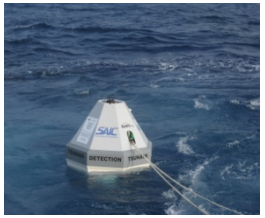
International Tsunameter Partnership
Report to DPCP, Geneva 2011









Ross Hibbins, Chair – ITP
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The Last Year

Meetings

- ITP-6 was held in Oban, Scotland, Oct 1-2 immediately after the DBCP (15 participants – Aust, India, Indonesia, Oman, US & reps from AMS (Aust), CSNet, Ligthouse, SAIC, Sonardyne, Seabird, Win Marine)
- Chair attended the IOC IGC-IOTWS meeting in Melbourne 3-6 May 2011
- ITP-7 will be held immediately after DBCP-27 meeting

Key development (not all)

- New Chair (Ken Jarrott step down)
- Russia and China deploying their first Tsunameters
- Release of the Vandalism report
- Data exchange – India & Thailand (FTP)

The Last Year

ITP – 6, Oban 2010 Agenda

- Updates from Tsunameter operators
- Updates from Industry reps
- New Tsunameter technology developments

ITP – Working Groups

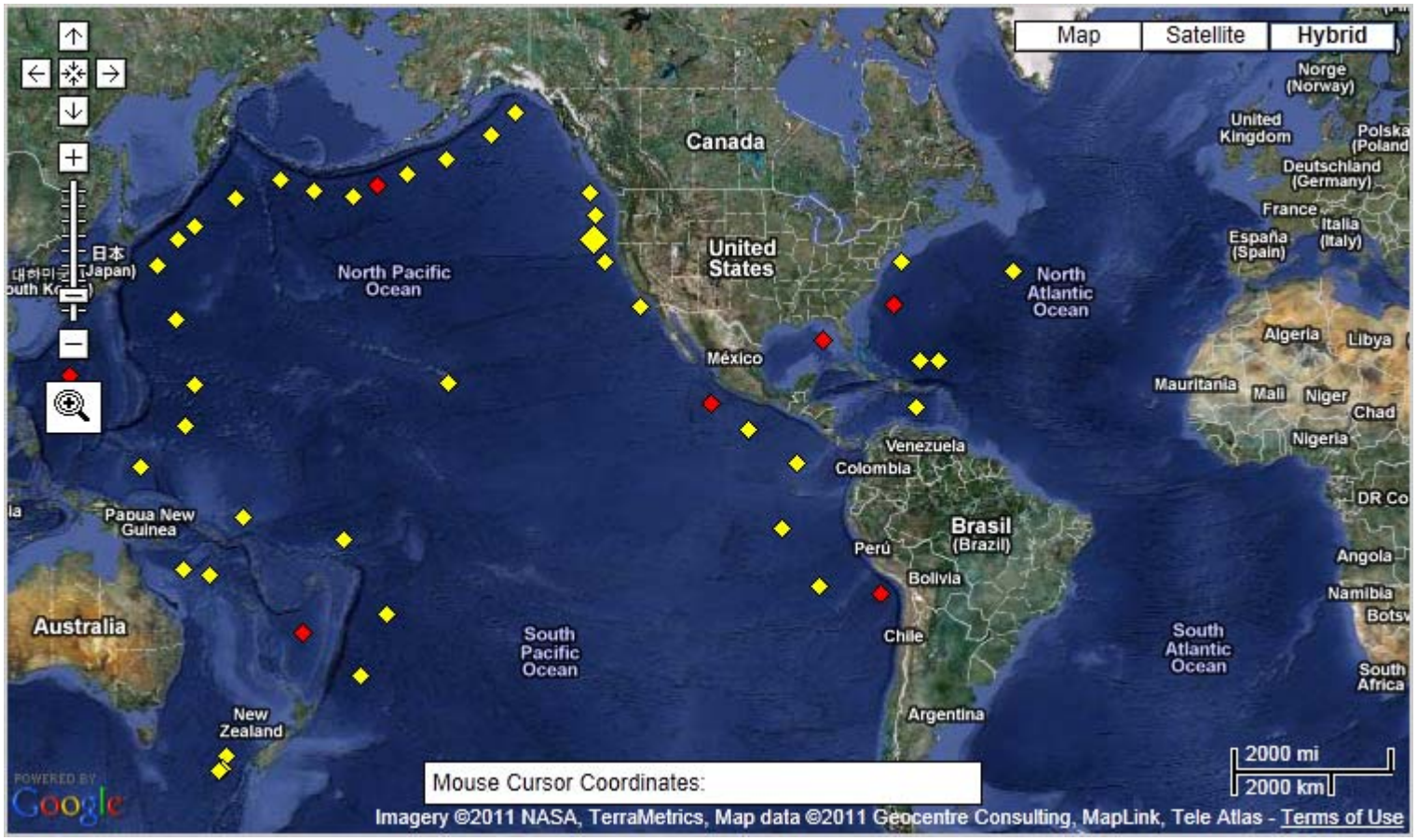
- Data exchange
  - Lead - Bill Burnett
- Vandalism
  - Leads - Ken Jarrott & Venkatesan
- Near field Tsunami detection
  - Lead - Chris Meinig

Network Status

	Tsunameter network (Planned: 83 Operational: 52)		
Country	**Plan network**	**Currently operational**	**Tsunameter types**
Australia	7	6	NOAA - DART II STD, NOAA -DART ETD, SAIC-DART II STD, SAIC-STB, SAIC-ETD
Chile	3	1	SAIC-DART II STD,
Cyprus	1		Cable system installed by CSNet
China	2	1	SAIC - STB
India	7	4	DART-STB (ARABIAN SEA & BAY OF BENGAL) INDIAN MADE TSUNAMI BUOY WITH SONARDYNE BPR 2 (BAY OF BENGAL)
Indonesia	20	2	InaBuoy, NOAA-DART-STD, NOAA-DART- ETD, SAIC-ETD
Japan	?	?	Cable systems
Lighthouse	1	1	Cable system privately owned
Malaysia	3	3?	Fugro Oceanor
Russia	1	1	SAIC - STB
Thailand	3	1	SAIC-STB, Envirtech
US	39	35	NOAA - DART II STD, NOAA -DART ETD, SAIC-STB, SAIC-ETD

Network Status / Distribution

Pacific and Atlantic Tsunameter reporting to the GTS

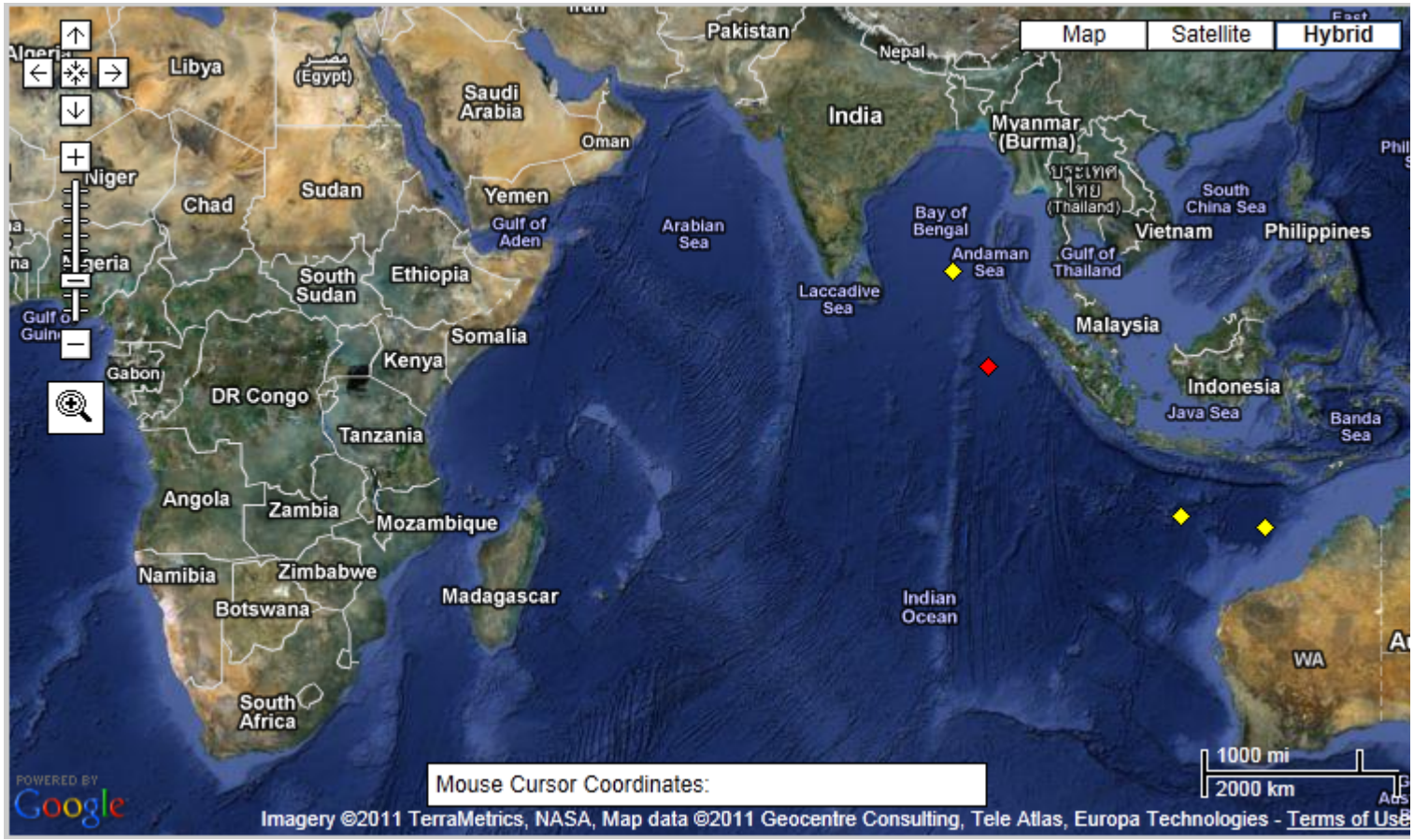


SOURCE: NDBC Web Site: 27 Sep 11

www.ndbc.noaa.gov

Network Status / Distribution

Indian Ocean Tsunameter reporting to the GTS



SOURCE: NDBC Web Site: 27 Sep 11
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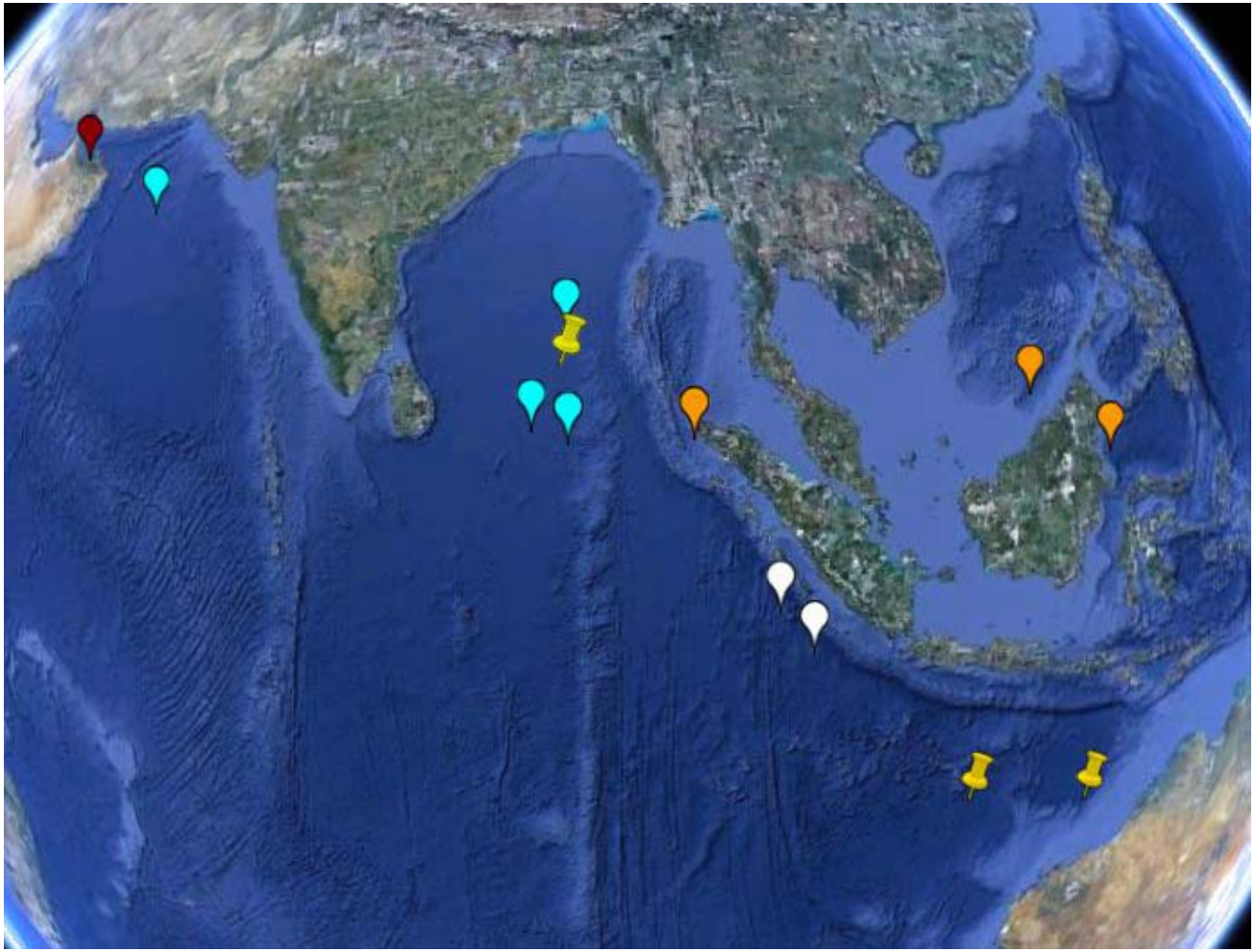
Network Status – Indian Ocean

Operational Tsunameter in the Indian Ocean



Data Exchange - Status

- All Australian tsunameters delivering real time data on GTS in standard BUFR code and via NDBC web site.
- All US DART™ delivering real time data on GTS, and via NDBC web site.
- SAIC STB built tsunameters operated by China, Chile, Thailand & Russia delivering real time data on the GTS and via NDBC web site. BUFR/CREX encoders have been developed by SAIC.
- India has developed and tested BUFR coding of tsunameter sea level data and has made the data available to registered users via FTP
- Cyprus cabled system coding data in standard tsunameter code format
- German GITEWS GPS stations to explore data transmission via Uni of Flanders – No Change
- Oman considering data release from cabled system installed by Lighthouse R&D.

Data Exchange Summary

Centre	Data Format	TTAAii CCCC	Access	Remark
NDBC US	PMEL DART II	SZIO01 KWNB SZPS01 KWNB SZPN01 KWNB SZNT01 KWNB	GTS	More than 40 buoys reporting including the Russian (21401) and Thailand (23401) buoys. The Chilean (32401) and Indonesian (53401) buoys are currently not reporting.
JATWC Aus	BUFR	IOZK01 AMMC IOZK10 AMMC IOZK03 AMMC IOZK02 AMMC	GTS	7 buoys are currently reporting. Fiji Basin 1 (55016) stopped reported since Jan 2011, suspected that the moor line was cut by long line fisherman to free their lines.
JATWC Aus	PMEL DART II	SZIO(40-41) AMMC SZOC(40-45) AMMC	GTS	
NDWC Thailand	BUFR		FTP	2 Thai Envirtech buoys are operating in the Andaman Sea. Data access via ftp provided by Envirtech.
INCOIS	CREX		FTP	2 STB buoys operating in Bay of Bengal and Arabian Sea. Data access via ftp provided by INCOIS.

Vandalism

- ITP-6 worked towards completing the DBCP technical document 41 on ‘Ocean Data Buoy Vandalism – Incidence, Impact and Responses’
- Creation of the working group on Vandalism at DBCP-26 now means that reporting of Tsunameter Vandalism will be coordinated through that working group
- While vandalism will still be an issue for tsunameters, the ITP is well represented on the Vandalism WG and will now focus on other areas

Near Field Tsunami detection

Key objectives from ITP-6, Oban 2010

- Gather the requirements from the Tsunami Warning Centres
- Ability to get enough real time data in a timely manor to be useful to the TWC. Seismic and sea level data
- Consider mechanisms to extract adequate Tsunami signals from the seismic noise
- Investigate solutions in signal processing and higher frequency pressure sensors. R&D is required to obtain suitable solutions
- Utilise broadband observatories for testing and to capture high frequency events.
- Seek funding to facilitate workshops on the near field tsunami solutions.

Progress on the Near Field Tsunami objectives will be present at the ITP-7 meeting on Saturday

Looking ahead

ITP-7 Geneva 2011

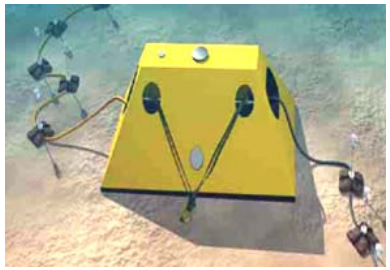
- Data Exchange (get closer, but not there yet)
- Near Field Tsunami detection (cont)
- Tsunameter performance standards (new focus)

Diversity of buoy, BPR and technology types



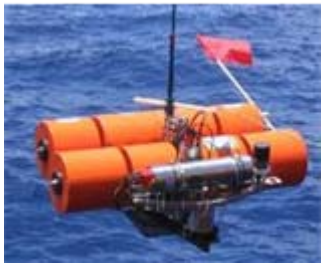



Surface Buoys




Ocean Floor Cabled Nodes

Ocean
Bottom Units





Challenges ahead

- Getting all technology and products to mature state
- Sustainable (viable) and healthy global supply chains – 5 to 10 years must have a viable supply chain (reduce operating costs)
- Data Exchange must improve
- Warning Centers engagement in acceptance, data exchange and data interpretation
- Data and metadata repositories and visualization tools
- Near-field tsunami detection – ocean wave signal in seismic noise + challenge of warning results for immediately threatened communities
- Vandalism and sustainability
- Communal collaboration facilities – web based
- Engagement with new countries and TWS's – Russia, China, Europe
- Relationships and governance transitions