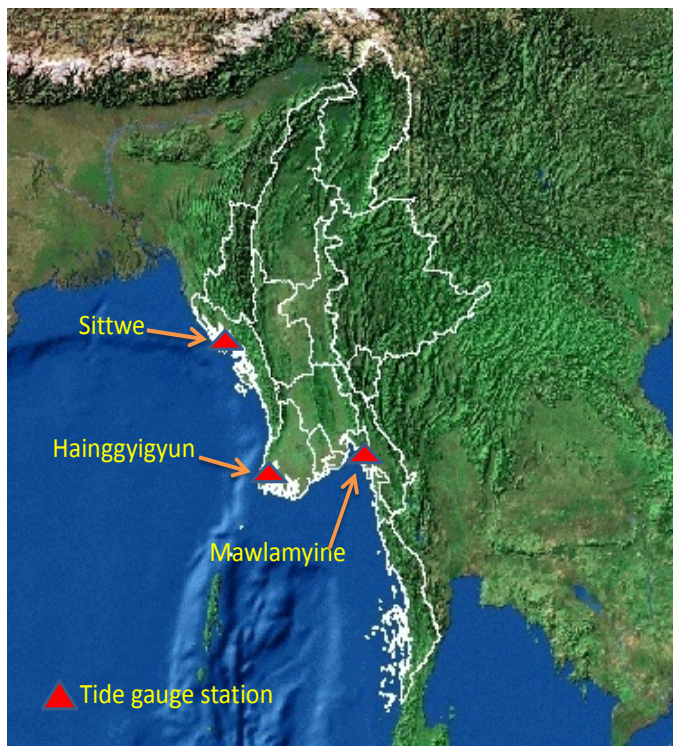


**Indian Ocean Sea Level Science workshop & Fourteenth Session of
the Group of Experts for the Global sea Level Observing System
19-23 October, 2015**

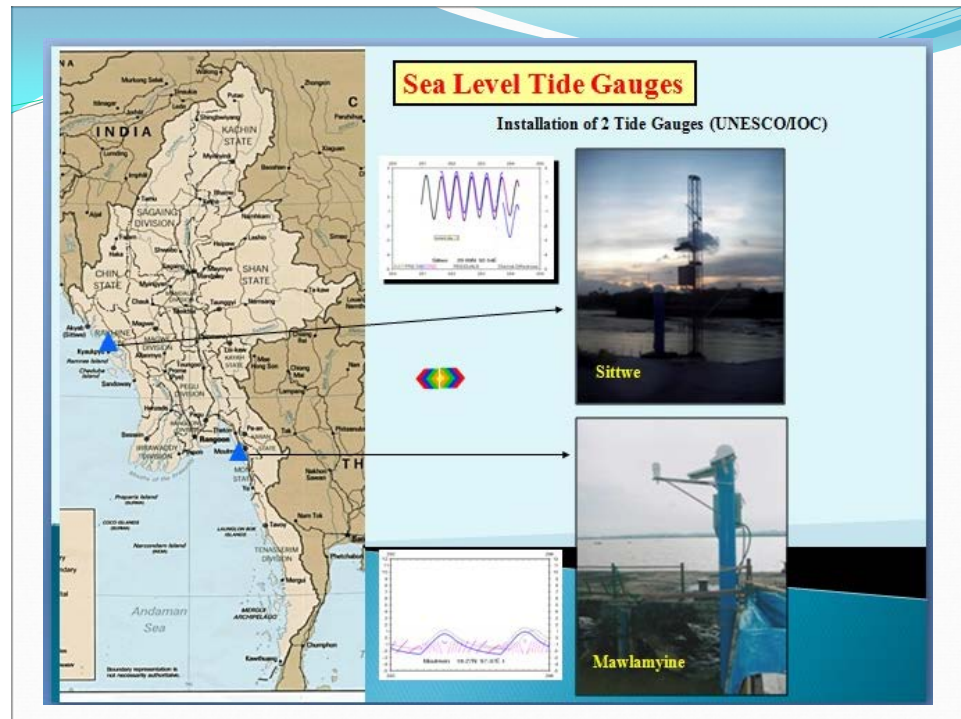
**CSIR-National Institute of Oceanography, Goa-India
Intergovernmental Oceanographic Commission of UNESCO**

1. Date of report: 7th October, 2015
2. Title of report: **National Report for Sea of Myanmar**
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Myanmar
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4. **Map of tide gauge network in Myanmar**



5. A list of tide gauge sites

- (a) Sittwe in Rakhine State
- (b) Mawlamyine in Mon State
- (c) Hainggyigyun in Ayeyarwaddy Region



6. Overview of National Sea Observations System

Two tide gauges were installed by Hawaii University at Sittwe and Mawlamyine for global sea level observation purposes such as tsunami and storm surge for our Myanmar coast since 2006.

In 2013 March, DMH established the new organization including Marine Meteorology and Radar Meteorological Division. According to the new organization, there are 14 Staffs: An Assistance Director, three staff officers and 10 are others staffs at the Marine and

Radar Meteorological Division. As the new Division, still DMH haven't installed marine meteorological observation systems yet.

In September 2014, a tide gauge utilizing the solar system and capturing the wave high from sensor has been installed in Hainggyigyun by Japan International Cooperation Agency.

Tide gauge has been installed at Haing Gyi Gyun in September,2014.

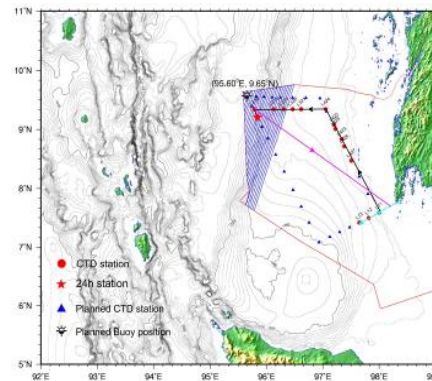
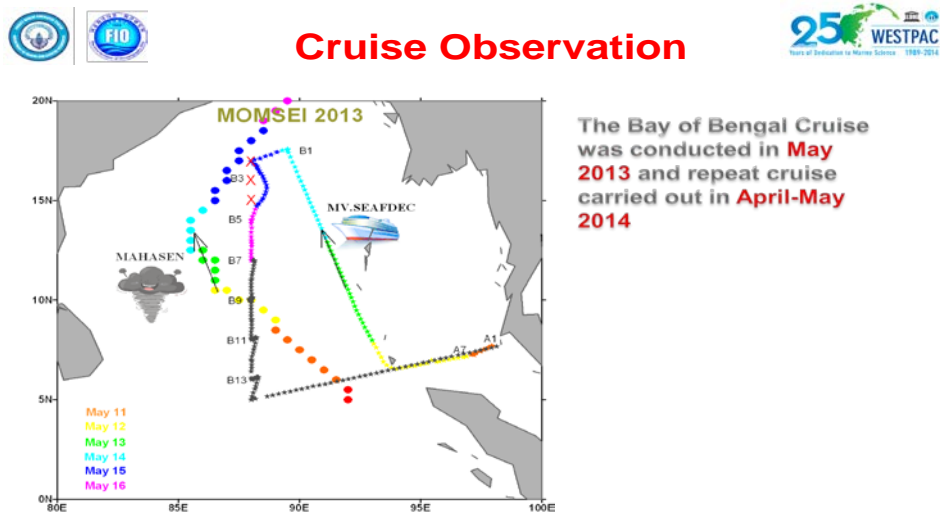


Memorial Photo for Haing Gyi Gyun Tide gauge Installation



7. DMH activity and cooperation with UNESCO IOC

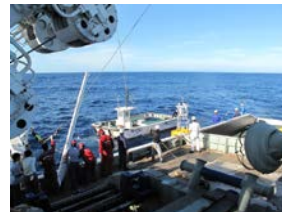
Staffs from Seismological Division of DMH in Myanmar participate in India Ocean Tsunami warning system communication test organized by UNESCO IOC quarterly per year. During the test, DMH could conduct by communicating of Global Telecommunication system, Email and Short Message System.



Cruise: line transect (E_W) and the north of Andaman Sea coast of Thailand

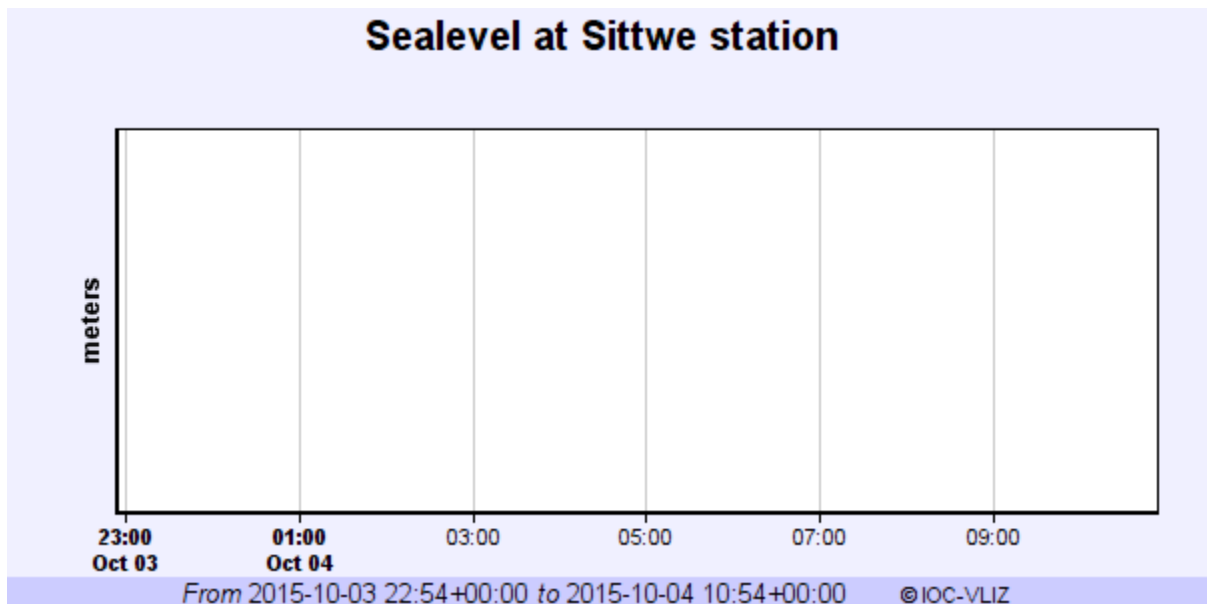
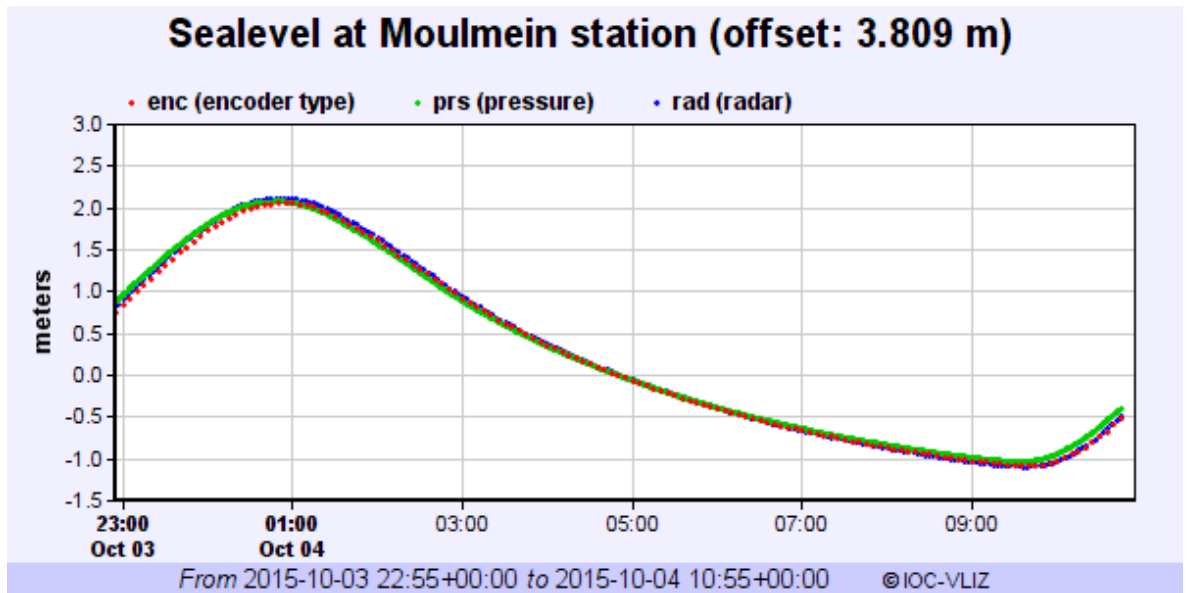


CRUISE: BUOY MAINTENANCE



8. **An overview of the data availability**

Data transmissions from the two (Sittwe and Mawlamyine) sea level stations, DMH main office directly receives their sea level data from UNESCO-IOC website. At the present, tide gauge data of Sittwe couldn't be available because it was out of satellite receiver. Data transmissions via satellite of Japan Meteorological Agency from the (Hainggyigyun) sea level station are also received directly at DMH main office in Nay Pyi Taw. In coming November, tide gauge of Hainggyigyun will be maintained by some staffs of JMA and tide gauges of Sittwe and Mawlamyine will also be maintained by UNESCO IOC. Regarding the storm surge, we already have NWP model like as IIT storm surge model and JMA storm surge model and empirical Method.



9. Climate Change of Myanmar

According to the observed climate variability and change in Myanmar over the last six decades, increase of temperatures are notable in the northern and central regions, the duration of the Southwest Monsoon season is shorter than the normal as the result of late onset and early withdrawal,

severity of extreme weather events such as cyclones, flood, storm surge, heavy rain, strong wind and drought are increasing.

As spatial differences in climate change impacts due to increasing temperatures and sea level rise, coastal line areas are vulnerable to sea level rise and flooding which will impact low lying settlements, agricultural lands and critical infrastructure. Increases in frequency and intensity of coastal flooding will most impact the high population density, infrastructure intensive and fertile low lying areas.

10. Future Perspectives and Needs for Strengthening Sustained Sea Observations and Services

DMH needs to set up Marine Observation Stations along the coastal areas because the total length of Myanmar Coast is about 2400 km. Regarding with Marine Meteorology and Oceanography Division, it needs to be measured the ocean current, sea surface temperature along Myanmar Coast. Then, continental shelf depth also should install to measure the depth of water near coast. Continental shelf depth is very important for the storm surge forecasting model.

We have experienced cyclones which crossed to Myanmar coast like as Mala Cyclone (2006), Nargis (SCS) (2008), Giri (SCS) (2010). These cyclones associated with Storm Surge. The destruction due to the storm surge flooding is a serious concern along the coastal region of Myanmar. Establishment of marine weather service is urgently needed for coastal communities including fisheries, navy, transportation, ocean wave forecast is also necessary to set up. International assistances from WMO, UNESO/ IOC are expected to set up marine weather services systems.

In order to calculate the storm surge, we already have NWP model like as IIT storm surge model and JMA storm surge model and empirical Method. We need more tide-gauges depth of continental shelf data, more accurate forecast will receive.



Position of Meteorological Stations along the coastal Areas