

SENIOR FELLOWS



Ana P. Barros

Professor of Engineering
Duke University

ECPA Pillar of Concentration:
Adaptation

Languages: English, Spanish,
Portuguese, French

FELLOW BIO: Ana P. Barros

International Experience:

Dr. Barros has served in panels evaluating large research network proposals for the European Union in Brussels, and has been a Reviewer for national funding agencies including the UK, Italy, Norway, Canada, Chile and NATO. She serves in the Advisory Board of the Indian Centre for Climate and Societal Impacts Research (ICCSIR). In 2008, she was a member of the US NAS Mission to Chile to advise the Ministry of Education on Advanced Human Capital for Science, Technology and Innovation.

Dr. Barros has consulted in international assessments of the causes and risks of extreme events, and she has maintained multi-year research field sites in the Central Himalayas (Nepal) and in the Central Andes (Peru) with activities in Brazil, Mexico, India and South Africa as well. At Duke University, Dr. Barros is Director of the Karsh International Fellows Program for international undergraduate students.

Areas of Expertise:

Dr. Barros' primary research areas are in environmental physics and engineering, and optimal management of natural resources and their supporting landscapes. Her research includes atmospheric physics and chemistry, hydrology and environmental fluid dynamics using models and observations; coupled physics-economics-governance models for assessing impacts developing adaptive response strategies of land-use, land-cover and population change; and satellite-based remote sensing for macro-scale monitoring of the natural environment.

Ongoing projects deal with mountain weather and climate including linkages to flash-floods, landslides, debris flows and land-use and land-cover change; rainfall microphysics; land-atmosphere feedbacks; regional-scale climate change and variability; and predictability and consequences of extreme events (hurricanes and tropical cyclones, floods, droughts). Dr. Barros has been active in developing operational forecasting models and Big Data technologies for early warning of natural hazards in remote regions. She is committed to integrating science and technology for risk assessment and life-line infrastructure planning, including the development of diagnostic models for adaptive land-use and land-cover change, and for place-based grid-scale optimization of the renewable energy mix, making the most of global observing systems and models.

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