IISEE Newsletter

Dear All IISEE Readers

By IISEE

The year 2023 is coming to an end. We hope that you and your families are doing well.

Although there were times that the COVID-19 pandemic forced us to hold our training courses remotely, we were able to successfully conduct face to face for the 2022-2023 training course.

As of today, we have accepted 13 participants from 8 countries in the one for 2023-2024.

Also, 9 participants from 6 countries will participate in the Global Seismological Observation Course, and we are now preparing for the start of the program on January 9.

We have been able to continue the training course in order to respond to the enthusiasm of the participants, thanks to the support and understanding of many people, which I strongly feel from bottom my heart. We would like to thank you once again.

To those of you who participated at IISEE course in the past, this newsletter aims to build a bridge between IISEE and the past participants. We would be happy to receive your contributions even if they are trivial, for example, about your research.

We would appreciate your continued support in the new year.

For questions and requests, please feel free to email iisee@kenken.go.jp.

Season's Greetings and Best Wishes For The New Year 2023/24

IISEE

IISEE Net and Training

Synopsis Database

Bulletin Database

IISEE E-learning

IISEENET

IISEE-UNESCO Lecture Note

Professional Lectures on Disaster Management Policy

By IISEE

As One-Year Training Course held at the International Institute of Seismology and Earthquake Engineering (IISEE) is cooperating with the National Graduate Institute for Policy Studies (GRIPS), it is possible to obtain a master's degree.

Training participants who are aiming to acquire a master's degree in disaster management policy of GRIPS attended professional lectures on disaster management policy conducted by GRIPS from November 1st to 15th.

In those lectures, GRIPS professors and visiting lecturers gave lectures on disaster management policies related to architecture, cities, infrastructure, etc., as well as damage caused by past disasters and recovery and reconstruction.

In addition, they made inspection tours of Nakano and Yaesu areas of Tokyo to observe urban redevelopment projects and disaster preparedness efforts. They also made presentations and discussions about disasters in their country, disaster management policies, and their own relationship to disaster prevention, and those were an opportunity for participants from IISEE and ICHARM to deepen their knowledge of disaster prevention in their countries.

In Tsukuba, it is the season of cold northerly wind called "Tsukuba-Oroshi".

The cold days will continue for a while, but after the winter solstice, the new year is just around the corner. We hope all participants will overcome this cold winter with a change of pace by experiencing Japanese events and culture during the year-end and New Year holidays.

National Graduate Institute for Policy Studies (GRIPS) website :
https://www.grips.ac.jp/en

2022-2023 Participants Synopsis of Their Individual Study Report Published on IISEE Website

By IISEE

All 14 participants of the 2022-2023 training course received their master's degrees.

A synopsis of their individual study report is now available on the IISEE website.

Please see from the link below.

Synopsis: https://iisee.kenken.go.jp/syndb/?action=list

We have also published the abstracts of individual study report of the 2022-2023 participants, and we hope you will find them useful as well.

Abstracts: https://iisee.kenken.go.jp/jp/information/syndb/

Seismology Course

1. DETERMINATION OF HYPOCENTERS AND MAGNITUDES OF LOCAL EARTHQUAKES AROUND COMOROS
(https://iisee.kenken.go.jp/syndb/?action=abstr&id=MEE22703&est=S&year=2023)

2. ESTIMATION OF CRUSTAL STRUCTURE IN NORTHERN EGYPT USING BROADBAND SEISMIC AMBIENT NOISE (5–50 s)
(https://iisee.kenken.go.jp/syndb/?action=abstr&id=MEE22701&est=S&year=2023)

3. GROUND MOTION SIMULATION OF A SIGNIFICANT EARTHQUAKE IN EGYPT
(https://iisee.kenken.go.jp/syndb/?action=abstr&id=MEE22702&est=S&year=2023)

4. MACHINE-LEARNING-BASED PHASE PICKER: ANALYZING THE TEMPORAL AND SPATIAL CHANGES OF THE OCTOBER 2019 COTABATO AND DECEMBER 2019 DAVAO DEL SUR EARTHQUAKES
(https://iisee.kenken.go.jp/syndb/?action=abstr&id=MEE22704&est=S&year=2023)

Earthquake Engineering Course

5. COMPARATIVE STUDY ON THE SEISMIC PERFORMANCES OF TYPICAL RC RESIDENTIAL BUILDINGS DESIGNED WITH OLD AND NEW INDIAN CODES IN BHUTAN
(https://iisee.kenken.go.jp/syndb/?action=abstr&id=MEE22709&est=E&year=2023)

6. SEISMIC FRAGILITY ANALYSIS OF FIXED AND ISOLATED BASE REINFORCED CONCRETE BUILDING STRUCTURES IN INDONESIA
(https://iisee.kenken.go.jp/syndb/?action=abstr&id=MEE22705&est=E&year=2023)

7. SOIL TYPE DEPENDENCY ON THE SEISMIC PERFORMANCE OF RC PRECAST GOVERNMENT RESIDENTIAL BUILDING
(https://iisee.kenken.go.jp/syndb/?action=abstr&id=MEE22706&est=E&year=2023)

8. SEISMIC PERFORMANCE EVALUATION OF A HYBRID RC FRAME–PRECAST WALL BUILDING IN MALAYSIA
(https://iisee.kenken.go.jp/syndb/?action=abstr&id=MEE22707&est=E&year=2023)

9. SEISMIC PERFORMANCE OF PRECAST REINFORCED CONCRETE BEAM-TO-COLUMN CONNECTION
(https://iisee.kenken.go.jp/syndb/?action=abstr&id=MEE22708&est=E&year=2023)

Tsunami Course

10. RAPID DETERMINATION OF EARTHQUAKE SOURCE PARAMETERS FOR TSUNAMI EARLY WARNING SYSTEM FOR EGYPT
(https://iisee.kenken.go.jp/syndb/?action=abstr&id=MEE22711&est=T&year=2023)

11. ENHANCING TSUNAMI EARLY WARNING SYSTEM IN FIJI USING TSUNAMI DATABASE
(https://iisee.kenken.go.jp/syndb/?action=abstr&id=MEE22712&est=T&year=2023)

12. TSUNAMI PROPAGATION AND INUNDATION SIMULATIONS IN FIJI BASED ON SCENARIO EARTHQUAKES
(https://iisee.kenken.go.jp/syndb/?action=abstr&id=MEE22713&est=T&year=2023)

13. RAPID DETERMINATION OF TSUNAMIGENIC SOURCE PARAMETERS AND REALTIME INUNDATION MODELLING FOR TEWS
(https://iisee.kenken.go.jp/syndb/?action=abstr&id=MEE22710&est=T&year=2023)

14. REAL-TIME TSUNAMI INUNDATION FORECASTING FOR MENTAWAI ISLANDS, INDONESIA
(https://iisee.kenken.go.jp/syndb/?action=abstr&id=MEE22714&est=T&year=2023)

IISEE Seminar by Dr Inoue on February 7 and 8
By Dr. Tatsuhiko Hara, Chief Research Scientist, IISEE

We are pleased to invite you to the IISEE seminar by Dr. Inoue at National Research Institute for Earth Science and Disaster Resilience (NIED)
We are looking forward to your participation.

<Date & Time>
The seminar will be presented two times considering the time difference.
The contents are the same.
- February 7 (Wed) 15:45-16:45 (Japan Standard Time)
- February 8 (Thu) 09:00-10:00 (Japan Standard Time)

<Format>
Online Zoom Meeting
(IISEE staff and participants will attend the seminar on 7th in person)

<Lecturer>
Dr. Hiroshi Inoue
NIED Senior Research Fellow
IISEE, BRI Visiting Research Fellow

<Title>
Earthquake Observation Projects I have been involved in: Their challenges and future

<Abstract>
During my long career, I have been involved in earthquake observation projects around the world including Japan. Among those are the seismic networks of Tonga, Indonesia, Bhutan, and the Philippines in the last ten years. I will introduce the projects and discuss the purpose, mission, and future directions of earthquake observations.

<Registration>
Please register using the forms below. The Zoom meeting URL and password will be sent later. Please do not share the URLs and passwords.

February 7 (Wed)
URL: https://forms.office.com/Pages/ResponsePage.aspx?id=B-gjEILwqEiJBNEJd5eBS6Gp8JP6WqhNkMPPKY2Ct6hUNTFRNkY4TEtOVU43S0w4NlNPNzQ1MzNLNS4u
Deadline: February 6 (Tue) 12:00 (Japan Standard Time)

February 8 (Thu)
URL: https://forms.office.com/Pages/ResponsePage.aspx?id=B-gjEILwqEiJBNEJd5eBS6Gp8JP6WqhNkMPPKY2Ct6hUMFFYQldPSUZCUUlUTkdDME1JMDMwSjFDUy4u
Deadline: February 7 (Wed) 12:00 (Japan Standard Time)

Enjoy, Now

IISEE Seminar by Dr. Bruno ADRIANO on February 20 and 22
By IISEE

We are pleased to invite you to the IISEE seminar by Dr. Bruno ADRIANO.
We are looking forward to your participation.

\<Date & Time\>
  The seminar will be presented two times considering the time difference.
  The contents are the same.
  - February 20 (Tue) 15:45-16:45 (Japan Standard Time)
  - February 22 (Thu) 09:00-10:00 (Japan Standard Time)

\<Format\>
  Online Zoom Meeting

\<Lecturer\>
  Dr. Bruno ADRIANO
  Associate professor, Disaster Geo-informatics Laboratory
  International Research Institute of Disaster Science, Tohoku University

\<Title\>
  Application of Remote Sensing and Machine Learning Technologies for Disaster Response

\<Abstract\>
  An accurate and prompt understanding of the full extent of disaster aftermath is vital for effective emergency response and relief activities. Immediately after a disaster, affected areas become isolated and dangerous for field surveys. Thus, effectively using remote sensing data will allow us to grasp the extent of the damage quickly. This lecture will show the basics of applying machine learning to understand remote sensing images in disaster response scenarios, focusing on tsunami and earthquake-induced damage.

HOKYO Project Training in El Salvador – Visit of 2 Ex-Participants to the IISEE
By IISEE

On November 15 and 16, 2023, 10 participants from El Salvador including 2 ex-participants of the IISEE training program, visited the BRI as part of the JICA "Project for Capacity Development for the Evaluation and Seismic Reinforcement of Buildings in the Metropolitan Area of San Salvador (known as the HOKYO Project)".

Researchers from the Department of Structural Engineering and International Institute of Seismology and Earthquake Engineering (IISEE) provided lectures, guided tours, and discussions.
Dr. Otsuka from IISEE gave a lecture on seismic retrofitting and seismic evaluation of masonry buildings based on DB.
They also toured the experimental buildings and had a discussion about the HOKYO project at the end of the second day.
It was impressive to see Susan-san (2020-2021 Earthquake Engineering Course) working on the HOKYO project.

Activities of Ex-Participants

By Mr. Gonzalo Fernandez, 2013 Global Course

Abstract
Crustal seismicity in the Central Andes is characterized by high activity in the sub-Andean province with predominantly reverse faulting mechanisms, and low activity in the high Andean plateau with normal and strike-slip faults. Despite having one of the largest orogenic plateaus, few crustal focal mechanisms were available for Bolivia. We determined 13 new focal mechanisms of shallow crustal earthquakes improving the characterization of the regional stresses. Additional recently installed stations in Bolivia, as well as regional stations in Brazil, were used for the regional moment tensor inversion. P-wave polarities at teleseismic stations were also used for the largest events to better constrain the focal mechanisms. We combine a probabilistic full waveform moment tensor inversion with focal mechanisms derived by fitting P-wave

polarities. The cluster analysis of the whole regional data set of focal mechanisms, including 13 new solutions plus 18 previously published results, indicate three predominant types of mechanisms: reverse faulting in the NW-SE trending sub-Andean belt just north of the Orocline (north of Cochabamba) with P axes oriented NE-SW, reverse faulting earthquakes in the N-S trending sub-Andean belt south of the Orocline (south of Santa Cruz) with E-W oriented P axes, and strike-slip mechanisms in the Eastern Cordillera with NE-SW P axes. Our results map in detail the stress pattern in the Central Andes. Reverse faulting earthquakes in the sub-Andean belt show compression perpendicular to the front of the Andean plateau, interpreted as a combination of spreading stresses of the plateau and plate-wide compression. Focal mechanisms in the high plateau change to strike-slip indicating a balance between local extensional gravitational stresses in the plateau and regional compression from the Nazca plate convergence.
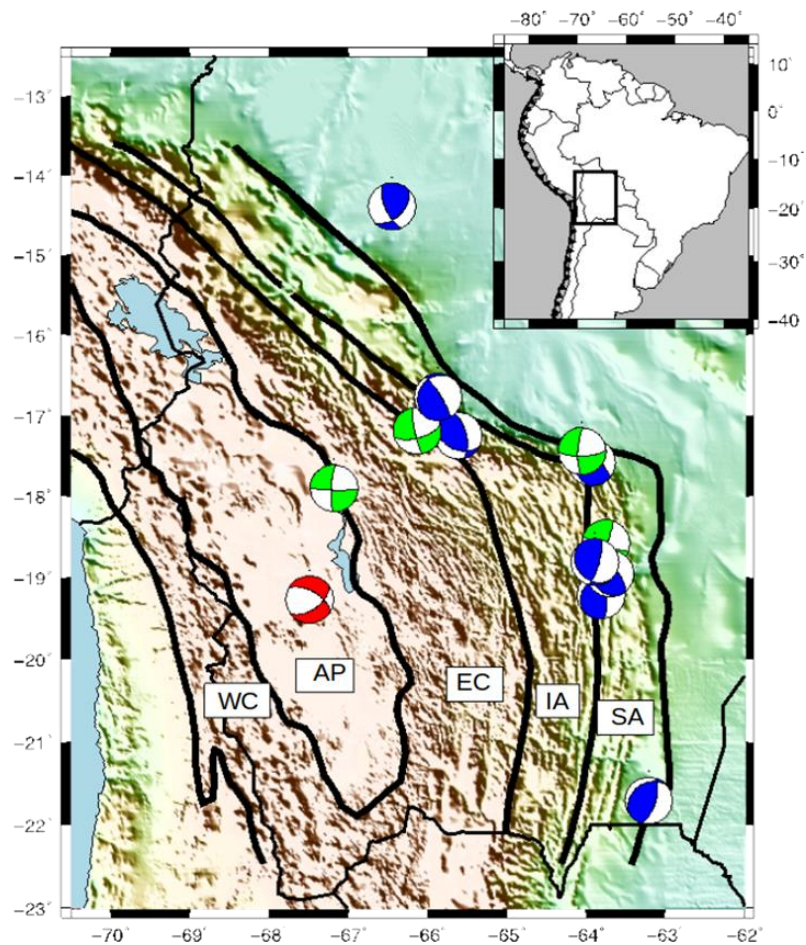
2022 Meeting of International Platform for Reducing Earthquake Disasters (IPRED)

By Dr. Yuri Otsuka, Research Engineer, IISEE

We held the IPRED meeting on the 26th and 29th of Sept. 2022. IPRED is a UNESCO project implemented by IISEE and the leading organization of 10 countries, which keeps a firm connection with IISEE through ODA-based JICA projects and IISEE's international training program.

Eleven countries participated in the meeting, including Japan, Algeria, Chile, Egypt, El Salvador, Indonesia, Kazakhstan, Mexico, Peru, Romania, and Turkey, and reported on the current status of IPRED activities. In addition to the regular annual meeting, a presentation and site visit about the 2023 Turkey earthquake were held in light of the February 6 earthquake that struck Turkey this year. The Japanese representative*1 reported on the status of activities in Japan by the IPRED Action Plan. The Japanese representative*2 reported results on the past major earthquakes observed in Japan and these damages and on comparisons with the seismic motions observed during the Turkey earthquake. In addition to these activities, we attended the presentation on the Turkey earthquake and toured. We obtained the latest knowledge of the disaster caused by the Turkey earthquake and the seismic standards in Turkey. Six former IISEE Training Program trainees were among the representatives of IPRED participating countries.

Japan representatives
   *1 Dr. Tatsuya AZUHATA
         Director, Department of Structural Engineering, Building Research Institute
   *2 Dr. Yuri OTSUKA
         Research Engineer, International Institute of Seismology and Earthquake Engineering, Building Research Institute

Photo Participants in the IPRED Annual Meeting