding of the

upper atmosphere. This program involves the launching of scientific payloads developed by INPE on IAE's SONDA series rockets. In December 91 a payload to measure ozone at heights between 50 and 90 km was successfully launched on a SONDA II rocket from the new launch base at Alcântara. A much more complex payload will be launched on a

SONDA III rocket in May of this year. This payload, developed by INPE's Aeronomy Department, with the purpose of carrying out basic research into the properties of the upper atmosphere, will carry 10 airglow photometers to a height of 500 km, together with instruments for measuring electron density and temperature.

RADAR IMAGERY EXPERIMENT WILL FLY OVER THE AMAZON REGION

A Convair 580 aircraft, equipped with instruments that simulate the radar imagery systems of the Radarsat (Canada) and ERS-1 (ESA/Europe)

satellites, will fly over 5 areas of the Brazilian Amazon region. The flights will take place in April of this year, with the participation of INPE's remote sensing specialists. The mission, named SAREX-92, is part of the South American Radar Experiment that is being carried out by the Canadian Centre for Remote Sensing (CCRS), with

support from the European Space Agency and the Canadian International Development Agency (CIDA). SAREX-92 will concentrate on the mapping of forest cover, geological aspects, and the interaction between water and forest cover.

BALLOON EXPERIMENT TO STUDY SOLAR FLARE EFFECTS

Specialists from INPE's Space Geophysics Division are participating in the Extended Life Balloon Born Observatories (ELBBO) Project, coordinated by the University of Washington (USA), in cooperation with the Jet

Propulsion Laboratory (JPL/NASA) and the University of Otago, New Zealand. After a number of test flights, which were started in 1990, the ELBBO Project will launch 5 extended life balloons to study solar flare effects in the Earth's atmosphere. The balloons will be launched from New Zealand, in November, 1992, to fly over the ocean for 2 to 3 months

until they reach the region between the south of Uruguay and Argentina. X-Ray sensors developed by INPE will fly in the ELBBO Project to study particle precipitation in the Van Allen radiation belts, particularly in the South Atlantic Magnetic Anomaly region.

COMPUTERS TO STUDY AMAZON ECOSYSTEMS

In November, 1991, IBM Brazil and INPE signed an agreement to study Brazilian Amazon region ecosystems. Within

the agreement, IBM is loaning INPE 10 computers and a group of 10 specialists to work at INPE on three main projects: the production of an Amazon deforestation atlas; a data bank with images and written information about the region; and

modelling studies, related to subjects such as the measurement of gases released during the burning season. The joint work between INPE and IBM started in March, 1992.