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International Institute of Seismology and Earthquake Engineering BRI Japan

1 Tachihara Tsukuba Japan 305-0802 tel+81-29-879-0678 facsim+81-29-864-6777

In This Issue

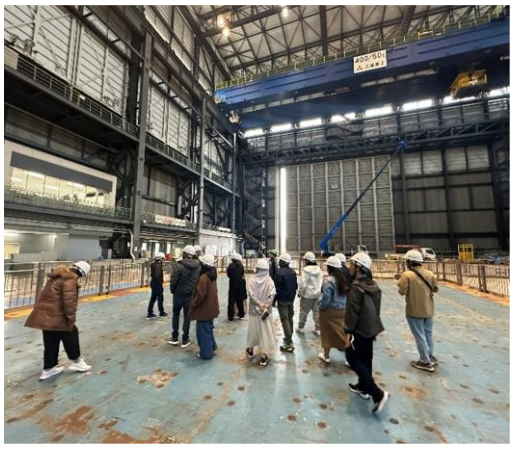
Report on Kansai Study Trip

STUDY TRIP KANSAI

DURAN DURAN Erick Jair (Earthquake Engineering Course,
The National Autonomous University of Mexico)

I would like to begin with a brief anecdote. When I was studying Civil Engineering about ten years ago, my structural design professor used to show us videos of full-scale seismic tests conducted on the E-Defense shake table. As a student, those experiments seemed almost unreal to me; I never imagined that someday I would have the chance to visit such a facility. Now, more than a decade later, being able to walk through E-Defense, learn about its operation, and understand its significance was incredibly rewarding. This experience motivates me to continue improving my professional skills and to bring knowledge back to my country.

The visit to the Akashi Kaikyo Bridge was equally impressive. Exploring the bridge and reaching the top of one of its towers demonstrated the precision and capability of Japanese engineering. Considering Japan's severe seismic environment, this bridge stands as a remarkable achievement and testament to advanced structural design.



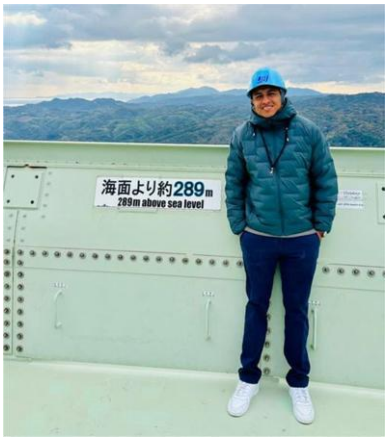
Me and the classmates on the shaking table during a visit to E-Defense

The visit to the Nojima Fault Preservation Museum provided another valuable perspective. Seeing how a destructive event has been preserved for educational

purposes highlights Japan's commitment to understanding seismic behavior and preparing for future events. It serves as a powerful reminder of the importance of studying past disasters to build safer communities.

Finally, visiting the Seismic Retrofitting of the Osaka Prefectural Government Sakishima Building was especially meaningful for me. My research and motivation for pursuing a master's degree in Japan focus on seismic evaluation and retrofitting of existing buildings. Observing the reinforcement measures applied to this building deepened my understanding of the design strategies used to ensure its performance during future earthquakes.

Overall, this study trip strengthened my responsibility as a civil engineer dedicated to structural design. It reaffirmed the importance of evidence-based decision-making, understanding structural behavior, and upholding the ethical duty of my profession: to protect lives, ensure structural safety, and deliver high-quality designs in seismic regions.



Me at the top of the Akashi-Kaikyo Bridge enjoying the view

LEARNING BEYOND THE CLASSROOM

PROMSUK CHUTIMON (Seismology Course,
Thai Meteorological Department)

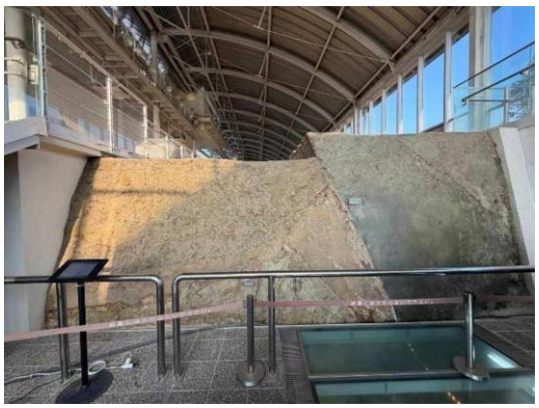
This field trip was a really great experience. Coming from a country with low seismic activity, there is not much opportunity to see traces of earthquakes or to deal with this disaster. It was very exciting and meaningful. This trip was an opportunity to learn from real experiences and real places, beyond sitting in a classroom.

The Nojima Fault Preservation Museum was the most fascinating location. Seeing the preserved surface rupture from the 1995 Hyogo-Ken Nanbu Earthquake (Kobe Earthquake) was particularly impactful. The museum has outcrops that preserve the displacement from the earthquake, as well as structures and evidence of shifted walls. It helps to understand and visualize past events. My understanding of earthquake

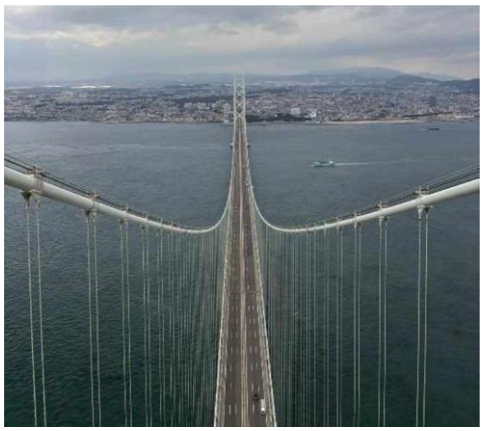
phenomena has greatly increased after seeing the evidence, and it serves as a reminder of the importance of continued research and raising public awareness.

In addition, visiting the Akashi Kaikyo Bridge provided me with an inspiring engineering perspective. Discovering how the bridge was shifted during the Kobe earthquake and how engineers improved and strengthened the bridge to withstand earthquakes was completely new knowledge for me, who had little background in earthquake engineering.

Overall, this study trip was effective and memorable in the way it combined earthquake engineering, geology, seismology, and disaster awareness. Experiencing the surface rupture, understanding fault behavior, and observing one of the Honshu-Shikoku Bridge Expressways, along with Japan's ability to overcome disasters, strengthened my interest in both natural processes and human efforts to build a safer society.



The preserved rupture from the 1995 Kobe Earthquake



Akashi Kaikyo Bridge

PERSONAL REFLECTIONS ON THE KANSAI STUDY TRIP

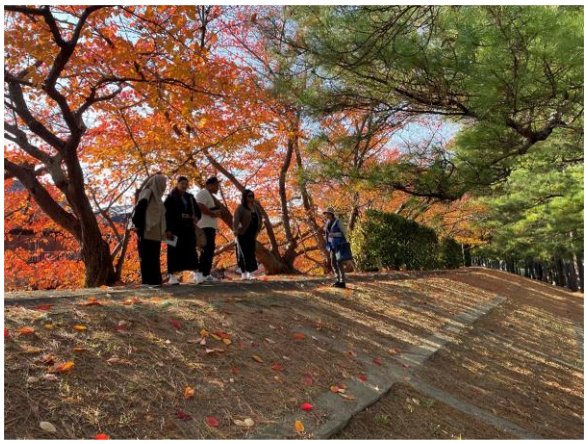
Francess GALLARDO (Tsunami Disaster Mitigation Course,
Philippine Institute of Volcanology and Seismology)

The study trip from November 25th to 28th was an eye-opening journey that combined engineering, disaster mitigation, cultural heritage, and historical understanding. Visiting E-Defense and E-Isolation on the first day offered an impressive look at Japan's advanced seismic engineering. Seeing large-scale shaking experiments and innovative isolation systems made me appreciate how much research and technology are invested in protecting communities from earthquakes. It highlighted the importance of rigorous testing and continuous improvement in structural resilience.

The second day deepened this engineering perspective with the Akashi Kaikyo Bridge, one of the longest suspension bridges in the world. Observing its massive cables and foundations showed the scale and precision required in modern infrastructure. The visit to the Nojima Fault Preservation Museum, located directly on the surface rupture of the 1995 Kobe earthquake, provided a strong reminder that engineering

must adapt to the realities of nature. The contrast between the bridge's cutting-edge design and the museum's preserved fault line underscored the balance between innovation and environmental awareness.

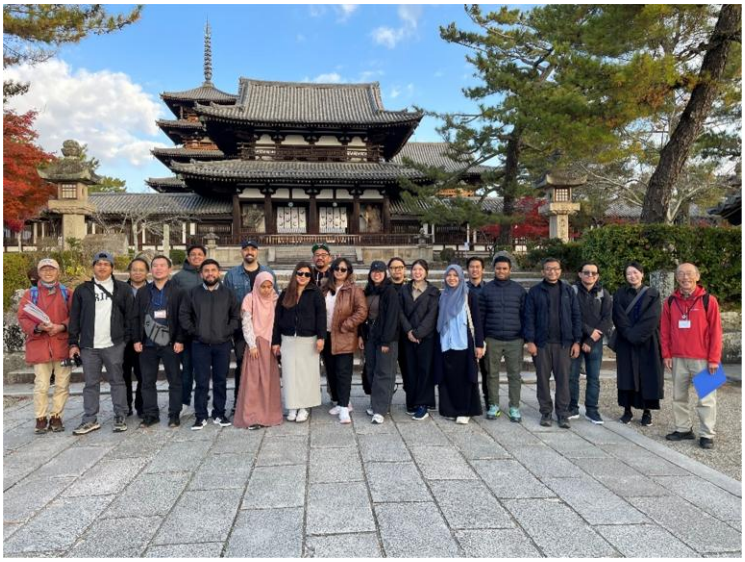
On November 27th, the focus shifted to disaster history and community resilience. Learning the "Inamura no Hi" story demonstrated how one individual's quick thinking saved an entire village from a tsunami. Visiting related sites, including the Hiromura Embankment and Inamura-no-Hi no Yakata, made the narrative even more tangible. The Tsunami/Storm Surge Disaster Prevention Station and the Disaster Reduction and Human Renovation Institution provided scientific and human perspectives on disaster preparedness, showing how education, communication, and memory play essential roles in reducing future risks.



Hiromura Embankment

The final day's visits to Horyu-ji and Todai-ji Temples, along with the Okumura Commemorative Museum, brought a cultural and historical dimension to the trip. These sites highlighted Japan's architectural heritage, craftsmanship, and long-lasting structures that have endured for centuries.

Overall, the study trip offered a balanced and meaningful blend of engineering knowledge, disaster awareness, and cultural appreciation. It strengthened my understanding of resilience—both structural and societal—and emphasized the importance of learning from the past to build a safer future. In addition, the trip highlighted not only Japan's achievements but also the immense potential for the Philippines to adopt these technologies and best practices, helping us move toward a safer and more resilient future as well.

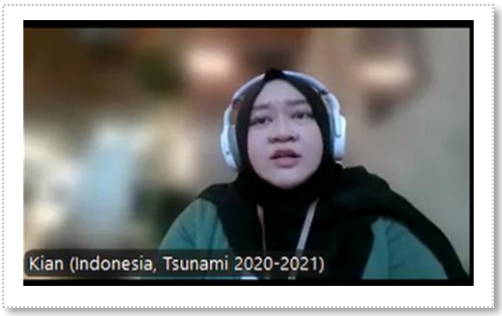


Horyu-ji

From the Exchange of Opinions with Former Participants (IISEE Online Alumni Association)《Serialization, Part 4》

We publish a series of speeches given at the exchange meeting with former participants (IISEE Online Alumni Meeting) held on December 6th last year, together with the GRIPS/BRI co-hosted symposium.

Speech by Kian Purna Sinki, IISEE Ex-participant, 2020-2021(T-Course), Seismologist at Indonesian Agency for Meteorology, Climatology and Geophysics (BMKG), Mitigation Division



Good afternoon from Indonesia. My name is Kian Purna Sinki. I'm a former participant of the Tsunami Disaster Mitigation Program from 2020 until 2021. Recently, I'm working in BMKG, at sub-coordinator division of mitigation in Indian Ocean for BMKG.

I would like to share key insights from my studies at BRI and their application in my work.

Recently, Indonesia has established Tsunami Ready Communities as part of an international initiative by IOC/UNESCO to enhance tsunami preparedness, response capabilities, and resilience. The Tsunami Indicator includes three assessments of preparedness and response, broken down into 12 key indicators. A significant element is the Tsunami Hazard Map, developed by BRI graduates Sidik-san, Harfan-san, Partas-san.

For preparedness, we have implemented the Earthquake Field Scale, which BMKG conducted from 2015 to 2024, under the leadership of Nislenga, also a BRI graduate. A survey has assessed 100,000 locations for earthquake response.

Currently, half of the community is prepared to respond to tsunami warnings, supported by sirens and improved information from BMKG. Our goal is for 100% of at-risk communities to be prepared by 2030, aligned with the UNESCO/IOC Tsunami Ready Program.

As of 2024, Indonesia has achieved recognition for 22 communities. This includes 10 communities in 2023 and an additional 12 in 2024, recognized during the 2nd Global Tsunami Symposium with UNESCO. The Tsunami Ready initiative thrives on collaboration with various stakeholders, including JICA, which assisted us with tsunami reviews at PT Krakatau Steel near Gunung Anak Krakatau. So far, we have identified 5,000 villages at risk and aim for most of them to be recognized by IOC/UNESCO by 2030.

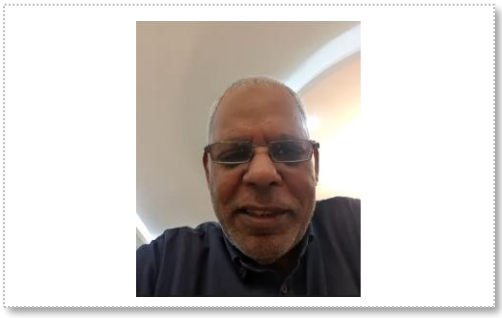
In summary, the Tsunami Ready Project, conducted in collaboration with UNESCO and stakeholders, aims to strengthen tsunami early warning systems in Indonesia. Last year, JICA partnered with us in Banten, and we recently carried out communication testing in Palu to mark the 2018 tsunami. Challenges include low community awareness, difficulty in identifying Tsunami Hazard Maps due to data gaps, inadequate

infrastructure for evacuation points, and reliance on government funding, which is affected by political conditions.

Lastly, I invite you all to join the Tsunami Ready Program in your country or in Indonesia. I also extend my heartfelt thanks to my sensei for their invaluable and engaging lectures.

That's all my presentation. Thank you. Arigatougozaimashita.

Speech by Salah Mahmoud, IISEE Ex-participant, 1982-1983 (S-Course), Emeritus Professor at National Research Institute of Astronomy and Geophysics (NRIAG)



Thank you very much for this golden opportunity to recall the best times and places that I visited in 1982-1983.

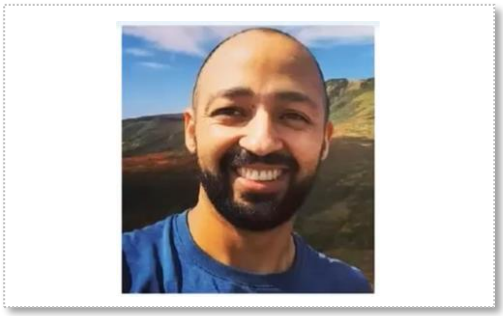
I attended the Seismology Course, and after getting my diploma in seismology, I returned to NRIAG. During my stay with Professor Ishibashi, I studied the crustal deformation using geophysical techniques. However, during my Individual study I moved from IISEE to the National Research Center for Disaster Prevention where I started studying the crustal deformation on the Izu Peninsula under the supervision of Professor Yoshimitsu OKADA. That study was the initial core for the application of studying crustal deformation in the seismically active region in Egypt. After I returned to Cairo, the 1981 Aswan earthquake, which occurred in the Aswan area, was a significant event, as it is located not far from the High Dam. Then, I started considering Professor Ishibashi's crustal deformation studies, so we applied them in the Aswan area to study recent crustal movements associated with earthquake activities using terrestrial techniques. Later, in 1994, we started to establish the first GPS network, which is now known as Egypt's national GPS network, comprising 38 permanent GPS stations that cover the whole country. We attempted to establish a relationship between crustal deformations derived by space technique and the solutions derived from observations made by our national seismological network, which in many cases show good agreement between the results obtained from the two methodologies. To do this, we have combined and analyzed data from the GPS network and the seismic network.

I began my career as a researcher, then became an associate professor, and ultimately advanced to a full professor. I served as the head of the geodynamics department because it was established by the seismology department. So, now in the geodynamics department, we have different labs that are working with the geophysical observation of gravity, InSAR and GPS observations. Following that, I served as the director of NRIAG from 2006 to 2011. Since 2015, I have been an emeritus professor, and I continue to act and work in my geodynamics department, supervising new students and collaborating on new research projects with various countries, including Italy, Germany, Japan, Portugal, and others. We are also going to study the crustal deformation along the Levant transform fault of the gulf of Aqaba in cooperation with

King Saud University, Saudi Arabia.

I hope this speech will provide a brief overview about my activities. Thank you very much for this alumni meeting and this golden opportunity, as I love Japan very much. I didn't forget my memory in Japan. Thank you, all my professors, all my colleagues, all my friends.

Speech by Ronald Alvarez, IISEE Ex-participant, 2016 (Latin American Earthquake Engineering Course), 2017-2018 (E-Course), 2020-2023 (Tohoku University), Postdoctoral Researcher at Research Center for Integrated Disaster Risk Management (CIGIDEN), Chile



Hello everyone, I'm Ronald from Chile. It's great to be here with fellow IISEE and GRIPS alumni. My journey started with the Latin course in 2016, followed by the E-course in 2017-2018, and eventually, I spent three years (2020-2023) at Tohoku University working along with Unjoh-sensei (Former IISEE lecturer). I also have fond memories of my time with Kashima-sensei during my master's, and I've shared some photos of those times with you.

For the last two years, I've been a postdoctoral researcher at CIGIDEN in Chile, based out of the Port of Valparaíso. Today, I want to share a project we are working on regarding port infrastructure vulnerability in seismically active zones.

The Port of Valparaíso is critical—handling about 21% of our international trade—but its breakwater is over a century old and wasn't built for modern seismic and tsunami loads. With support from JICA and Chuo University, led by Professor Arikawa Taro, we are analyzing how this structure would cope with a major tsunami. Visual inspections have already revealed significant damage, including cracks and settlement, likely accelerated by heavy use.

Currently, I am visiting Japan for a JICA-Kobe program on infrastructure strengthening for the Nankai megathrust earthquake. Simultaneously, in collaboration with the Coastal Engineering Lab at Chuo University, we are introducing a multiphysics-based modeling framework. This allows us to simulate complex interactions like seepage flow and overflow to better understand breakwater stability. We are eager to expand this collaboration beyond Japan, so I look forward to exchanging ideas with all of you.

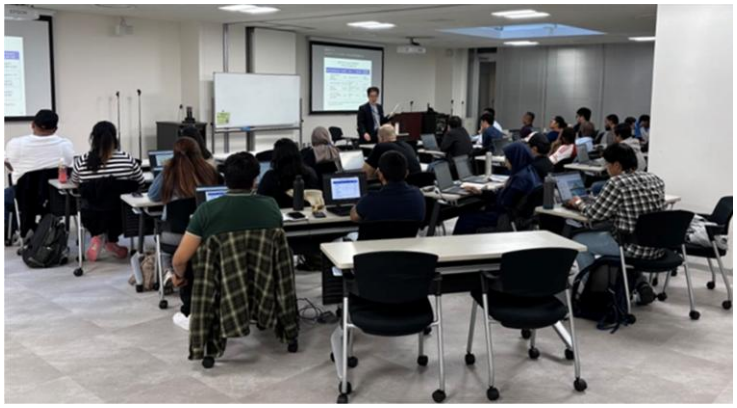
(Short Report) Lecture on Disaster Management Policy

By IISEE

The participants in the IISEE annual training course, which began in October, relocated from Tsukuba to Tokyo to attend lectures at the National Graduate Institute for Policy Studies (GRIPS) from October 31 to November 14.

There, they learned about Japan's modern disaster prevention policies developed since the Great Kanto Earthquake, including the Building Standards Law and urban disaster prevention measures.

In Japan, cold weather is expected to continue for some time. It is hoped that all participants will get through the cold winter by finding ways to refresh themselves, such as experiencing the unique customs of the New Year celebrations.



Lecture at the GRIPS

Official Trip Report on the JICA International Cooperation Project

By IISEE

TITLE: Short-Term Expert Dispatch for Evaluation of Existing Buildings Vulnerability Against Seismic Risk in Algeria

Destination: Algeria (Algiers)

Experts on Mission: Hidekazu Watanabe (Chief Research Engineer)

International Institute of Seismology and Earthquake Engineering, Building Research Institute

Duration: Friday, 31 October 2025 to Saturday, 8 November 2025

Purpose: As part of the JICA project "Evaluation of Existing Buildings Vulnerability Against Seismic Risk in Algeria", the dispatched expert provides technical guidance on seismic evaluation and seismic retrofitting for the pilot project and offers advice on the development of seismic evaluation and retrofitting guidelines.

Summary:

The JICA project "Evaluation of Existing Buildings Vulnerability Against Seismic Risk in Algeria" is currently being carried out during the period from October 2024 to October 2026. The project provides technical support for seismic evaluation and retrofitting guidelines, which aim to assess the seismic performance of existing low-to-mid-rise reinforced concrete buildings in Algeria, such as the Target Building (Photo 1).

Dr. Azuhata (IISEE) visited the country to provide consultations during the kick-off meeting. Dr. Mukai (National Institute for Land and Infrastructure Management, Japan) was assigned as the expert for the first dispatch in May 2025, followed by Dr. Nakamura (Department of Structural Engineering, BRI) for the second dispatch in June 2025. The expert for this dispatch was the third to be assigned to Algeria under this project. During the dispatch, meetings were held at the counterpart organization DNRM (National Delegation for Major Risks). More than ten participants attended, representing institutions including DNRM, CGS (National Center of Applied Research in Earthquake Engineering), CRAAG (Research Center on Astronomy, Astrophysics and Geophysics), CNERIB (National Center of Integrated Studies and Research in Building), CTC (National Organization of Technical Control).

Photo1 Target Building

TITLE: Technical Assistance for the JICA KIZUNA Project

Destination: Chile (Santiago)

Experts on Mission: Hiroshi Fukuyama (President of BRI)

Tatsuya Azuhata (Senior Fellow, IISEE, BRI)

Duration: Saturday, 8 November 2025 to Sunday, 16 November 2025

Purpose: In the training program for Laten America and the Caribbean conducted as part of the KIZUNA Project, the experts deliver lectures and share information on Japan's earthquake disaster prevention in architecture. The experts also engage in discussions with local stakeholders and gather information to explore future frameworks and directions for technical cooperation between Japan, Chile, and the countries of Latin America and the Caribbean, leveraging the network established through the KIZUNA Project.

Summary:

The KIZUNA Project is a JICA international cooperation initiative aimed at establishing Chile as a hub for human resource development in disaster response for Latin America and the Caribbean. It was originally scheduled to be implemented over five years starting in fiscal year 2015. With a focus on cooperation in the field of earthquake disaster prevention in architecture, the Building Research Institute has actively supported the project by jointly dispatching staff to Chile every year with National Institute for Land and Infrastructure Management and inviting counterparts from Chile. However, due to the global COVID-19 pandemic that began in the latter half of fiscal year 2019, the project came to a standstill without being able to deliver clear outcomes externally. The project resumed in fiscal year 2024 as KIZUNA II; however, in the field of earthquake disaster prevention in architecture, additional time was required for training preparations, resulting in implementation during fiscal year 2025. During this mission, in addition to delivering training lectures based on requests from the Chilean side, it was also an important task to hold discussions with local stakeholders—including the JICA Chile Office and the Chilean Ministry of Public Works—to identify future frameworks and directions for technical cooperation between Japan, Chile, and the countries of Latin America and the Caribbean, as KIZUNA II is scheduled to conclude in fiscal year 2025.

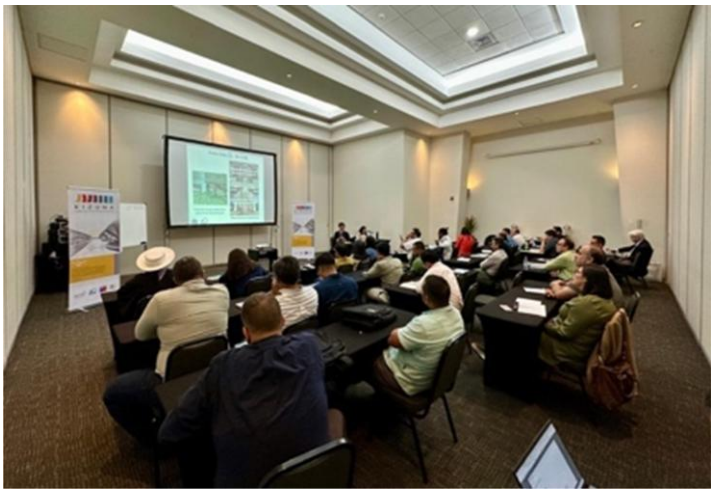
The training consisted of seven subjects, and was conducted by Fukuyama and Azuhata, as shown in Table 1.

Date	Lecture Title	Lecturer
November 10	Earthquake safety issues learned from past earthquake damages	Fukuyama
	Pre- and post-earthquake measures based on past seismic damage to buildings	Azuhata
	Functional continuity of base buildings for disaster management	Azuhata
November 12	Seismic retrofit technologies and application examples	Fukuyama
	Seismic isolation structural systems in Japan	Azuhata
	Evaluation of seismic structural damage in buildings by structural health monitoring	Azuhata
	Newly observed earthquake damage and countermeasures – Sharing Japan's "experiences" and "thoughts" –	Fukuyama

Table 1 Lecture Titles

On the final day, November 15, there were presentations by the Chilean Construction Association on the results of a comparative study of seismic standards in Latin America and the Caribbean and on initiatives related to a seismic model code, as well as a report by a former participant of the KIZUNA Project training program on cases of applying the training outcomes. These reports provided valuable insights for considering post-KIZUNA activities.

In addition, Ms. Yesica Hypatia Perez Alejandro from the Dominican Republic, a former participant of an IISEE course (2012–13E), was among those who joined the training program. During the cocktail party following the closing ceremony, I had the opportunity to speak with her and exchange updates on our recent activities.



Scene from the Lecture

Recent publications

By IISEE

1. **Adam, H.A., Hayashida, T., Soliman, M.S., & Elhadidy, M. (2025). Open Access**

Crustal velocity structure for Northern Egypt using ambient noise tomography, Scientific Reports 15(1), 42293.

https://www.nature.com/articles/s41598-025-23052-5

Outline: This study investigated the spatial characteristics of the crustal structure of Northern Egypt using seismic ambient noise records from broadband seismometers.

2. **Sriyanto, S. P., Adriano, B., Fujii, Y., & Koshimura, S. (2025). Open Access**

Estimation of high-resolution tsunami inundation depth using deep learning models: Case study of Pangandaran, Indonesia. Ocean Engineering, 330, 121019.

https://www.sciencedirect.com/science/article/pii/S0029801825007322

Outline: This study applied machine learning methods to quickly predict tsunami inundation height distributions for Pangandaran in the Java island, Indonesia, assuming scenario earthquakes along the Sunda Trench

3. Elbehiri, H. S., Hara, T., Hamama, I., Nishikawa, Y., & Yamamoto, M. Y. (2025). Open Access

Seismoacoustic monitoring of eastern mediterranean earthquakes toward a tsunami early warning system for Egypt: HS Elbehiri et al. Scientific Reports, 15(1), 37158.

https://www.nature.com/articles/s41598-025-22494-1

Outline: This study presented the analysis results of seismic and infrasound data for large earthquakes in the eastern Mediterranean Sea for development of a tsunami early warning system for Egypt by seismoacoustic monitoring.

4. Pineda, K. E., & Hayashida, T. (2025). Open Access

Shallow seismic velocity structure beneath San Miguel Volcano, El Salvador, estimated using seismic ambient noise (0.2–3.0 Hz). Earth, Planets and Space, 77(1), 154.

https://link.springer.com/article/10.1186/s40623-025-02288-5

Outline: This study constructed a shallow S-wave velocity structure model beneath San Miguel Volcano, El Salvador, using seismic ambient noise records to enhance the accuracy of volcanic earthquake relocation.

5. Saadalla, H., Qaysi, S., Hayashida, T., & Hamada, M. (2025). Open Access

Study of the earthquakes source parameters, site response, and path attenuation using P and S-waves spectral inversion, Aswan region, south Egypt. Open Geosciences, 17(1), 20250795.

https://www.degruyterbrill.com/document/doi/10.1515/geo-2025-0795/html

Outline: This study analyzed the sources and attenuation characteristics of ~1,200 small earthquakes using P- and S-wave records obtained from the broadband seismic observation network installed in Aswan, Egypt.

6. Tsuda, K., Shibazaki, B., & Ampuero, J. P. (2025). Open Access

Role of accretionary wedge in the dynamic rupture of tsunami earthquakes. Geophysical Research Letters, 52(20), e2025GL117571.

https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2025GL117571

Outline: This study developed a model of the dynamic rupture propagation of the 2010 Indonesia Mentawai tsunami earthquake

7. **Shibazaki, B., Nishimura, T., & Matsumoto, T. (2025). Open Access**

Modeling the San-in shear zone in southwest Japan: development of the immature shear zone along the volcanic front. Earth, Planets and Space, 77(1), 182.

https://link.springer.com/article/10.1186/s40623-025-02306-6

Out line: This study modeled development of strike slip faults along the volcanic front in San-in region in Southwest Japan.

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