2019. 3.1

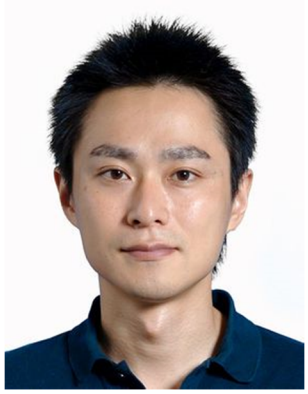
Japan Society of Civil Engineers

International Activities Center

IAC News No.77

Joint Company Information Session in Civil Engineering for International Student 2018

The IAC International Student Network Group, held its Joint Company Information Session in Civil Engineering for International Students at the Headquarter of Japan Society of Civil Engineers (JSCE) in Tokyo on November 17, 2018, with the aim of informing international students studying in Japan about Japanese companies working in relation to civil engineering. With cooperation from seven companies, presentations were given, individual consultations provided via corporate booths, and brochures distributed. There were 32 international students participating and, in addition to those from the Kanto area, there were also participants from distant locations such as the Tohoku area.



Kohei Nagai
The University of Tokyo

Participating Companies:
Dai Nippon Construction, Eight-Japan Engineering Consultants Inc., NIPPON KOEI CO., LTD., Katahira & Engineers International, TODA CORPORATION, Obayashi Corporation, HAZAMA ANDO CORPORATION

The session was organized in three parts, and being conducted entirely in English. For the first part, following the introduction of activities of the IAC International Student Network Group, there was a presentation by Mr. Kazuki Kanenawa, Japan International Cooperation Agency (JICA), who explained the international activities of JICA mainly in the Asian and African regions especially focusing on the projects of road construction and maintenance.

Lectured by Mr. Kazuki Kanenawa (JICA)

A former international student, Mr. Neupane Chandra Ram, now working at a Japanese company (SHIMIZU CORPORATION) spoke about his experiences after he got the job and projects he has been involved. For the second part, there was a ten-minute company introduction given by every the attending companies, with information on company features, overseas projects and business activities. Some company gave the

presentations by foreign staff who graduated from Japanese universities and their experiences were also introduced. In the third part, the various companies held their respective booth-based sessions. Participants were visiting several booths and appeared enthusiastic as they gathered information. In addition to detailed explanations provided by Japanese staff with a wealth of international experience, the cordial responses from foreign staffs with experience participating in the session also left an impression.

At the Booth Session

【Reported by Kohei Nagai (The University of Tokyo), Leader of Int'l Student Network Group, IAC】

Joint Seminar Report (Thailand)
EIT-JSCE Joint Seminar on Structures under Impact and Blast Loadings

EIT – JSCE Joint Seminar on Structures under Impact and Blast Loadings was held at Impact Muang Thong Thani Exhibition and Convention Center on November 2, 2018, which was co-organized by the Structural Engineering Committee of Japan Society of Civil Engineers and the Engineering Institute of Thailand Under H.M. the King's Patronage. This joint seminar was carried out as one big event of the annual convention of the Engineering Institute of Thailand.

Commemorative Photo of Lecturers Participated（from right）Prof. Piti Sukontasukkul, Prof. Yoshimi Sonoda, Prof. Norimitsu Kishi, Prof. Hiroshi Masuya, Prof. Kazunori

Prof. Yoshimi Sonoda (Kyushu University), Prof. Kazunori Fujikake (National Defense Academy), Prof. Norimitsu Kishi (Muroran Institute of Technology) and Prof. Hiroshi Masuya (Kanazawa University) took part in as speakers from the Structural Engineering Committee of JSCE. Two speakers from the Thai side were Prof. Piti Sukontasukkul (King Mongkut's University of Technology North Bangkok) and Dr. Amornthep Somraj (Chulachomklao Royal Military Academy).

Prof. Sonoda's Lecture

Until now, impact loads represented by the collision of a vehicle, ship or airplane with structures have not been

given much attention in Thailand since its probability of occurrence might be extremely low. However, in recent year the extreme weather phenomenon caused by global warming is becoming serious even in Thailand, the frequency and intensity of strong wind disasters caused by tropical storms, floods and landslide disasters are increasing. In these disasters, impact loads often act on the structures. In addition to those, terrorist bombing attacks are also currently very much concerned in Thailand. Therefore, in Thailand, there is increasing interest in how to design the structures subjected to impact and blast loads to secure safety. Thailand is also increasingly interested in securing structural design and safety against impact loads. Meanwhile, in Japan, the Subcommittee on Impact and Explosion Problems has been established in the Structural Engineering Committee of the Japan Society of Civil Engineers and has been developing activities for about 30 years. In this joint seminar, therefore, the primary objective was to provide Thai people with our information and knowledge on impact and explosion problems.

Table 1 shows the program of this JSCE-EIT joint seminar. This joint seminar was welcomed by the EIT President, Dr. Thanes Veerasiri and started with opening remarks by Prof. Fujikake. The lectures presented included “Multilayer bulletproof system from FRC and natural rubber sheet” by Prof. Piti Sukontasukkul, “Ultra-high performance concrete under impact loading” by Prof. Kazunori Fujikake, “Rockfall protection structure” by Prof. Hiroshi Masuya, “Impact loading tests for RC beams” by Prof. Norimitsu Kishi, “Impact loading analysis” by Prof. Yoshimi Sonoda, and “Shear failure of RC beams under dynamic loading” by Dr. Amornthep Somraj.

More than 50 people participated in the joint seminar. The good news was that we got a very affirmative response from the participants in this joint seminar. The joint seminar was successfully finished. After the joint seminar, we developed a deep and warm personal relationship with the participants at the banquet.

Table 1 Program of EIT-JSCE Joint Seminar

14:00～14:10	Welcome address by EIT President	EIT President Dr. Thanes Veerasiri
14:10～14:20	Opening remarks	Prof. Kazunori Fujikake
14:20～14:40	“Multilayer bulletproof system from FRC and natural rubber sheet”	Prof. Piti Sukontasukkul
14:40～15:00	“Ultra-high performance concrete under impact loading”	Prof. Kazunori Fujikake
15:00～15:20	“Rock fall protection structure”	Hiroshi Masuya
15:20～15:40	“Impact loading tests for RC beams”	Prof. Norimitsu Kishi
15:40～16:00	Closing remarks	Prof. Yoshimi Sonoda
16:00～16:20	“Shear failure of RC beams under dynamic loading”	Dr. Amornthep Somraj
16:20～16:30	Closing remarks	Piti Sukontasukkul
18:30～20:30	Banquet	

Also, on this trip, in addition to the joint seminar, two site visits were arranged. One visited the CFRP reinforcement work of the approach deck of the Rama VII Bridge. The other did the MRT Orange Line subway construction site.

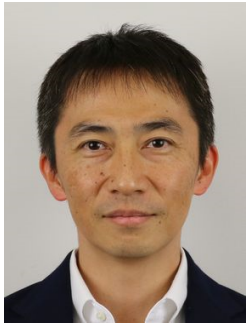
Finally, I would like to express my sincere gratitude and appreciation to those who helped and supported this joint seminar. In particular, I would like to express my special thanks to Professor Piti Sukontasukkul at King

Mongkut's University of Technology North Bangkok. I believe that this joint seminar could not be organized without him. This Joint Seminar was supported by the International Scientific Exchange Fund.

Site Visit of MRTA Station in MRT Orange Line

【Reported by Structural Engineering Committee Kazunori Fujikake (National Defense Academy)】

Introduction to Committee on Historical Studies in Civil Engineering



Takahiro Abe (Secretary-General, Committee on Historical Studies in Civil Engineering)

The Committee on Historical Studies in Civil Engineering was established as a standing committee of the JSCE in 1973 in conjunction with the editing of The History of Japanese Civil Engineering: 1941–1965. In June 1981, eight years after the committee was established, it hosted the 1st Conference on Historical Studies in Civil Engineering as an opportunity for presentations and discussions on historical research related to civil engineering. Since then, the Conference on Historical Studies in Civil Engineering has been held as a regular event in June every year, and this year will be the 39th. Initially, the Committee on Historical Studies in Civil Engineering was called the “Committee on Historical Studies in Japanese Civil Engineering,” but in 1989, the name was revised to its present name, “Committee on Historical Studies in Civil Engineering,” and the research conference was also renamed from the “Conference on Historical Studies in Japanese Civil Engineering” to the “Conference on Historical Studies in Civil Engineering.”

Looking at the main activities of the Committee on Historical Studies in Civil Engineering, which boasts about a half-century of history, we see that the greatest concern, from the early stages of the 1970s and 1980s through the 1990s and 2000s, has been evaluating what is referred to as our modern civil engineering heritage. During this period, diverse methods valuation were discussed while collaboration with the Agency for Cultural Affairs and other government institutions took place, and the facilities that qualified for valuation expanded to include a variety of civil engineering facilities, such as bridges, dams, canal locks, sand erosion control facilities, tunnels, and railroad facilities. As an extension of these valuations, discussion regarding approaches and methods concerning the preservation and utilization of civil heritage assets took place, and the results were compiled in volumes that include Modern Japanese Civil Engineering Heritage Assets (edited by the JSCE Committee on

Historical Studies in Civil Engineering, JSCE, 2001, 2006) and Preservation of Historical Civil Engineering Structures (edited by the JSCE United Subcommittee for Historical Structure Preservation Techniques, Kajima Institute Publishing, 2010). These books are still used in the field for actual work. In the 2010s, with the enactment of the Landscape Act (2004) and the Act Concerning the Maintenance and Improvement of Historic Scenery (2008), the topic of "historical urban development" that uses urban development of historical civil engineering facilities as a resource underwent an increase in activity.

The Shuto Expressway, a post-war civil engineering facility

Now, as we approach the 2020s, let's take a look at three activities of the Committee that are concerned with the next 50 years.

For starters, the Committee is changing its name to the "Committee on the History of Civil Engineering." Until now, the Committee has been engaged in the establishment of historical research methods in the civil engineering field, of accumulating and utilizing research results as historical facts, and developing an evaluation focal point for civil engineering heritage assets along with evaluation data. Going forward, we will systematize historical facts and historical techniques accumulated, working toward broader dissemination of those facts and techniques while continuing to play a key role as a component of cross-disciplinary partnerships, and as a result, we are changing our committee name to the "Committee on the History of Civil Engineering" as a more comprehensive description of these activities.

Next is our initiative for the historical and cultural valuations of post-war civil engineering facilities. Seventy years have passed since the end of the Second World War, and we now face an era in which a vast number of the civil engineering facilities constructed during the post-war period of high economic growth are being upgraded. Those facilities are being removed without any evaluation of their historical and cultural value being carried out, and the problem of renovations being carried out on facilities currently in service without any concern for their historical and cultural value is becoming increasingly apparent. Accordingly, at the Committee on Historical Studies in Civil Engineering, we formed the Subcommittee for Studies Concerning the Historical and Cultural Value of Post-War Civil Engineering Facilities" in June 2014, which has proceeded by putting together a concise history of the post-war period on a per-field basis, examining the evaluative focal points when making valuations, and, moreover, creating a list of facilities that need to be evaluated.

The final item to be addressed is our education and research promotion. Last year, the Committee published The Illustrated Guide to Modern Japanese Civil Engineering History (edited by the JSCE Committee on Historical Studies in Civil Engineering, Kajima Institute Publishing, 2018) aimed at young scholars in the field of civil engineering history, with the purpose of being used as a textbook for university lectures and so on. This book uses plentiful illustrations, photographs, data, and timelines to present field-specific historical information, with a focus on big projects that aided the modernization of Japan. Furthermore, with the publication of this book, we

have established the “Subcommittee for the Promotion of Education and Research”, which is involved in further efforts to promote education on the history of civil engineering and to expand the base of research.

Decisions regarding what to be built and what to be preserved will affect the lives of our future children and grandchildren, and the work of those of us alive today will eventually become a page in the history books. The history of civil engineering is something that not only can foster awareness of this fact among civil engineers, but can also be considered a field of research that serves as a compass for the work of civil engineering. From now on, the mission of the Committee is not only to study history, but to study within history, evaluating the present and gathering research data in order to predict the future.

The Illustrated Guide to Modern Japanese Civil Engineering History

【Reported by Takahiro Abe, Secretary-General Committee on Historical Studies in Civil Engineering】

The Difference in the Approach to the Design Codes between Japan and the UK

I have been working for a UK engineering consultancy in the UK for more than 10 years and have experience of working for a Japanese engineering consultancy in the field of bridge engineering. Whenever I work on projects as a civil/structural engineer in the UK, I cannot help but realise that there is a significant difference between Japan and the UK in their approach to using the design codes and standards.

Based on the author’s experience, Japanese engineers tend to design structures without any departures from the design codes and standards. Before coming to the UK, I was involved in a bridge design project which entails non-standard details in Japan (Photo 1). During the design process, we had a number of discussions on the compliance of the design to the standards with the client’s engineers and bridge fabricators. As a designer, I wanted to adopt a non-standard design to improve the appearance of the bridge. My proposal was carefully reviewed by them in accordance with the Japanese design codes. I had received many comments typically including the following statement many times: “This design does (or does not) comply with the guidance given


Photo 1 Nishisuimon Bridge, Edogawa-ku, Tokyo

below the clause X of Specifications for Highway bridges Part II by the Japan Road Association."

In the UK, design codes are important and engineers are expected to produce a design which conforms to the design codes and standards; therefore, design standards are always listed in an Approval in Principle document. However, in the eyes of a Japanese civil engineer, UK engineers appear to use design codes in a rather flexible manner. The following are the author's personal opinions as to where the difference in the culture between the two countries arises from:

· UK Designers are responsible for any problems/issues associated with the design. If a designer is obliged to compensate stakeholders such as contactors and clients due to design issues, professional indemnity insurance covers the designer for their financial obligation. Although stakeholders make comments on the design where they are concerned, they do not pay attention to whether or not the design is code-compliant.

· A design check is often carried out by independent checking engineers performing separate independent design calculations in UK. As long as the checkers can satisfy themselves, they do not necessarily interrogate whether or not the design is compliant with the design standards in detail. Even if the design is considered to be non-compliant with the codes, the design is sometimes accepted as the final outcome as long as the originator and checker agrees that the outcome will not cause a problem to the actual structures to be built subject to approval.

· At the universities of Cambridge and Oxford, the educational focus is to foster students' problem-solving skills by teaching from the physics of engineering from first principles; the contents of the design standards are intentionally not taught at the universities to encourage first-principle thinking for technical problem solving.

· There are a number of different design standards, such as suites of Eurocodes and British standards, which are usually referred to in the design of heavy civil structures. Client authorities such as Network Rail and Highways England also have their own suite of standards and specifications. Consequently, designers are usually required to refer many design standards in order to design a civil structure. There is a real potential for some important standards are accidentally omitted which should be referred to in the project, even when the design is reviewed by other engineers both internally and externally.

· In recent years, the project focus has been more associated with project management and the effective delivery of multidisciplinary projects rather than pure technical challenges, which is aligned with an increase in the project scale in recent years. This has resulted in less attention to the design of each element.

Since the Japanese try to comply with the design codes and standards very strictly, non-compliance with the standard specifications rarely occurs, which facilitates standardisation for design details. The Japanese culture prevents engineers from creating their own poor details, and the integrity of structural details are ensured by the design standard and specifications, which has led to the production of safe and robust structures in the country. (It should, however, be noted that when robust structure details were not specified in the design codes in the past, those details had spread across the country without being modified by the designers in most cases) Despite there being benefits from the full compliance with the design codes, original design outside the realm of the codes and specifications is rarely realised within the Japanese design culture. Client authorities usually prefer to adopt design details which have already been developed in accordance with the existing design standards and specifications, and design engineers also prefer to use automated design programs which comply with the design

standards and specification for efficiency rather than to develop a bespoke design by performing detailed studies and analyses.

As mentioned earlier, in the UK, design codes and standards are used in a more flexible manner. This culture provides an opportunity for innovation, where engineers create an unprecedented design. However, not all engineers have deep technical insight and therefore this design culture, which is lenient on departures from the standards, can cause significant problems to the built structures from time to time. In the opinion of the author, the risk of having design errors seems to have being increased in the UK owing to an emphasis on project delivery and management, which is exacerbated by serious pressure on the designers to minimise quantity and to carry out the design as quickly as possible under the design and build contracts. (We should however note that an increase in the design errors is a serious problem in Japan)

In order to promote the export of Japanese infrastructure in aligned with the Japanese Government's political strategy, it is important to customise the standard design adopted in Japan to fit local requirements, as repeatedly mentioned in other publications. In order to achieve this goal, I strongly believe engineers/designers based in Japanese firms should perform design in a more flexible manner as well as carry out design in a rigorous and accurate manner under their culture. Adopting the spirit of the two cultures should allow them to meet local requirements and solve site specific issues with safe and robust structures, which should lead to the promotion of the export of Japanese infrastructure.

【Reported by Daisuke Saito, JSCE UK Section】

【Alumni of DOBOKU Series】
"My Dream: Create Better Living Condition for Developing Countries"
Rokhamsay Chinda
Civil Engineering Designer at Kajima Corporation

Road to Civil Engineering and Japan.

Rokhamsay Chinda
(Civil engineering designer at Kajima Corporation)

I was born in XamNeua, a little city in Laos' north-east mountainous area. During my childhood, there was no electric power, no gas and no clean water in the city. I had to study under the light of oil-lamps until finishing primary level. People used unhygienic water from digging wells for their daily lives, but it wasn't enough in dried season and was extremely polluted in rainy season. NamXam river that flows across the city causes flood yearly, not only affects to residents' lives but also damages agricultural products in the area.

Experiencing many difficulties of my city in general made me wish to do something useful relating to infrastructure for a better living condition. I decided to study civil engineering.

After graduating high school, I majored in civil engineering at National University of Laos. In the first year, I

was deeply impressed by Japan's civil engineering technology through reading documents and taking university lectures. Japan suffers natural disasters every year, but Japanese people have successfully created numerous technology and invention to conquer hazardous nature. Japan's achievements have motivated me of learning its huge knowledge of technology. I took part in and passed many required tests to become an oversea student in Japan. My dream has become true.

What a Great Japan!

In 2005, I came Tokyo for my study. I was overwhelmed by the modern of Tokyo: endless high buildings, convenient traffic systems with a variety of free-ways, hyper railways, tunnels, satisfy all daily demands of residents like electricity, clean water supply, gas. These things which are obvious in Japan made me so moved and surprised. From bottom of my heart, Japan is such a great nation.

A Meaningful Study Period in Japan.

I had two targets during the study time. One is to learn civil engineering knowledge and another is to settle myself in Japan and absorb the spirit, mindset and virtue of Japanese.

Photo 1 Kyushu Institute of Technology Structural Engineering Laboratory

After learning Japanese at Tokyo Japanese Language Education Center for one year, I entered Maizuru National College of Technology and studied basic knowledge about construction technics. I focused on geotechnical, the basic ground of civil engineering, by the instruction of professor KATO Yoshinori. After graduating college, I continued my study at Kyushu Institute of Technology in order to enhance my knowledge as well as be capable to apply them into reality. I chose the Structural Engineering Lab which specializes in wind engineering and structural analysis. I was instructed by professor KIMURA Kichiro during Bachelor degree. Then professor MATSUDA Kazutoshi instructed my subject at the Master de gree. My research was about the Wind-induced vibrations and anti-vibration measures such as cables of cable-stayed bridges and main tower of suspension bridge. In my lab there are other three well-known professor KUBO Yoshinobu, professor YAMAGUCHI Eiki, and assistant professor KATOU Kusuo. All of the professors not only helped me upgrading my knowledge but also taught me daily social understandings or engineers' responsibility. All members in the Lab are sincere and kind-hearted. I really spent a meaningful time while studying oversea in Japan (Photo 1).

Approach Top-of-the-World Civil Engineering Technology.

In spring 2013, I started to work for Kajima Corp, at C ivil Engineering Design Division (Photo 2). My major is designing shield tunnels, such as tunnel lining, starting and arrival shaft for shield machines, tunnel attached structure etc. My main task is to analyze according to the conditions of the structure and decide the optimum specifications as well as taking safety and rationality. I was responsible for designing tunnels, such as power plant cooling water facilities, sewer, rainwater trunk, gas pipeline, and highways. And I also experienced a foreman job at the shield construction site.

Technology applied to shield tunneling in Japan, such as large depth, large cross section, underground tunnel widening, are still being regarded as difficult techniques in the world. Therefore, I am very honor to have an opportunity to approach such a modern technology.

Photo 2 Kajima Corporation Civil Engineering Design Division Shield Group

The Favor From the Japanese.

During my oversea study time, I was lucky to receive a lot invaluable favors from Japan's government, organizations and friends. I received financial sponsor from Japanese Government (Monbukagakusho) Scholarship, Yoshimoto Shoji Scholarship, and Rotary Yoneyama Memorial Foundation Scholarship. So that I was able to fully concentrate in my study. Also, all of my Japanese friends are really sincere and kind. To express my sincere thanks to Japan, I have been endeavoring every day to make my dream come true and contribute to Japan society.

Prospect

I am very lucky to have an opportunity to study and approach high-level technology of Japan. However, there are many students in the world, especially in Laos, few people have a luck like me. For that reason, I would like to make best use of my knowledge so that poor countries can develop their infrastructure.

Last but not least, I would like to express my deepest thanks to all lecturers, especially professor MATSUDA Kazutoshi. I would like to give my sincere thanks to scholarship charities, to all my Japanese friends for their invaluable help.

《**Column**》 Kazutoshi Matsuda, Kyushu Institute of Technology, Professor

When I was assigned to Kyushu Institute of Technology in 2011, Mr. Chinda was in the first year of his Master's course. His hardworking spirit was stronger than that of Japanese students and his approach to study was impressive. He was honest and good-natured, so he was beloved by everyone in the laboratory. My best memory with him is when after a meeting in Hakata, we had another party because we hit it off each other and we both fell asleep on the return train, probably because we trusted each other. As a result, we went past Tobata Station and woke up at Moji Station.

I hope that he will do his best in advancing toward infrastructure construction on the world stage, keeping to his original purpose when he aimed for civil engineering.

※Alumni of DOBOKU Series is in collaboration with Editorial Committee of JSCE Magazine.

CECAR8 is Coming Soon!

The Eighth Civil Engineering Conference in the Asian Region (CECAR8) , which is a triennial international conference organized by Asian Civil Engineering Coordinating Council, is held at Hotel Metropolitan Tokyo Ikebukuro from April 16 to 19, 2019. Engineers, researchers and practitioners from the academia, industry and

government will sit together and examine what their responsibilities to society, sharing their visions, efforts, issues with each other. It will be one-of-a-kind opportunity. Don't miss it. Online registration is open until March 31st. Please join the Conference. For further information, please visit the website: http://www.cecar8.jp/.

■CECAR8 "Resilient Infrastructures in Seamless Asia"
- Date：April 16-19, 2019
- Venue：Hotel Metropolitan Tokyo Ikebukuro (https://ikebukuro.metropolitan.jp/)
  1-6-1 Nishi-Ikebukuro, Toshima-ku, Tokyo, Japan
- Main features：
  ① Plenary Sessions
  ② Technical Sessions
  ③ Buffet Dinner
  ④ Technical Tours
  ⑤ Booth Exhibit
- Online Registration：http://www.cecar8.jp/registration/
  After March 31, 2019, On-site registration will be available on the 15th

Updates

◆SIP-JSCE-JICE Seminar on Road Asset Management, Institute of Industrial Science, the University of Tokyo
March 14, 2019
JICA and SIP Infrastructure Maintenance, Renovation and Management signed Memorandum of Understanding in 2017 and established a platform on road asset management to facilitate technical exchange among JICA, engineers and researchers. They are entering the second phase now: JICA and JSCE will cooperate with each other to take over that platform and further develop projects. This seminar will introduce the projects and achievements made in the first phase and discuss the visions and projects which will be developed under the JSCE-JSCE cooperation.
Further details: http://www.jsce.or.jp/event/active/information.asp

◆CECAR8 Online Registration (Online Registration Deadline: March 31, 2019)
http://www.cecar8.jp/

◆The 21st International Summer Symposium in 2019
http://www.jsce-int.org/node/592

◆The International Infrastructure Archives
– A Compilation of Japan's Greatest Projects in Transfer of Civil Engineering Technology in Service –
http://www.jsce.or.jp/e/archive/

◆Asian Civil Engineering Coordinating Council (ACECC) International Newsletter
http://www.acecc-world.org/newsletter.html

◆IAC "News Pick Up!!" on the JSCE Japanese website
http://committees.jsce.or.jp/kokusai/node/118

◆Summary of featured articles in JSCE Magazine Vol. 104, No.3 March 2019
http://www.jsce-int.org/pub/magazine

◆Journal of JSCE
https://www.jstage.jst.go.jp/browse/journalofjsce

◆IAC Students and Alumni Network
http://www.jsce-int.org/IAC_network

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§ IAC Facebook §

Recent activity of International Activities Center is introduced on this Facebook. Please see this home page. (https://www.facebook.com/JSCE.en)

Comments and Questions

Please send us your feedback and comments to help us improve the IAC news. We look forward to hearing from you.
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