

# **Indonesia Training Program in Seismology and Tsunami Warnings**

**Sponsored by:**

**Indonesia Meteorological and Geophysical Agency (BMG)**  
**UNESCO Intergovernmental Oceanographic Commission (IOC)**  
**U.S. Geological Survey (USGS)**  
**U.S. Agency for International Development (USAID)**

**Seismology: May 8-10**  
**IRIS Instrumentation Training: May 11-13**  
**Tsunami Warnings & Emergency Response: May 15-16**  
**Roundtable Discussion: May 17**

**Day Seven: Monday, May 15**

**Tsunami Warnings and Tsunami Warning Center Operations**

**9am** – Session VII.1

Topic: Tsunami Science

- a. Wave characteristics
- b. Source zone
- c. Source type, generation, propagation, and directivity
- d. Travel times and coastal inundation

Lecturer: S. Weinstein

**10am-** Coffee Break

**10:15am** - Session VII.2

Topic: Tsunami Warning System

- a. History & Mission
- b. Components (communication, research, outreach, and education)
- c. Organizational structure
- d. TWS Partners (Met. Services, Emergency management, IRIS, GEOSS, etc)

Topic: Tsunami Warning Center Operations

- a. Objectives and Activities of Warning Centers
- b. Guidance on developing new National Warning Centers

Topic: Tsunami Warning Center Event Processing

Overview - procedures, event flowcharts

Lecturer: M. Yamamoto, Fauzi BMG

**12pm** - Lunch Break

**1:30pm**- Session VII.3

Topic: Local Tsunami Warning Center Event Processing (Seismic Analysis)

- a. Signal acquisition and transmission formats
- b. Earthquake locations and associations
- c. Magnitudes and mechanisms
- d. Alarm types and Duty Personnel notification
- e. Use of accelerometer and intensity meter for tsunami warning

Lecturer: S. Weinstein, M. Yamamoto, Fauzi

**3pm** - Coffee Break

**3:15pm**- Session VII.4

Topic: Tsunami Hazard Mitigation - Preparedness, Education, and Outreach, including Earthquake Hazard Mitigation building codes and engineering design guidance

- a. Preparedness - risk assessment, exercises and drills, structural mitigation
- b. Education and Outreach - reasons for, examples, and how carried out

Topic: Indonesia Tsunami Preparedness Program – Present and Future

Lecturer: L. Kong, TBA

**4:15pm**- Discussions

**5pm**- End

**Day Eight: Tuesday, May 16**

**Tsunami Warnings and Tsunami Warning Center Operations**

**9:00am** – Session VIII.1

Topic: Tsunami Model (ITB)

Lecturer: DR. Hamzah Latif (ITB)

**10:00am**-Topic Tsunami warning center data processing, Sea Level monitoring

- a. Coastal and deep ocean instrument
- b. Tsunami wave forecasting
- c. Tsunami travel time software

Lecturer. S. Weinstein

**10:30 Coffee Break**

**10:45am** - Session VIII.2

Topic: Tsunami Warning Center Staffing and Training

- a. Staffing profile and workday flow
- b. Staff Training requirements
- c. Exercises and Drills

Topic: Indonesia Regional Center, Seismic and Tsunami Monitoring

Lecturer: L. Kong,, Prih Harjadi

**12pm** - Lunch Break

**1:30pm**- Session VIII.3

Topic: Local Tsunami Warning Center Products - Message Dissemination

- a. Types of Products and Criteria for Product Issuance  
Pacific and Indian Ocean scenarios
- b. Methods of Dissemination
- c. Communications Tests
- d. Indonesia Message product

Lecturer: S. Weinstein, BMG

**2:45pm**- Coffee Break

**3:15pm**- Session VIII.4

Topic: Tsunami Emergency Response after Tsunami Warnings Issued, including operation centers, warning dissemination, evacuation, shelters, etc

- a. Objectives and Activities involved in Emergency Response
- b. Guidance on developing tsunami response

Topic: Indonesia Tsunami Emergency Response – Present and Future

Lecturer: L. Kong, BMG

**4:15pm**- Tsunami Teacher, Resource toolkit

**4:30pm** Discussions

Topic: Comments from Lecturers & Participants  
Conclusions, Recommendations

**5 pm**- Presentation of Certificates, Closing Ceremony

**5:30 pm**- *End of Training*

**Day Nine: Wednesday, May 17**

**Roundtable – Tsunami Warnings for Indonesia**

**Participants:**

Indonesian Government Representatives and other invited responsible organizations  
Pacific Tsunami Warning Center, Deputy Director  
International Tsunami Information Centre, Director  
Training participants

PROVISIONAL AGENDA as 24 April 2006

Time	Event
8.0 – 9.00	<b>Registration</b>
9.00 – 9:10	<b>Opening remark (DG of BMG)</b>
9.10 – 9.30	<b>Key note speech, DR. Jan Sopaleuwakan</b>
9.30 – 10.00	<b>Key note speech, DR. Laura Kong</b>
10.00 – 10.30	<b>Coffee break</b>
<b>Monitoring, current status and plan in TWS</b> <b>Chair: DR.Prih Harjadi</b>	
10.30 – 10.45	DART-buoy, BPPT
10.45 – 11.00	Tide Gauges, BAKOSURTANAL
11.00 – 11.15	GPS network, BAKOSURTANAL
11.15 – 11.30	Earth Observation, LAPAN
11.45 – 12.00	RANET and other alert tools, ITIC
12.00 – 12.15	Operation Center of EITWC, BMG
12.15 – 13.15	<b>Lunch</b>
<b>Preparedness and Mitigation</b> <b>current status and plan in TWS</b> <b>Chair: Dr. Jan Sopaheluwakan</b>	
13.15 – 13.30	Tsunami Modeling, BPPT
13.30 – 13.45	Operation center of BAKORNAS, BAKORNAS
13.45 – 14.00	System Dissemination, Kominfo
14.00 – 14.15	Public preparedness, LIPI
14.15 – 14.30	Grand Scenario, RISTEK
<b>Panel Discussion, scenario and plan for a drill 26 December 2006</b> DR.Laura Kong DR.Prih Haryadi	
14.30 – 17.40	DR.Weinstein DR.Jan Sopaleuwakan Ir.Sugeng Triutomo MSc
17.40 – 18.00	Closing