

## **Washington symposium will welcome researchers from Brazil and the United States to discuss collaborative research on the Amazon**

*Sponsored by FAPESP and the DOE, scientists from both countries assert the need to understand the region's influence and impact on global climate*

Researchers from Brazil and the United States will meet October 28, 2014 at the Wilson Center's Brazil Institute in Washington, DC to discuss a series of studies on the occasion of *FAPESP-U.S. Collaborative Research on the Amazon*, a meeting in the U.S. capital that will present some of the most important research projects on biodiversity, climate and socioeconomic issues in the Amazon.

Elements of these studies are being carried out jointly by the two countries and include research projects supported by the São Paulo Research Foundation (FAPESP) and the U.S. Department of Energy (DOE), organizers of the event.

The goal of the projects is to understand how biological, environmental, economic and social factors influence, among other things, rainfall patterns in the Amazon, and in what proportion possible alterations in the formation of rain clouds over the Brazilian equatorial forest impact this and other regions of the world.

Some of the studies that will be presented are part of the Green Ocean Amazon (GOAmazon) project, aimed at determining how the process of urbanization of tropical regions affects local ecosystems and global climate. GOAmazon brings together researchers from both countries to collect and analyze environmental data in the region of Manaus, capital of Amazonas State, in both the metropolitan area as well as the forest, which serves as a giant open-air laboratory for the studies.

Several research projects are underway in four different sites within a radius of 150 km of the Amazonas capital. By 2015, the goal of the Brazilians and Americans alike is to discover the mechanisms involved in the interaction between pollution particulates, the compounds naturally emitted by the tropical forest and clouds, in addition to understanding the processes that result in tropical rains.

### **Research partnerships**

Jointly carried out by universities and research institutes from the two countries, GOAmazon seeks to determine how the pollution caused by burning and large forest fires in the Amazon, added to factors arising from the densification of urban areas, land use and other social and environmental impacts of the large power generation projects, interferes with the region's biodiversity, and more specifically, the Amazon plume.

Reflections of this environmental interaction in the region's rainfall patterns change fundamental issues related to agriculture, water and energy, influencing as well the rains in Brazil's Southern and Central-Western regions, and this in turn generates consequences for the economy of Brazil itself, one of the world's largest commodities producers.

The potential threat to the hydrological balance of the region was first described 10 years ago in the journal *Science* by a team of Brazilian, U.S. and European scientists.

In early 2014, a task force made up of researchers from several Brazilian and U.S. universities and institutes began to test hypotheses about the effect of pollution on clouds in the Amazon. In order to do this, the researchers are seeking to increase their understanding of the process of cloud formation and the interactive dynamic between the Amazon biosphere and Earth's atmosphere.

In addition to the studies associated with GOAmazon, there will also be presentations of studies that are part of programs supported by the Foundation. These include the FAPESP Research Program on Biodiversity Characterization, Conservation, Restoration and Sustainable (BIOTA) and the FAPESP Research Program on Global Climate Change (RPGCC), among others carried out together with academic and international funding and research institutions.

## **Schedule**

Wilson Center President, Director and CEO Jane Harman and FAPESP President Celso Lafer will welcome attendees before the event's keynote address by Dr. Ernest Moniz, U.S. Secretary of Energy, to be followed by a presentation by FAPESP Scientific Director Carlos Henrique de Brito Cruz who will provide an overview of science and technology in the state of São Paulo.

After that, under the scope of GOAmazon, researchers from the two countries will present prospects and results they have obtained on studies already conducted in the Amazon region, involving scientists from several universities and research institutes such as the University of São Paulo (USP), the National Institute for Space Research (INPE), Harvard University, the University of Texas at Austin (UT), the University of California (UCLA), Brown University, Pennsylvania State University and the Western Geographic Science Center.

They will describe issues such as interactions between the urban pollution plume of Manaus and biogenic forest emissions in the Amazon, the underlying causes of the rainy season in the Amazon, the processes driving tropical convection and the influence of aerosols, and the modifications brought about by man-made sources of pollution on the forest's atmosphere.

There will also be discussions of topics such as ecophysiological controls on Amazon precipitation seasonality and variability, the response of photosynthetic metabolism in tropical forests to seasonal climate variations, and interaction between land-surface fluxes and aerosol concentrations in triggering convective rainfall, which occurs in the presence of large temperature variations.

Other joint studies supported by FAPESP will be presented by researchers from the University of Campinas (Unicamp), the Vale do Paraiba University (UNIVAP), the University of Minnesota, the University of Michigan, the American Museum of Natural History and the Marine Biological Laboratory.

They will describe research regarding liquid exchanges of the Amazon River ecosystems (from land to the ocean and atmosphere), the structure and evolution of

the Amazonian biota and its environment, integration and planning of land use and freshwater security on the agricultural frontier, in addition to the social and environmental processes that accompany the construction of the Belo Monte hydroelectric dam in the state of Pará.

To complete the lecture portion, there will be discussions of issues such as the small towns of the Amazon River estuary and their importance for economic flows and social networks, the changes in governance of land use, the impacts of institutional arrangements and the use of natural resources.

The presentations are intended to provide the scientific community with detailed information about the research studies in order to foster partnerships and promote new collaborative initiatives between researchers from the United States and the Brazilian scientific community.

On October 29, participants will discuss among themselves the issues related to the research studies and their results, including data integration and storage, publications and potential applications for the knowledge obtained.

#### **FAPESP-U.S. Collaborative Research on the Amazon**

Date: October 28, 2014

Venue: Wilson Center's Brazil Institute (Washington, DC)

Program: <http://fapesp.br/amazonsymposium/program/>

Registration: <http://www.fapesp.br/eventos/amazonsymposium/registration>

Additional information: <http://fapesp.br/amazonsymposium/>

#### **Press Release:**

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