

# Overview of ARM Cloud and Precipitation Observations During AMIE



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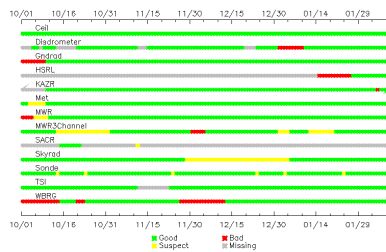
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## 1. AMIE: The ARM Madden Julian Oscillation (MJO) Experiment

The primary goal of AMIE is to study how the moisture and cloud fields evolve with the MJO. The ARM Second Mobile Facility (AMF2) took measurements on Gan Island in the Maldives from Oct 2011 – Feb 2012 while concurrent measurements occurred at the ARM fixed site on Manus Island, Papua New Guinea. A key aspect of the campaign was 8/day radiosonde launches at both sites. AMIE occurred in collaboration with the DYNAMO and CINDY2011 campaigns, which included a radar supersite on Gan Island, several research ships, and a large-scale sounding array.

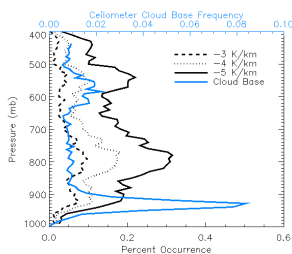
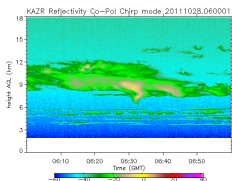


## 2. AMIE-Gan Data Availability



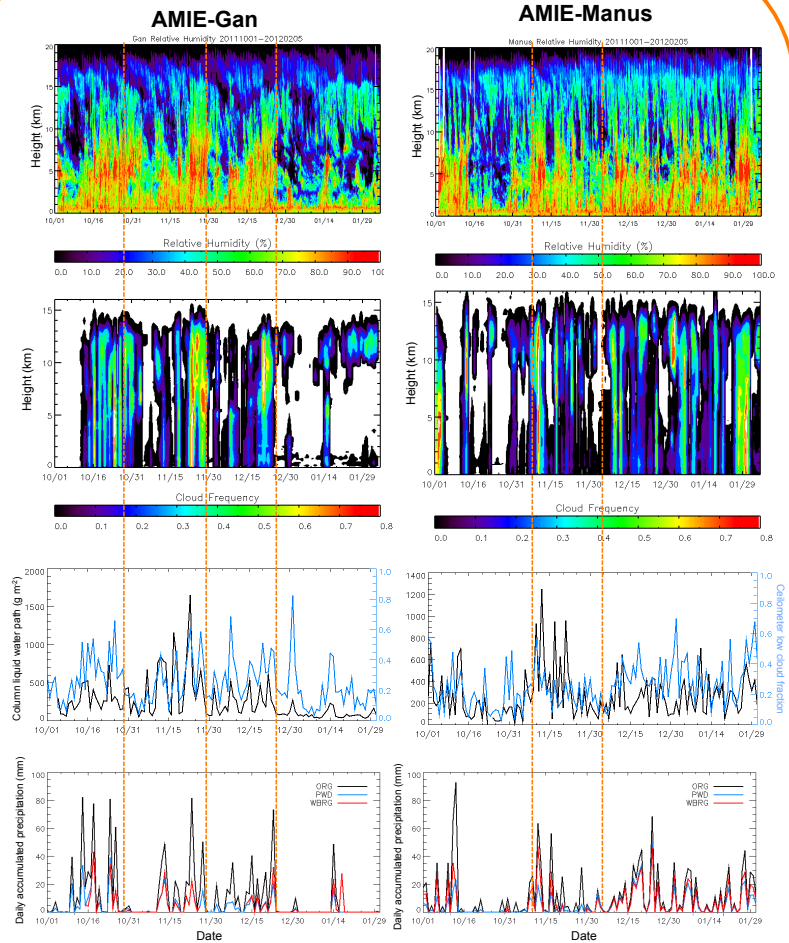
Timeline of data availability for the AMIE-Gan data. Sondes are marked "suspect" when fewer than 7 sondes/day reached 10 km. Several of the AMF2 instruments (such as the SACR and HSRL) were deployed for the first time during AMIE and the remote conditions made trouble-shooting and ordering of replacement parts difficult. Although originally intended to run until March 31, 2012 the AMF2 deployment was suspended on Feb 9, 2012 due to civil unrest in the Maldives. Value Added Products are currently under development for many of the instruments.

## 3. Mid-level clouds



Frequent thin altocumulus cloud layers were seen at Gan (top left); including multiple-layers on some days (bottom left). Sonda and ceilometer analysis (right) shows mid-level clouds occur in a wide band of heights near the 0 C level and are associated with stable layers that occur slightly above the cloud bases.

## 4. Time Series of Cloud and Precipitation Observations



Time series of (top) relative humidity, (2<sup>nd</sup>) radar cloud fraction, (3<sup>rd</sup>) liquid water path and ceilometer low cloud fraction and (bottom) precipitation for (left) Gan and (right) Manus during the AMIE period. Dashed lines indicate the approximate timing of MJO events (maximum values from the NOAA pentad index) that were observed at the two sites during the campaign.



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