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## Visit to Nicaragua -as a JICA Short Term Expert-

*By Dr. Toshiaki Yokoi, Director of IISEE*

I have traveled to Managua, Nicaragua from 19 to 28, April as a JICA short term expert and have instructed the field measurement and data processing of the microtremor array exploration (mainly SPAC method) in suburban area at the south of the Augusto Cesar Sandino international Airport of Managua.

Mr. Edwin Nadir Castrillo Osorio (2006-2007 Seismology Course), who is working for the Geotechnical Research Center (CIGEO), the Geology and Geophysics Institute (IGG), and the National Autonomous University of

Nicaragua (UNAN), has worked with me together with his colleagues. In a meeting that was not planned beforehand I could meet Ms. Virginia de la Concepcion Tenorio de Strauch (2004 Global Seismological Observation Course) who is working for the Nicaraguan Institute of Territorial Studies (INETER).



Mr. Castrillo (right)



Dr.Yokoi (left) & Ms.Tenorio de Strauch (right)

Managua was jolted by an earthquake of M6.2 in April 10 and the mass media was so interested in earthquakes that they interviewed me. My images have appeared in a newspaper and a few TV programs in Nicaragua. I hope that it can stimulate the people's attention to the earthquake hazard, risk and the counter measures. This is my third visit to Managua and I could enjoy my stay much.

## Reports on Kansai Study Trip

## Earthquakes

The 2011 off the Pacific coast of Tohoku Earthquake

Reports of Recent Earthquakes

Utsu Catalog

Earthquake Catalog

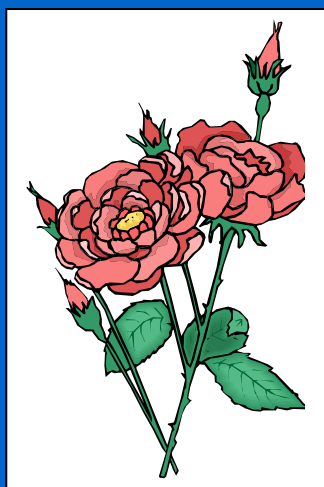
## Call for Papers

IISEE Bulletin is now accepting submissions of papers for the seismology, earthquake engineering, and tsunami. Developing countries are targeted, but are not limited.

Your original papers will be reviewed by the editorial members and some experts.

NO submission fee is need.

Try to challenge!!



### *(1)Ms. Pamela Urrutia Barrios (El Salvador, Earthquake Engineering Course )*

During our visit to Kansai District, we were able to visit cities like Osaka, Kobe and Kyoto. The purpose of this study trip was to experience the current status and recovery process of the areas that were affected by the Great Hanshin-Awaji Earthquake.



We visited centers like the Disaster Reduction and Human Renovation Institution, which is very important to transfer experience to the next generations, and E-Defense, used as a vehicle to understand the behavior of structures during an earthquake, enrich the design methods and to study the effective methods of retrofitting.

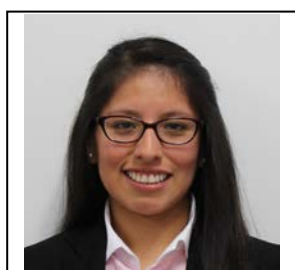
Akashi Kaikyo Bridge is a marvel of engineering. Building the longest span suspension bridge of the world is, for sure, a very complicated task, but with a good design, good considerations and research, this kind of structures can exist.

In Kyoto we learned that efforts to preserve historical structures are very valuable. The retrofitting techniques and all the meticulous procedures to do an extraordinary repair work is a lesson for all of us to care more of our history.

### *(2)Ms. Erica Nora Flores Terreros (Peru, Earthquake Engineering Course)*

In the middle of April, Seismology, Earthquake Engineering and Tsunami courses had the last Study Trip in Kansai Region (Osaka, Hyogo and Kyoto prefectures).

The main objective of the study trip is to know and acquire the lessons learned from the Great Hanshin-Awaji Earthquake (Kobe Earthquake, 1995), and also gain knowledge about new technology and methodology for construction and retrofitting in temples like Nijo Castle and Kiyomizu-Dera Temple.



After Kobe Earthquake, Japan's important target is to improve their Seismic Standard by studying the real behavior of their building. In the trip, we had the opportunity to visit the world's largest 3D shaking table, and we could appreciate some building tested in full scale. Another place to get more my attention was Akashi Kaikyo Bridge, the longest suspension bridge engineering in the world, we could see some advanced technology, methodology for constructing and

adjustment done in the design of the bridge, since it was still under construction when Kobe earthquake happened.

Japanese government educates its population, building museums like great Hanshin Awaji Memorial Museum to observe past seismic experiences about the disaster and how to protect yourself from them through games and demonstrations leaving great teachings for future generations. Once again I can conclude that Japan is one of the countries well prepared in natural disaster as the Earthquakes.

The knowledge acquired in all our study trips was useful to understand the experiences of past earthquakes, which is considerable information that we can apply to our countries' developing and implementing policies of disaster mitigation.



Enjoy, Now

## 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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<http://iisee.kenken.go.jp>

## Back Numbers

<http://iisee.kenken.go.jp/nldb/>

## My Research Field

*By Dr. Takumi Hayashida, IISEE Research Seismologist*

It has been almost one year since I was assigned as a staff member of IISEE. I am currently engaged in research on strong motion seismology that estimates subsurface seismic velocity structures for the accurate prediction of long-period ground motions.



In recent years, the seismic interferometry techniques (e.g., Shapiro and Campillo, 2004) are widely applied in fields of exploration geophysics and seismology. It can be used to extract inter-station Green's functions (i.e. surface point excitation solutions that have information about physical properties of sedimentary structures) and evaluate propagation properties of surface waves (seismic waves that propagate along the Earth's surface), by calculating the cross-correlation of the diffuse wavefields.

I apply this method to microtremor data observed in sedimentary basins to obtain Green's functions between arbitrary seismic station pairs and check constraint conditions for the improvement of existing seismic structure models. I am also trying to combine this technique and other existing microtremor survey methods [e.g., spatial autocorrelation method, Aki (1957); Okada (2003)] for further understanding of subsurface structures.

The microtremor survey will provide interesting information in seismology along with important information in the field of seismic engineering. I am going to visit Managua, Nicaragua from this week to take part in the microtremor survey project, following the Dr. Yokoi's visit.

## In Memoriam: Prof. Koji Fujima (Japan)

It was with profound sorrow that we received the sad news of the passing away of Prof. Koji Fujima, Professor of Department of Civil and Environmental Engineering, School of Systems Engineering, National Defense Academy of Japan on May 2, 2014.

Prof. Fujima had been teaching a class on "Tsunami Damage Survey" in Tsunami Disaster Mitigation Course since its beginning in 2006-2007 academic year. Even in a cold windy day in winter, he pursued a field-survey practice around the pond located on the BRI's premise.

Also, from the academic year 2010-2011, he had been teaching on "Introduction of Tsunami Disaster Mitigation."

The then participants of Tsunami Disaster Mitigation Course would surely all remember his practices and lectures.

We would like to extend the sincerest sympathy from all of us at IISEE to his loss.

# Individual Study in 2014

## Seismology Course

No.	Name	Country	Theme(Tentative)
1	Mr. Faouzi GHERBOUDJ	Algeria	Strong Ground Motion Simulation of the 2003 Boumerdes, Algeria Earthquake using the Empirical Green's Function Method
2	Mr. Ara GOHNYAN	Armenia	An Investigation of Applicability of B- $\Delta$ Method For Armenia
3	Ms. Yanuarsih Tunggal PUTRI	Indonesia	Quick Determination of Fault Plane as Complement of the Real-Time Earthquake Monitoring System in Indonesia
4	Mr. Tin Myo Aung	Myanmar	Seismic Activities in Eastern Myanmar: Relocation of Large Earthquakes since 1900
5	Mr. Mukunda BHATTARAI	Nepal	Site Effect Study using the Strong Motion Data Recorded in and around the Kathmandu Valley, Nepal
6	Ms. Xochilt Esther ZAMBRANA AREAS	Nicaragua	Estimation of a Velocity-Structure Model using Surface Waves on the Aeropuerto Fault, Managua, Nicaragua
7	Mr. Shafiq Ur REHMAN	Pakistan	Source Process of 24 <sup>th</sup> September, 2013 (MW7.7) Earthquake and its Aftershocks in Pakistan
8	Mr. ZAHID Raza	Pakistan	Hypocenter Relocations and Focal Mechanism Studies in Northern Areas (Gligit Baltistan), Pakistan
9	Ms. Raquel Noemi VASQUEZ STANESCU	Venezuela	Determination of Local Magnitude Scale ML For Venezuela

## Earthquake Engineering Course

No.	Name	Country	Theme(Tentative)
1	Mr. Md. Emdadul HUQ	Bangladesh	Development and Application of Seismic Evaluation and Retrofit Method in Bangladesh
2	Mr. Md. Shamsul ISLAM	Bangladesh	Evaluation of Confining Requirement of Boundary Elements of Slender Shear Wall and the Impacts on Performance of Shearwall Retrofitted by FRP
3	Ms. Pamela URRUTIA BARRIOS	El Salvador	Study of Failure Mode and Damage Process of Lightly Reinforced Concrete Shear Walls
4	Mr. Adhi Yudha MULIA	Indonesia	Seismic Evaluation of Historical Brick Masonry Building
5	Ms. Erika Nora FLORES TERREROS	Peru	Seismic Behaviour of Peruvian Confined Masonry Buildings
6	Mr. Onur BALAL	Turkey	Strengthening of Historical Structures of High Cultural Significance in Turkey and Handa City Akarenga Building
7	Mr. Erugun BINBIR	Turkey	Development of Building Monitoring System to Evaluate Residual Seismic Capacity after an Earthquake

## Tsunami Disaster Mitigation Course

No.	Name	Country	Theme(Tentative)
1	Mr. Budiarta	Indonesia	Tsunami Hazard Assessment along Southern Coast at East Java Province Indonesia
2	Mr. Nurpujiono	Indonesia	Validation of Tsunami Run-Up Data from 2006 Java Tsunami for Tsunami Hazard Assessment along the Southern Coast of West Java Indonesia
3	Mr. Myo Nan Da Aung	Myanmar	Numerical Simulation of Tsunami Inundation in the West Coast of Myanmar
4	Mr. Jorge Manuel MORALES TOVAR	Peru	Tsunami Hazard Assessment by Tsunami Modeling along Southern Coast of Peru