



Cloud-Aerosol-Precipitation Interactions Research Platform - Eastern North Atlantic (ENA) Graciosa Island ARM Facility

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One source of uncertainty that thwarts accurate and comprehensive representation of the present and future climate processes in the models is the role of the marine stratocumulus clouds that prevails over the eastern subtropical oceans that have been proved plays a critical role in the boundary layer dynamics and in the global climate.

The successful deployment of the US Department of Energy Atmospheric Radiation Measurement (ARM) Mobile Facility at Graciosa Island, Azores (2009-2010) in support of the Clouds, Aerosol and Precipitation in the Marine Boundary Layer (CAP-MBL) field campaign, produced the most extensive (19 months) and comprehensive dataset of marine boundary layer (MBL) clouds to date.

Solid preliminary findings and valuable data sets have since been used to promote a true climatology of marine cloud structure over the north Atlantic. From the promising results of this campaign (www.arm.gov), the Azores were identified as having ideal conditions to warrant a fixed site that focuses on the life cycle and characterization of marine stratocumulus clouds and ocean atmosphere interactions which play a critical role in boundary layer dynamics and in the validation and testing of cloud parameterizations for the large-scale computer models and improved climate predictions.

As a result, a new fixed facility that became operational on the 1st of October, 2013 has joined the ARM Climate Research Facilities network. Identified broadly as the Eastern North Atlantic (ENA), this facility is located on Graciosa Island (39°N 28°W); the second smallest island of the Archipelago of the Azores, Portugal. The ENA climate research user facility has augmented the facilities measurement capability with the addition of a Ka-/W-Band scanning cloud radar, a X-Band precipitation radar, Doppler lidar and an extensive set of radiometric measurements and routine radiosonde soundings.

Besides showcasing the capabilities of this new facility, this presentation will aim to promote discussion about the potential for the facilities use in collaborative efforts in support of atmospheric and climatic sciences and in particular as they may relate to European initiatives. The facility as a designated DOE user facility makes all of its data freely and publicly available. In addition there is limited opportunity for the facility to be used as a deployment platform with instrument accommodation and infrastructure available on request.