

CONCEPT NOTE

HYBRID WORKSHOP ON MAKRAN SUBDUCTION ZONE SCIENCE STRENGTHENING TSUNAMI WARNING AND PREPAREDNESS

UNESCAP TTF-31 Project: "Strengthening Tsunami Early Warning in the North-West Indian Ocean through Regional Cooperation"

National Center of Meteorology, Abu Dhabi, United Arab Emirates

14-16 November 2022

BACKGROUND

Probabilistic Tsunami Hazard Assessment (PTHA) and tsunami inundation modeling have been identified by the five partner countries of the North-West Indian Ocean (NWIO) region (India, Iran and Pakistan with funding from the project; Oman and United Arab Emirates (UAE) through self-funding), as priority topics to help improve community awareness, risk assessment, inundation mapping, and evacuation planning in support of tsunami preparedness.

Accordingly, the UNESCAP TTF-31 project is supporting the finalisation of a Probabilistic Tsunami Hazard Assessment (PTHA (V1.0)), including training of NWIO experts in its architecture and use. This includes a scientific exchange workshop to share the PTHA results with the region for adoption, as well as report on the latest regional/international studies on the tsunami hazard in the Makran Subduction Zone (MSZ). The project has also supported the establishment of a NWIO Regional Working Group on Tsunami Inundation Modelling and Mapping (NWIO RWG-TIMM) with membership from the five countries participating in the project and with input from international experts. The goal of the NWIO RWG-TIMM is to foster ongoing regional cooperation and exchange of knowledge on inundation modelling and mapping. The project will provide information on existing approaches, methodologies and input data for tsunami inundation modelling and mapping. The NWIO RWG-TIMM will develop a unified approach for tsunami inundation modelling in order to assure inter-comparable results throughout the region.

By participating in this science exchange workshop countries can develop a solid foundation that will help achieve the goals of the UN Ocean Decade Tsunami Programme to make all communities highly at risk prepared for and resilient to tsunamis by 2030.

OBJECTIVES

Through this scientific exchange workshop, it is intended to distribute, report, and discuss the recent results of an extensive PTHA for the NWIO and to discuss the utilisation of the outcomes for tsunami inundation modelling and mapping for evacuation planning and risk assessment in the region. The specific objectives of the workshop are:

- Provide background information on the TTF-31 project and related initiatives, such as the UN Ocean Decade Tsunami Programme.
- Report the outcomes and results of the Probabilistic Tsunami Hazard Assessment (PTHA) for the North-West Indian Ocean (NWIO) region under guidance of GFZ and INGV.
- Discuss future development and possible extension of the PTHA to include complex tsunami sources in the NWIO region.
- Examine potential uses of the results of the PTHA in developing community awareness and risk management.
- Discuss the utilisation of the PTHA for inundation modeling and mapping in the NWIO.
- Explore further activities to be undertaken under the framework of the project, including next steps towards a joint strategy for implementing tsunami inundation modelling in the region and nationally.
- Discuss and plan possible future realisations of inundation mapping in the region in the project Pilot Areas, as part of possible future phases of the project.

OVERALL FORMAT AND SCHEDULE

The workshop will run as a <u>hybrid meeting</u> (face-to-face and online) with a duration of 3 days and hosted by the UAE National Center of Meteorology, Abu Dhabi, United Arab Emirate.

ORGANISERS

The organisation of this regional scientific exchange workshop is undertaken by the IOC-UNESCO Secretariat of the Intergovernmental Coordination Group for Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWMS), IOC-UNESCO Indian Ocean Tsunami Information Center (IOTIC), UAE National Center of Meteorology, and the Project Team for the UNESCAP TTF-31 project with the support of the ICG/IOTWMS Tsunami National Contacts (TNCs) from India, Iran, Oman, Pakistan and UAE.

PARTICIPANTS

The joint working process on Probabilistic Tsunami Hazard Assessment (PTHA) and inundation modelling/mapping in the TTF-31 project requires the cooperation of regional representatives from the five partner countries (India, Iran, Oman, Pakistan and UAE). This includes, but not limited to, members from national agencies (e.g. National Tsunami Warning Centre), from universities and research organisations. It also includes representatives in other countries who are interested or involved in the topic.

EVENT WEBSITE

For further information on the workshop and registration, please refer to the event website: <u>https://oceanexpert.org/event/3673</u>.

To attend online: Click here to join the meeting

PROVISIONAL AGENDA

WORKSHOP ON MAKRAN SUBDUCTION ZONE SCIENCE

STRENGTHENING TSUNAMI WARNING AND PREPAREDNESS

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North-West Indian Ocean through RegionalCooperation"

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United Arab Emirates

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Local Time (UTC+4)	Agenda Item (Speaker/Lead)	
Day-1: Monday, 14 November		
Moderator: Rick Bailey	/	
0930 - 1000	Refreshments and introductions	
(0530 – 0600 UTC)		
1000 – 1030 (0600 – 0630 UTC)	1. Opening session	
	Welcome remarks Towners: National Contrast for UAE, UAE, National Contrastor	
	- Isunami National Contact for UAE, UAE National Centre for	
	 Head of IOC-UNESCO ICG/IOTWIMS Secretariat Rick Bailey 	
	INFSCAP Representative Ms Temily Isabella Baker	
	 Background: The UNESCAP TTE-31 Project (Rick Bailey) 	
	 Context: The UN Ocean Decade Tsunami Programme (Rick Bailey) 	
	 Objectives of the Workshop (Project Consultant, Jörn Lauterjung) 	
	2. Latest seismicity, paleo-tsunami, and hazard assessment studies	
	 Tsunami hazard assessment for Mussanah region, Northern Oman (Issa 	
	El-Hussain)	
	 A review on the tectonic of Makran Subduction Zone: geology, structural 	
	geometry, and age. (Mehdi Masoodi)	
1030 – 1230 <i>(0630 – 0830 UTC)</i>	 Seismic monitoring in Pakistan (Ameer Hyder and Tariq Ibrahim) 	
	 Tsunami hazard assessment for Qurrayat area, Northern Oman (Zaid Al- Habsi) 	
	 A short history of tsunami research in the Makran Subduction Zone 	
	(Amin Rashidi)	
	 Paleotsunami Investigations in the Western Makran, IGCP UNESCO 	
	Project (740) (Parvaneh Faridi)	
12:30 - 14:00	Lunch break	
(0830 – 1000 UTC)		
	3. Enhanced government and community awareness using hazard and	
1400 – 1600 (1000 – 1200 UTC)	risk assessments	
	 Parallels in meteorological hazard assessment and warning in the UAE (Maind Alabkaili) 	
	(Midjeu Alstikelli)	
	 Applications of isunami nazard assessments (IBC) Tour of UAE National Center of Meteorology 	
1600 - 1630	- Tour of OAL Mational Center of Meteorology	
(1200 – 1230 UTC)	Refreshments break	
	5. Breakout groups	
1630 – 1800	 A: PTHA science exchange and implementation (Makran-PTHA 	
(1230 – 1400 UTC)	assessment team)	
	 B: Data requirements and sharing (Moderator: Rick Bailey) 	

Day-2: Tuesday, 15 November			
Moderator: Rick Bailey			
0930 – 1000	Refreshments and preparations		
(0530 – 0600 UTC)			
	6. Probabilistic Tsunami Hazard Assessment (PTHA) results		
1000 – 1230	 PTHA v.1 results including model sensitivity study (Andrey Babeyko and 		
(0600 – 0830 UTC)	the Makran-PTHA assessment team)		
	 Discussions (All) 		
1230 – 1400	Lunch break		
(0830 – 1000 UTC)			
	7. Potential for utilising the PTHA for inundation modelling in NWIO		
	 Tsunami inundation modelling experiences in the NWIO (Hira Ashfaq 		
	Lodhi)		
1400 – 1600	 Probabilistic inundation mapping program designed and implemented 		
(1000 – 1200 UTC)	in Italy: a blueprint for the Makran (Fabrizio Romano, INGV)		
	 Possible modes of GTM involvement into the inundation mapping in the 		
	Makran region: requirements regarding data and engagement of local		
	stakeholders (Finn Lovholt, NGI)		
1600 – 1630	Refreshments break		
(1200 – 1230 UTC)			
	8. Unified regional approach to inundation modelling for NWIO Member		
1630 – 1800 (1230 – 1400 UTC)	States		
	 Principal concepts, methodologies, and approaches for tsunami 		
	inundation modelling (Jorn Lauterjung)		
	 Unified approach to tsunami inundation modelling in the NWIO region 		
	(Jorn Lauterjung)		
	 Discussions (All) 		

Day- 3: Wednesday, 16 November Moderator: Rick Bailey		
0930 – 1000 (0530 – 0600 UTC)	Refreshments and preparations	
1000 – 1100 (0600 – 0700 UTC)	 9. Breakout groups: A: PTHA science exchange and implementation (Makran-PTHA assessment team) B: Data requirements and sharing (Moderator: Rick Bailey) 	
1100 – 1230 (0700 – 0830 UTC)	 10. Access to PTHA and associated data for hazard assessment Data requirements and sharing (Rick Bailey) Implementation of PTHA at INCOIS, India, and access to outcomes for the region (K. Siva Srinivas and Dipankar Saikia) 	
1230 – 1400 (0830 – 1000 UTC)	Lunch break	
1400 – 1530 (1000 – 1130 UTC)	 11. Panel discussion "What further science and information will help strengthen tsunami warning and preparedness in NWIO" Panel members: Ali Khoshkhologh, Dipankar Saikia, Hira Lodhi, Khalifa Al Ebri, Amin Rashidi, Issa El-Hussain, Andrey Babyko, Fabrizio Romano Panel members recommendations Questions to panel by moderator and all (onsite and online) 	
1530 – 1600 (1130 – 1200 UTC)	 12. Closing remarks Tsunami National Contact for UAE, UAE National Centre for Meteorology, Dr. Abdullah Ahmed Al Mandous Head of IOC-UNESCO ICG/IOTWMS Secretariat, Rick Bailey 	