

ICG/IOTWS Working Group 4 (WG4)

Modelling, Forecasting and Scenario Development

REPORT OF SESSIONAL MEETING ICG-II (DECEMBER 2005)

Chair: Prof Charitha Pattiaratchi, Sri Lanka

1. Objectives

At ICG-II, it was decided to establish a separate working group dealing with Risk Assessment, while the newly-formed Working Group 4 dealt with numerical modelling, forecasting and scenario development. The objectives for this group are to:

- Develop standards for operation and application of models.
- Facilitate the development: source, deep water propagation, inundation and forecast models.
- Develop bench mark tests for model verification and validation.
- Facilitate the development of a web-based community model.
- Development of credible case scenarios for model application for the entire Indian Ocean including all possible sources (Sunda Arc, Mokrán region etc).
- Facilitate capacity building and knowledge transfer in the form of web-based tools and training programs.
- Liaise with other working groups, especially WG3 - Tsunami hazard detection, characterisation and risk assessment for model requirements and effective model usage and application.

2. Discussion of Issues

At ICG/IOTWS-1 meeting it was recommended that a model inter-comparison workshop for the Indian Ocean region be undertaken prior to the second meeting of ICG/IOTWS-II. The main tasks of workshop were to: (1) Obtain details on models that are currently used in the region or in development; and, (2) Provide benchmark tests. The workshop was held on 12-13 December. Presentations were made by Australia (Diana Greenslade), Indonesia (Velly Asvaliantina), India (M.V. Ramana Murthy), Malaysia (Koh Hock Lye), Singapore (Chui Wah Yap), Thailand (Absornsuda Siripong), USA (Costas Synolakis, Vasily Titov). These presentations included the current status of tsunami modelling (Synolakis, Titov) and information on the various models being used in the region which include: MOST, TUNAMI-N2, VOF, NTC, ANUGA, MIKE21, TUNA.

The workshop developed model standards that should apply to tsunami models. These include: (1) accepted peer review process (published in ISI journals, presentation at benchmarking workshops); (2) Model documentation (how to run the model, model parameters); (3) benchmark testing to compare with data and other models; and, (4) practical application tests. In view of (3) and (4), a series of benchmark tests were identified, based on analytical, laboratory and field approaches and included the definition of source parameters, deep water propagation, run-up (inundation).

At ICG/IOTWS-II, it was decided to establish a separate working group dealing with numerical modelling, forecasting and scenario development.

3. Agreed Actions and Deadlines

Action	Person Responsible	Deadline
1. Develop inundation maps for the coastal communities of the Indian Ocean region.	Charitha Pattiaratchi	End 2015 if possible
2. Develop web based community model (IOC should allocate resources).	Charitha Pattiaratchi	By ICG-III
3. Development of inundation maps for different scenarios. This should also include translation of the inundation projections to evacuation maps over a 10 year (or less) time-frame.	Charitha Pattiaratchi	End 2015 if possible
4. Model standards and scenarios be accepted and implemented.	Charitha Pattiaratchi	
5. Model benchmarks to be available on the IOC website.	Charitha Pattiaratchi	By ICG-III
6. A subgroup to work together with IOC to summarise the results and maintenance of the website.	Charitha Pattiaratchi	
7. Consider publishing the model standards and scenarios as a scientific paper.	Charitha Pattiaratchi	
8. Training for member states including both short-term and long-term strategies: <ul style="list-style-type: none"> • Short term training could include a short course with a form of an IOC sanctioned certification or award of a diploma (similar to that implemented by the WMO). • For long term training we recommend the award of 50 IOC fellowships over 5 years for postgraduate training (~40k per annum). 	Charitha Pattiaratchi	
9. Recognise that training is a continuous process and support is required for model maintenance, ongoing consultation and support at selected institutions.	Charitha Pattiaratchi	

4. Capacity Building

- Training and software for numerical modelling to develop inundation maps and to evaluate tsunami hazards and vulnerability.

Required by, BAN, COM, INDONESIA, KEN, MAD, MAL, MAU, MOZ, MYA, PAK, SEY, SOM, SRI, TAN, THA. SINGAPORE, INDIA, IRAN

Over 6 months

Development of web-based model \$500K

Annual

Travel 20 fellowships (20 @ 5k) \$100K

Long-term Fellowships (50 @\$40K)	\$ 2 million
<i>'One Off'</i>	
for field measurements after a tsunami	\$100K

5. Working Group Participant List

Name	Country	email
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