



CIMH and Max Planck Institute for Meteorology launch international cloud-climate observing aircraft NARVAL II over Barbados

August 19th, 2016 (Bridgetown, Barbados) -- To better understand how clouds in the tropics shape the global weather conditions and respond to climate change, the Max Planck Institute for Meteorology (Hamburg, Germany) in conjunction with the Caribbean Institute for Meteorology and Hydrology (CIMH) are conducting a series of experimental flights as part of the "Next-generation Aircraft Remote sensing for VALidation studies (NARVAL II)" over the North Atlantic Ocean to the east of Barbados from August 8-31, 2016.

The flights will be conducted using the German High Altitude and Long Range Research Aircraft (HALO). These new data will augment data being collected since 2010 at the Barbados Cloud Observatory (BCO) located at Deebles Point, St. Philip, on land that is leased from the Barbados Museum and Historical Society. Since its establishment the BCO has been supporting studies of shallow cumulus clouds found in the North Atlantic trade-winds that are believed to be most predominant cloud type on the planet yet very difficult to measure from space. NARVAL II HALO will provide more data to better parameterize shallow cumulus clouds in climate models used to predict climate change.

HALO is currently stationed on Barbados close to the target area to minimize the time to the research target area. The mission will consist of approximately 100 flight hours, with 8-10 hours flights flown every other day at moderate altitude to enhance the sensitivity of onboard remote sensing instruments. NARVAL 2 will expand the statistics of the original NARVAL campaign (December 2013) and will further expand the spatial data footprint of the long-term measurement program of the BCO. Flights will trace the life cycle of non-rotating systems, rather than frequently observed larger systems which can evolve into hurricanes. By taking this approach Max Planck Institute researchers hope to gain valuable insight on the organization of the convection systems as well as its climate sensitivity.

"Adapting to climate change and extreme weather is a key priority for Caribbean Small Island Developing States including Barbados. The NARVAL data collection flights, when combined with daily data from the Barbados Cloud Observatory, the University of Miami research facility at Ragged Point which hosts a range of atmospheric research programmes from institutions such as NASA and the Bristol University, the CIMH and the Barbados Meteorological Service provide an extensive database that makes Barbados an ideal location to support global studies aimed at improving our understanding of atmospheric processes in the tropics which is critical to reducing the significant uncertainties associated with weather and climate prediction models. By collaborating with the Max Planck Institute for Meteorology and other strong global research programmes, the CIMH has been able to position itself and Barbados on the cutting edge of weather and climate research critical for the region's adaptation to climate change and extreme weather. As part of these collaborations, young scientists from the region have been exposed to and routinely collaborate with leading global scientists to further their studies, enhance their knowledge and expand their research networks. Discussions are underway to further imbed scientists from the region on flight missions envisaged as part of a much larger data collection campaign in 2020. Based on the success of the existing programmes, we expect to see an increased number of research teams coming to Barbados to participate in joint atmospheric research programmes in the future which will not only provide scientific opportunities but will also have other spin-off economic benefits for the island through the provision of various technical and non-technical services. Finally, much of this success would not be possible without the assistance of the Government of Barbados and high quality of service provided by various local service providers," explains Dr. David Farrell, the Principal of the Caribbean Institute for Meteorology and Hydrology.

“The most important outstanding question in climate change science is how clouds, especially smaller clouds, depend on the conditions of their large-scale environment, things like the humidity, or even more important whether the atmosphere in a particular region is gently rising or descending. In the past, it has not been possible to both measure how clouds are distributed in the atmosphere and the details of the larger scale environment in which they form. During NARVAL we are testing new ideas for doing this which hopefully will help us understand whether predictions of very strong warming with increasing Carbon Dioxide (CO₂) or only moderate warming are more likely to be true. Our initial data show that the techniques we have developed are very promising. These results will guide a much larger field experiment in February 2020 involving multiple research aircraft, and research vessels from many nations, along with what we hope will be active participation by scientists at CIMH. Our measurements are also testing new techniques to measure the state of the atmosphere using satellites, and helping us better understand how dust transported from Africa is influenced by meteorological conditions,” says Dr. Bjorn Stevens, Director of the Max Planck Institute for Meteorology.

For more information or to schedule an interview, please contact Shireen Cuthbert, Communications Specialist, CIMH at scuthbert@cimh.edu.bb.

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