



**FAPESP  
RESEARCH  
PROGRAM  
ON GLOBAL  
CLIMATE  
CHANGE**





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## **FAPESP RESEARCH PROGRAM ON GLOBAL CLIMATE CHANGE**

The functioning of our planet depends on the links of different integrated compartments: Atmosphere, Hydrosphere, Geosphere, Biosphere and the Cryosphere. All these Earth System components interact dynamically in non-linear complex ways to sustain life.





The climate system of our planet is changing. Human activities is leading to changes in the atmosphere composition through emissions of greenhouse gases and aerosol particles. Climate variations and changes occur continually, in most cases as the results of natural causes, and on a time scale that varies from months to millions of years. However, in the last hundred years the release of large quantities of greenhouse gases and aerosols in the atmosphere and changes in vegetation coverage, with the transformation of forest areas into farming and pasture areas, on a global scale – has disturbed the natural biogeochemical cycles and atmosphere composition, significantly affecting the planet's climate system.

Researchers throughout the world are currently studying the intricate processes that regulate the functioning of the climate system on Earth, elaborating projections of future changes and creating mathematical models of the climate system in an attempt to establish possible scenarios and their impact on the many dimensions of life, on biodiversity and in the socio-economical system that sustain our society.

The need for studies on climate change in Brazil is particularly important on local, regional and global scale due to the country's massive dimensions and the significant interdependence of its economic base on natural renewable resources. Not to mention the fact that Brazil's vegetation coverage, which is already considerably altered in the Atlantic Forest and Cerrado (savannah) biomes, is in a process of rapid change in the Amazon Forest over the last few decades. Changes in carbon stocks, precipitation patterns, sea level rise, climate extremes are





some of the main issues that Brazil have to face in view of the ongoing climate change. These changes could have strong impacts in the socio-economical aspects of the Brazilian society.

The FAPESP Research Program on Global Climate Change is a bold and ambitious initiative in this direction.

The program supports research projects for up to 6 years, performed by large and multidisciplinary teams. One of its major goals is to understand the processes that control critical pieces that sustain our climate, how it is changing, and develop scientifically based mitigation and adaptation strategies.

The program is developing the critical science necessary for implementing new solid policies to achieve sustainable development in some important areas in our society, including agriculture and energy sectors, among others. The program is also developing a Brazilian Model of the Global Earth System, with a focus on key regional issues, such as the Amazon, Cerrado, Northeast and the South Atlantic regions.








# AREAS OF RESEARCH



LEO RAMOS





The success of the FAPESP Research Program on Global Climate Change depends on the joint work of many disciplines of the natural and social sciences. The main research areas around which the program is structured are:

1. Functioning of the ecosystems: biodiversity and carbon and nitrogen cycles;
2. Atmospheric radiation balance, aerosols, trace gases and changes in land use;
3. Changes in the hydrological cycle and the role of clouds in Earth system.
4. Climate change and agriculture and livestock farming;
5. Low carbon energy production and use, minimizing greenhouse gases emissions;
6. Climate modeling on regional and global scale;
7. Impacts of climate change on human health;
8. Urbanization and climate change
9. Human actions, impacts and responses: the socio-economical dimensions of global environmental changes. Mitigation of greenhouse gas emissions and adaptation to climate change.

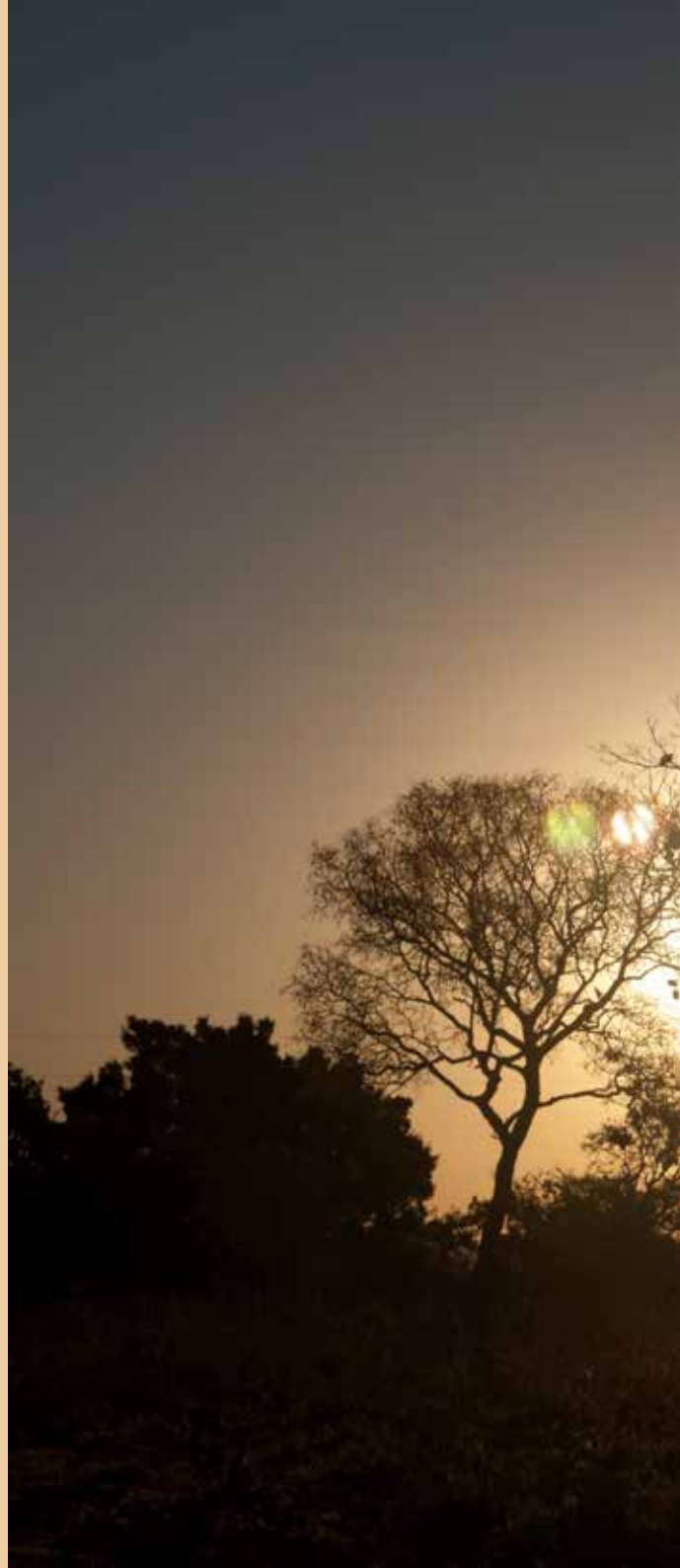
The program has important links to other FAPESP programs in particular BIOEN (FAPESP Bioenergy Research Program) and BIOTA (FAPESP Research Program on Biodiversity and Sustainable Use).

# HOW TO PARTICIPATE



[www.fapesp.br/en/rpgcc](http://www.fapesp.br/en/rpgcc)

EDUARDO CESAR







FAPESP Research Program on Global Climate Change is a multidisciplinary research program. Three main types of awards may be conceded by FAPESP within the Program: Thematic Projects, Regular Projects and Young Investigator, as well as all types of scholarships associated with these three awards.

- Thematic Projects are granted for a team led by a principal investigator (PI) and, eventually, several co-PIs. FAPESP's website contains a list of projects initiated since 1991.  
[www.bv.fapesp.br/en/1](http://www.bv.fapesp.br/en/1)
- Regular Projects are usually granted for an individual researcher.  
[www.bv.fapesp.br/en/6](http://www.bv.fapesp.br/en/6)
- Young Investigator are awards granted with the aim of creating/ establishing new research group led by highly promising early-career scientist.  
[www.bv.fapesp.br/en/2](http://www.bv.fapesp.br/en/2)
- Postdoc fellowship is aimed at distinguished researchers with a recent doctorate degree and a successful research track record.  
[www.fapesp.br/en/postdoc](http://www.fapesp.br/en/postdoc)

The program also boasts opportunities for collaboration between the São Paulo scientists and their peers in other states and countries, mainly in the case of Thematic Projects. New submissions can be done any time, or through specific calls.

# São Paulo Research Foundation (FAPESP)

FAPESP PHOTO: EDUARDO CESAR / BACK COVER: FABIO POSSEBOM / ABR





FAPESP is one of the most important Brazilian funding agencies. Created in 1962, the Foundation has granted nearly 122,000 scholarships and fellowships, from undergraduate to postdoctoral studies, and gave financial support to 100,000 individual and thematic research projects, as well as to the improvement of the research infrastructure in the state.

With funding resources of 1% of the State of São Paulo tax revenue guaranteed by the State Constitution, FAPESP has complete administrative and financial autonomy.

The support offered by the Foundation considers all areas of fundamental and applied sciences as well as technology, engineering and arts. The evaluation is rigorously based on scientific merit, assured by an *ad hoc* anonymous peer review.

FAPESP seeks to foster research in areas considered strategic for the country and crucial for the advance of world science, supporting ambitious programs in domains such as:

**FAPESP Research Program on Global Climate Change (RPGCC)**  
[www.fapesp.br/en/rpgcc](http://www.fapesp.br/en/rpgcc)

**FAPESP Bioenergy Research Program (BIOEN)**  
[www.fapesp.br/en/bioen](http://www.fapesp.br/en/bioen)

**FAPESP Research Program on Biodiversity Characterization, Conservation, Restoration and Sustainable Use (BIOTA)**  
[www.fapesp.br/en/biota](http://www.fapesp.br/en/biota)





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