

UNESCO

IOC TSUNAMI SECTION

*INTERGOVERNMENTAL COORDINATION GROUP FOR THE INDIAN OCEAN
TSUNAMI WARNING AND MITIGATION SYSTEM (ICG/IOTWMS)*

JUNE 2021

S U M M A R Y

The Snapshots aim to bring the work of the IOC UNESCO REGIONAL TEWS to a wider audience. This project of the IOC UNESCO Tsunami Section takes place within the framework of the United Nation Decade of Ocean Science for Sustainable Development and its goal of a Safe Ocean. It complements the more specialized fact sheets by highlighting actions, communities, officials, events, tsunami service providers and tsunami information centers.

The Indian Ocean Tsunami on 26 December 2004 resulted in the loss of over 230,000 lives and the displacement of over 1.6 million people around the Indian Ocean, with estimated economic losses of \$14 billion. The catastrophe brought renewed focus on the need for a regional tsunami warning system in the Indian Ocean. Following the disaster, the Intergovernmental Oceanographic Commission (IOC) of UNESCO was given the mandate to develop and coordinate an Indian Ocean Tsunami Warning and Mitigation System (IOTWMS). An Intergovernmental Coordination Group (ICG) for the IOTWMS was established as a primary subsidiary body of the IOC by the IOC Assembly in July 2005 (Resolution XXIII-12).

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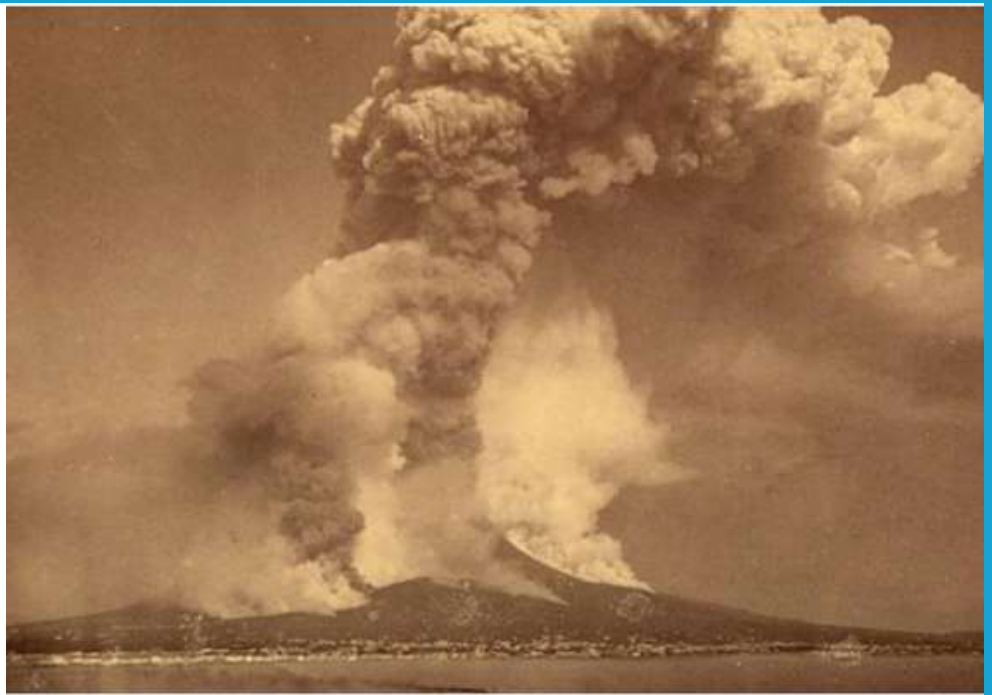
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The 1883 eruption of Krakatoa, Sunda Strait, Indonesia resulted in a catastrophic tsunami. On 28 December 2018, another deadly tsunami occurred following the eruption and partial flank collapse of the Anak Krakatau (son of Krakatoa) volcano.



Oman National Multi Hazard Early Warning Centre staff participating in Exercise Indian Ocean Wave 2020 (IOWave20).

Photo Oman DGMET

Indonesian Tsunami Early Warning System deploys cable-based tsunami early warning as part of their research activity using the Baruna Jaya 3 Research Vesel. Activity in relation to the UN Decade for Ocean Science.



Photo Rosa Panggabean

Interview with eyewitness survivor of 1992 Tsunami in Flores, Indonesia to preserve past tsunami information for future preparedness an activity under the IOTIC-BMKG program.

Photo Ardito M Kodijat



Three Videos Clips on WTAD 2020 (India, Indonesia, and Oman)



Workshop of Implementation of UNESCO-IOC Tsunami Ready Programme and Recognition, INCOIS, Hyderabad, India, December 2019. (To highlight our work in Tsunami Ready as well as training workshops.)

Photo INCOIS





OUR VISION AND MEMBERSHIP

*PROTECT INDIAN OCEAN COASTAL
COMMUNITIES FROM TSUNAMIS
THROUGH A RELIABLE TSUNAMI
EARLY WARNING SYSTEM*

“

**Compared to decades ago,
coastal communities in the
Indian Ocean are now safer
from tsunamis as the
result of international
cooperation and
collaboration on regional
Tsunami Warning and
Mitigation.**

”



PHOTO INIOAS

Participants of the Twelfth session of the ICG/IOTWMS, Kish, Islamic Republic of Iran, 9-12 March 2019.



OFFICIALS

PROF. DWIKORITA KARNAWATI: CHAIRPERSON OF ICG/IOTWMS



Prof. Karnawati is the Director of the Indonesian Agency for Meteorology, Climatology and Geophysics. Previously, she was the first female President of Universitas Gadjah Mada and Professor in Environmental Geology and Disaster Mitigation. She is an internationally recognized expert on disaster risk reduction and early warning, with a PhD in Earth Sciences and post-doctoral research on hydro-meteorological disaster prediction. She has served as Vice-President of the International Consortium on Landslides since 2015 and chairs the Inter-governmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System. Prof. Karnawati has actively promoted integration of social concerns in technical systems for disaster risk reduction, leading to the adoption of an international standard for community-based landslide early warning (ISO 22327). She also led efforts for the establishment of the Multi-Hazard Early Warning System in Indonesia. In her current role, she drives innovation on early warning technology and impact-based forecasting systems, powered by big data, artificial intelligence and the Internet of Things.

NORA GALE: SECRETARIAT OF ICG/IOTWMS



Ms. Nora Gale is a member of the ICG/IOTWMS Secretariat based at the Australian Bureau of Meteorology in Perth. In this role she provides technical and administrative support for the Indian Ocean Tsunami Warning and Mitigation System. This involves coordinating with the 28 countries bordering the Indian Ocean on disaster risk reduction initiatives. Key areas of focus include ensuring the timely delivery of tsunami bulletins from the three tsunami service providers [located in Australia, India and Indonesia] to national tsunami warning centres, development of national tsunami warning chains and standard operating procedures, conducting basin-wide tsunami exercises, and organising regional meetings and training workshops. Currently, Ms. Gale contributes towards a [UNESCAP-funded] project on strengthening tsunami warning in the North West Indian Ocean through regional cooperation.

ARDITO M KODIJAT: HEAD OF IOTIC



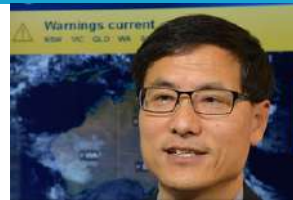
Ardito M. Kodijat joined UNESCO Office Jakarta in 2006. He is currently posted as the professional officer for Disaster Risk Reduction and Tsunami Information unit (DRRTIU) of UNESCO Jakarta Office. Under the Intergovernmental Oceanographic Commission of UNESCO (UNESCO-IOC), he is coordinating the Indian Ocean Tsunami Information Centre (IOTIC) working closely with the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWMS). In cooperation with the Indonesian Meteorological, Climatological and Geophysics Agency (BMKG) he implemented the IOTIC-BMKG program on building tsunami preparedness as part of the early warning chain in the Indian Ocean countries working in building capacity of local government, Media, and the communities. He has been actively involved in programs and activities on Tsunami Warning and Emergency Response SOP; Tsunami Risk Reduction Policy; Tsunami Exercises; UNESCO/IOC Tsunami Ready; and Tsunami Evacuation Maps, Plans, and Procedures.



TSUNAMI SERVICE PROVIDERS AND TSUNAMI INFORMATION CENTRE



Ms Adrienne Moseley, Co-Director of JATWC, representing Geoscience Australia



Dr. Yuelong Miao, Co-Director of JATWC, representing Bureau of Meteorology

TSP-AUSTRALIA TSUNAMI SERVICE PROVIDER-AUSTRALIA

The Tsunami Service Provider-Australia (TSP-Australia) is a partnership between Geoscience Australia and the Bureau of Meteorology. As a National Tsunami Warning Centre (NTWC), TSP-Australia provides the official tsunami warnings for Australia in response to large undersea earthquakes or other tsunami sources.

As one of the three Tsunami Service Providers (TSPs) for the Indian Ocean Tsunami Warning and Mitigation System (IOTWMS), TSP-Australia provides the critical tsunami threat advice services to 27 other NTWCs in the IOTWMS, as well as hosting a public webpage at www.bom.gov.au/tsunami/iotwms that displays the tsunami warning status reported to three TSPs by the NTWCs in the Indian Ocean.

IOTIC INDIAN OCEAN TSUNAMI INFORMATION CENTRE



The Indian Ocean Tsunami Information Centre (IOTIC) was endorsed by the Indian Ocean member states at the 10th Session of the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWMS) held in Muscat, Oman, 24-26th March 2015. The IOTIC builds on the Jakarta Tsunami Information Centre (JTIC), a project of UNESCO/IOC, supported by the Canadian International Development Agency (CIDA) and hosted at UNESCO Office Jakarta. The IOTIC is an UNESCO/IOC entity that operates under the overall authority of the Executive Secretary of UNESCO/IOC, and with day-to-day management oversight by the IOC-UNESCO National Programme Officer stationed in UNESCO Office Jakarta. The purpose of IOTIC is to support strengthening capacity in preventing, preparing, and mitigating measures for tsunami across the Indian Ocean region. UNESCO/IOC signed a five-year partnership agreement with the Government of Indonesia, through the Agency for Meteorology, Climatology, and Geophysics of Indonesia (BMKG) for setting up the IOTIC-BMKG Programme Office (2017-2022). The overarching objective of this partnership is to support and develop IOTIC program and activities in order to strengthen national capacity and the Indian Ocean Tsunami Early Warning and Mitigation System.



TSUNAMI READY COMMUNITIES

COMMUNITIES IN ODISHA STATE, INDIA RECEIVE TSUNAMI READY RECOGNITION FROM UNESCO-IOC

On 20 May 2020, UNESCO-IOC granted “Tsunami Ready” recognition to the first communities in the Indian Ocean region: Venktraipur and Noliasahi villages in Odisha State, India. The certification recognizes the two communities’ success at organizing and completing collaborative tsunami preparedness initiatives involving community leaders, national and local emergency management agencies, and citizen groups.

Tsunami Ready recognition is achieved through satisfying multiple initiatives. These include conducting a community tsunami-risk reduction programme, designation and mapping of tsunami hazard zones, public display of tsunami information, easily understood tsunami evacuation maps, outreach and public education materials, participation in mock drills, community emergency plans, and the presence of reliable 24-hour early warning system.

Collectively, the Tsunami Ready certification check-list aims to improve tsunami preparedness in coastal communities, to minimise the loss of life and property, and to ensure a structural and systematic approach to building community preparedness.

The Tsunami Ready Programme is administered by UNESCO-IOC tsunami programme. Tsunami Ready recognition is achieved through satisfying multiple initiatives. These include conducting a community tsunami-risk reduction programme, designation and mapping of tsunami hazard zones, public display of tsunami information, easily understood tsunami evacuation maps, outreach and public education materials, participation in mock drills, community emergency plans, and the presence of reliable 24-hour early warning system.

A wider implementation of Tsunami Ready in other coastal communities in India and the wider Indian Ocean region is anticipated. Odisha State is motivated to make all 326 villages and urban local bodies Tsunami Ready in 1-years’ time. Coastal communities in other Indian Ocean Member States have also expressed interest in preparing for future tsunami events by fulfilling the UNESCO-IOC Tsunami Ready indicators.



Odisha State,
India



TSUNAMI EVENTS

1945 MAKRAN TSUNAMI



Interview of survivor of 1945 Makran tsunami

On 28 November 1945, a magnitude 8.1 earthquake occurred along the eastern Makran subduction zone along what is now the coast of Pakistan. The rupture started offshore Pasni and extended beneath Omara. The resulting tsunami has been at least partially attributed to submarine landslides. Thirteen tsunami deaths were confirmed in Bombay (Mumbai), India. The remaining known fatalities occurred in what is now Pakistan. Damage was reported as far away as Iran and Oman. In earthquake and tsunami catalogues the total death toll ranges from a few hundred to 4,000 persons.

IOC-UNESCO with support from UNESCAP captured nearly 100 accounts of the 1945 Makran disaster as told by eyewitnesses and second-generation survivors in Pakistan, Iran, Oman and India. The accounts were published in "Remembering the 1945 Makran Tsunami - Interview with Survivors beside the Arabian Sea" in English, Farsi, Urdu and Arabic. The booklet and video footage from forty of the interviews are available at <https://iotic.ioc-unesco.org/1945-makran-tsunami/>.

2018 PALU TSUNAMI



2018 Palu tsunami

The 28 September 2018 earthquake in South Sulawesi was a magnitude 7.4 event that occurred at 18:02 hours local time, triggering a tsunami and causing significant liquefaction. The main earthquake was preceded by several foreshocks, including a large event at 13:00 hours local time. An estimated 3,879 people were killed in Palu City. At least 1,252 of the deaths were directly attributed to tsunami impact. The Palu and Donggala tsunami of 28 September 2018, following the 7.5 magnitude earthquake in Central Sulawesi, killed about 1,252 people.

Following the Palu and Donggala tsunami, UNESCO/IOC in collaboration with Indonesian authorities coordinated post-tsunami surveys. 7 teams comprising of 68 scientists from 19 countries and Indonesia undertook these surveys to understand the characteristics and impacts of the tsunami, and to provide information to the Government of Indonesia for enhancement of tsunami risk management practices. An International Symposium was held in September 2019 to make these results and lessons learnt available to a broader audience:

http://www.ioc-tsunami.org/index.php?option=com_oe&task=viewDocumentRecord&docID=26583



UPCOMING FEATURES

Future publications will continue to feature Tsunami Service Providers, Tsunami Ready communities, activities, and events of the Indian Ocean Tsunami Warning and Mitigation System in association with the UN Ocean Decade of Ocean Science for Sustainable Development (2021 - 2030).

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