

Saitama University Newsletter

International Graduate Program on
Civil & Environmental Engineering

Issue No. 16 2011

An earthquake with a magnitude of 9.0 on the Richter scale, followed by a tsunami, struck eastern Japan on the 11th of March, 2011. The epicenter was around 129 km off the east coast of Sendai, Miyagi Prefecture. Although Saitama University is located more than 350 km from the epicenter, the tremor was very strong, and may be the strongest that has been experienced by residents around here in the last 87 years, since the Great Kanto Earthquake in 1923.

The earthquake was immediately followed by a tsunami. The second natural catastrophe caused most of the damage in the infrastructure and took many lives. The height of the tsunami wave was recorded to be 37.9 meters at the highest point.

The earthquake halted all train services around the eastern region of Japan on that day for safety reasons. This caused a hectic situation as most people rely on rail transportation for their traveling needs. Long queues of people waiting for buses and taxis could be observed almost everywhere.

In the area around Saitama University, no significant physical damage could be found. The Head of Department immediately instructed all faculty members to report the well-being of all international students under the department. Fortunately, everyone was safe and fine.

Other bad news came later, reporting that the nuclear power plant in Fukushima was hit by the earthquake and tsunami, and hydrogen explosions had occurred in some of the reactors. This time the effect covered wider areas as the radiation can be transferred through the air. Radiation in the ground water was also detected. Fears about radiation spread very fast.

The disasters have reminded us the importance of solid and advanced engineering concepts and the knowledge to face these natural calamities. The International Graduate Program in Civil and Environmental Engineering consists of experts in fields such as earthquake resistant design, earthquake engineering, seismic response analysis of soil-structure systems,



Catastrophe by the March 11 Great East Japan Earthquake

coastal engineering for tsunami prevention efforts, lifeline systems engineering, and geotechnical earthquake engineering. Many have direct and practical experience in the application of this knowledge and technology through projects such as the earthquake and tsunami research projects in Indonesia, Sri Lanka, and even the recent one in Miyagi, Japan.

The program has a strong commitment

to contributing to the improvement of methods, technologies and the safety of infrastructure and environment in dealing with natural calamities by educating young and prospective students and researchers from various countries. The current disasters would be a valuable lesson learnt for young generations around the world in improving the livelihood of human beings by providing a safe and reliable environment and infrastructure facilities.

Greetings from the Head of the Foreign Student Office

This year is a challenging year for Japan. With the big earthquake on the 11th of March, 2011 followed by a tsunami and problems with the nuclear plant in Fukushima, it may not be a year that someone wants to start. The triple catastrophe has left unimaginable misery and hardship for people in the Tohoku area. Approximately more than 15,000 people died and 8,000 people are still missing as of June 12. Hundreds of thousands of people are still living in evacuation places, some without knowing when they can return to their homes.



The disasters have caused devastating impacts and huge economic losses. However, they have also provided an invaluable lesson learnt for us as human beings, researchers and engineers about how we should cope physically and mentally with this kind of disaster, and how we can learn from possible mistakes that were made.

It is a long process for recovery and reconstruction, especially with the problem of the nuclear power plant, which is still in progress. However, I am sure that Japan will recover soon.

Professor Hiroshi Mutsuyoshi
Head of FSO

Graduation Time Congratulations

March 2010

Mr. Jha Sanjay Kumar from Nepal was awarded his Ph.D. degree under the guidance of Associate Prof. Suzuki.

September 2010

Mr. Nguyen Thuy Ba from Vietnam was awarded his Ph.D. degree under the guidance of Prof. Tanaka.

Mr. Shrestha Santa Man from Nepal was awarded his Ph.D. degree under the guidance of Prof. Kawakami.

Ms. Thidar Aye from Myanmar was awarded her D.Eng. degree under the guidance of Associate Prof. Oguchi.

Mr. Nguyen Giang Hoang from Vietnam was awarded his Ph.D. degree under the guidance of Prof. Kuwano.

Mr. Karunarathna Anurudda Kumara from Sri Lanka was awarded his Ph.D. degree under the guidance of Prof. Komatsu.

Mr. Mahmood Zafar from Pakistan was awarded his Ph.D. degree under the guidance of Prof. Iwashita.

Mr. Phyo Min Htet from Myanmar was awarded his M.Eng. degree under the guidance of Prof. Tanaka.

Ms. July Win from Myanmar was awarded her M.Eng. degree under the guidance of Prof. Kuwano.

Mr. Md. Abu Sayeed from Bangladesh was awarded his M.Eng. degree under the guidance of Associate Prof. Suzuki.

Mr. Md. Abdur Rouf from Bangladesh was awarded his M.Eng. degree under the guidance of Associate Prof. Kawamoto.

March 2011

Mr. Mohammad Mamunur Rashid from Bangladesh was awarded his Ph.D.

Research Profile Series (15) Hydraulic and Environmental Engineering Laboratory Coastal and Tsunami Engineering Research Group

The Coastal and Tsunami Engineering Research Group (CTE) is part of the Hydraulic and Environmental Engineering Laboratory, under the Department of Civil and Environmental Engineering, Saitama University. The CTE research group focuses mainly on tsunami studies by numerical modelling, physical modelling, and field investigations with a clear aim of disaster mitigation perspectives. Aside from this, the laboratory conducts studies in the research fields of River Environmental Engineering and Ecological Engineering. At present, the laboratory is led by two professors and two assistant professors.

The CTE research group was established following the 2004 Indian Ocean tsunami as an emerging sub-branch of the Coastal Engineering Research Group. In a pioneering contribution, Prof. Norio Tanaka had initiated research on tsunami mitigation with a keen interest in the bio-shield concept as a viable measure for developing countries which had been affected greatly by the 2004 Indian Ocean tsunami, with the help of Prof. Yasushi Sasaki and Emeritus Prof. Katsutoshi Tanimoto. Currently, four students are conducting research pertaining to tsunami mitigation by natural methods and tsunami sedimentation (tsunamiites). The CTE research group continues collaborative research with Moratuwa and Peradeniya Universities in Sri Lanka and recently started tsunamiites study with Dr. Raphael Paris in the Geo-Lab at Clermont University, France.

We use state of the art technology for research studies; the experimental laboratory has a wave flume which is capable of making long period waves likely tsunami waves, and a dam-breaking facility for simulating turbulent flows. Electromagnetic and propeller type current meters, conventional and ultrasonic wave gauges, and the Particle Image Velocimetry technique (PIV) are employed for tracing turbulent flow fields. Most of the numerical models used are written in FORTRAN language and developed sporadically by our team such as the two dimensional depth integrated flow model and Boussinesq type flow models for tsunami simulations. Recently, we developed a two phase numerical model for boulder transport by tsunamis which could be used to construct the magnitudes of historic tsunami events. Notwithstanding the above, we are interested in the fundamental physics of tsunamis and its applications. The reassessment of Nott's hydrodynamic equations and the concept of the boulder transport histogram are notable findings of our team.

The CTE research group has shown excellent research contribution since its inception. Up to date, there have been eleven publications in international peer reviewed journals including well ranked journals with high impact factors such as Ocean Engineering, Marine Geology, Computers and Geosciences, and Earth Science Review of Elsevier, and more than thirty five publications in international/domestic peer reviewed conference, symposia, and workshops with three summer symposium awards. We have also contributed our knowledge to decision making in practice (The Tsunami Threat - Research and Technology by InTech, Planning and Design of Tsunami Mitigative Coastal Vegetation Belt, Technical Note by Public Works Research Institute).

We wish to express our deepest condolence to all those who have been affected by the earthquake and tsunami which struck the Pacific Coast of the northeastern region of Japan on March 11th. The CTE research group is doing its utmost and working hard to expand its research capacity with this huge disaster in due course.



Wave flume in the experimental room



Ultrasonic wave gauge

degree under the guidance of Prof. Tsunokawa.

Mr. Md. Mahmud Sazzad from Bangladesh was awarded his Ph.D. degree under the guidance of Associate Prof. Suzuki.

Mr. Anawat Chotesuwan from Thailand was awarded his Ph.D. degree under the guidance of Prof. Mutsuyoshi.

Mr. Qazi Asif Nawaz from Pakistan was awarded his M.Eng. degree under the guidance of Prof. Tsunokawa.

Ms. Gombo Nyamsuren from Mongolia was awarded her M.Eng. degree under the guidance of Associate Prof. Fujino.

Mr. Md. Zahedur Rahman from Bangladesh was awarded his M.Eng. degree under the guidance of Prof. Tanaka.

Mr. Malik Adnan Anwar from Pakistan was awarded his M.Eng. degree under the guidance of Prof. Kuwano.

Ms. A. M. N. Madurya Adikaram from Sri Lanka was awarded her M.Eng. degree under the guidance of Associate Prof. Osada.

Mr. Muhammad Naveed from Pakistan was awarded his M.Eng. degree under the guidance of Associate Prof. Kawamoto.

Mr. Cao Vu Dung from Vietnam was awarded his M.Eng. degree under the guidance of Associate Prof. Matsumoto.

Mr. Nay Myo Nyunt from Myanmar was awarded his M.Eng. degree under the guidance of Prof. Mutsuyoshi.

Mr. Mustafizur Rahaman from Bangladesh was awarded his M.Eng. degree under the guidance of Prof. H. Kubota.

Ms. Zhang Tiantong from China was awarded her M.Eng. degree under the guidance of Prof. Okui.

Welcome New Students

October 2010



Do Duy Dinh
Vietnam, Doctor



Abeykoon Jalath Dammika
Sri Lanka, Doctor



Chandra Shekhar Goit
Nepal, Doctor



P. K. C. De Silva
Sri Lanka, Doctor



Ei Ei Mon
Myanmar, Doctor



Eamkijkarn Mongkol
Thailand, Doctor



Pham Thi Phuong Chi
Vietnam, Doctor



Mahmod Wael Elham
Egypt, Doctor



Abeysekera P. Subhashini
Sri Lanka, Master



Abbas Zafar
Pakistan, Master



Mlekwa Gilbert Oscar
Tanzania, Master



Shrestha Dinesh
Nepal, Master

April 2011



Phyto Min Htet
Myanmar, Doctor



Han Ziyu
China, Master



Kyaw Phone Lwin
Myanmar, Master



Suu Mon Yee
Myanmar, Master



Tin Win Htut
Myanmar, Master



Zhi Yan
China, Master



Bhuyan Md. Habibullah
Bangladesh, Master



H. L. D. Nandika
Sri Lanka, Master



Pardede F. Hariara
Indonesia, Master



Rahman Md. Aftabur
Bangladesh, Master



Saeed Shahzad
Pakistan, Master



San San Htay
Myanmar, Master



Sarfaraz Basit
Pakistan, Master



Sharma Satya Narayan
Nepal, Master



Shrestha Alina
Nepal, Master

News

New Appointments

Dr. Eiichi Furusato was appointed as an assistant professor of Environmental and Hydraulic Engineering Laboratory in April 2011. One of his research interest is the effects of tsunami on deformation of river mouths.

Faculty on Move

Dr. Kenji Harada of Environmental and Hydraulic Engineering Laboratory resigned from Saitama University in March 2011. He is currently working at Shizuoka University.

Awards

Prof. Yoshiaki Okui was awarded in June 2011 by JSCE with

1. Tanaka Award for the best paper entitled "Experimental study on coupled flexure and shear strength of composite girders".

2. the best paper award of JSCE for the paper entitled "Ultimate flexure strength and shear strength of double composite I girders under hogging bending moment".

Dr. Shingo Asamoto received the excellent presentation award

1. in the 64th Japan Cement Association Annual Convention in 2010, "Volumetric change of cementitious porous materials depending on adsorbate characteristics".

2. in the Japan Concrete Institute Annual Convention in 2010, "Volumetric change of hardened cement paste related with characteristics of adsorbed liquid on gel solid".

3. in the 65th JSCE Annual Convention in 2010, "Study on effect of creep promotion at early ages on concrete mechanical properties and flexural behavior of PC beam".

Dr. Hyuck Park, Dr. Masahiko Osada and Prof. Kunio Watanabe were awarded the best research paper prize from Japan Society of Engineering Geology on June 4, 2010 for the paper : Development of shear-flow-visualization coupling test apparatus and its data analysis.

Ms. Nayana Madurya Adikaram was awarded the best presentation prize at Geo-Kanto 2010 for the paper "Anisotropic properties of Taga tuff based on ultrasonic wave velocity measurements".

The following students and researcher were awarded the best presentation prizes at the 12th JSCE International Summer Symposium 2010: Thuy, N. B., Shaphal Subedi, Perera, S. V. T. Janaka, Rama Mohan Pokhrel, Nguyen Duc Hai.

Message from Alumni

I was enrolled in the special international program of the Department of Civil and Environmental Engineering, Saitama University as a graduate student in April, 2003. In joining with this program I found that the study environment was very helpful for doing research, and I was glad that I made the right decision to join this program. During my study period, the guidance and assistance I received from the professors and lab members were very helpful and valuable for conducting my research. Not only that, I have experienced Japanese teamwork and compromised with international students and Japanese students during laboratory experiments. I got my MEng and PhD degrees in March, 2005 and 2008 respectively. It was a golden opportunity to continue my research for five years, staying in the same laboratory, and to widen my knowledge and experience in the field of Structural Engineering.



During those five years, staying in Japan gave me a chance to learn the Japanese language and provided me a comfortable life style with lots of enjoyment, with Japanese culture and customs. Participating in different ceremonies, a home-stay with a Japanese family and interacting with Japanese people, made a friendly social environment for me.

Having graduated in March 2008, I returned to my home country, Sri Lanka. Since then, I have been working as a Senior Lecturer at the Department of Civil and Environmental Engineering, University of Ruhuna.

I would like to extend my sincerest thanks to the Foreign Student Office for always supporting us and giving guidance to the foreign students in every aspect. My greatest desire is that many foreign students will be able to join the international program conducted by the Saitama University to gain advanced knowledge in research, and that they will contribute to the future development of their countries.

With all best wishes and warmest regards,

Dr. Sudhira De Silva
Senior Lecturer
Faculty of Engineering, University of Ruhuna, Sri Lanka

Message from the Foreign Student Office

We would like to express our thanks for your sincerest condolences after the March 11 Great East Japan Earthquake. We still have the ongoing nuclear radiation problem in Fukushima prefecture affected by the massive earthquake and tsunami. We hope we can manage to overcome this difficulty.

This time, we are pleased to inform you that we have issued our Alumni Directory 2011, which is the fourth edition. Our graduates from September 1995 to March 2011 are included. Thank you for your cooperation in updating your information. We are waiting for your latest information anytime.

We are also looking forward to your contribution to the Newsletter. Please let us know if you want to write an article "Message from Alumni". Your participation and cooperation will be greatly appreciated.

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