

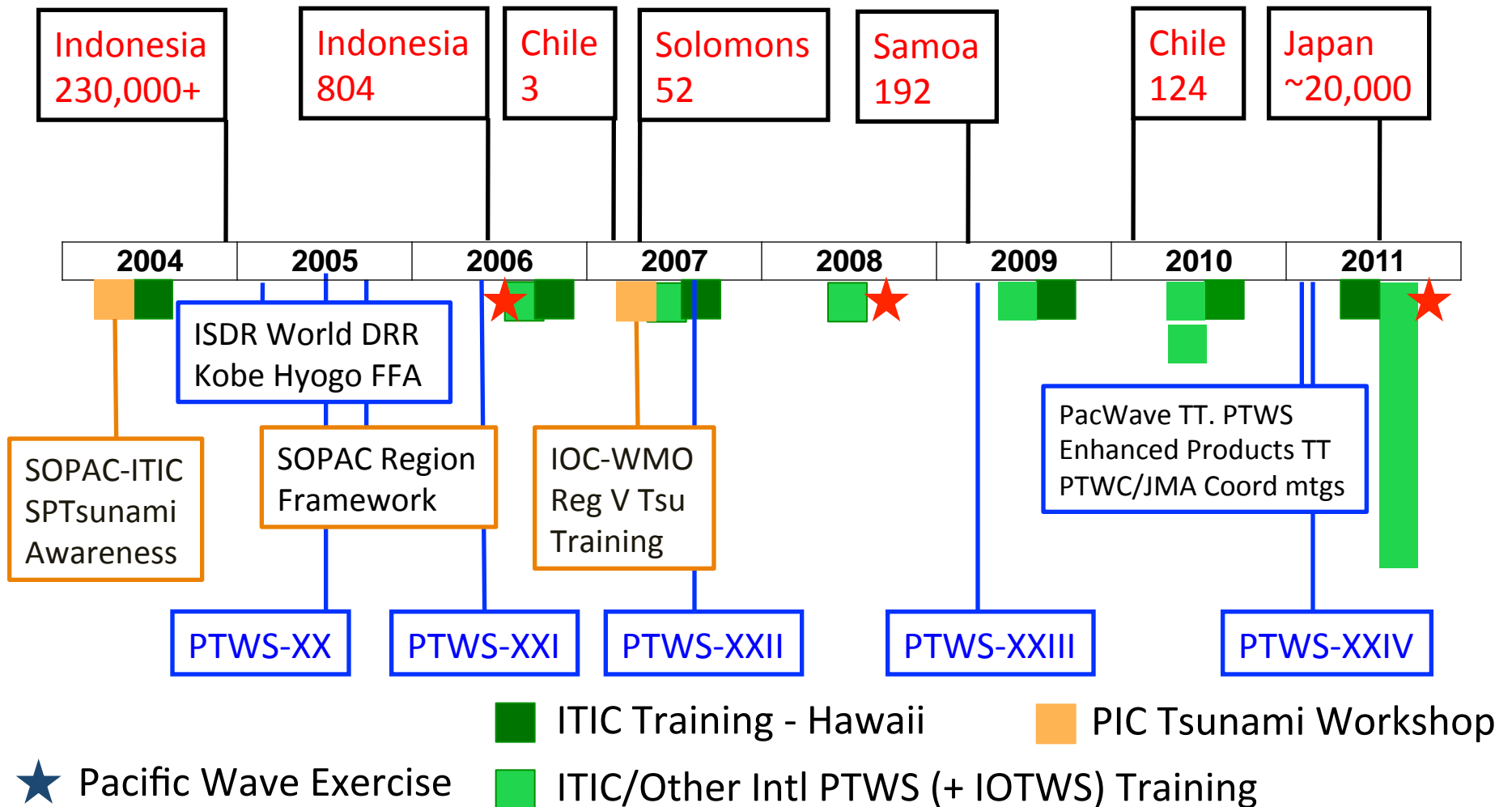


PacWave11 Summary Brief
October 2011

PTWS Exercises: Exercise Pacific Wave 2006, 2008, 2011

Laura Kong, ITIC
Jo Guard, MDC EM, NZ

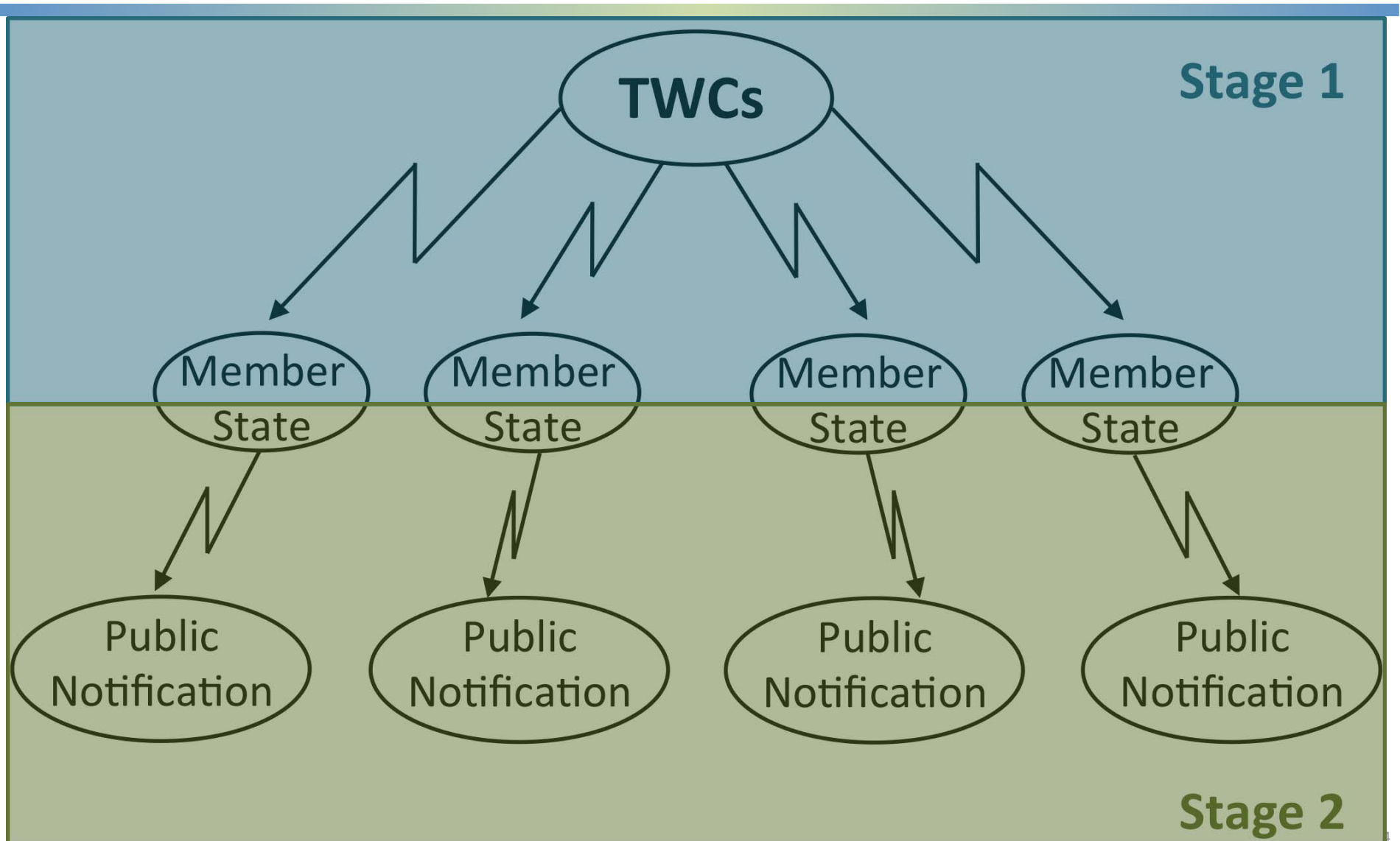
PTWS Timeline of Events



Exercise Pacific Wave (PacWave)

- **Why? After IO 2004, are Pacific Countries ready?**
ICG/PTWS-XX, 2005, recommended PacWave06
- **Regular International Communications Exercises**
 - Each with specific aim
 - Each with different scenarios
 - IOWave 2009, CaribeWave 2011 followed same format
- **Core Objectives**
 - Each with specific objectives
 - Member states may add own/internal objectives
- **Formal Evaluation Process**
- **PacWave Summary Report:** Evaluations summary, findings, and recommendations. Lessons Learned.

PacWave: Two-Stage Exercise



PacWave Comparisons

Item	PacWave06	PacWave08	PacWave11
Aim	Test, exercise, evaluate, and review operational lines of communication within PTWS's area of responsibility.	Evaluate and improve effectiveness of PTWS, TWCs, and member states response to a destructive tsunami.	Improve local and regional source tsunami warning and response capability in the Pacific.
Objectives	Core	Core	Core Validate PTWS experimental tools
Scenarios	2	1	9
Participants	44	40	?
Exercise evacuations	5	None	?
Schedule	Accelerated (4 days compressed to 2 days)	Real time	Real time (During APEC)

Pacific Wave Core Objectives

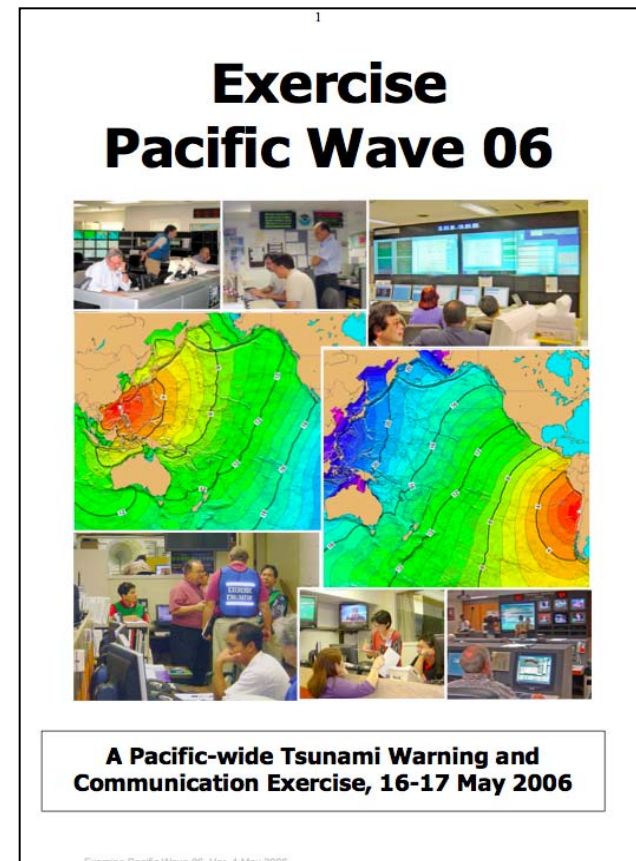
Objective	PacWave06	PacWave08
1. Validate dissemination process	Met. Information timely; methods effective	Met. Information timely; methods effective
2. Validate in-country receive/confirm processes	Met. Fax, email, GTS	Met. Fax, email, GTS
3. Validate in-country dissemination processes	Mostly met. Wide variety of comm methods used	Mostly met. Wide variety of comm methods used. Methods and timeliness supported national requirements.
4. Validate organizational decision making processes	Mostly met. Need more in-country/local feedback.	Mostly met. Need more in-country/local feedback.
5. Identify public notification/instruction modes	Public radio, TV, SMS Cell phone, national website	Public radio, TV, SMS Cell phone, national website
6. Assess elapse time to public notification	Average elapse time: 56 minutes	Average elapse time: 57 minutes

PacWave Comm Findings - Highlights

<div>PacWave06</div> <div>PacWave08</div>	
1. PTWC able to update most 24/7 Tsunami Warning Focal Points prior	1. Good test of comm that highlighted opportunities for improvement
2. Identified comm message circuits that were not being monitored	2. Some fax/email address not accurate. Continuing challenge of TWFP updating.
3. Identified email as preferred comm method	3. System worked despite difficulties with telecom systems in developing nations
4. SMS via USAID's RANET Project often only reliable method	4. Notification of mass public preferred (i.e., radio, TV, public announcement systems)
5. PTWC fax service introduced delay (~15 min)	5. GTS responsiveness varied between locations (EMWIN not always working). SMS non-operational in some locations.

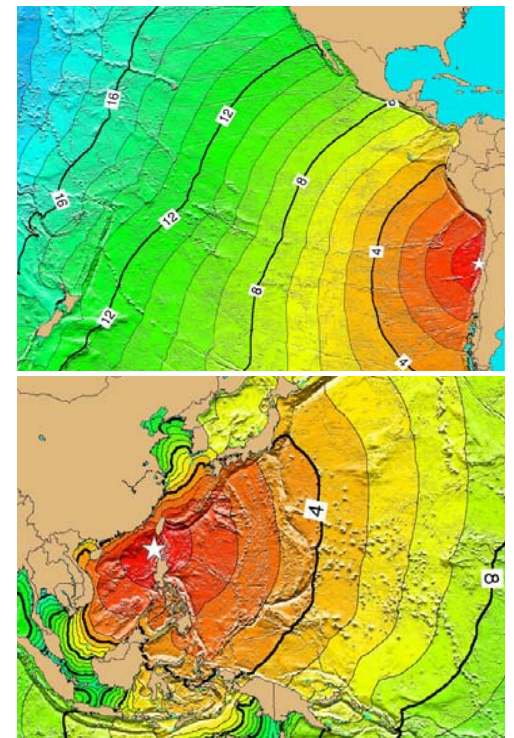
PacWave06 Objective

To test, exercise, evaluate,
and review the operational
lines of communication
within the Pacific Tsunami
Warning and Mitigation
System's area of
responsibility.



PacWave06 - overview

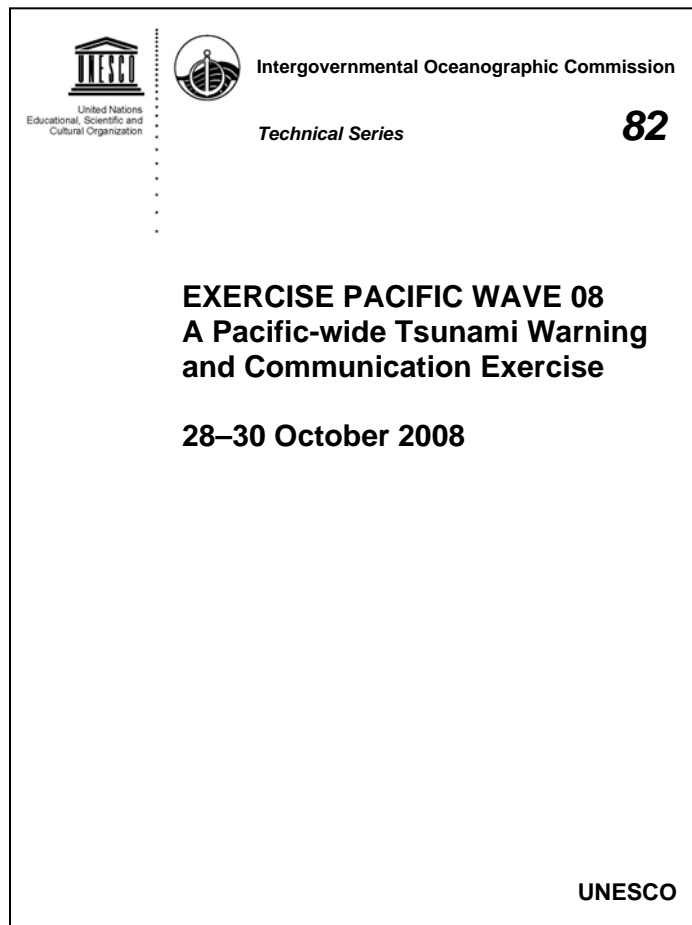
- General description:
 - To evaluate ability of countries to respond to an ocean-wide tsunami
- Accelerate time: 4 hours compressed into 1 hour (16-17 May 2006)
- Two scenarios:
 - Magnitude 9.2 central Chile
 - Magnitude 8.8 N of Philippines



PacWave06 Participants

- Australia
- Belau
- Brunei
- Canada
- Chile
- China (Hong Kong)
- Colombia
- Cook Islands
- Costa Rica
- Ecuador
- El Salvador
- Federated States of Micronesia
- Fiji
- France
- Guatemala
- Indonesia
- Japan
- Kiribati
- Malaysia
- Marshall Islands
- Mexico
- New Caledonia
- New Zealand
- Nicaragua
- Niue
- Palau
- Papua New Guinea
- Peru
- Philippines
- Pitcairn
- Republic of Korea
- Russian Federation
- Samoa
- Singapore
- Solomon Islands
- Taiwan
- Thailand
- Tokelau
- Tonga
- Tuvalu
- USA
- Vanuatu
- Vietnam
- Wallis & Futuna

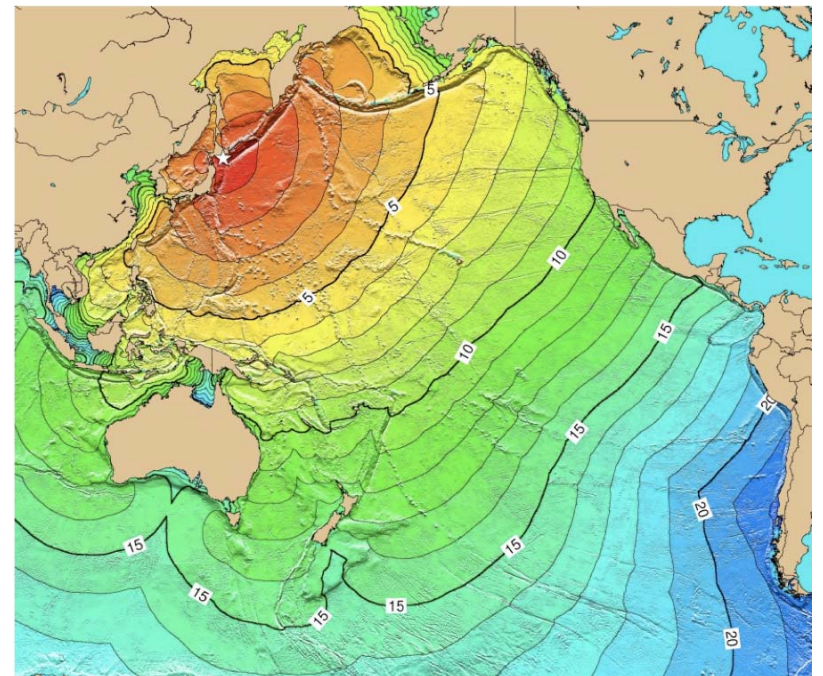
PacWave08 Objective



To evaluate and improve the effectiveness of the PTWS, its operational Tsunami Warning Centers, and its member states in responding to a destructive tsunami.

PacWave08 - overview

- General description:
To evaluate the decision making systems for response to a major tsunami warning situation
- Real time: 28-30 Oct 2008
- Single scenario:
–Magnitude 9.2 NE Japan



PacWave08 Participants

- Australia
- Canada (British Columbia)
- Chile
- China (Hong Kong, State Oceanic Administration)
- Colombia
- Commonwealth of the Northern Marianas Islands
- Cook Islands
- Costa Rica
- Ecuador
- El Salvador
- Federated States of Micronesia (Chuuk, Kosrae State, Pohnpei, Yap States)
- Fiji
- France (French Polynesia, New Caledonia)
- Indonesia
- Japan
- Malaysia
- Marshall Islands
- New Caledonia
- New Zealand
- Nicaragua
- Niue
- Palau
- Papua New Guinea
- Peru
- Philippines
- Republic of Korea
- Russian Federation
- Samoa
- Singapore
- Solomon Islands
- Thailand
- Tonga
- USA
- Vanuatu
- Vietnam

Exercise Pacific Wave 11 (PacWave11)

- Originally scheduled 2010
- 3 deadly local tsunamis occurred during intersessional period (2009 South Pacific, 2010 Chile, 2011 Japan)
- 99+ % of tsunami casualties from local/regional tsunamis
- PTWS Steering Committee (Aug 2010) – PacWave11 focus on local tsunami readiness

PTWS Exercise Task Team (ICG/PTWS-XXIII, 2009)

Terms of Reference

- (i) Review the PACWAVE08 evaluation report
- (ii) Identify lessons learned from PACWAVE08
- (iii) Design and carry out a third end-to-end Pacific-wide exercise

Members:

Chair: Laura Kong (ITIC), Jo Guard (NZ)

PTWC, JMA NWPTAC, France, Indonesia, New Zealand (GNS, MCDEM), Nicaragua, Papua New Guinea, Philippines, Russian Federation, Southeast Pacific representatives, PTWS Secretariat

PacWave08 Lessons Learned (1/4)

- **Tsunami Warning Focal Point contact data**
Issue: TWFP contact information incorrect
=> Countries regularly review / confirm to IOC
- **Conduct exercises in real time**
Issue: Positive in their feedback for real time
=> Regular Pacific-wide exercises to be in real time
- **Exercise announcements**
Issue: Insufficient time to prepare
=> IOC officially announce 6 months / distribute documents 3 months prior

PacWave08 Lessons Learned (2/4)

- **Local community preparedness**

Issue: Not generally known how successful locally (timely alert and actual evacuation)

⇒ Increase emphasis on local community-based preparedness, training, and “last mile” exercises

- **Tsunami plans and standard operating procedures**

Issue: Countries did not assemble management group during exercise (but would in a real event).

Unclear how many countries pre-determined tsunami plans.

⇒ For fast tsunami response, need end-to-end SOPs. PTWS WG 3 to survey; if training priority, incl training budget in annual natl budget request.

PacWave08 Lessons Learned (3/4)

- **Warning systems**

Issue: Communication to local jurisdictions insufficient for immediate response of coastal communities.

⇒ Conduct feasibility study to identify and evaluate relevant warning systems.

Australia (AusAID) PIC Tsunami Capacity Assessments (2009) and PTWS WG 3 survey providing input. PTWS Emergency Communications TT assist in identifying technologies available.

PacWave08 Lessons Learned (4/4)

- **Post-exercise evaluation / Regional Recommendations in context of PTWS Medium Term Strategy**

Issues 1: Large number of questions unanswered so difficult to draw conclusions as part of evaluation process, e.g., regional (PTWS) common priorities of action too specific / did not address PTWS MTS

=> Simpler evaluation questionnaire / electronic online

=> How to Plan, Conduct, and Evaluate Tsunami Exercises guideline (July 2011, also TOWS Inter-ICG TT)

=> Evaluation directly correlate to - measure PTWS MTS

Summary

- Regular Pacific Wave Exercises continue
- Capacity building still needed to strengthen
- Continual updating of TWFPs and testing of comms essential to successful warning
- Member states/agencies should develop internal exercise program, both separate from, and integrated with Exercise Pacific Wave



PacWave11 Summary Brief
October 2011

Exercise Pacific Wave 11 9-10 November 2011

Laura Kong, ITIC
Jo Guard, MDC EM, NZ

PacWave11 – Date and Objective 1

- **IOC Circular Letter 2390 issued 13 May 2011**
 - **9-10 Nov 2011: multi-scenario local/regional tsunami;** during APEC offering high visibility
- **Objective 1**
 - **Validate the issuance of tsunami advice from the PTWC and JMA/NWPTAC and WC/ATWC**
 - **Validate receipt of this tsunami advice by Pacific Country Tsunami Warning Focal Points.**

PacWave11 – Objective 2

To begin a process of exposure to an initial test version of PTWC experimental products that are being developed to provide a more rapid and quantitative forecast of tsunami impacts.

- **Review and evaluate PTWC experimental products that will be available in parallel with existing PTWC products for each scenario exercised.**
- **Provide feedback on the staging, format, and content of the experimental products.**

PacWave11 – Objective 3

To validate readiness for local/regional source tsunami

- Validate operational readiness of National Tsunami Warning Centre (NTWC), or similar in-country function, and/or National Disaster Management Office (NDMO).
- Improve operational readiness. Before exercise, ensure appropriate tools and response plan(s) have been developed, including public education materials.
- Validate dissemination of warnings and information/advice from NTWC to relevant in-country agencies and public is accurate and timely.
- Validate organisational decision-making process about public warnings and evacuations.
- Validate methods used to notify and instruct public are accurate and timely.
- Validate elapsed time until public would be notified and instructed/advised.

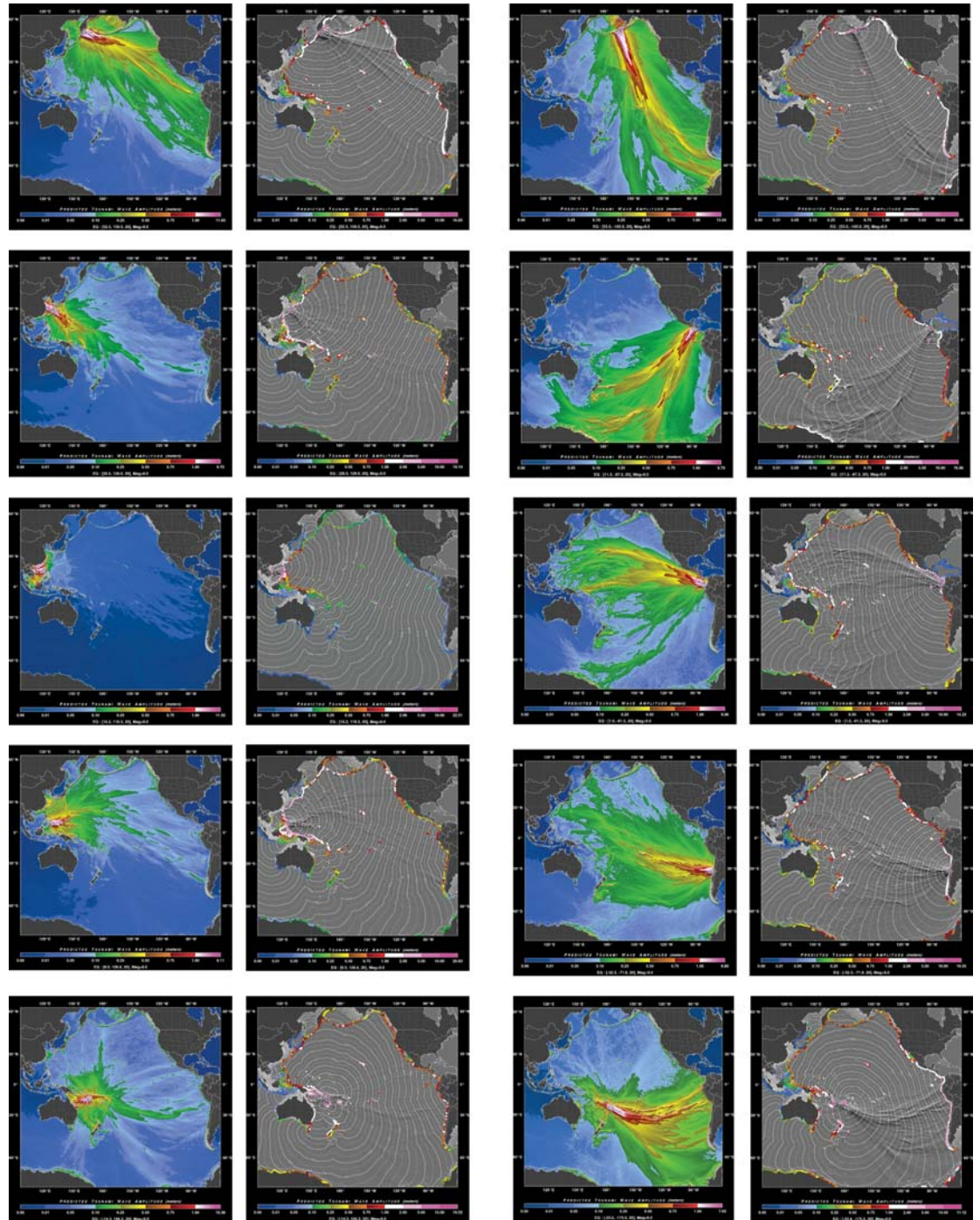
PacWave11 – 10 Scenarios

- Kamchatka (Kuril-Kamchatka Trench)**
- Ryukyu Islands (Nansei-Shoto Trench)**
- Philippines - South China Sea (Manila Trench)**
- Philippines - Pacific Ocean (Philippines Trench)**
- Vanuatu (New Hebrides Trench)**
- Tonga (Tonga Trench)**
- Northern Chile (Peru-Chile Trench)**
- Ecuador (Colombia – Ecuador Trench)**
- Central America (Middle America Trench)**
- Aleutian Islands (Aleutian Trench)**

PacWave11 Tsunami Scenarios

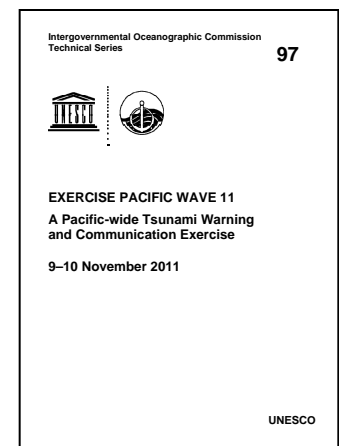
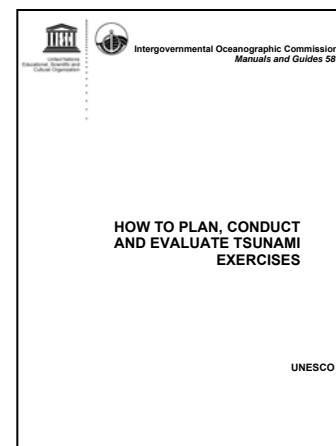
Kuril-Kamchatka	Aleutian
Nansei-Shoto	Middle
	America
Manila	Colombia-
	Ecuador
Philippines	Peru-Chile
New Hebrides	Tonga

PTWC Forecast
Models (RIFT):
Energy / Coastal Forecast



PacWave11 – Conduct: Start, Messages, Guidance

- Time of Event:
 - During the day
- Each Country exercises 1 local/regional tsunami scenario
- International TWC Messages
 - PTWC, JMA NWPTAC, WC/ATWC
 - Available on web site – 8 Oct 2011 (save money)
- Documents
 - Exercise Messages (Oct)
 - Exercise Manual (Aug)
 - Flyer, Summary ppts (Sep/Oct)
 - Guideline: How to Plan, Conduct, and Evaluate Tsunami Exercises (July)



Conduct – Evaluation, TOWS

- **Post-Exercise Evaluation**

- Focus on plans, policies, procedures, assessment capabilities, communication, resources and inter-agency/inter-jurisdictional relationships
- Aligned with PTWS Medium Term Strategy and its activities
- Online: https://www.surveymonkey.com/s/pacwave11_eval

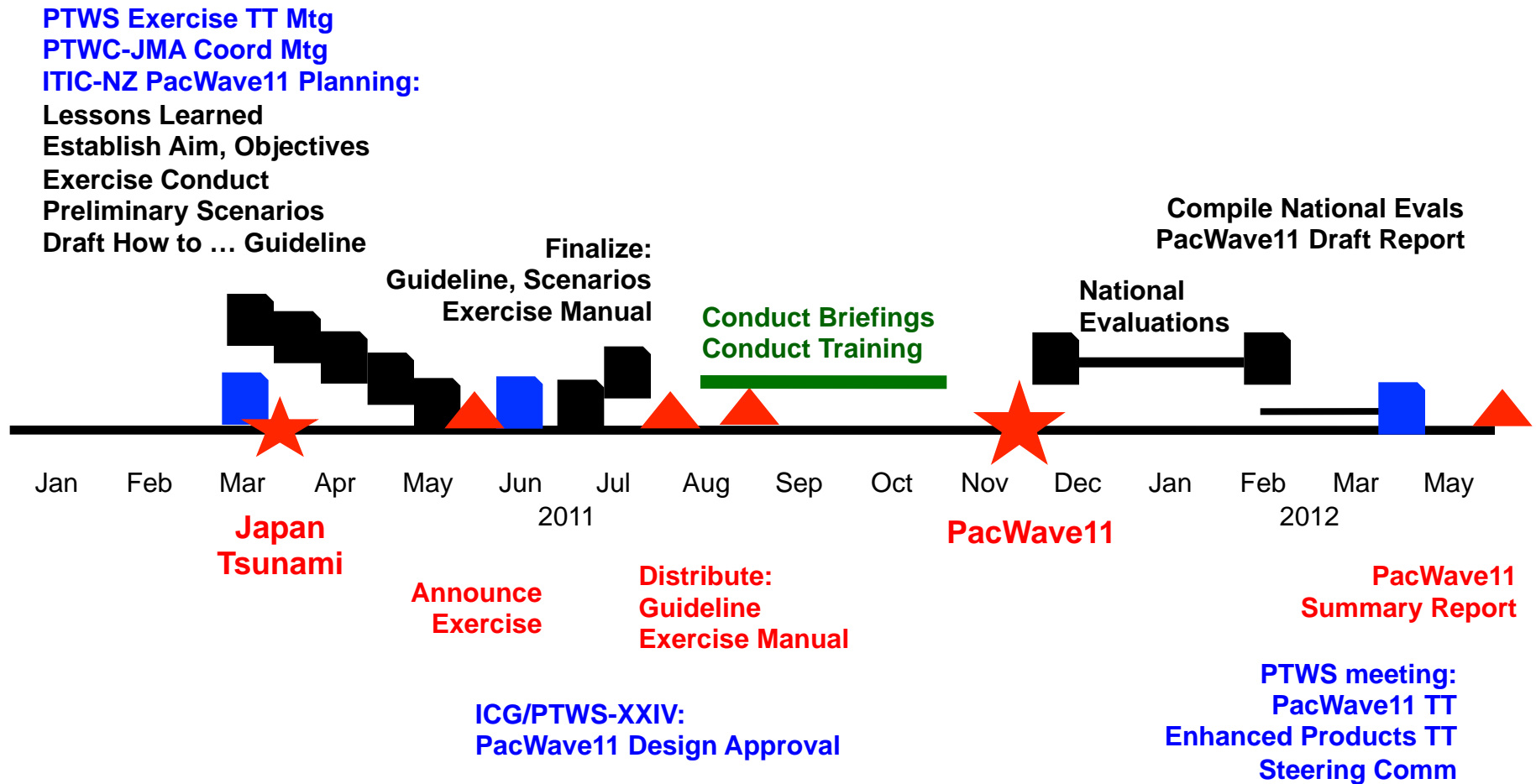
- **Consistency Globally for Exercise**

- IOWave, CaribeEWS, NEAMWave
- Guideline global
- Exercise uses same format / questionnaire?

PacWave11 Preparation - Activities

- **Web Site:** <http://www.pacwave.info>
- **Documents:**
 - *PacWave11 Announcement* IOC CL 2390 – 13 May 2011
 - *How to Plan, Conduct, and Evaluate Tsunami Exercises* guideline - 22 July 2011
 - *Exercise Pacific Wave 11 Manual* – 22 Aug 2011
- **Briefings:**
 - SPC/SOPAC Pacific Platform for Disaster Risk Management – 1-5 Aug
 - SPREP Reg Met Svc Dir mtg - 8-12 Aug
 - IOTWS Reg SOP Training – 19-23 Sep
 - SOPAC STAR/Annual Session – 17-22 Oct
 - APEC School Safety for EQ, Tsunami, Volcanoes Workshop 17-19 Oct
- **Training:**
 - ITP-Hawaii Training (PTWS: Chile, China Hong Kong, Ecuador, Fiji, Kiribati, Malaysia, Niue, Peru, South Korea, Tonga), 22 Aug - 2 Sep 2011
 - In-country, -region training
 - Vanuatu (ITIC, PTWC, IOC, SOPAC), 12-16 Sep
 - Central American SOP Workshop – 28-30 Sep

PacWave11 Milestones




 Key Activities
 
 Key Events



United Nations
Educational, Scientific and
Cultural Organization



Intergovernmental
Oceanographic
Commission

Questions?

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