

# Tsunami Disaster Mitigation Course

## Outline

One year training course (from Oct. 2022 to Sep. 2023) for young researchers/engineers of developing countries in tsunami prone regions.

### History

After the 2004 huge tsunami disaster by the Sumatra off-shore earthquake, this course was established in Oct. 2006 and conducted with seismology course.

### Objective

To train advanced human resources who can conduct researches on tsunami and manage planning and dissemination of tsunami mitigation technology.

## What you can study in this program

The training consists of basic lectures on tsunami and seismology (8 months) and an individual study (3 months) aiming to solve individual research problems and issues.

### Curriculum

- Seismology for Tsunami
- Tsunami Generation and Propagation
- Tsunami Simulation, Inundation Modeling
- Tsunami Evacuation Planning and Simulation
- Tsunami Observation
- Tsunami Early Warning System
- Site/Observation Visits (several times)
- Two Study Trips to the Areas Experienced Devastation by Earthquakes and/or Tsunami
- Individual Study (from May to August)

### Lecturers and supervisors

IISEE Staffs, Professors from Tokyo Univ., Tohoku Univ., Hokkaido Univ., and other institutes

### Subjects of Individual study

- Tsunami Early Warning System
  - ◆ Tsunami Database
  - ◆ Rapid Determination of Earthquake Parameters
  - ◆ Real Time Usage of Tsunami Data
- Tsunami Propagation and Inundation Modeling
- Tsunami Hazard Assessment
- Tsunami Risk Assessment
- Tsunami Source



Hiramura Bank in Hirogawa town, Wakayama



Tsunami damage by the 2011 Tohoku-Oki Earthquake

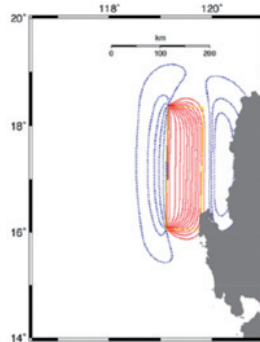
**Example of Master's Report**

**“Tsunami hazard assessment along the coast of Lingayen Gulf, Pangasinan, Philippines” by Mr. Julius Galdiano (Philippine Institute of Volcanology and Seismology (PHIVOLCS))**

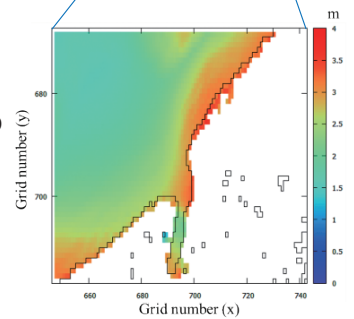
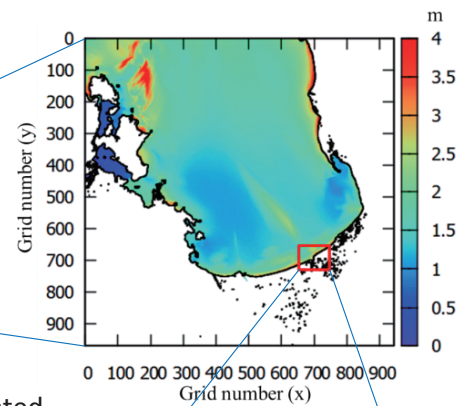
Location of the study area with the existing tide gauge station (yellow star) and warning sirens (red stars).



Seafloor deformation for a M8.4 scenario earthquake (yellow rectangle). The contour intervals of uplift (red lines) and subsidence (blue broken lines) are 0.15 m and 0.05 m, respectively.

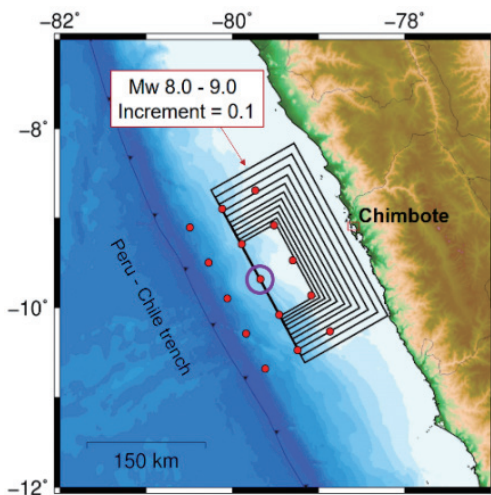


Simulated tsunami inundation area for the M8.4 scenario earthquake.

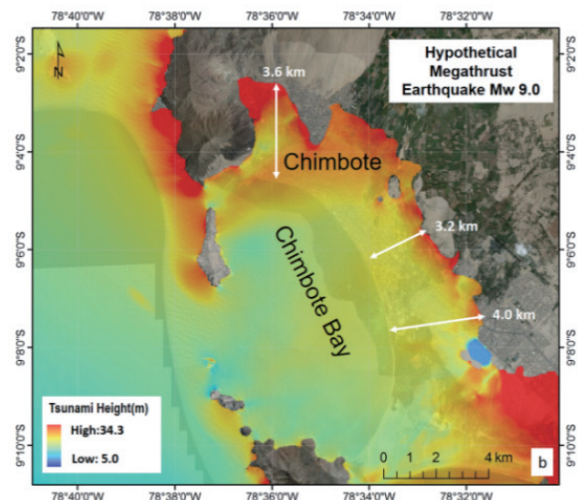


**Example of Master's Report**

**“Real-time tsunami inundation forecast study in Chimbote city, Peru” by Ms. Nabil Moggi (Peruvian Tsunami Warning Center, Directorate of Hydrography and Navigation (DHN))**



Fault model scenarios for constructing tsunami waveform and inundation database. Red dots represent the 15 referent points. Black rectangles are examples of fault models with different fault sizes from Mw 8.0-9.0 with the increment of 0.1.



Tsunami inundation forecasting in Chimbote city, Peru for a hypothetical earthquake scenario of Mw 9.0.



## Collaborative Master's Program

### Disaster Management Policy Program (DMP) with National Graduate Institute for Policy Studies (GRIPS)

A part of the curriculum of this JICA training course “Seismology, Earthquake Engineering and Tsunami Disaster Mitigation” is approved as a Master’s degree program and the individual study report as a Master thesis by GRIPS. Completing all graduation requirements during the program, the participants will be awarded a Master’s degree, “Master of Disaster Management” by GRIPS.

### Schedule An example for the courses from Oct. 2022 to Sep. 2023.

2022 Oct.	Nov.	Dec.	2023 Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.
<b>Group Training</b>							<b>Individual Study</b>				
							Lectures Experiments Practices Observation/ Study Trips				

### Expenses No self-burden

The following expenses will be provided to the participants by JICA:

- A round-trip ticket between an international airport in your country designated by JICA and Japan will be borne by JICA.
- Allowances for accommodation, meals, living expenses, outfit, and shipping.
- Expenses for study tours in Japan (basically in the form of train tickets).
- Travel insurance that covers from the time of arrival in Japan till departure from Japan.
- Medical expenses for participants who become ill after arriving in Japan.
- Expenses for program implementation, including materials.
- Application fee, admission fee and tuition for the Master’s Degree Program of GRIPS will be provided by BRI.

### Nominee Qualifications

Nominees must meet the following qualifications:

- be nominated by their national government.
- be technical officials, engineers or researchers who have university degrees in seismology, earthquake engineering, tsunami or equivalent.
- be an employee of governmental organizations, research institutes or universities having public interest in seismology, earthquake engineering or tsunami disaster mitigation (more than 3 years of working experience is recommended).
- be well versed in advanced mathematics and proficient in computer.
- be between the ages of 25 and 42 years as of October 1, 2022.
- be proficient in English: TOEFL iBT 79, IELTS Academic 6.0 or equivalent.
- Applicants who wish to enroll in the Master’s Program must submit the official certificate of TOEFL iBT or IELTS.

### How to apply An example for the courses from Oct. 2022 to Sep. 2023

Important Months/Dates	Actions	Actors
July to August 2021	Selection and Nomination of this course in the JICA’s course list	National Government of the applicant’s country and JICA
December 2021 to January 2022	Document for Recruitment called “General Information” will be delivered to the applicant’s country.	JICA
From January to April 2022	Nomination of candidates and application process	Applicants, their National Government and JICA
May to July 2022	Screening and selection of course participants for 2022-2023	JICA, IISEE (and GRIPS for those who wish to enroll)

Inquire at the JICA office in your country about the Knowledge Co-Creation Program:

“Seismology, Earthquake Engineering and Tsunami Disaster Mitigation”.

Note that the application must be submitted to JICA office in the applicant’s country by the National Government of the applicant’s country. Then, applicants must obtain full agreement of their National Government beforehand.

# More than 60 years: More than 1,900 participants

The International Institute of Seismology and Earthquake Engineering (IISEE) at the Building Research Institute (BRI) in Tsukuba, Japan provides training program in seismology, earthquake engineering and tsunami disaster mitigation to researchers and engineers from developing countries to strengthen the capacity of earthquake / tsunami disaster mitigation in target countries. Since 1960, a total of 1,931 participants from 105 countries have completed the training courses (as of March 2021).

IISEE mainly conducts one-year (regular) training courses named **Seismology Course**, **Earthquake Engineering Course** and **Tsunami Disaster Mitigation Course**, and two-month course named **Global Seismological Observation Course** and **Latin American Earthquake Engineering Course**. Short-term training courses focusing on specific themes take place occasionally.

## IISEE Course Classification

Training Course		Field	Estimate	Period	Commencement
Regular	Seismology	Seismology	5	1 year (Oct.-Sep.) Lectures in Class (8 months) Individual Study (3 months)	1960
	Earthquake Engineering	Earthquake Engineering	10		2006
	Tsunami Disaster Mitigation	Tsunami	5		
Latin American Earthquake Engineering		Earthquake Engineering	10 to 15	2 months (2 weeks in Latin America)	2014 (2014-2016)
Global Seismological Observation		Seismology	10 to 20	2 months (Jan.-Mar.)	1995
Individual		Seismology/ Earthquake Engineering/ Tsunami	Several	Upon request	1968

Courses currently being held are shown.

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