

*São José dos Campos, 16<sup>th</sup> May 2016*

**6<sup>th</sup> International Conference on Nonlinear Science and Complexity  
16<sup>th</sup> May 2016**

*Leonel F. Perondi*

Good Morning

On behalf of the National Institute for Space Research (INPE) I would like to welcome you to the 6<sup>th</sup> International Conference on Nonlinear Science and Complexity.

The event has the objective of reviewing the latest applications and technical and scientific advances in the field of Nonlinear Science and Complexity.

I will take this opportunity to very briefly introduce some of INPE's activities.

Established in 1961, INPE's mission may be briefly stated as follows: "to be the national reference in Space Science, Space Technology and their applications, while promoting direct returns to society in terms of products and services, industrial policy and diffusion of knowledge".

The Institute develops activities in five main areas: Space Science (Astrophysics, Aeronomy and Geophysics), Space Technology, Meteorology, Earth Observation and Earth System Science.

With around 900 staff members, including researchers, technologists and technicians, the Institute attempts to implement a complete cycle of innovation, developing activities which go from basic and applied research projects, through product and service development, up to making available to society innovative services and products, that impact social and economic life.

In the space technology area, through different levels of cooperation, INPE has designed, manufactured, integrated and operated in orbit six satellite systems, comprising two data collecting satellites and four Earth remote sensing satellites.

The data collecting satellites, SCD-1 and SCD-2, launched in 1993 and 1998, respectively, operate in an almost equatorial orbit, collecting data from around 700 hydro-meteorological platforms scattered over the Brazilian territory and making these data available, daily, to more than 80 users.

The remote sensing satellite systems have been developed in cooperation with China, in an international program that started in 1988. The first China-Brazil Earth Resources Satellite, CBERS-1, began operation in 1999. It was followed by CBERS-2, in 2003, CBERS-2B, in 2007, and CBERS-4, in 2014.

Currently, daily images from the Brazilian territory, captured by the four remote sensing cameras which equip CBERS-4, are made available to national and international users, through INPE's remote sensing data centre.

Preventing, controlling and assessing the deforestation in the Amazon Region have long been important targets for the Brazilian Government.

Through a pioneering system developed by INPE, referred to as PRODES, annual changes in the Amazon forest coverage have been computed and taken by the Brazilian government as the Brazilian official data for the yearly deforestation rate taking place in the Amazon region. The annual deforestation estimates and related data produced by the PRODES system constitute an important instrument for the definition of long term policies for the Amazon region.

INPE runs the Center for Weather Forecasting and Climate Studies – CPTEC, which is recognized by the World Meteorological Organization as a center of excellence and is the Brazilian national reference for numerical weather forecasting.

The Space Science area of INPE has as its mission the development of basic and applied research aimed at studying the physical and chemical phenomena which take place in the atmosphere and outer space. The Coordination was established together with the Institute itself, in 1961, and has been hitherto an important protagonist in a number of scientific and technological developments in the area. As an example, we mention the first observation of ionospheric plasma bubble phenomena, which severely interferes with telecommunications over the Earth's equatorial region, which took place in the year of 1976, through optical observations of the ionosphere at INPE's centre in São José dos Campos.

Finally, the Earth System Science area of INPE develops research aimed at providing technical and scientific information to guide public policies on mitigation and adaptation to global environmental changes, with great focus on climate change. Main research consists of modeling anthropic activity and studying its long term impacts on different aspects of life on the Planet, as regards climate change.

In summary, INPE develops activities ranging from the design, manufacturing and operation of satellite systems, up to the application of the data produced by such systems, in the areas of space sciences, numerical weather forecasting, remote sensing and earth system science.

The themes addressed in this conference bear directly on a number of projects of INPE's engineering and application areas. As such, I am plainly convinced that the present event, with 16 plenary talks, a large number of symposia and poster sessions, will very much contribute for the dissemination of state-of-the-art knowledge among our scientists and researchers.

I shall take this opportunity to compliment and congratulate the scientists, engineers, technical experts and students attending this conference, who, with their talks and posters, will contribute for the presentation of an ample view of the state-of-the-art of the science, technology and applications in the field of Nonlinear Science and Complexity. We are very much honoured in receiving you at INPE.

I would like also to specially compliment Dr. Mark Edelman and Dr. José Roberto Castilho Piqueira, who have been awarded the Zaslavsky and Lagrange prizes, respectively, for outstanding contributions to the field Nonlinear Science and Complexity.

Through the names of Dr. Elbert Macau, Dr. Mark Edelman and Dr. Miguel Sajuan, I would like to express my congratulations to the organizing committee and the staff for the organization of the conference.

Through the names of Dr. Edson del Bosco, Coordinator of INPE's Associate Laboratories, and Dr. Ezzat Chalhoub, Head of the Laboratory of Computation and Applied Mathematics, the institutional areas under which this event takes place, I would like to express my congratulations and thanks to the area's research and technical staff.

We are honoured in holding this conference at INPE. To all participants, my wishes of a very fruitful week of work, and a nice stay in São José dos Campos.

Thank you.

L.F.Perondi  
São José dos Campos, 16<sup>th</sup> May 2016.

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