IISEE Newsletter

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In This Issue

Greetings from the New Director of IISEE

By Dr. Yushiro Fujii, Director of IISEE

I have been appointed Director of the International Institute of Seismology and Earthquake Engineering (IISEE) on April 1, 2024. This year is the 20th anniversary of the 2004 Sumatra-Andaman earthquake (Indian Ocean tsunami). I am deeply impressed to be appointed as the director in this milestone year of the earthquake and tsunami that triggered my tsunami research. It is very encouraging for me that Dr. Shibasaki, the former Director, and Dr. Azuhata, the former-former Director, have joined the IISEE as Senior Fellows. Since I joined the IISEE, BRI in 2005, I have been involved in the IIISEE training programs. I have been mainly in charge of the Tsunami Disaster Mitigation Course, and have been involved in the Seismology Course and the Global Earthquake Observation Course. I have mainly supported participants who are learning about tsunami disaster prevention, but I have also had contact with participants from all over the world who are studying seismology and earthquake engineering. We are very proud that many of the participants who have returned to their home countries are now working in leadership positions in their countries.

Earthquake and tsunami disasters are still occurring not only in Japan but also in other regions of the world. This year alone, the Noto Peninsula earthquake occurred in January and the Taiwan earthquake occurred in

April. Under these circumstances, it is increasingly important to foster researchers and engineers who understand seismology, earthquake engineering, and tsunami disaster prevention and contribute to the mitigation of earthquake and tsunami disasters through the IISEE training programs. As the Director of the IISEE, I will strive to contribute to the continuation and development of the IISEE training programs. Thank you very much for your continued support.

The 28th Global Seismological Observation Course has closed

By IISEE

The 2023 Global Seismology Observation course which started on January 9th, 2024, was closed on Friday, March 1st, 2024.


Mr. Makoto TAKAHASHI, Director General, Tsukuba Center, JICA

At the graduation ceremony held by JICA Tsukuba, all the 9 participants from Democratic Republic of the Congo, Egypt, Kazakhstan, Nepal, Thailand, Timor-Leste, received the certificates from Mr. Takahashi, Director general of Japan International Cooperation Agency (JICA) Tsukuba and Dr. Sawachi, Director of Building Research Institute (BRI).

Ms. Assem from Kazakhstan representing the participants expressed gratitude to them with his speech.

The training participants are working actively to learn the knowledge about the international seismic observation and acquire advanced earthquake analysis technique. We believe the knowledge they learned during this course are also useful in analyzing natural earthquakes.

They also had the opportunity to experience the reality of the atomic bombing by visiting Hiroshima, where they visited the Atomic Bomb Dome and Hiroshima Peace Memorial Museum and listened to a lecture on the A-bomb experience.

We hope that the participants will share with many people in their home countries, what they've learned in Japan. We wish them the best of success in the future.


Dr. Takao SAWACHI, President of BRI


Mr. Yuji KUBO, Secretary of MOFA

Receiving the Certificate

Receiving the Certificate

Closing Ceremony Speech on behalf of the Global Seismological Observation Course Participants

By Ms. ISSAGALI Assem (Kazakhstan)

Yuji Kubo, Arms Control and Disarmament Division, Disarmament, Non-Proliferation and Science Department, Ministry of Foreign Affairs of Japan

Mr. Makoto Takahashi, Director General, Tsukuba Center, Japan International Cooperation Agency

Takao Sawachi, President of Building Research Institute

Dear Sensei, assistants, teachers, mentors, and fellow participants, Good morning.

As we come to the end of this training course, I have the honor of addressing this distinguished audience and thanking them for giving us a chance to participate in such a formative educational experience. It has been a privilege for us to learn from you all.

I am privileged to address this audience on behalf of the 2023 Global Seismological Observation Course Participants. It was a two-month program full of remarkable skills that have been provided to us.

Honorable guests, allow me first to express our sincere gratitude to the MOFA - Ministry of Foreign Affairs - Government of Japan, JICA - Japan International Cooperation Agency, Building Research Institute - BRI, and

International Institute of Seismology & Earthquake Engineering (IISEE) for their high-profile organization, making the 2023 Global Course.

The program has been a great opportunity not only to deepen our understanding and knowledge of seismology but has also been a fundamental prospect to sharpen our ability to apply the outcomes of our course experience to our respective institutions and countries.

Study trips made through the program gave us a very wide picture of this country from its rich culture as well as how strong resilience is maintained to rapidly bounce back after a devastating World War II as well as after gigantic natural earthquakes and tsunamis that have left behind many thousands of casualties and considerable damages.

Over the past two months, we have been able to enhance our understanding of seismology and gain new insights which have allowed us to discriminate nuclear tests from earthquakes. We have been able to participate in discussions and activities that have played a fundamental role in broadening our perspective.

We believe this strong tie that has been created through this program will be maintained to feed our respective projects.

As I reiterate our appreciation to our Sensei and the rest of the BRI staff, I'd like to thank Sakuma-san and Hayashida sensei who have always been present and showing strong support in both indoor and outdoor activities; thank you so much, we will never forget.

Ladies and gentlemen, in closing, I feel justified in saying that the JICA Tsukuba Center / BRI and IISEE have been far more to us than an institute of learning. It has been, for these past two months, a home where a sense of family and friendship was nurtured into the strong ties of today … ties that would never have been created without this program. I speak for both myself and my fellow participants when I say that we will miss this family and the beauty of this exquisite country, Japan.

Thank you very much again for making this Global Course a complete success.

Reports on Study Trip -Global Seismological Observation Course-

By Mr. Kambale Muyisa Matina (Democratic Republic of the Congo)

As part of our training in global seismic observation, aimed at acquiring the techniques needed to distinguish between natural earthquakes and those caused by nuclear testing, we had the opportunity to visit the atomic bomb dome (Hiroshima Peace Memorial), the Nojima fault, the Hansin-Awaji Great Earthquake Memorial, the Institution for Disaster Reduction and Human Renovation, and some of the famous landmarks of the cities we visited. This report briefly describes the trip (visit sites).

Indeed, during the Second World War, on August 6, 1945, the first atomic bomb in human history was dropped on Hiroshima. The bomb caused many deaths from burns and the effects of the radiation it emitted. Thanks to the exhibits and the voices of the storytellers at the Hiroshima Peace Museum, we have gained the terrible experience of the atomic bomb. In her lecture, Teruko Yahata shared with us her terrible experience when the atomic bomb fell on Hiroshima. Thanks to this conference, we have understood that it is preferable to improve the monitoring of nuclear tests and to avoid the use of nuclear bombs. One way of doing this is to share this experience gained worldwide.

The Nojima Fault Preservation Museum was built to remember the damage caused by the 1995 Kobe earthquake on January 17. During our visit to this location, we gained an insight into the damage caused

by this earthquake through exhibits and observation of the surface ruptures of the Nojima fault and the damage caused to the house built along the rupture line. As we often say, knowledge of our past is a great opportunity to calibrate our models and prepare for our future; at the Great Hanshin-Awaji Earthquake memorial museum, we understood past earthquakes and tsunamis through exhibitions and simulations of these disasters. This good approach reminds us that, as disaster researchers, we need to improve our knowledge by developing early warning systems to reduce the damage that can occur. On the other hand, the exhibits explained the behavior we need to adopt when one of these events occurs.

To conclude, we have had to understand that the usage of nuclear weapons (bombs) is prohibited to humanity cos of the damage that can be caused during the explosion and after the explosion. That is why the monitoring of nuclear tests around the world must rise, and the usage of nuclear weapons must be avoided. Additionally, monitoring disasters and developing early warning systems are also important to reduce the damages that can occur after a disaster and to take action during the disaster to save our lives.

By Ms. Bhattarai Shila (Nepal)

As a part of the "Global Seismological Course", we had a study trip to Hiroshima, Kobe, and Kyoto. Each place we visited embodied a peculiar specialty within them and taught us many lessons.

With the lecture of Sensei T. Sakamoto about the regime of CTBTO and Japan Weather Association (JWA)'s efforts in detecting nuclear activities, our journey to learn about peace started. We visited the "Atomic Bomb Dome" in Hiroshima, where we could still see the remaining parts of the destroyed structures. We got a chance to meet a survivor of the 6 August 1945 atomic bombing. She shared with us how deeply their lives were affected by the bombing and how her world turned into ashes. I was having goosebumps listening to her story. The Hiroshima Peace Memorial Museum, which was near the A-bomb site, has preserved the heartbreaking memories of the A-Bomb day in the form of photographs, videos, panels, and memoirs. Anyone who visits this place can feel the agony they felt. This place serves to spread awareness to people about the consequences of nuclear bombing and promotes world peace.

Kobe area and Awaji Island hugely suffered from the Great Hanshin Awaji Earthquake (M7.2) on 17 January 1995. We visited the Nojima Fault Prevention Museum and the Disaster Reduction and Human Renovation Institution (DRI). We walked through the fault plane's surface exposure, observing the mechanism that had happened during the earthquake. Those fault structures are properly preserved. Some replicas of the destruction caused by the earthquake are recreated inside the museum. This is a good way to spread awareness among the new generation about natural disasters and prepare them for unfavorable situations. The willpower and technical capabilities of the people are amazing; they restructured all the damaged structures during this time. To bounce back from such difficult situations might be very hard for them. People know they are in a place prone to many natural disasters, but still, the place holds a positive vibe. So, this place can be pictured as an example of technical and social resilience.

After Kobe, we explored Kyoto, the old capital of Japan, which has many old temples and shrines. First, we visited Kinkaku-ji temple, a town paved with gold. We also went to other shrines and observed those

places' ancient Japanese architectural and religious aspects. This place fascinated me with all the cultural richness.

I learned a lot during this field trip and experienced many new things. I have read about nuclear bomb explosions in books during childhood; however, going to the place myself and seeing those pains was a whole new feeling. This place taught me to advocate for world peace. The implementation of CTBT worldwide seems to be necessary for a better world without violence.

Having experienced the 2015 Gorkha Earthquake (M 7.6) myself, I could relate to many of those things displayed in the Museum of Kobe. Natural disasters are cyclical, it is better to teach the new generation to prepare for the worst. In Nepal, we do not have platforms like natural disaster museums or memoirs of past disasters. We must also follow such methods to be prepared, as Nepal is in a seismically active zone.

Greetings

By Dr. Hidekazu Watanabe, Senior Research Engineer, IISEE

My name is Hidekazu Watanabe. I moved to IISEE from the Department of Structural Engineering this April. My research interests include RC Structures, Prestressed concrete structures, and Pile foundations. I am very honored to have this opportunity to work here. I would like to do my best in my research field and new work in IISEE.

By Dr. Eri Ito, Research Engineer, IISEE

I'm Eri Ito, and I have been appointed as a researcher at IISEE as of April 1, 2024. Previously, I worked at Disaster Prevention Research Institute (DPRI), Kyoto University for 6 years. My research interests include strong ground motion evaluation, building damage prediction, and their integration and improvement, with the goal of mitigating casualties by earthquakes.

I am grateful for the opportunity to engage in research and training at IISEE, where I have daily communications with trainees from other countries. I will learn from them and devote myself to my work.

By Mr. Kazuya Nanto, Administrative Office, IISEE

My name is Kazuya Nanto, and I have been assigned to the Administrative Office of the IISEE as of April 1, 2024. After changing jobs from my previous position as a police officer at the Saitama Prefectural Police Department to the National Institute for Land and Infrastructure Management (NILIM), I have had experience in budget, contract, and personnel administration at the NILIM, the Geospatial Information Authority of Japan, and the Public Works Research Institute. I'm still new to this position and may cause you some inconvenience, but I will do my best.

Introducing Papers

By Dr. Yushiro Fujii, Director of IISEE

●Slip Distribution of the 2024 Noto Peninsula Earthquake (M_{JMA} 7.6) Estimated from Tsunami Waveforms and GNSS Data

Earth, Planets and Space (EPS), Express Letter

Yushiro Fujii (IISEE, BRI) and Kenji Satake (ERI, Univ. of Tokyo)

We reperformed a joint inversion of tsunami waveform and GNSS data of the tsunami generated by the 2024 Noto Peninsula earthquake to reveal the slip distribution in active fault models. The results show that slips more than 3 m occurred on the active faults in the northern part of the Noto Peninsula, but not on the northeastern and southwestern active faults in the aftershock area.

https://doi.org/10.1186/s40623-024-01991-z

●Modeling the 2022 Tonga Eruption Tsunami Recorded on Ocean Bottom Pressure and Tide Gauges Around the Pacific

Pure and Applied Geophysics (pageoph), Topical Collection Tonga Volcanic Explosion 2022

Yushiro Fujii (IISEE, BRI) and Kenji Satake (ERI, Univ. of Tokyo)

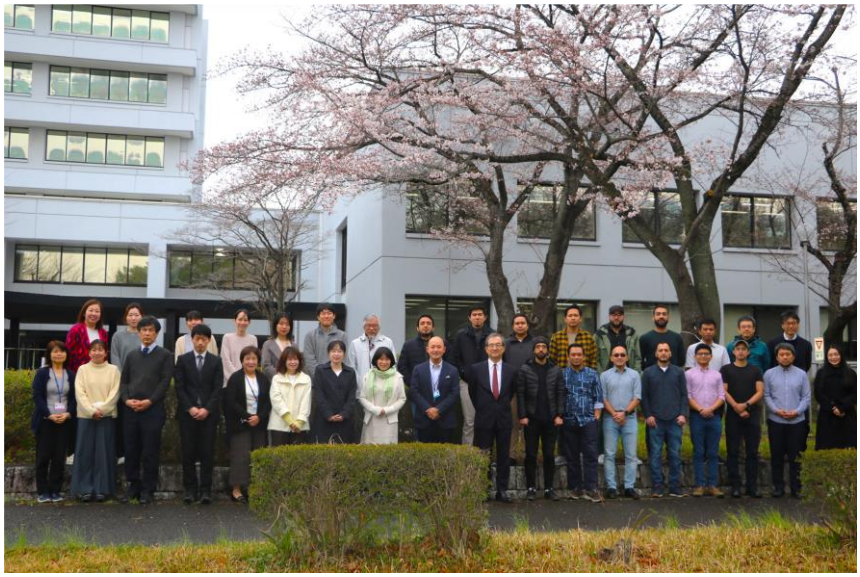
We developed a model of the tsunami caused by the 2022 Tonga volcano eruption. Our model added the propagating concentric water levels due the atmospheric Lamb and Pekeris waves. We estimated the propagation speed, the origin time, and the initial amplitude of the Lamb wave for the first time. Furthermore, we demonstrated that the tsunami modeling adding the Pekeris wave can explain the distant DART and tide gauge records including the later phases, estimating the initial amplitude of the Pekeris wave.

https://doi.org/10.1007/s00024-024-03477-1

(Short Report) Group Photo with Cherry Blossoms

By IISEE

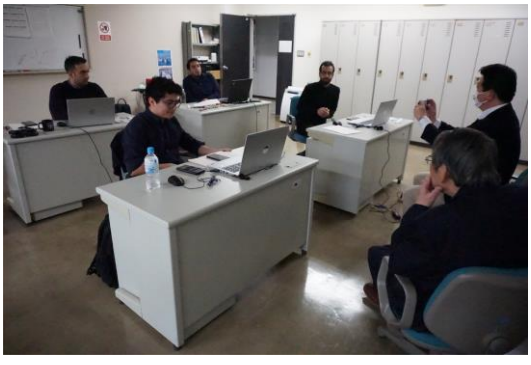
On April 5, the cherry blossoms in front of the IISEE were almost in full bloom, so all the participants took a group photo with the BRI President and IISEE staffs.



(Short Report) Interviewed by a Specialized Newspaper

By IISEE

On March 14, participants in the Earthquake Engineering course were interviewed by a newspaper on bridges during a lecture on bridge engineering. They responded to the interviews as best they could.



Contact Us

The IISEE Newsletter is intended to act as a go-between for IISEE and ex-participants.

We encourage you to contribute a report and an article to this newsletter. Please let us know your current activities in your countries.

We also welcome your co-workers and friends to register our mailing list.

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https://iisee.kenken.go.jp/en/

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IISEE Net and Training

Synopsis Database

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IISEE E-learning

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IISEE-UNESCO Lecture Note

Earthquakes

Reports of Recent Earthquakes

Catalog of Damaging Earthquakes in the World

Earthquake Catalog