

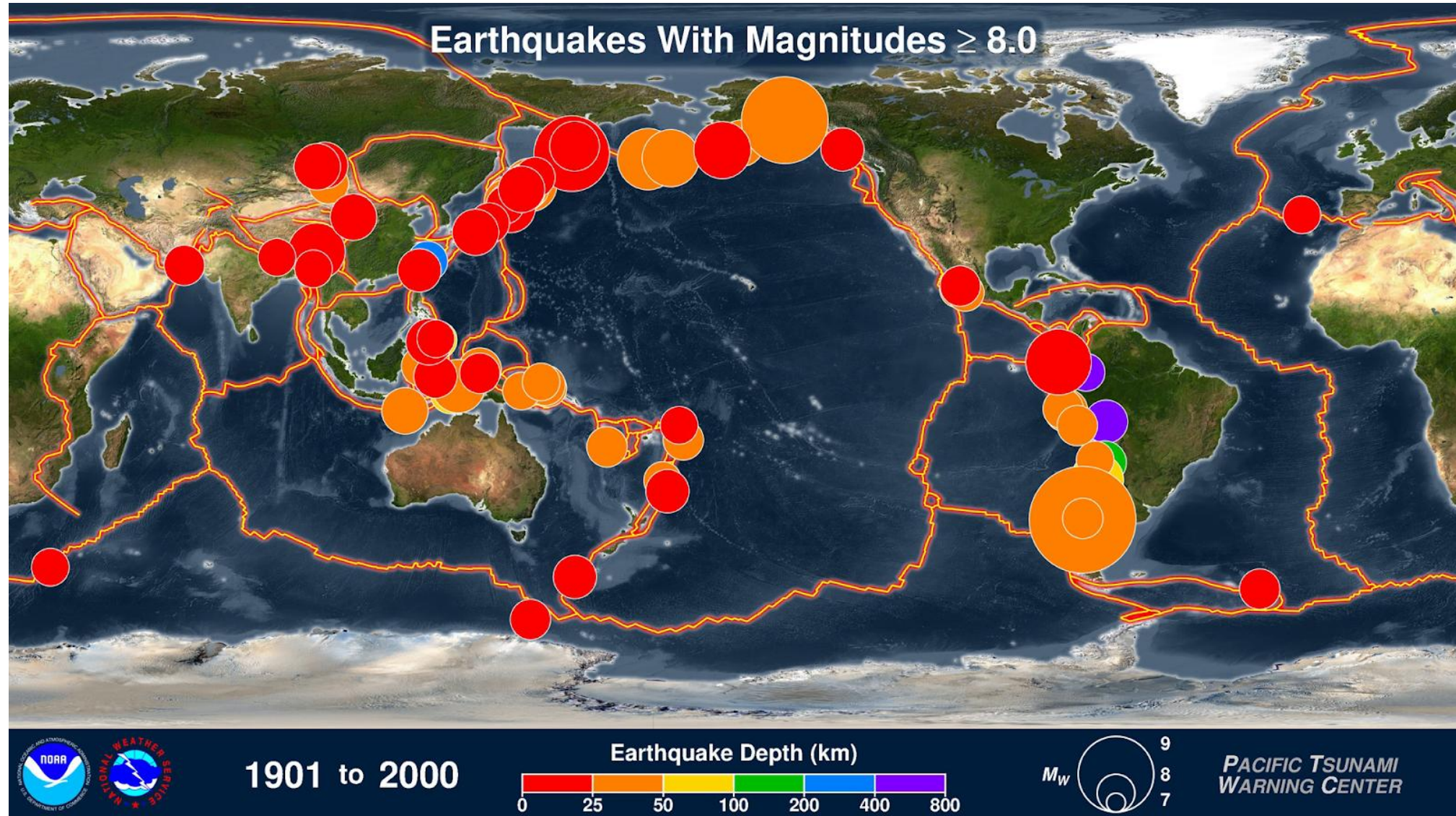


Why a UNESCO-IOC Tsunami Ready Recognition Programme?

2.4 Motivation Programme and its Indicators

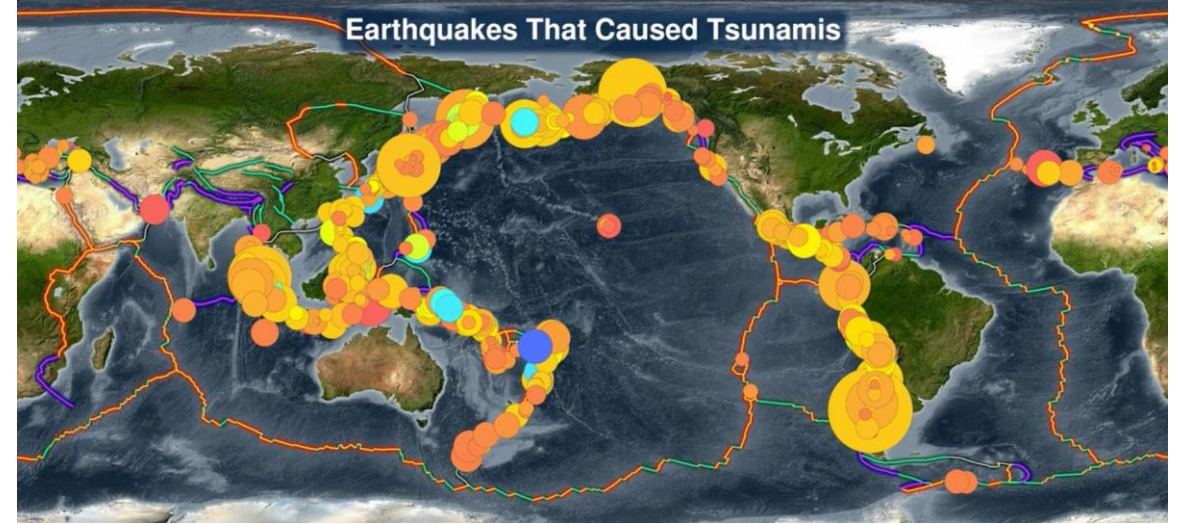
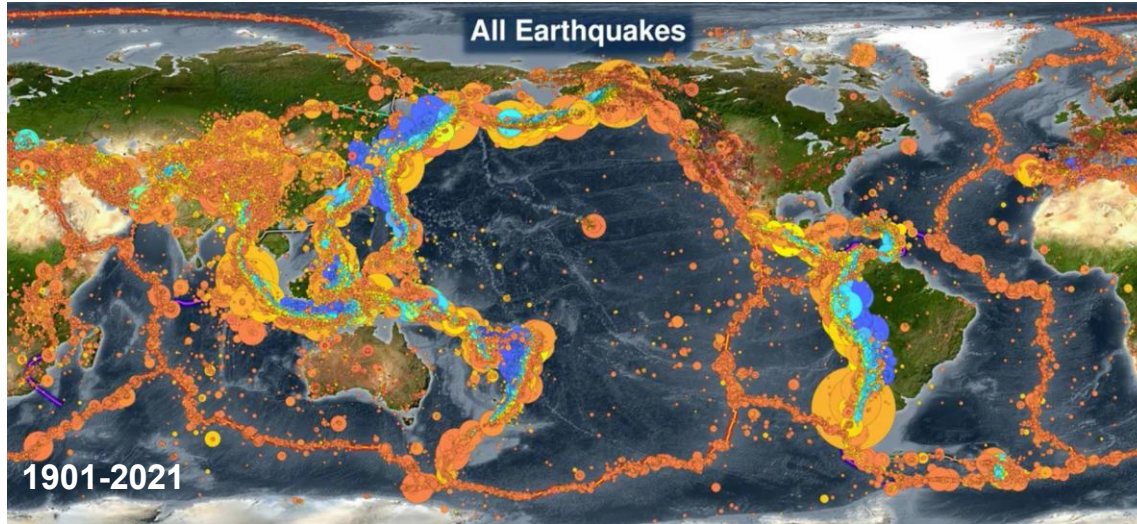
Dr. Laura Kong
International Tsunami Information Centre (ITIC)
laura.kong@noaa.gov

FACT 1: Dangerous Earthquakes & Tsunamis

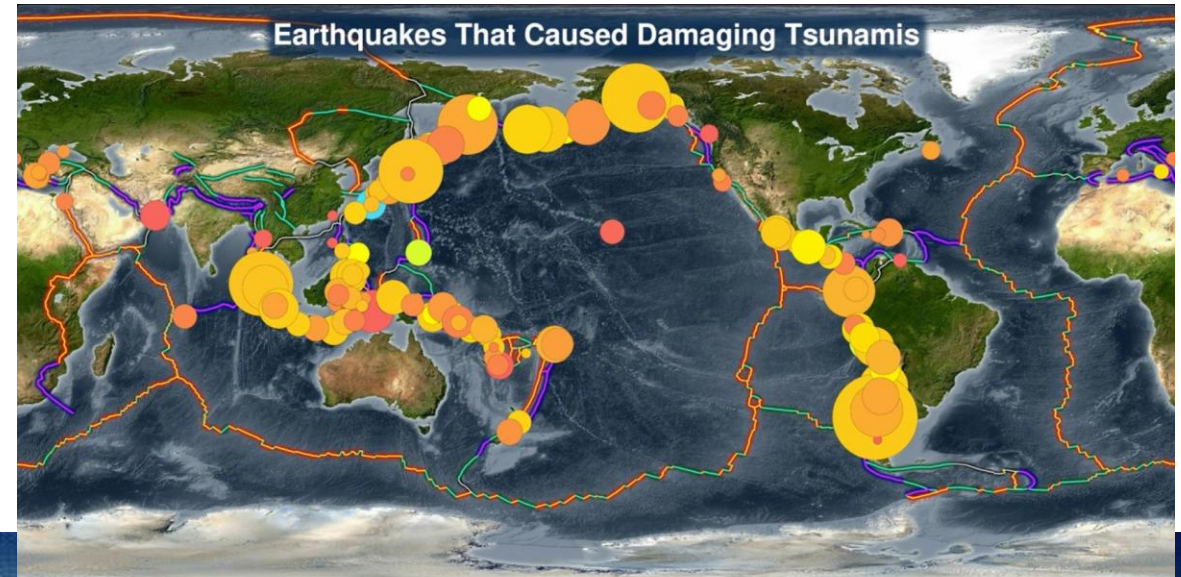


Click below
for video
EQ-Tsunami
1901-2021

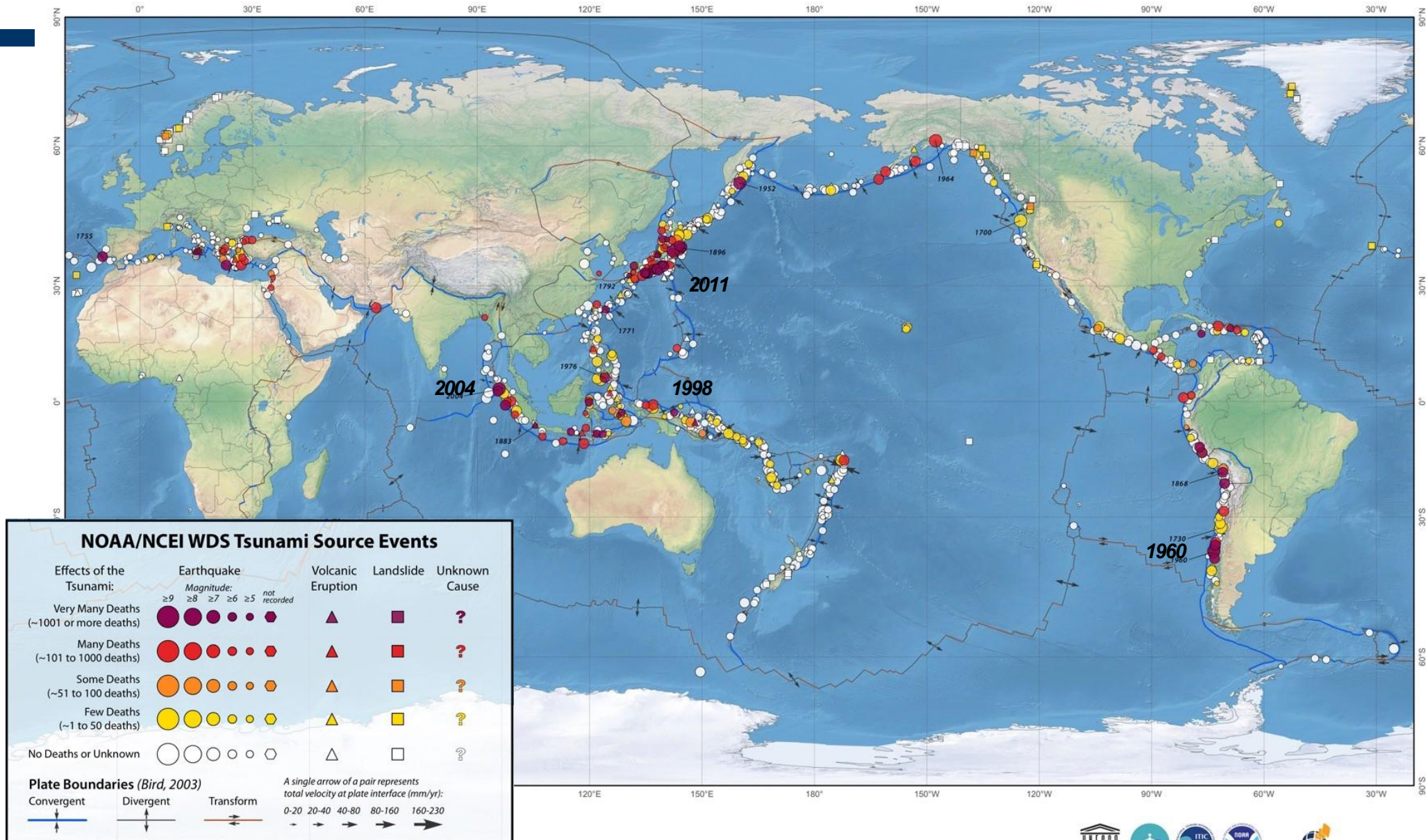
Dangerous Earthquakes & Tsunamis



- ❑ 80% caused by earthquakes
- ❑ Shallow, undersea/near coast
- ❑ Magnitude 8+ (M7+)

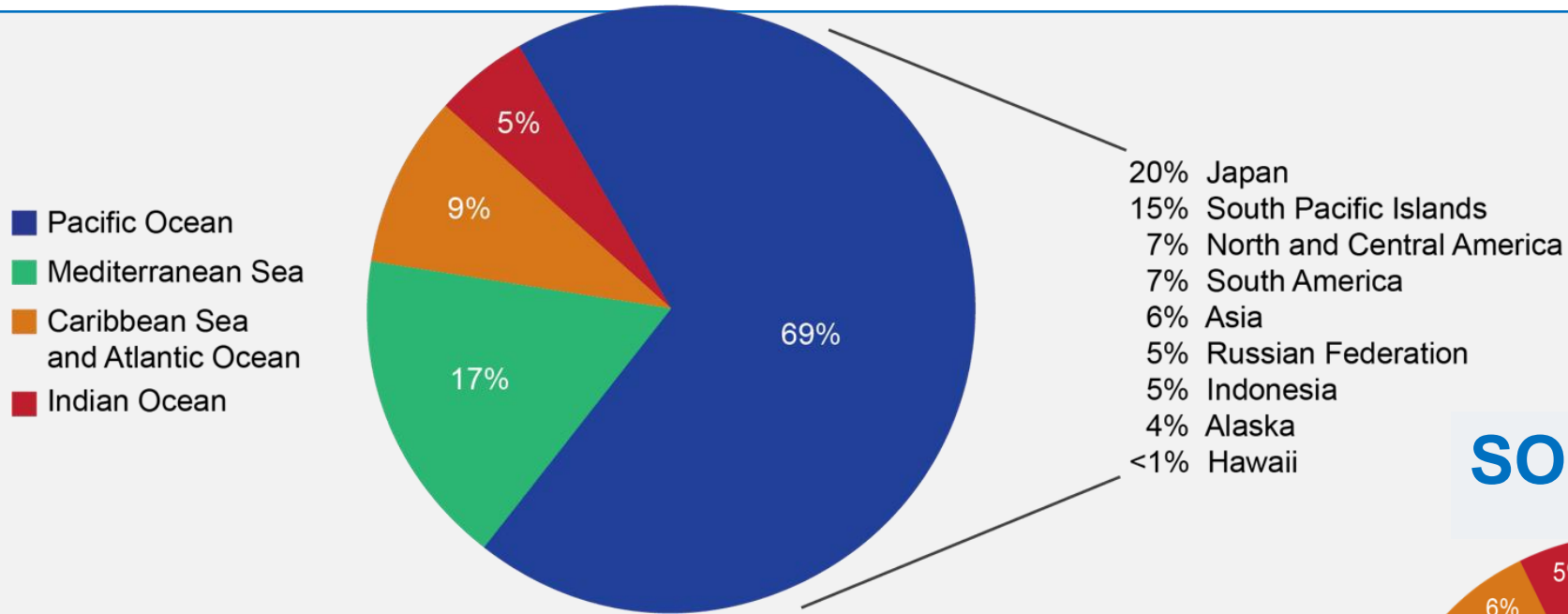


DEADLY TSUNAMIS – GLOBAL (1620 B.C to A.D. 2022)

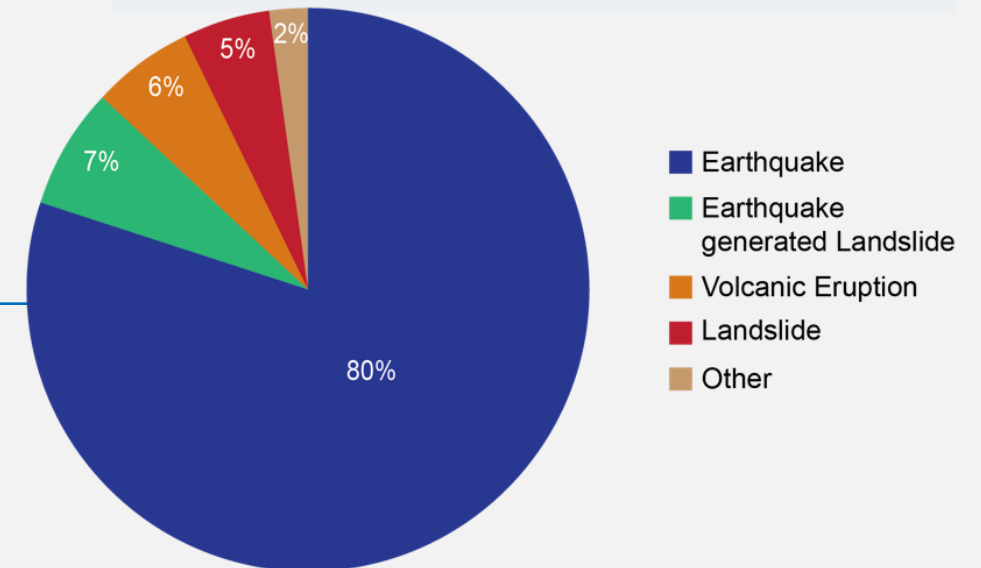


DEADLY TSUNAMIS – GLOBAL (1620 B.C to A.D. 2022)

SOURCE LOCATION

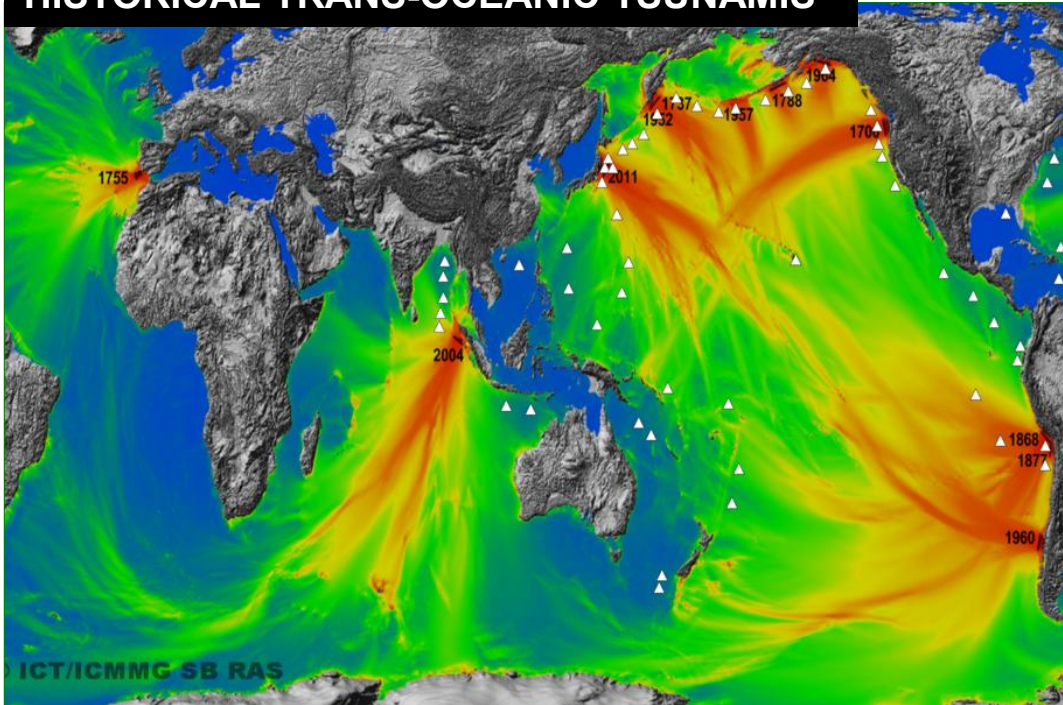


SOURCE GENERATION

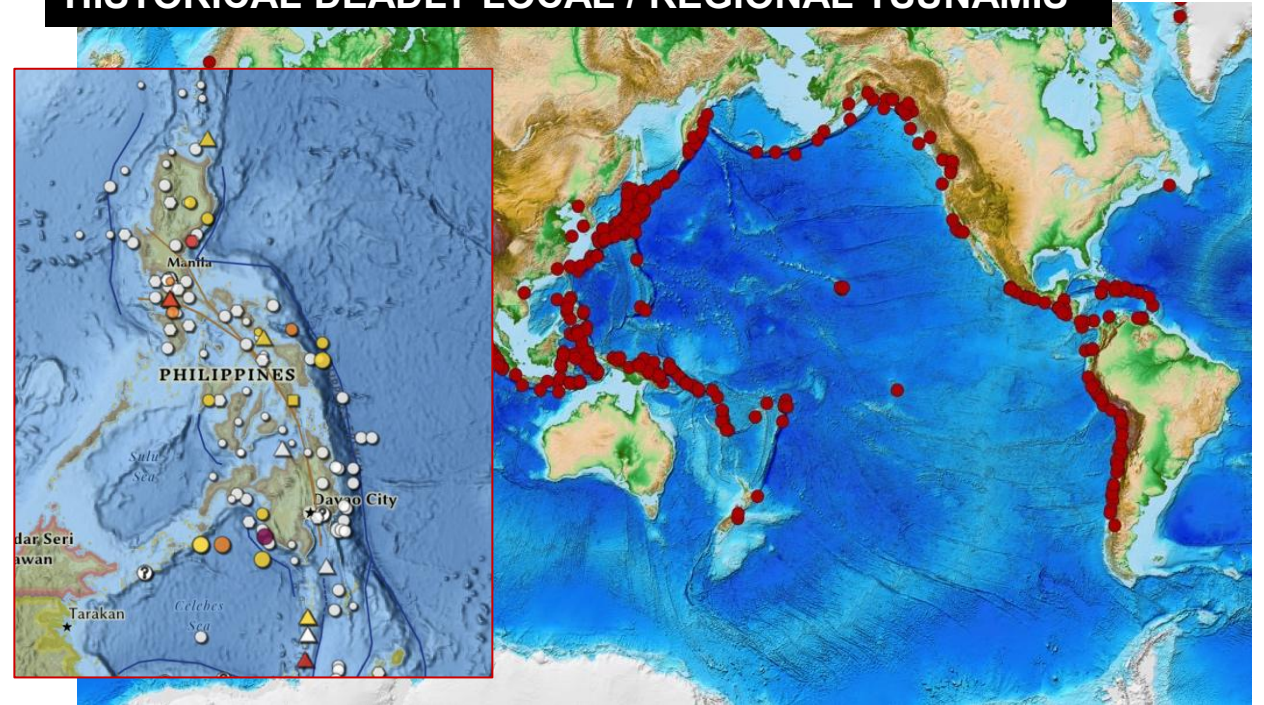


FACT 2: Deadly Tsunamis – Distant to Local

HISTORICAL TRANS-OCEANIC TSUNAMIS



HISTORICAL DEADLY LOCAL / REGIONAL TSUNAMIS



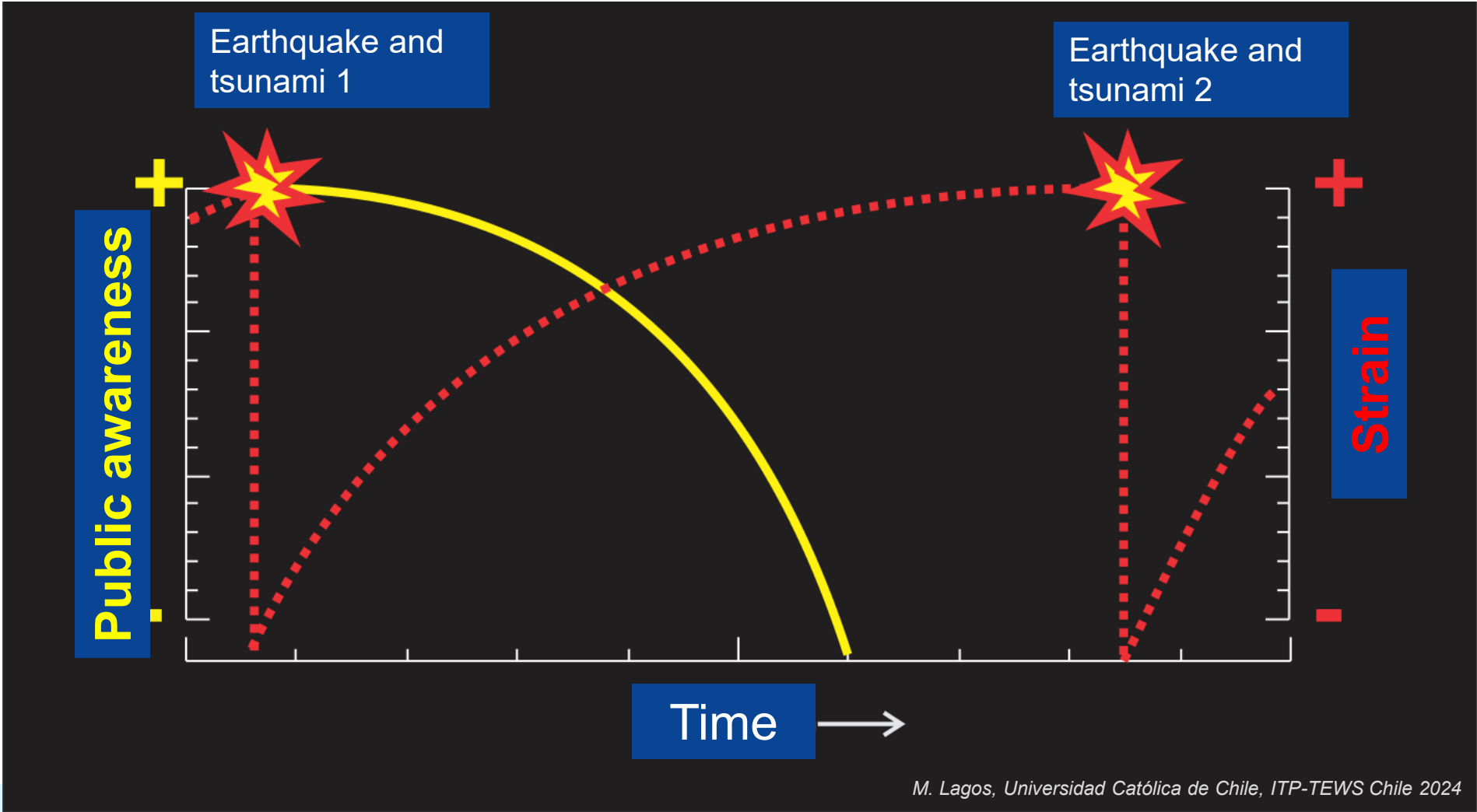
- ❑ ~70% in Pacific Ocean and Marginal Seas, 80% caused by earthquakes
- ❑ Most tsunami are local (< 1 hr) or regional (1-3 hrs). Cause 90% of deaths)
- Communities: Prepare beforehand. Self-evacuate on natural warnings



FACT 3: Tsunamis infrequent – people forget

Inverse relationship between awareness and strain accumulation (causing earthquake)

2004 IO (500-800 yrs); 2011 Japan (1100 yrs); Chile (300-500 yrs), Cascadia (300 yrs)

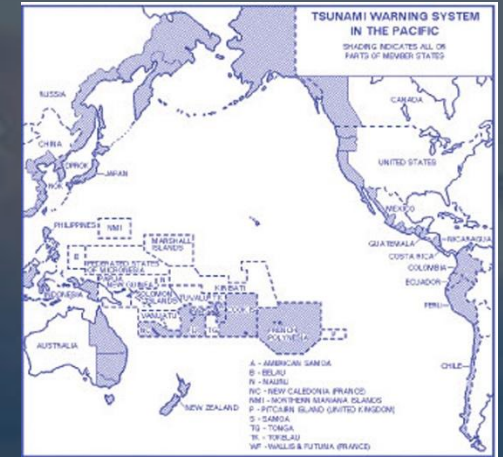


M. Lagos, Universidad Católica de Chile, ITP-TEWS Chile 2024



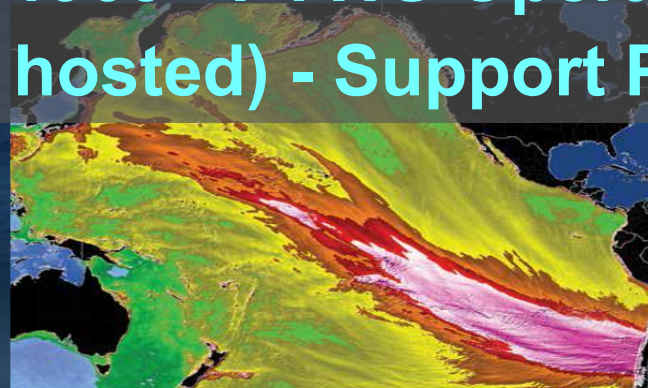
1960 Deadly Basin-wide Tsunami

1960 9.5 Mw Chile earthquake generated a tsunami killed 2000 in Chile, then 100s in Hawaii, Japan, and Philippines => No international warning

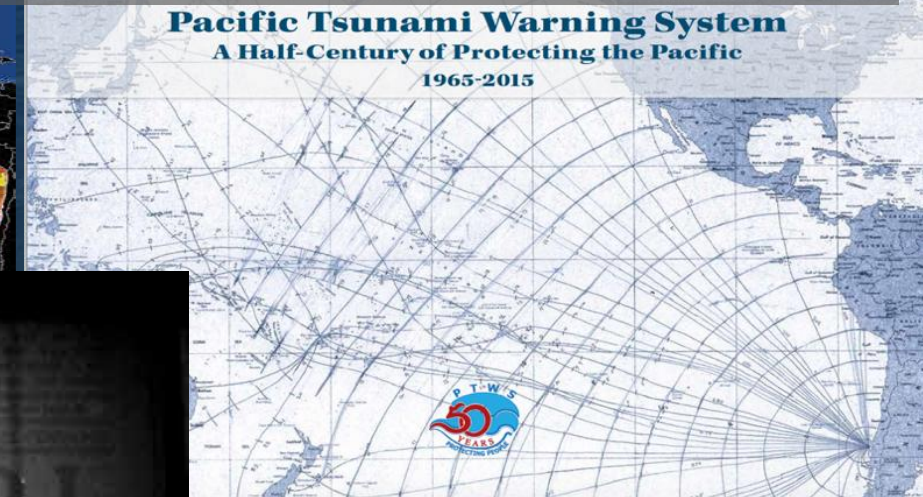


=> 1965 Pacific Tsunami Warning System (PTWS) est (UNESCO IOC)

- PTWC (US NOAA) – 1965 - PTWS Operational Center HQ
- ITIC (IOC, US NOAA hosted) - Support PTWS



Pacific Tsunami Warning System
A Half-Century of Protecting the Pacific
1965-2015



UN Decade of Ocean Science for Sustainable Development IOC Ocean Decade Tsunami Programme - Tsunami Ready



World Tsunami Awareness Day - 2021

Special Representative of the Secretary-General for
Disaster Risk Reduction (UNDRR)

[Click
for
video](#)

UN Decade of Ocean Science for Sustainable Development IOC Ocean Decade Tsunami Programme - Tsunami Ready



World Tsunami Awareness Day - 2021

Tsunamis are the most deadly of all sudden onset natural hazards

OCEAN DECADE TSUNAMI PROGRAMME

A SAFE OCEAN

THE MAIN SOCIETAL OUTCOME



TO MAKE
100%

OF COMMUNITIES AT RISK
OF TSUNAMI PREPARED FOR
AND RESILIENT TO TSUNAMIS

BY
2030


- **Tsunami Coalition:** collaborative with critical UN stakeholders, civil protection, others ==> Raise profile. Facilitate resourcing
- **Capacity Development:** “Tsunami Ready” training, augmented by online IOC Ocean Teacher Global Academy (OTGA) ==> Global reach, deep curricula

Tsunami Ready Tri-fold brochure



UNESCO/IOC TSUNAMI READY RECOGNITION PROGRAMME

Building resilient coastal communities against tsunamis



UNESCO/IOC TSUNAMI READY RECOGNITION

The Tsunami Ready Recognition Programme (TRRP) of UNESCO/IOC is an international community-based initiative designed to mitigate tsunami-related risks.

It is a voluntary, performance-based community recognition programme that promotes an understanding of the concept of readiness as an active collaboration among national and local warning and emergency management agencies, and government authorities, scientists, community leaders and the public.

The main objective is to improve coastal community preparedness for tsunamis and to minimize the loss of life, livelihoods and property.

Coastal communities seeking the UNESCO/IOC Tsunami Ready Recognition, should follow the guidelines and meet all 12 indicators.

The recognition is renewable every four years.

To effectively implement the Tsunami Ready Recognition Programme, refer to:

- IOC Manuals and Guide 74 [Standard Guidelines for the Tsunami Ready Recognition Programme](#)
- IOC Manuals and Guide 82, [Preparing for community tsunami evacuations: from inundation to evacuation maps, response plans and exercises](#)

TO INITIATE THE IMPLEMENTATION OF TSUNAMI READY, CONTACT TSUNAMI INFORMATION CENTERS (TICS):

CARIBBEAN AND ADJACENT REGIONS TIC (CTIC)
ctic@unesco.org

INDIAN OCEAN TIC (IOTIC)
iotic@unesco.org

PACIFIC OCEAN INTERNATIONAL TIC (ITIC)
itic@unesco.org

NORTH-EASTERN ATLANTIC, MEDITERRANEAN AND CONNECTED SEAS (NEAMTIC)
neamtic@unesco.org

SCAN Here



TSUNAMIREADY.ORG



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IOC Brochure 2024-2 IIOC/BRO/2024/2, April 2024:
UNESCO/IOC Tsunami Ready Recognition Programme
Building resilient coastal communities against tsunamis.
(English only)
© UNESCO 2024

PACIFIC OCEAN (ITIC)

Email: itic@unesco.org

Web: www.tsunamiready.org

SCAN Here



TSUNAMIREADY.ORG

TSUNAMI READY INDICATORS

I ASSESSMENT (ASSESS)

- ASSESS-1. TSUNAMI HAZARD ZONES ARE MAPPED AND DESIGNATED**
The community has mapped potential tsunami hazard zones, which outline the probable flooding areas by modeling tsunamis or by other acceptable methods such as "baseline tsunami zone". Additional guidance: MG 82.
- ASSESS-2. THE NUMBER OF PEOPLE AT RISK IN THE TSUNAMI HAZARD ZONE IS ESTIMATED**
The emergency responders have the day and nighttime population data of local residents as well as non-residents that are at risk.
- ASSESS-3. ECONOMIC, INFRASTRUCTURAL, POLITICAL, AND SOCIAL RESOURCES ARE IDENTIFIED**
The community is aware of available local resources and capacities to mitigate its tsunami risk.

II PREPAREDNESS (PREP)

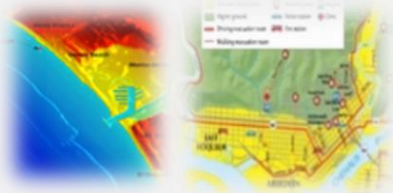
- PREP-1. EASILY UNDERSTOOD TSUNAMI EVACUATION MAPS ARE APPROVED**
The community-approved tsunami evacuation maps incorporating local knowledge and illustrating tsunami evacuation routes, assembly areas and critical facilities are prepared. Maps should be based on tsunami hazard zone mapping and consistent with the community's Tsunami Emergency Response Plan.
- PREP-2. TSUNAMI INFORMATION INCLUDING SIGNAGE IS PUBLICLY DISPLAYED**
There is public display of signage for evacuation and public education on how to respond in the event of a tsunami, including but not limited to (1) tsunami danger area and hazard zones (entering and leaving signs), (2) evacuation routes, (3) assembly areas, (4) tsunami response education (e.g. go to high ground, alert levels), and (5) tsunami evacuation maps.
- PREP-3. OUTREACH AND PUBLIC AWARENESS AND EDUCATION RESOURCES ARE AVAILABLE AND DISTRIBUTED**
The outreach and public education materials such as (1) tsunami evacuation maps, (2) evacuation routes, (3) safety tips and (4) information about when and how to respond to warnings, prepared and tailored according to local needs and location-specific tsunami threats, and distributed through at least three different methods.
- PREP-4. OUTREACH OR EDUCATIONAL ACTIVITIES ARE HELD AT LEAST THREE TIMES A YEAR**
At least three outreach or educational activities are organized each year. Among these, one event should include the community and focus particularly on those residing in the tsunami hazard zone. The primary topics include familiarizing public with the evacuation map and routes, the methods of alert notifications, safety measures and appropriate responses.
- PREP-5. A COMMUNITY TSUNAMI EXERCISE IS CONDUCTED AT LEAST EVERY TWO YEARS**
The exercise can focus solely on the tsunami hazard or can be part of a multi-hazard exercise. The exercise could be (1) tabletop, (2) functional, or (3) full-scale. It should also include a communications test. Additional guidance: MG 82.

III RESPONSE (RESP)

- RESP-1. A COMMUNITY TSUNAMI EMERGENCY RESPONSE PLAN (TERP) IS APPROVED**
The emergency responders have an approved and dedicated TERP, either standalone or as part of a multi-hazard emergency response plan that includes a specific plan for tsunamis. If a community-level plan does not exist, other acceptable plans include a countywide TERP or a state or local comprehensive emergency management plan. Additional guidance: MG 82.
- RESP-2. THE CAPACITY TO MANAGE EMERGENCY RESPONSE OPERATIONS DURING A TSUNAMI IS IN PLACE**
The emergency responders are capable of ensuring that community officials can execute tsunami warning functions (public notifications) and response functions (evacuation) based on predetermined procedures that are part of the tsunami warning information and tsunami emergency response operations during a tsunami event.
- RESP-3. REDUNDANT AND RELIABLE MEANS TO TIMELY RECEIVE 24-HOUR OFFICIAL TSUNAMI ALERTS ARE IN PLACE**
The community has redundant and reliable means to receive tsunami alerts at any time of the day from the National Tsunami Warning Centers (NTWCs), the Emergency or Disaster Management Offices (E/DMO), or other officially-recognized alerting authorities through at least three different methods.
- RESP-4. REDUNDANT AND RELIABLE MEANS TO TIMELY DISSEMINATE 24-HOUR OFFICIAL TSUNAMI ALERTS TO THE PUBLIC ARE IN PLACE**
The community has redundant and reliable means to disseminate tsunami alerts to the public at any time of the day from the 24-hour warning point and/or Emergency Operations Centre (EOC) through at least three different methods.

UN OCEAN DECADE TSUNAMI PROGRAMME:

100% AT-RISK COMMUNITIES TSUNAMI READY



UNESCO IOC TSUNAMI READY INDICATORS

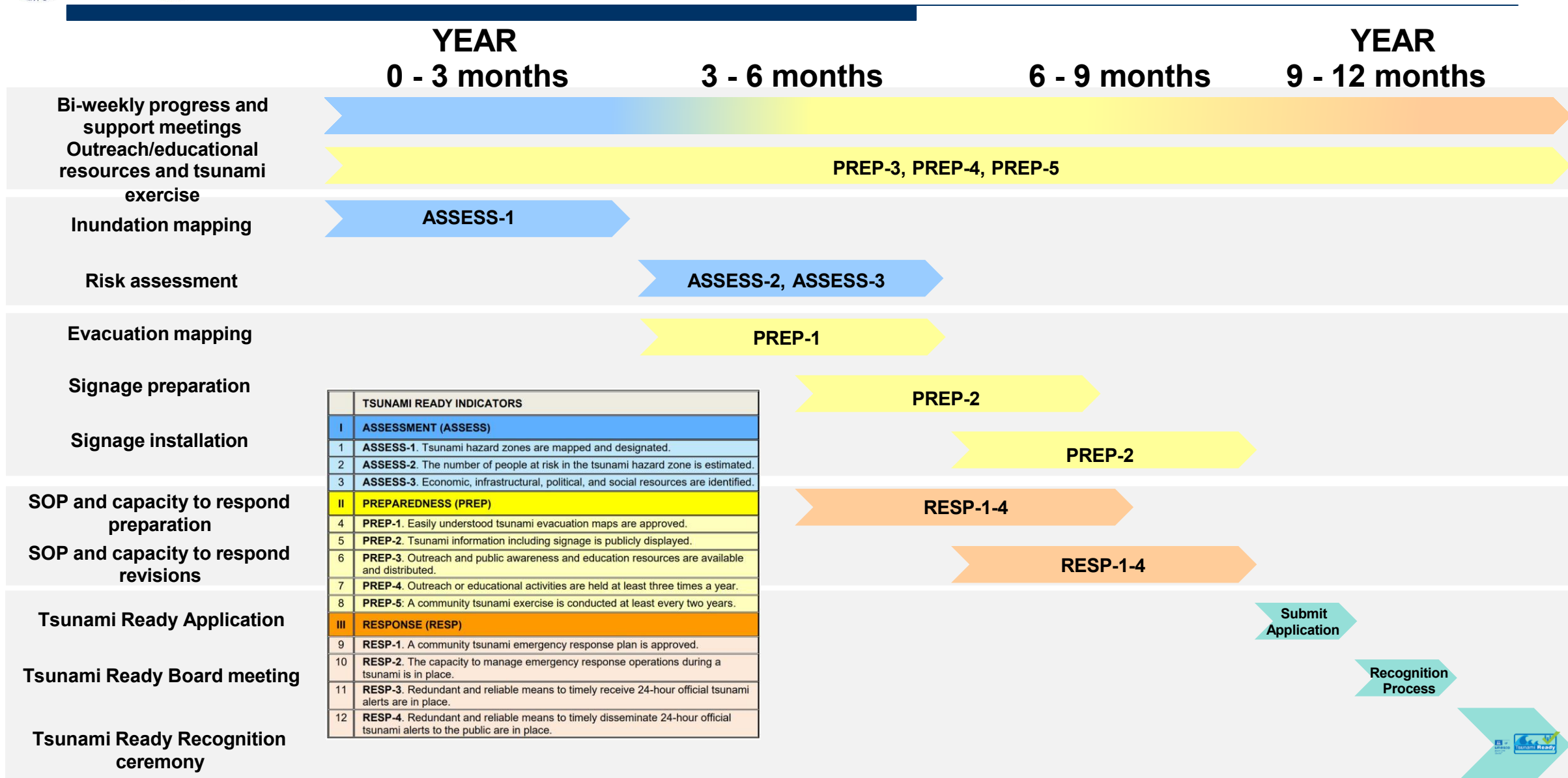
| I ASSESSMENT (ASSESS) | |
|------------------------|---|
| 1 | ASSESS-1. Tsunami hazard zones are mapped and designated |
| 2 | ASSESS-2. The number of people at risk in the tsunami hazard zone is estimated |
| 3 | ASSESS-3. Economic, infrastructural, political, and social resources are identified |
| II PREPAREDNESS (PREP) | |
| 4 | PREP-1. Easily understood tsunami evacuation maps are approved |
| 5 | PREP-2. Tsunami information is publicly displayed |
| 6 | PREP-2. Outreach and public awareness and education resources are available and distributed |
| 7 | PREP-3. Outreach or educational activities <u>are held at least three times a year</u> |
| 8 | PREP-4. A community tsunami exercise is conducted at least every two years |
| III RESPONSE (RESP) | |
| 9 | RESP-1. A community tsunami emergency response plan (ERP) is approved |
| 10 | RESP-2. The capacity to manage emergency response operations during a tsunami is in place |
| 11 | RESP-3. Redundant and reliable means to timely receive 24-hour official tsunami alerts are in place |
| 12 | RESP-4. Redundant and reliable means to timely disseminate 24-hour official tsunami alerts to the public are in place |

- ❑ **STRATEGY:**
Be Aware, Be Prepared
- ❑ **FRAMEWORK:**
 - Harmonized global guidelines UNESCO IOC Tsunami Ready
 - Performance-based Community Recognition
- ❑ **ACTION:**
National programs empower Communities
- ❑ **GLOBAL MEASURE**

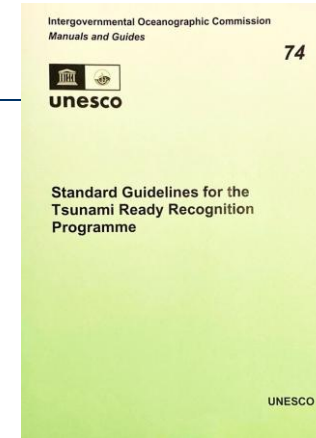




Tsunami Ready Recognition 1 year timeline



How to get Tsunami Ready



- **Standard Guidelines for the Tsunami Ready Recognition Program**
(IOC Technical Series 74, 2022)
- **Facilitated by IOC Tsunami Information Centres**
Contact International Tsunami Information Centre
(ITIC, itic@unesco.org, laura.kong@noaa.gov)
- **Tsunami Ready web site – information, resources**
www.tsunamiready.org



Be Safe. Be Prepared. Get Pacific Tsunami Ready!
LINKS: [Pacific Islands](#) [Western Pacific](#) [Eastern Pacific](#)

Click below
for video
PICT



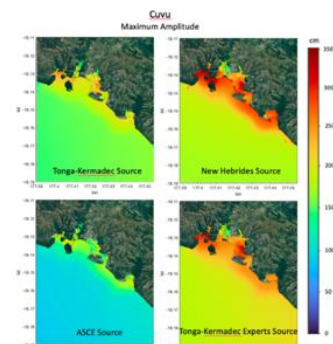
Fiji Coral Coast: Navuevu and Sila Villages



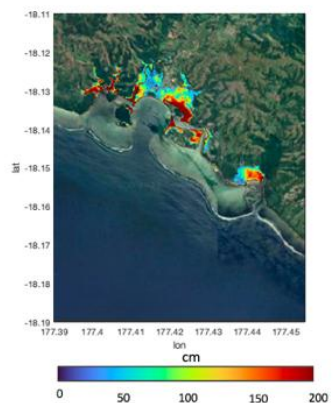
TR Recognition Ceremony: Nov 3, 2023

Implementation Approach - Stakeholders
Mineral Resources Dept, National Disaster Management Office,
Ministry of Lands, Provincial Administrator, iTaukei Affairs, Plan
International, Partners in Community Development (Fiji), People Living
with Disability Organization

Preparedness: Hazard and Evacuation



Maximum Composite Flow Depth



Hazard Assessment: Tsunami Sources and Inundation

TSUNAMI EVACUATION PROCEDURE

1. If you feel an earthquake - protect yourself!
 - Do not panic
 - Drop, cover and hold
2. After an earthquake, be aware that a tsunami may follow
 - Move away from the beach immediately as a precautionary measure
 - Look for more information through TV and Radio
3. After an intense and prolonged earthquake, evacuate immediately if possible, or look for shelter in higher buildings
 - As a community villager, please follow Community Disaster Management's instructions
4. The sound of the siren is the official call for evacuation
 - If the siren sounds, follow the evacuation procedure
 - After the first tsunami wave, more waves are likely to come!

Wait for an official "All Clear" message before leaving the shelter

TSUNAMI HAZARD ZONES ELEVATION (meters)

- 0m - 5m (Tsunami Hazard Zone)
- 5m and Above (Tsunami Safe Zone)

PROVINCE: NADROGA/NAVOBA DISTRICT: CUVU

COLA VINA!! WELCOME TO SILA VILLAGE

TSUNAMI EVACUATION MAP

NA I VAKARO MO MURIA NI YACO NA UA LOKA

YOU ARE ENTERING TSUNAMI HAZARD ZONE

TSUNAMI HAZARD ZONE IN CASE OF EARTHQUAKE, GO TO HIGH GROUND OR INLAND

NA VANUA OGO E RAWA NI CABETA NA UALOKA



Community participatory training
18-22 Sep 2023

GEOLOGICAL SERVICES DIVISION SEISMOLOGY UNIT

OFFICIAL WARNINGS

when tsunami travel across the ocean from far away, we have more time to warn people what to do

| | | | |
|------------------------------|---|---------------------------|---|
| WARNING | Move to higher ground or inland IMMEDIATELY! | DANGER | A Tsunami is imminent. Flooding and dangerous STRONG CURRENTS AND DANGEROUS WAVES IN YOUR COASTAL AREAS |
| ADVISORY | Stay out of the water and away from the shore | TSUNAMI POSSIBLE | A Tsunami is possible. Stay alert and ready to evacuate if needed |
| WATCH | Be prepared to take action. Monitor your evacuation route. Stay tuned to local radio/TV | PREPARE | Know where to go. Know what to do. Know how to get there |
| INFORMATION STATEMENT | Move to higher ground or inland IMMEDIATELY! | NO ACTION REQUIRED | NO ACTION REQUIRED |

Alerts & Warnings

- Outdoor Sirens
- Social Media
- Telephone Notifications
- Radio
- Wireless Emergency Alerts and Text Messages
- Television

GEOLOGICAL SERVICES DIVISION SEISMOLOGY UNIT

IF YOU FEEL AN EARTHQUAKE THAT IS LONG AND STRONG, A TSUNAMI MAY FOLLOW

WHAT TO DO IN CASE OF A TSUNAMI

1. Drop, cover & hold during an earthquake
2. Move inland or to a higher ground quickly, or use local evacuation route
3. Wait for official ALL CLEAR before returning to the beach

Sila Village Nadroga Province, Fiji is Tsunami Ready

IN CASE OF STRONG OR LONG EARTHQUAKE OR ANY OFFICIAL MESSAGE, GO TO HIGHER GROUND OR FURTHER INLAND

The recognition does not imply approval or promise that a community can or will perform at a certain level in case of tsunami. Tsunami Ready recognition does not mean that a community is tsunami proof. UNESCO/IOC recognizes that the community have built their capacity and implemented measures in accordance to the agreed indicators of UNESCO/IOC Tsunami Ready Programme, and that they will continue to maintain and ensure the sustainability of this preparedness level.

| English | iTaukei (Fijian) |
|-------------------------------|---|
| • Tsunami Hazard Zone | • Na Vanua ogo e rawa ni cabeta na Ualoka |
| • Tsunami Evacuation Route | • Na sala mo ni muria kina i drodro ni Ualoka |
| • Tsunami Safe Zone | • Nai drodro ni Ualoka |
| • Wait for Official All Clear | • Waraka me soli nai vakaro ni veisukayaki |

Warning, Response, Awareness

Thank you Salamat po

Dr. Laura Kong
International Tsunami Information Centre (ITIC)
laura.kong@noaa.gov