Scientific meeting of experts to understand tsunami sources, hazards, risk and uncertainties associated with the Tonga-Kermadec Subduction Zone

ICG/PTWS XXVII Working Group 1 – Understanding Tsunami Risk

October 29 – 2 November 2018
Wellington, New Zealand
1. Welcome to the Scientific Experts Meeting on behalf of ICG/PTWS-XXVII
Steering Committee Chair Dr. Wilfried Strauch

*Presented on the Chair’s behalf by David Coetzee, New Zealand National Focal Point for ICG/PTWS and ICG/PTWS XXVII Working Group 3 – Disaster Risk Management & Preparedness*

2. Introductions of other ICG/PTWS-XXVII Steering Committee Members:
   - Dr. Ken Gledhill – WG 2 Chair and previous ICG/PTWS Steering Committee Chair
   - Dr. Diego Arcas – WG 1 Co-Chair
   - Ms. Sarah-Jayne McCurrach – WG 1 Co-Chair & TT on PTWS Key Performance Chair
   - Ms. Esline Garaebiti – WG2 TT Co-Chair
   - Mr. Ofa Faanunu – Regional WG Chair for Pacific Island Countries/Territories on Tsunami Warning and Mitigation

3. Introductions of Scientific Experts Meeting Participants
The United National Educational, Scientific and Cultural Organisation, Intergovernmental Oceanographic Commission (UNESCO IOC)

Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (UNESCO ICG/PTWS)

IOC ICG/PTWS STRUCTURE - WORKING GROUPS AND TASK TEAMS 2017-2019

Inter-Governmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (ICG/PTWS)

Chairperson: Dr. Wilfried Strauch (Nicaragua)
Former Chairperson: Ms. Filomena Nelson (Samoa) (resigned June 2017)
Vice-Chairs: Mr. Satoshi Harada (Japan)
Steering Committee: Officers, Working Group Chairs, PTWC, NWPTAC, ITIC

Regional Working Group
- Central American Pacific Coast (WG-CA)
- South East Pacific (WG-SEP)
- Pacific Island Countries and Territories (WG-PICTs)
- South China Sea (WG-SCS)

Working Group 1
Understanding Tsunami Risk

Working Group 2
Tsunami Detection, Warning and Dissemination

Working Group 3
Disaster Risk Management and Preparedness

SC Task Team
Future Goals and Performance Monitoring

SC Task Team
Evacuation Maps, Plans, and Procedures (TEMPP) and Tsunami Ready

SC Task Team
PacWave18 Exercise

WG2 Task Team
Seismic Data Sharing in the South West Pacific

WG-PICTs Task Team
Capacity Development

WG-SCS Task Team
Establishment of a South China Sea Tsunami Advisory Center

Approved ICG/PTWS-XXVII, March 2017, updated July 2017
1. Develop and promote best practice tsunami risk reduction material/programmes/standards/tools for understanding tsunami risk and support emergency management/early warning, including but not limited to:
   - hazard assessment and coastal inundation models and products
   - risk assessment methodology and risk forecasting
   - scenario assessments (MCE/MLE’s) to understand exposure, vulnerability and event frequency
   - forecast, threat, evacuation and inundation modelling
2. Work with scientific bodies to ensure translation of science information to support tsunami risk assessment.
3. Better understand and develop best practice for assessing and reducing the risk of local and non-seismic tsunami sources.
4. Develop projects in conjunction with SME’s and groups with specific interest to address gaps or improvements in tsunami risk assessment and risk reduction.
5. Provide hazard specific support and advice, work with other ocean basins and working groups to understand, coordinate and develop ways to address tsunami risk management.
The United National Educational, Scientific and Cultural Organisation, Intergovernmental Oceanographic Commission (UNESCO IOC)

Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (UNESCO ICG/PTWS)

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<th>Agenda Item</th>
<th>Time</th>
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<tr>
<td>1) Welcome and introductions/role of IOC and ICG-PTWS</td>
<td>09:00 – 09:15</td>
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<td>2) Overview of meeting aims/objectives/IOC requirements and expectations of experts meeting</td>
<td>09:15 – 09:45</td>
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<td>3) Discussion on regional and global implications:</td>
<td>09:45 – 10:45</td>
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<td>• How this work will impact our understanding of the hazard and risk</td>
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<td>• What are the impacts on science research?</td>
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<td>• What are the constraints?</td>
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<td>4) Presentation and discussion of ‘what do we want to achieve?’ including key priorities and meeting outcomes</td>
<td>11:15 – 13:00</td>
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<td>5) Current state scientific update, per discipline (30 mins each):</td>
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<tr>
<td>1) Tsunami Modelling/Tsunami Science</td>
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<td>2) Seismology</td>
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<td>3) Paleotsunami</td>
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<td>4) GNSS/Geodesy</td>
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<td>3) Overall tectonics</td>
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<td>6) Summary and reflection on scientific updates and next steps for Day 2</td>
<td>16:30 – 17:15</td>
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To better understand uncertainties associated with the Tonga-Kermadec Trench by quantifying earthquake and tsunami sources, hazards and risks to support risk management (readiness, response, reduction, and recovery) and target suitable reduction projects for SW Pacific countries exposed and vulnerable to destructive tsunami from the Tonga-Kermadec Trench.

Experts meeting outcomes and official requirements:

- Develop an IOC Technical Report summarising the meeting and its findings. Members of the experts meeting will be expected to endorse and support the report.
- Provide recommendations for consideration by the ICG-PTWS
- Suggest further research that would support response and reduction initiatives for affected countries in the Southwest Pacific.
The meeting aims to be influenced by/include:

- Paleoseismology, historic event data, seismic studies and tsunami modelling, including consideration of MMax for the Subduction Zone and broader region.

- MCE earthquake magnitude and rates of tsunamigenic events, to understand the most extreme consequences and risk management challenges, and MLE scenarios. Use real events from other regions to better define consequences.

- Hazard, risk and uncertainty information to define a number of Pacific and Global community needs and actions. E.g. identifying scientific research needs, evaluation of risk management programmes, inform priorities and investments to support risk management for at-risk communities.

- Gap identification in scientific research and propose means of addressing or managing this.
3. Regional and Global Implications
4. What do we want to achieve

Session Facilitator: Dr. Ken Gledhill

Discuss:

- How do we want this meeting to impact our understanding of the hazard and risk
- What are the possible impacts on science research?
- What are the possible constraints?
5. ‘Current State’ Scientific Updates

Session Facilitator: Various – refer to agenda

Discuss:

- Tsunami Modelling/tsunami Science
- Seismology
- Paleotsunami
- GNSS/Geodesy
- Overall tectonics

Presentations to provide an overview of the ‘current state’ of science within the subject matter areas listed above. This will (at a minimum) form the basis of discussion through the meeting, start gap identification and aid modelling.

Questions of presenting scientists is encouraged.
SUMMARY OF DAY 1
PREPERATION AND ANY ADAPTATIONS FOR DAY 2