

## 2<sup>nd</sup> ENA Workshop/ Summer Course on

# *Earth-system processes in the Atlantic*

Academia de Juventude e das Artes at Praia da Vitória City, Terceira Island, Azores, 2-7 July 2017,

**Coordination:** Eduardo B. Azevedo (UAc), Jian Wang (BNL), Michael Jensen (BNL); Pedro Miranda (IDL).

Taking the opportunity provided by the “*Aerosol and Cloud experiments in the Eastern North Atlantic (ACE\_ENA)*” campaign, which is bringing to the Azores a group of scientists to study processes in the maritime atmosphere, the University of the Azores (through IITAA at the Faculty of Agrarian and Environmental Sciences), the University of Lisbon (through Instituto Dom Luiz at the Faculty of Sciences), the Portuguese Institute for Sea and Atmosphere (IPMA) and the ACE\_ENA team offer a 1 week workshop/summer\_course on earth-system processes. The course will look at the Azores region as a natural laboratory for Earth studies, where the atmosphere, the ocean, the geosphere and the biosphere interact, defining the local climate but also constraining climate on the global scale.

### Institutions (alphabetical order):

Brookhaven National Laboratory – USA  
Duke University – USA  
INESCTEC – PT  
IPMA – PT  
Los Alamos National Laboratory - USA  
Michigan Technological University – USA  
Oceanic Observatory of Madeira – PT  
Pacific Northwest National Laboratory – USA  
Rutgers University – USA  
Stevens Institute of Technology – USA  
University of Arizona – USA  
University of Azores - PT  
University of Kansas – USA  
University of Lisbon – PT  
University of Reading - UK  
University of Yonsei - Kr

### Lecturers (alphabetical order):

**Ana Barros** (Duke University – USA)  
**Ana Colaço** (IMAR - University of Azores – PT)  
**Ana Machado** (IDL - FC - University of Lisbon - PT);  
**Ana Martins** (FCT - University of Azores – PT)  
**Armand Hernandez** (IDL - FC - University of Lisbon - PT);

**Beat Schmid** – (Pacific Northwest National Laboratory – USA)  
**David Mechem** (University of Kansas - USA);  
**Eduardo Azevedo** (IITAA - University of Azores - PT);  
**Emanuel Dutra** (IDL - FC - University of Lisbon - PT);  
**Fátima Viveiros** (IVAR – University of Azores - PT);  
**Fernando Barriga** (IDL - FC - University of Lisbon - PT);  
**Francisco Cota Rodrigues** (FCAA – University of Azores - PT);  
**Jian Wang** (BNL - USA), (\* PI - ACE-ENA Campaign);  
**Joana Barcelos Ramos** (IITAA- University of Azores - PT);  
**Julie Pullen** (Stevens Institute of Technology - USA);  
**Manuela Juliano** (OKEANOS - University of Azores - PT);  
**Mark Miller** (Rutgers University – USA);  
**Miguel Teixeira** (University of Reading)  
**Nuno Álvaro** (IITAA - University of Azores - PT);  
**Pedro Miranda** (IDL - FC - University of Lisbon - PT);  
**Raymond Shaw** (Michigan Technological University – USA);  
**Ricardo Ramalho** (IDL- FC - University of Lisbon - PT);  
**Rui Caldeira** (Oceanic Observatory of Madeira – PT);  
**Scott Giangrande** (Brookhaven National Laboratory - USA);  
**Seong Soo** (Yonsei University)  
**Susana Barbosa** (INESCTEC - PT);  
**Susana Custódio** (IDL - FC - University of Lisbon - PT);  
**Vitor Magalhães** (IPMA – PT);  
**Xiquan Dong** (University of Arizona - USA).

### Special sponsorship and acknowledgements (alphabetical order):

City Hall of Praia da Vitória;



Gaspar Frutuoso  
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Government of the Azores,  
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and Technology;



Observatory of the  
Environment of the Azores



Portuguese Air Force



Portuguese National  
Foundation for science,  
research and technology



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### ■ Program (Changes in the schedule may occur due to the ACE\_ENA campaign requirements)

2	9:00	17:00	Geological field trip (Francisco Cota Rodrigues, Fátima Viveiros) including a talk on volcanic gaseous emissions
3	9:00	9:30	<b>Welcome Opening</b> – Government of the Azores; Mayor of Praia da Vitória City
	9:30	9:45	Eduardo B. Azevedo: Brief Introduction. Azores – Geography and Environment
	10:45	11:00	Kim Nitschke: ARM Program and ENA Infrastructure
	11:00	12:30	Jian Wang: Aerosol Processes and Overview of ACE-ENA Field Campaign
			LUNCH break
	14:30	15:50	Seong Soo Yum: Aircraft measurement of cloud microphysical relationships and their implication on entrainment and mixing in stratus and cumulus clouds.
	16:00	16:50	Manuela Juliano: Ocean circulation in the Atlantic and in the Azores region
4	9:00	9:50	Scott Giangrande: ARM Radar Operations and Science at ENA, ARM Facilities
	10:00	10:50	Armand Hernandez: Paleoclimate proxies from Azorean lake cores
	11:00	11:50	Ana Martins: Biological processes at the ocean surface and ocean color
			LUNCH break
	14:00	14:50	Julie Pullen: Atmosphere ocean interactions
	15:00	15:50	Rui Caldeira: Island Wakes
	16:00	16:50	Ana Machado: Interannual variability and the formation of Atlantic central and intermediate water
5	9:00	9:50	Nuno Álvaro: Intertidal communities' responses to environmental disturbance
	10:00	10:50	Fernando Barriga: Hydrothermalism and geochemistry of the deep ocean
	11:00	11:50	Ana Colaço: Extreme ecosystems
			LUNCH break
	14:00		VISIT to the ACE_ENA operations site (TBC)
6	9:00	9:50	Raymond Shaw: MBL Cloud Microphysics, Holodec Instrument and ACTOS
	10:00	10:50	Pedro Miranda: Atmospheric flow near mountains
	11:00	11:50	Miguel Teixeira: mountain waves
			LUNCH break
	14:00	14:50	Ana Barros: Orographic precipitation
	15:00	15:50	Emanuel Dutra: Surface processes and the hydrological cycle
	16:00	16:50	Joana Barcelos Ramos: Carbon fluxes at the ocean surface
7	9:00	9:50	Beat Schmid: DOE ARM Aerial Facility - manned and unmanned aircraft to conduct atmospheric science
	10:00	10:50	Ricardo Ramalho: The emergence and evolution of ocean island volcanoes
	11:00	11:50	Vitor Magalhães: Geosphere-bio-hydro-atmosphere coupling processes at mud volcanoes, cold seeps and pockmarks
			LUNCH break
	14:00	14:50	Susana Custódio: Ocean-solid Earth coupling in storms
	15:00	15:50	Susana Barbosa: Environmental radioactivity - solid Earth - atmosphere coupling
	16:00		10 min Presentations by students
	17:00		Conclusion