

JAM 10/12/11

DYNAMO Project  
Field Phase Interim Progress Report  
12 October 2011

The purpose of this report is to provide EOL staff with a sense of the efforts now underway in the DYNAMO Project. The project officially began on 1 October but it really began in late August and September with the set-up of major facilities, the initial cruise of the research ship with ISS aboard and the dry runs of specialized model forecasts and products. We are now in the Intensive Observing Period that lasts until 15 January 2012. Some facilities will continue observations through the end of March 2012.



S-PolKa on site and operational on Addu Atoll, Maldives during DYNAMO

RSF and Texas A&M Research Doppler Radar Support

The S-PolKa radar is deployed and operational on the Addu Atoll in the southern Maldives Islands. Shipment began back in late June with arrival in July and on site set-up beginning in early August. The RSF Facility is fully committed to supporting the radar through the nearly 6-month deployment (including set-up and tear down) in the Maldives. Scientist, engineering and technician support are provided and the radar is operational 24/7 to meet the science objectives of the project.

The Texas A&M Smart-R radar is set up at the so called “Spit Site’ which is exactly a spit of land (actually crush coral rock and sand) jutting out into the Addu atoll. It is located about 2 km north of S-PolKa. The SMART-R will be operated 24/7 for 6 months to collect radar data throughout the full project deployment period from 1 October 2011 through 31 March 2012.



Texas A&M SMART-R radar on site and operational on Addu Atoll, Maldives

Data from the SMART-R is transmitted via wireless Internet to the S-PolKa operations trailer where it can be displayed in full resolution in the CIDDS display system. The SMART-R radar will remain on site until the end of March 2012 providing continuous 5-cm surveillance scans.

#### ISF Integrated Sounding Systems Support

There are two ISF integrated Sounding Systems (ISS) systems deployed for DYNAMO. One system is aboard the R/V Roger Revelle that began operations in September 2011 and will continue until early February 2012. Another ISS is on the island of Diego Garcia in the Indian Ocean. Both locations are taking 8 soundings per day from 1 October 2011 through 15 January 2012 and providing continuous atmospheric profiling through their respective deployment periods. The ISF Facility has staff fully engaged in manning these two sites over the long deployment period.

The first cruise of the Revelle began in August from Darwin Australia via Cocos Islands and on to the DYNAMO area near the equator and 80E. The ship has made a port call to Phuket, Thailand and is now headed back to the equator. Seas have been a bit rough making sounding launches challenging. Seas are now calmer near the equator.



Sounding launch from R/V Revelle in Indian Ocean during DYNAMO

The Diego Garcia site has experienced days of heavy rains (one day had over 6 inches) that challenges a normal sounding launch routine. Then once the sounding is aloft in the rain it reaches the freezing level, ices up and comes back down. ISF staff have implemented creative solutions involving smearing cooking oil on the balloon to keep it slick.



ISS site on Diego Garcia for DYNAMO Project

### CDS Communications and Data Management Support

The communications network for DYNAMO has proven to be a challenging and interesting to design and implement. The network for Addu Atoll is very important to the real-time exchange and display of data during DYNAMO. CDS took on the task of designing, working with the local Internet Service Provider and integrating the wireless data and Internet link into S-PolKa system.

CDS also customized and implemented the DYNAMO Field Catalog for the project. The catalog was first turned on in July 2011 to support project dry run activities for the modeling centers. It will run continuously until the end of March 2012. A local catalog is running on Addu Atoll to keep the bandwidth off the island as available as possible or maintenance and other radar support activities. Then both catalogs in Boulder and Addu are updated to keep all products consistent and current in both locations. CDS has also implemented a special 'low bandwidth' version of the catalog to allow easier access to key products from places like Diego Garcia and the ships where connectivity is quite limited. CDS personnel are on site in Addu Atoll to make sure communications are reliable and to assist the PIs with the lodging of products to the catalog.

One of the big efforts during DYNAMO has been to get all of the special sounding observations onto the Global Telecommunications Network. CDS staff has worked with the sounding launch facilities, Maldivian Meteorological Service (MMS), and the global numerical weather centers to help assure that the special high resolution soundings from DYNAMO sites reach the numerical centers so the data can be included in the model computations. CDS has had great success getting the GTS pathways open and operational for DYNAMO.

### FPS

Field Project Services has been the home for the DYNAMO Project Office. We are currently helping the participants settle into a reasonable routine in the field and provide advice, assistance and support as needed to help the deployment run smoothly. The Opening Ceremony just occurred on 10 October at Gan Airport. It was attended by approximately 90 local residents support staff and visiting project participants from the facilities. The Mayor of Addu City was also in attendance along with key people from several government agencies and local contractors.



DYNAMO/AMIE Opening Ceremony, Gan Airport Fire Station



Ceremonial (actual 0600 UTC sounding) balloon release during DYNAMO/AMIE Opening Ceremony

There were a number of education and outreach activities during the start-up period of the project to engage and inform the local citizens, teachers and students about the project. Visits were made to local schools to conduct a workshop with science teachers. Information about the project was distributed at various locations on Addu atoll. Visits were made to two different schools presenting information to students about the project and weather and climate in general. This involved FPS, NSF and TAMU personnel. Footage in and around all of the facilities plus taped interviews



Science Teachers on Addu Atoll during DYNAMO presentation

### Male Sounding Station

NCAR is collaborating with CSU, the CINDY Project and National Taiwan University to deploy and support special sounding operations at the MMS Office on Hulule Island near Male, Maldives. The site will be operational from 1 October to 15 December 2011 with 4 per day sounding launches. Soundings from Male and Gan are both uploaded to the GTS from the MMS Male Office.

### Other Collaborating Projects

Other resources on Addu Atoll include various facilities of the ARM sponsored AMIE Project and associated AMF-2 facility. The Addu 'Radar Supersite' includes now 7 radars of various frequencies from Ka- through S-band, and other ARM AMF-2 facilities. The PI team has worked very hard to integrate the various observations from these facilities in real-time. This will serve to improve the in-field interpretation of the measurements and allow the early definition of the focus of the analysis activities.



ARM/AMIE Project AMF-2 Facility at Gan Airport on Addu Atoll, Maldives

### Other Observations



Group picture of DYNAMO/AMIE/CINDY, Opening Ceremony, Gan Airport

There are always new challenges and opportunities on these field projects. DYNAMO is no exception. This results in important observations and advice that will serve subsequent participants well to keep in mind as they deploy to Addu Atoll. Consider the following words of advice/encouragement/caution:

“German night” at the restaurant on the Equator in the tropics may not mean the same as in your favorite Stuttgart Pub. The macaroni and cheese and sauerkraut may be the only familiar items

“Asian night” at the hotel restaurant could only be called that because Chidong Zhang was in attendance.

If the color of the water in the sink is the same color as the water in the toilet before- or after- your flush, it best NOT to drink the tap water

The term ‘rental car’ on Addu Atoll should not be confused with ‘Hertz or Avis rental car’ at home.

There was recent very sad news about the passing of Steven Jobs. This means that the maddening incompatibility of Dhiragu 3G modems and Mac computers will continue unabated for the foreseeable future.

More to come...