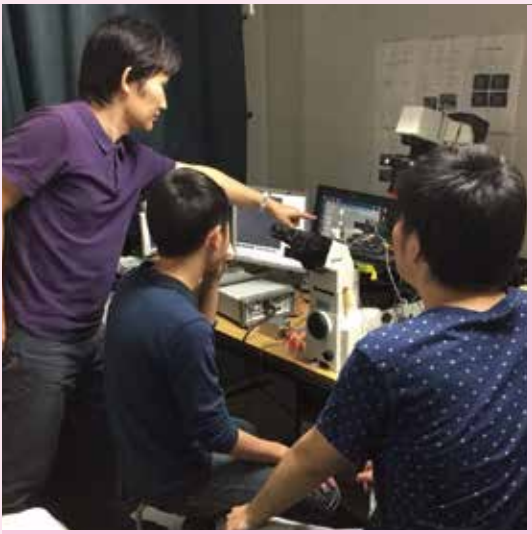
SAKURA SCIENCE
Exchange Program in Science

SAKURA EXCHANGE PROGRAM IN SCIENCE



Japan-Asia Youth Exchange Program in Science

SAKURA Exchange Program in Science

Activity Report of Open Application Course 2015

JST Japan Science and Technology Agency

Cover photos

Clockwise from top left:

(1) Joint research with Chulalongkorn University students from Thailand (program implemented by College of Science and Engineering, Aoyama Gakuin University in June 2015)

(2) School of Civil Engineering students of Shandong University, China went on a study tour of a tunnel construction site for the Nagasaki Shinkansen bullet train line (program implemented by Nagasaki University in August 2015)

(3) Students of Princess Chulabhorn Science High School, Thailand visited the University of Tsukuba (program implemented by National Institute of Technology, Tsuyama College in October 2015)

(4) Students of Tran Dai Nghia High School For The Gifted, Viet Nam tried their hands at small rocket production at Uematsu Electric Co., Ltd. (program implemented by Hokkaido University in August 2015)

(5) Graduate School students of Nanjing University of Science, China enjoyed a tour to Dazaifu Tenmangu Shrine with Japanese students (program implemented by Fukuoka Institute of Technology in September 2015)

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Activity Report of Open Application Course 2015

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(Japan-Asia Youth Exchange Program in Science)
Activity Report of Open Application Course 2015

Summary

The Open Application Course of SAKURA Exchange Program in Science or SSP (the Japan-Asia Youth Exchange Program in Science) is an exchange program in science and technology that works with receiving organizations in Japan to invite young people for a short term from sending organizations in Asian countries and regions (listed below).

For the Open Application Course in fiscal year 2015, three public calls were announced targeting 15 countries and regions. As a result, 391 exchange programs were implemented at 168 receiving organizations in Japan in cooperation with 507 sending organizations in Asia. All together, 3,476 young people were invited.

Application and selection

Application call	1st	2nd	3rd	Total
Proposing organizations	101	120	79	
Proposed programs	270	243	123	636

Application call	1st	2nd	3rd	Total
Selected organizations	89	107	69	168*
Selected programs	156	144	91	391

*Each organization named only once

Eligible countries and regions (in alphabetical order)

A total of 15 countries and regions: Brunei Darussalam, Kingdom of Cambodia, People's Republic of China, Republic of India, Republic of Indonesia, Republic of Korea, Lao People's Democratic Republic, Malaysia, Mongolia, Republic of the Union of Myanmar, Republic of the Philippines, Republic of Singapore, Taiwan, Kingdom of Thailand, and Socialist Republic of Viet Nam

Qualification of invitees

Eligible young people must be a student in high school, university, or graduate school, or a postdoctoral researcher or teacher who is under 41 years old, and in principle has never stayed in Japan.

Types of Exchange

● Course A "Science and Technology Exchange Activity Course"

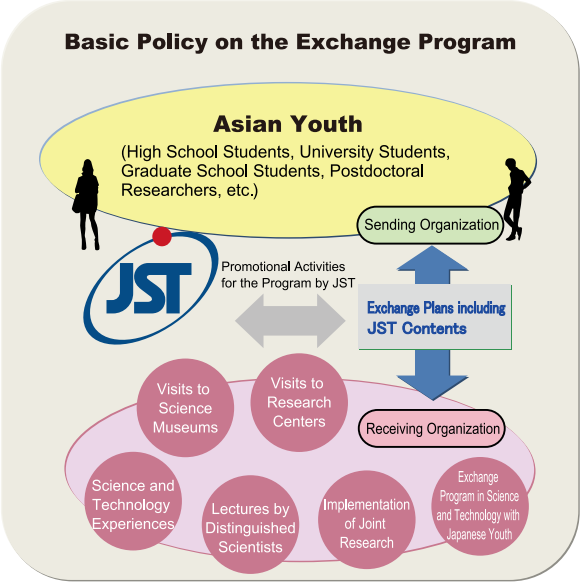
The invited Asian youths participate in science and technology exchange activities prepared and arranged by the receiving organization in Japan. Maximum stay in Japan is 10 days.

● Course B "Collaborative Research Activity Course"

University and graduate school students, and postdoctoral researchers from Asia conduct short-term collaborative research activities with Japanese researchers on a clearly defined subject based on the arrangements made by the receiving organization (including educational institutes, research institutions, and private companies that are directly engaged in education or research and development activities related to science and technology). Maximum stay is 3 weeks.

● Course C "Science and Technology Training Course"

The invited Asian youths participate in training arranged by the receiving organization (including educational institutes, research institutions, and private companies that are directly engaged in education or research and development activities related to science and technology) to intensively study technology and capability issues concerning science and technology implemented for young people in Asian countries/regions by the receiving organization. Maximum stay is 10 days.



STEM* Educational Project to promote science and technology innovations

January 18–27, 2016 Faculty of Education, Shizuoka University

Shizuoka University invited undergraduate and graduate students and supervisors from Indonesia University of Education (UPI) so that prospective Japanese and Indonesian researchers could work together to create one educational research model to generate science and technology innovations in individual countries.

The day following their arrival, they visited Shizuoka Science Museum Ru-Ku-Ru, a collaborative organization of the university, to see its experimental exhibition. On the third day, they received an explanation about the Shizuoka STEM* Junior Project, which has been conducted at the university since 2013.

The explanation included activities planned and implemented together with Dr. Suwarma, who is one of the invitees and currently works as an instructor in the physics education course at UPI after having received a Ph.D. degree from Shizuoka University.

*STEM: Science, Technology, Engineering and Math

Participants visit schools to observe STEM education

On the fourth day, Indonesian students visited Yamanashi Gakuin Elementary School to hear a report on STEM research from a teacher at the school, and attended a STEM education class at Shizuoka University Fuzoku Shizuoka Junior High School. They learned that at both schools student-oriented activities were positively employed and engineering and technology aspects were well reflected in educational materials.

On the fifth day, they attended a special lecture delivered by Associate Professor Gunji of the Science Education Course, Faculty of Education, under the theme of "Reconsideration of Japanese education on technology and engineering with a historical approach." By showing textbooks and educational materials used in the past, he explained that in Japan, even in the past, engineering education held a significant place.

On the sixth day, they attended a science class at Shizuoka Science Museum Ru-Ku-Ru and observed the class for which the Shizuoka University students prepared materials and offered lessons.

On the seventh day, Indonesian students visited a science class offered by Shizuoka University, arranged by the students of the university's science education course. Participants observed a class about a solar car using a solar photovoltaic generation kit. And on the eighth day, they visited a class at Shizuoka Municipal Jonai Junior High School after paying a courtesy visit to the president of Shizuoka University.

To promote collaborative research activities with UPI in the future and to build a research model beneficial both to Japan and Indonesia, Shizuoka University finds it important to encourage participants to learn about Japanese education on-site and to explore the differences between the two countries. Through the program, Shizuoka University provided opportunities for UPI students to experience various types of classes.

Both parties also found it necessary to further promote discussion on the role of off-campus classes as well as educational functions of science facilities and museums in Indonesia.

Group photo after the lecture by Associate Professor Gunji

At the Fujieda Science Class

UPI students develop their research plan.

Day	Program	Venue
1	Arrival	
2	Orientation, Visit Shizuoka Science Museum Ru-Ku-Ru, Courtesy visit to Dean of Faculty of Education, Shizuoka University	Shizuoka University, Shizuoka Science Museum
3	Learn about Shizuoka STEM Junior Project	Shizuoka University
4	Visit Yamanashi Gakuin Elementary School, Visit Shizuoka University Fuzoku Shizuoka Junior High School	Shizuoka University, Shizuoka City
5	Special lecture on STEM education	Shizuoka University
6	Visit Shizuoka Science Museum Ru-Ku-Ru	Shizuoka Science Museum
7	Attend a science class	Fujieda City
8	Courtesy visit to President of Shizuoka University, Visit Shizuoka Municipal Jonai Junior High School	Shizuoka University, Shizuoka City
9	Presentation of research results, Visit National Museum of Nature and Science	Shizuoka University, Tokyo
10	Departure for home	

Taiwanese students join 'Robotics Challenge' program

August 2–10, 2015 International Department, Chiba Institute of Technology

Chiba Institute of Technology (CIT) invited 10 students and one supervisor from National Taipei University of Technology (Taipei Tech), a top-level university in science in Taiwan, and held a "Robotics Challenge" program, aiming to promote interaction between CIT and Taipei Tech students through a joint project of robot production and a robot competition.

In this program, students from overseas affiliated universities of CIT join an advanced robotics challenge course, an intensive summer class offered by CIT's Department of Advanced Robotics, Faculty of Engineering, and work together with Japanese students in mixed teams. Through this hands-on program focusing on production work, students can enhance their practical knowledge about robot systems. At the same time, in discussions conducted in English during the process of robot production, Japanese and foreign students can promote mutual understanding and acquire global perspectives.

Long-awaited program starts

On the second day, the program started at Shin-Narashino Campus. After having received lectures from professors in the Advanced Robotics Department about the background necessary knowledge for robot production, Taiwanese students visited the department's research labs, where they observed with interest various kinds of robots made by CIT students for a graduation study.

On that day, a grand welcome party was held with over 100 attendees including another Taipei Tech group who joined a workshop organized by the CIT's Design Department as well as Mexican students who visited a campus with an exchange program organized by Onjuku Town of Chiba Prefecture and the Mexican government.

Joint work in robot production and a tournament

For robot production, CIT and Taipei Tech students went together to Akihabara to purchase necessary parts based on the plans for producing the robot.

At the robot production site, students applied themselves to their work by watching a design plan they drew, while communicating with each other in English and sometimes using gestures, aiming for the common goal of achieving victory in the robot tournament.

On the sixth day, a robot soccer tournament was held with participation of three robots made jointly by Japanese and Taiwanese students. In the competition, the team whose robot shoots a ball and makes the most goals in a fixed period of time wins. During the game, even if their team's robot did not play, all the students watched the game intently, and whenever a robot scored a goal, all participants cheered with enthusiasm.

After completing the game, an award ceremony was held to present a certificate and a prize to the winning and second place teams. Also certificates of achievement for both SSP and the Robotics Challenge program were bestowed to Taipei Tech students.

At the welcome party

Robot production by divided teams

Robot tournament

Day	Program	Venue
1	Arrival	CIT Shin-Narashino Campus
2	Teaming, Tournament demonstrations, Training in use of machining tool, Explanation about basic program and training	
3	Visit Advanced Robotics Dept. lab, Discuss the robot to produce, Purchase robot parts at Akihabara	CIT Shin-Narashino Campus, Akihabara
4	Robot production, Presentation about robot to be produced, Lecture on Japanese culture	CIT Shin-Narashino Campus
5	Robot production	
6	Robot production, Tournament, Award Ceremony, Presentation of Certificates of Achievement	
7	Visit Miraikan and CIT Tokyo Sky Tree Town Campus	Tokyo
8	Visit Tokyo Disneyland	Tokyo Disneyland
9	Departure for home	

Pursuing improvement in quality of social welfare in India

October 5–18, 2015 Faculty of Medicine, University of Miyazaki

The Faculty of Medicine, University of Miyazaki invited graduate students, researchers, and faculty staff (one of them is a supervisor) for a total of 11 members from Nitte University (Karnataka, India) to participate in an exchange program.

The invitees belong to the Science Education Center and Research Center of Nitte University. Joint research by the two universities was conducted under the theme "Development of medical technology and its application to improve the quality of social welfare in India."

The program started with an orientation and campus tour as well as a courtesy call to Mr. Masugi Maruyama, Dean of the Faculty of Medicine.

In this program, various kinds of practical training were prepared to study the theme from a wide range of perspectives. On the third day, participants attended lab training of electronic microscope methodology offered by Professor Sawaguchi of the Department of Anatomy, Ultrastructural Cell Biology, and FACS analysis by Professor Sato, Division of Immunology. As it was the first time for most Indian members to handle this experimental equipment, they listened carefully to an explanation from the professors and asked many questions.

On the fourth day, they received lab training in immunohistochemical staining methodology and learned various types of staining methods. Lab training for the New Tron cell culture technique was provided by Professor Takamiya of the Department of Neuroscience, Section of Integrative Physiology. It was a unique experience for participants to gain knowledge of nerve cells and advanced techniques on cell culture.

Experiencing confocal microscopy for the first time

On the fifth day, participants received practical training at Professor Maruyama's laboratory of Applied Physiology, and learned how to operate confocal microscopy capable of projecting a fluorescent image in a biological sample with high resolution by using a laser beam.

As it was also the first time for Indian members to conduct lab work using confocal microscopy, they were intently engaged in the training. In the field of biochemistry, they experienced not only genetics experiments and techniques to operate cutting-edge analysis equipment such as MALDI-TOF-MASS, but also attended a lecture and lab training by Professor Shiomori of the Faculty of Engineering and Professor Sakakibara of the Faculty of Agriculture to acquire a wide range of knowledge and techniques.

They also attended the 4th International Arsenic Symposium—Environmental Impact on Health Hazards, held at Miyazaki University on October 10 and enjoyed interaction with scientists and engineers from other Asian countries.

On the 11th day of the program, a closing ceremony was held to present a Certificate of Achievement for SSP with the attendance of the president, vice-president, and faculty staff of University of Miyazaki, and the story was also covered by Indian newspapers.

Participants study about gel.

Lab training for immunohistochemical staining method

At the 4th International Arsenic Symposium

Day	Program	Venue
1	Arrival	
2	Orientation, Joint research	University of Miyazaki
3-5	Joint research	
6	Attend the 4th International Arsenic Symposium	Miyazaki City
7-8	Rural homestay experience at Japanese farmer's house	Kobayashi City, Miyazaki Pref.
9	Joint research	University of Miyazaki
10	Joint research, Visit Eco Clean Plaza Miyazaki	University of Miyazaki, Miyazaki City
11	Closing ceremony for presentation of Certificate of Achievement	University of Miyazaki
12	Visit Takachiho to experience traditional local culture	Takachiho
13	Visit National Museum of Emerging Science and Innovation (Miraikan)	Tokyo
14	Departure for home	

Asian students experience high-speed electronic state calculation

July 5–24, 2015 Japan Advanced Institute of Science and Technology

Japan Advanced Institute of Science and Technology (JAIST) accepted a total of eight undergraduate students from Thailand (one), Indonesia (two), Malaysia (three), and India (two) to participate in projects of "electronic state simulation using a supercomputer" and planned and implemented a training-based study program.

In the first half of the program, the participants worked on the assignment of assembling self-made personal computers from parts, configuring parallel computing machines and experiencing high-speed electronic state calculation. In the program, two participants of different nationalities and sexes worked in pairs and collaborated in configuring a Linux computing system with the natural development of exchanges among the participants and exchanges with the Japanese students who participated as assistants.

In the first half of the program, the host graduate school students led a lecture by using their experience in Japan Science and Technology Agency (JST)-organized Science Camp, which enabled the participants to ask frank questions and seek advice. It was a good start to the study program in which interactive communications could be secured.

The participants configuring a cluster parallel computing machine by assembling a self-made personal computer

A student working hard on the project

Enjoying dinner after sunset with Muslim students

The period of Ramadan (a month-long period of fasting in the Islamic calendar) happened to fall on the period of the program. After the daytime program, the participants, including Japanese and other non-Muslims, gathered in a laboratory and enjoyed dinner together.

After that, each of the participants logged into a university-owned supercomputer from his or her terminal and experienced a series of simulation training activities. All the participants, who were from electronic state calculation laboratories, marveled at the overwhelmingly fast speed of the supercomputer.

In the middle of the first week, the participants audited a lecture on Japanese culture by Professor Kawanishi of JAIST's Institute of General Education and learned how the behavioral styles and social customs unique to Japan were formed.

At the end of the first week, the participants completed an entire series of tutorials, divided into two groups with themes "electronic state calculation of the adsorption of the material surface" and "electronic state calculation of phonon physics" and started a full-scale study project using their own terminals and supercomputer resources. The participants decided among themselves the division of roles under the guidance of faculty members and graduate school students and experienced international collaboration.

On the final day, the participants were assigned a session on discussions and questions at the conclusion of each project. All participants were undergraduate students learning in the highest educational institutions in their home countries with the aim of attending graduate schools devoted to the study of mathematics and physics. They actively asked questions about JAIST's future activity policy to use this study project as an opportunity to participate in a project of international co-authored academic papers.

Day	Program	Venue
1	Arrival	
2	Orientation, Assembling of a calculating terminal, Tour of JAIST's cluster computing machine	Maezono Lab, School of Information Science
3	Overview in building a cluster, Environment building in individual terminals using LINUX	
4	Simulation environment building in individual terminals, Outline of electronic state calculation, Training on electronic state calculation on individual terminals	
5	Parallel network building, Shared file system building, Execution of a parallel simulation	
6	Evaluation of large parallel calculation performance, Measurement of parallel simulation performance	
7	Practice of processing drawing software and gel scripts, Measurement of parallel simulation performance	
8	Visit Kutani Ceramics Museum	Kutani Ceramics Museum
9	Necessity of large computing machines and concept using them, Practice and performance measurement and analysis	Maezono Lab, School of Information Science
10	Measurement and analysis of the performance of large computing machines, Discussions about large computing machines	
11	Outline of research steps of electronic state calculation, Practice in electronic state calculation	
12-13	Theoretical basics and practice in electronic state calculation, Cases of electronic state calculation applications	
14	Statistical analysis of electronic state calculation output, Discussions about analysis and examination, Explanation for presentations on research projects and a session of questions	
15-17	Execution of research projects and follow-up	Maezono Lab, School of Information Science
18	Final presentation and discussion, Conclusion of the program and future research plans	
19	Conclusion of the program and future research plans	
20	Departure for home	Tokyo

International exchange with Indonesia on the environment and energy

February 29–March 9, 2016 Division of Applied Chemistry, Tokyo Metropolitan University

The Division of Applied Chemistry of Tokyo Metropolitan University (TMU) invited 10 students from the Faculty of Chemistry of Indonesia's Padjadjaran University and two supervisors for an international technological exchange program focusing on the environment and energy.

Within TMU Graduate School of Urban Environmental Sciences, which works as a think tank for the Tokyo Metropolitan Government with the aim of making Tokyo an advanced environmental city, the Division of Applied Chemistry pursues solutions in chemistry that can contribute to the area of energy and the environment.

This program intended to invite outstanding Indonesian students to the Division of Applied Chemistry and to heighten their understanding of and interest in related state-of-the-art technologies through laboratory training experiences and exchanges with TMU's faculty members and students.

On the second day, the participants attended a special lecture on energy titled "Energy derived from fossil fuel, renewable energy and H2 energy." After this lecture, they asked many questions, which suggested their great interest in energy chemistry.

From the third to fourth day, the invited students worked on an experience-based training session in each laboratory. The two-day session involving data organization was challenging, but they were able to gain the valuable experience of conducting a test using advanced analytical devices.

A successful exchange gathering

An exchange gathering was held on the sixth day and 17 poster presentations were given. As the event was on Saturday, there was some concern about being able to attract many participants. Fortunately, it turned out to be a very successful exchange.

On the eighth day, the participants audited a special lecture on the environment with discussions on factors that cause global warming, the mechanisms of global warming, various effects of global warming, and measures to counter it, and they also studied analytical science, which provides the reasoning for scientific decisions.

The 2nd International Forum on Applied Chemistry, hosted by the Division of Applied Chemistry, was held on the same day, with lectures by leading researchers. Professor Kazuyuki Ishii from the Institute of Industrial Science (IIS), the University of Tokyo, was invited as a guest lecturer to give a speech about molecular and nano-level cutting-edge chemistry.

On the final day, a debriefing session was held. We were greatly impressed that the participants successfully drew up materials detailing the background of the study and made high-level presentations during the short preparation period after a two-day training session.

This program was intended to provide an introduction of Japanese science, including scientific studies, to the Indonesian students, but we were surprised at their activeness and scientific understanding which exceeded our expectations, and which was inspiring to our students.

A study tour of facilities (catalytic reactor)

Structural analysis using a nuclear magnetic resonance device

Sampling of exhaust gas

Day	Program	Venue
1	Arrival, Courtesy visit to the President of TMU	Tokyo Metropolitan University (Minami Osawa)
2	Orientation, Special lecture on "Topics related to energy," Tour of TMU facilities	
3	Experience-based training at labs related to environment and energy	
4	Experience-based training at labs related to environment and energy	
5	Visit National Museum of Emerging Science and Innovation (Miraikan), Panasonic Center	Tokyo
6	Exchange gathering with TMU students, Preparation for presentation of results including lab training	Tokyo Metropolitan University (Minami Osawa)
7	Visit Edo-Tokyo Museum and Sumo Museum	Tokyo
8	Special lecture on "Topics related environmental chemistry," Attend the 2nd International Forum on Applied Chemistry	Tokyo Metropolitan University (Minami Osawa)
9	Debriefing session by invited students and farewell party	
10	Departure for home	

Support for science education to foster Vietnamese science teachers

June 29–July 8, 2015

Faculty of Education, Mie University

Mie University invited 10 undergraduate and graduate school students and one faculty member from Ho Chi Minh City University of Teaching in Viet Nam. Mie University concluded a partnership agreement with the Vietnamese university and accepts several students majoring in Japanese language studies every year. This time, the university implemented the program focusing on support for science education to nurture high school science teachers in Viet Nam.

The exchange program was intended to encourage Vietnamese students to consider exploration-driven science education by learning about Japanese high school science education through observing classes at the high schools designated as super science high schools (SSH). They were also provided with opportunities for exchanges with high school students, experiences of attending lectures and conducting experiments at universities for science teachers and with activities in a science museum that introduces cutting-edge technologies.

On the first day, Professor Toshiaki Sato at the Faculty of Education lectured on the Japanese educational curriculum and the history of educational reforms and explained Japanese education conducted in accordance with the Ministry of Education's official guidelines for school teaching. On the second day, Professor Ogihara gave a lecture on the high school science curriculum, the nurturing of high school science teachers, and the current condition and challenges of high school science education. On the third day, the participants visited Mie Prefectural Tsu Senior High School, which is designated as a SSH, observed chemistry and physics classes and Super Science Club (SSC) activities, and attended presentations on astronomy (observation of a sunspot), biology (DNA test for tuna, etc.), chemistry (cells, etc.) and physics (measurement of coefficients of friction, etc.).

Participation in classes for nurturing science teachers

Vietnamese students also attended classes offered by the Faculty of Education teaching staff. For physics, they conducted experiments about electricity and magnetism by using a simple and easy experimental device known as an S-cable. For biology, they participated in the practice of looking for flower seeds within the grounds of the university. For earth science, the participants worked on making handmade telescopes.

On the fourth day, the participants visited the Graduate School of Engineering's laboratories, starting with the laboratory of Professor Hideto Miyake, who researches and develops ultraviolet LED.

In addition, on the eighth day, the participants visited Mie Prefectural Yokkaichi Senior High School and observed experiments by the science club as well as physics and chemistry classes.

On the final day, each participant reported what they had learned through the program. They made earnest presentations expressing that the ten-day experience would be important in their future careers. They said that the experience gave them a lot of ideas for practicing science education in the future and motivation and inspiration for teaching science to students.

A biological experiment under the guidance of Associate Professor Daisuke Hirayama, Faculty of Education

A visit to the laboratory of Professor Hideto Miyake, Faculty of Engineering

An exchange with students in the science course of Mie Prefectural Tsu High School

Day	Program	Venue
1	Arrival, Campus tour, Lecture on Japanese education	Mie University
2	Lecture on current situation of Japanese education and nurturing school teachers, Courtesy visit to the President of Mie University	
3	Observe the classes offered by Faculty of Education, Visit Tsu Senior High School	Mie University, Tsu Senior High School
4	Visit Graduate School of Engineering	Mie University, others
5	Visit Mie Prefectural Museum, Experiments of chemistry and geoscience	
6	Visit Osaka Science Museum and Osaka Museum of Natural History	Osaka City
7	Visit Nagoya City Science Museum	Nagoya City
8	Visit labs of Faculty of Bioresources, Mie University, Visit Yokkaichi Senior High School	Mie University, others
9	Debriefing session of the results, Closing ceremony	
10	Departure for home	

Chinese students learn industrial-academic-government collaboration

November 15–22, 2015 International College, Osaka University

International College, Osaka University accepted 10 students and one supervisor from Pui Ching Middle School and Colegio de Santa Rosa de Lima English Secondary in Macau with the support of the SSP program.

Many graduates of these two schools joined the Chemistry-Biology Combined Major Program (CBCMP) of International College, Osaka University. This exchange program was intended to provide the two high school students with the opportunity to know more about Osaka University and Japanese cutting-edge science and technology.

On November 16, the participants visited the Momofuku Ando Instant Ramen Museum in Ikeda City, and learned the background behind the invention of instant ramen, a representative of food culture originating in Japan, and the history and product development that led to the global spread of instant ramen.

The participants also visited the Museum of Osaka University. A museum curator explained the university history and the achievements of researchers, graduates of the university who played an active role on the global stage. Furthermore, during a visit to the Medicinal Resources Laboratory, the participants deepened their understanding of Japanese medical culture through observation of an accumulation of valuable academic specimens of traditional medicine at Osaka University.

On November 17, the participants visited the Nara National Museum and experienced Japanese culture through the appreciation of valuable Buddhist art craftworks from the Asuka period to the Kamakura period.

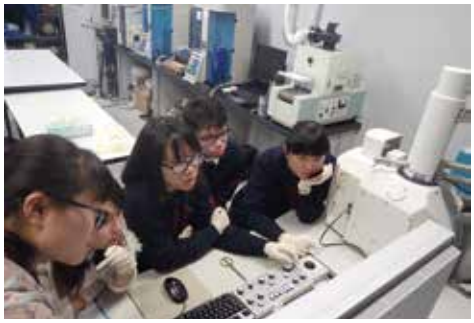
In addition, they visited the Head Office and laboratory of UHA Mikakuto Co., Ltd. They received an explanation about the latest research and development, and experienced high-level technologies in the area of foods while observing product development on-site.

Experiencing state-of-the-art electronic microscope

On November 18, after a courtesy visit to Toshiya Hoshino, Executive Vice President of Global Engagement of Osaka University, the participants visited Hitz (Bio) Research Alliance Laboratory in the School of Engineering. Through explanations about academy-industry collaboration and specific themes, the participants learned how to bridge basic studies at the university to applied studies at companies.

In the Department of Applied Chemistry, School of Engineering, they had experience-based practice using the latest analytical and measuring equipment including an electronic microscope. By operating the equipment by themselves under the guidance of graduate school students, the Macau high school students were inspired to take an interest in the studies and could experience an on-site research atmosphere at a university.

On the final day, the participants gave a group presentation to conclude the program. Many of them reported that it was significant to experience Japanese culture as well as excellent Japanese science and technology in academia, industries, and government. The exchange with Asian excellent high school students turned out to be a good experience for us, the host organization as well.



Practical training for the applied chemistry major (1)

Practical training for the applied chemistry major (2)

At the Momofuku Ando Instant Ramen Museum

Day	Program	Venue
1	Arrival Orientation	Osaka University
2	Visit Momofuku Ando Instant Ramen Museum, Visit Museum of Osaka University	Ikeda City, Osaka University
3	Visit Nara National Museum, Visit Head Office of UHA Mikakuto Co., Ltd. and its laboratory	Nara City, Osaka City
4	Courtesy visit to Executive Vice President of Osaka University, Experience-based practice at School of Engineering Lab	Osaka University
5	Visit RIKEN, Visit IBRI Laboratory	Kobe City
6	Visit Shimazu Foundation Memorial Hall, Visit Kyoto National Museum	Kyoto City
7	Group presentation at Graduate School of Engineering, Osaka University	Osaka University
8	Departure for home	

Thai students experience cutting-edge food production technology

June 8–22, 2015 Faculty of Agriculture, Kobe University

On June 8, 2015, 11 program participants from the Faculty of Engineering of the Department of Mechanical Engineering at Thammasat University in Thailand came to Japan. Immediately after their arrival, they paid a courtesy visit to Takashi Miyano, Dean of the Faculty of Agriculture at Kobe University, and entered an exchange program for food production technology.

First, Associate Professor Chatchai Marnadee, a supervisor of the group who specializes in agricultural machinery, gave a lecture about three themes—"plant factories," "the disposal of stockbreeding-caused agricultural wastewater," and "the mechanized weeding of rice paddies"—and studies carried out by Thammasat University. Then, students broke into three groups and started joint studies.

A research presentation by Associate Professor Chatchai from Thammasat University in Thailand

The studies start in three groups

The plant factory group conducted an experiment based on the subtheme of the impact of the effect of environmental control of the growth of crops and environmental conditions during storage on the nature of crops. During an experiment on environmental control, the group measured the fresh weight and the amount of chlorophyll by keeping track of the number of days after transplantation with a focus on the difference in the growth of medicinal plant seedlings caused by the gap between two types of light spectra, fluorescent light and far-red light. For quality assessment according to environmental conditions during storage, the group examined the biological activity after a harvest using Japanese mustard spinach as a sample.

Measuring the amount of chlorophyll included in the leaves of seedlings using a SPAD meter

The group for the disposal of stockbreeding-caused agricultural wastewater focused on new technology for purifying the quality of agricultural wastewater and examined the impact caused by the difference in electrode material and electrolytes when electrochemically oxidizing and processing tetracycline antibiotics in the wastewater.

The group for mechanized weeding of rice paddies invented a new mechanism for removing weeds that grow thickly immediately after the transplantation of paddy rice and worked on the creation of such mechanism and an examination of the weeds. The study aims to develop a method for the mechanized weeding of rice paddies as environmental preservation-oriented agriculture that controls the overgrowth of weeds without using agricultural chemicals.

Configuring a newly invented weeding mechanism

These three themes are the latest study subjects that dealt with Japanese food production, and it is assumed that the technology will be required in Thailand as well in the future.

The participants energetically engaged in various activities on the holidays during the program period. To deepen their scientific knowledge, to acquire agricultural knowledge, and to learn history of agricultural machinery, they visited related museums including the National Museum of Ethnology in Osaka. The participants also enjoyed a study tour of the R&D Center for the Plant Factory of Osaka Prefecture University.

At the conclusion of the program, each group gave presentations of the results of the experiments and studies they had conducted over the total of five days.

Day	Program	Venue
1	Arrival, Orientation	Graduate School of Agricultural Science, Kobe University
2-3	Special lecture on plant factories, the disposal of stockbreeding-caused agricultural wastewater, and the mechanized weeding of rice paddies	
4-5	Joint study and experiment on plant factories, the disposal of stockbreeding-caused agricultural wastewater, and the mechanized weeding of rice paddies	
6	Visit Bando Kobe Science Museum	Kobe City
7	Visit National Museum of Ethnology	Osaka City
8-10	Joint study and experiment on plant factories, the disposal of stockbreeding-caused agricultural wastewater, and the mechanized weeding of rice paddies	Graduate School of Agricultural Science, Kobe University
11	Joint study and experiment on plant factories, the disposal of stockbreeding-caused agricultural wastewater, and the mechanized weeding of rice paddies, Visit R&D Center for the Plant Factory, Osaka Prefecture University	Osaka Prefecture University
12	Preparation of presentation materials	Graduate School of Agricultural Science, Kobe University
13	Visit Yanmar Museum	Nagahama City
14	To Kansai Int'l Airport	
15	Departure for home	

Future Chinese doctors study the latest medical technologies

August 2–10, 2015 Graduate School of Biomedical & Health Sciences, Hiroshima University

Hiroshima University Graduate School of Biomedical & Health Sciences invited two young researchers and five graduate school students from Southern Medical University (SMU) Nanfang Hospital in China to participate in an exchange program.

The program was intended to help future Chinese doctors acquire a deep understanding of the latest research and medical technologies developed by the Graduate School and Hiroshima University Hospital in the area of orthopedics and to fortify the foundations and relationships for joint studies in the future as well as to encourage them to study at the Graduate School of Hiroshima University.

In particular, the Graduate School has made globally recognized top-level achievements in clinical medicine as well as in basic studies on the regeneration of cartilage. The program was also expected to boost the development of orthopedic studies through international exchange with the young professionals visiting the university with the latest equipment and skilled staff.

From August 3 to 7, the program participants had a study tour about outpatient care mainly in orthopedics at the Graduate School and Hiroshima University Hospital where they learned the latest medical and pioneering research.

On August 3, the first day of the program, they visited the outpatient clinic and learned about the specialty of knee and hand diseases and the vertebral column under the guidance of each medical professional.

On the following day, the participants observed operations mainly on knee joints, such as anterior cruciate ligament reconstruction and a meniscus injury, performed by Associate Professor Nobuo Adachi. In addition, they participated in a research conference for orthopedic studies and heard reports on basic studies centered on the regeneration of cartilage.

Attending a research conference

Observing an operation at MAZDA Hospital

In front of Hiroshima University Hospital

Participants impressed by the Japanese medical treatment system

On August 5, the participants accompanied Associate Professor Adachi's round of visits to the wards. They were deeply impressed by the medical record management system and detailed operation design conducted before surgery as well as the medical treatment system of the university.

The participants also attended the International Symposium on Organs of Locomotion and Pain organized by Mitsuo Ochi, President of Hiroshima University and Professor specializing in orthopedic studies, and deepened exchanges with global authorities on knee joint surgery who had made great achievements.

On the final day of the in-campus program, the participants had another study tour about operations on anterior cruciate ligament reconstruction and meniscus injury. They participated in a conference on orthopedic studies and listened to reports of the university's cases of operations in which cartilage restoration was applied. The participants showed an active attitude toward learning about the latest medical services provided by the university through the many cases of diseases and operations throughout the duration of the program.

Day	Program	Venue
1	Arrival	
2	Orientation, Visit outpatient clinic, Sightseeing of Hiroshima	Kasumi Campus, Hiroshima University, Hiroshima City
3	Observe operations (ACL, reconstruction, meniscus), Attend research conference	Hiroshima University
4	Accompany professor's round of visits, Visit outpatient clinic, Observe examination, Observe operation Attend Int'l Symposium on Organs of Locomotion and Pain	
5	Visit outpatient clinic, Observe operation, Sightseeing of Miyajima	Hiroshima University, Miyajima
6	Observe operations (ACL, reconstruction, meniscus), Attend operation conference, Closing ceremony	Hiroshima University
7	Kasumi Campus tour	
8	Visit Hiroshima Peace Memorial Park and Hiroshima Peace Memorial Museum	Hiroshima City
9	Departure for home	

Exchanges with Malaysian students create steady achievements

September 7–16, 2015 National Institute of Technology, Kagoshima College

With the support of the SSP program, National Institute of Technology, Kagoshima College invited 10 students and one supervisor from Universiti Teknologi PETRONAS (UTP) in Malaysia.

Based on the program implemented in 2014, the invitation program in 2015 started from a free exchange of ideas beyond the boundaries of each specialty for three groups that combined UTP students and Kagoshima College students under the theme of creating a "Vibrant and Sustainable University Campus" with a focus on the Engineering Team Project (ETP). They presented many ideas centering on green technology, societal issues, and recycling of waste.

The ETP is a program that boosts collaboration among different specialties, which has already become essential in the real world. It is a very unique experience-based program in which students learn the importance of sharing knowledge and putting their mutual advantages to work, instead of sticking to each specialty, and actively taking action to improve their own roles as individual members of a comprehensive project team.

A sense of togetherness developed through the training camp

During the program, the students from two schools experienced a two-day training camp, which enabled them to deepen their mutual understanding of different cultures. They could get to know each other by staying and dining together, and they developed a sense of togetherness, which led to positive collaborations when carrying out projects to produce better results.

The Malaysian students also enjoyed local tourism together with the college students. They spent the weekend visiting Kagoshima Municipal Science Hall, Sakurajima Volcano as well as Shoko-Shuseikan, designated as a World Cultural Heritage site in July 2015. As everything they saw was new to them, the Malaysian students did not show any sign of being tired.

On the final day, the participants gave group presentations about the results of their activities over the ten-day period. They elaborated on the naming of EnerGym with a focus on Window Environmental Cleaner (WinEC), Recycling Machine, and Renewable & Sustainable Energy. It was great to see the prototype creations in the final stage. This program does not end with just a ten-day schedule; after returning to their home country, UTP students continue to work on the ETP.

After the program, many of the Kagoshima College students said, "I want to further develop my communication ability," while some of the UTP students said, "As our advanced knowledge about Japan showed, both the environment and people in the country were well-organized. Despite being poor in natural resources, Japan is a country from which we can learn a lot due to its constant efforts to achieve progress with the latest science and technology."

Kagoshima College and UTP concluded an academic exchange agreement in February 2014. The exchange activities of the two schools have just started, but we will further deepen our exchanges.

A discussion in the Engineering Team Project

Brainstorming

Enjoying a view of Sakurajima Volcano in Kagoshima

Day	Program	Venue
1	Arrival, Visit Kitakyushu Eco Town and science museum	Kitakyushu City
2	Transfer to Kagoshima, Welcome ceremony, Orientation	KAPIC Center
3	Monozukuri project with Kagoshima College students	
4	Visit JAXA Uchinoura Space Center, Visit brewery of natural black vinegar, Visit Toyota Body Research & Development Co., Ltd.	Uchinoura Space Center, Toyota Body Research & Development Co., Ltd.
5	Monozukuri project with Kagoshima College students, Visit Sony's semiconductor manufacturing plant	Kagoshima College, Sony Kokubu plant
6	Visit Kagoshima historical sites (Shoko-Shuseikan), Visit Kagoshima Municipal Science Hall	Kagoshima City
7	Local city tour	Kirishima City
8	Presentation of collaborative project and farewell party	Kagoshima College
9	Transfer	
10	Departure for home	

Malaysian students learn biodiversity in Japan

September 19–26, 2015 Hokkaido Sapporo Keisei High School

Hokkaido Sapporo Keisei High School accepted three undergraduate students and two graduate students from Universiti Malaysia Sabah and five high school students and one supervisor from All Saints' Secondary School in Malaysia to implement the SSP program.

The participants visited Rakuno Gakuen University on the second day of the program. At lunch they had their first meeting with Keisei High School students and Rakuno Gakuen University students with whom they would have training sessions together, because the program intended to help Japanese students build mutual trust by jointly attending all lessons.

In the afternoon, the Malaysian participants received an explanation about forest ecosystems and biodiversity hot spots in Hokkaido with a focus on the issue of *yezo shika* (Hokkaido deer) from Professor Yoshida at Rakuno Gakuen University. They also had a lecture from Professor Kaneko on the outline of a forest monitoring method using a geographic information system (GIS).

On the third day, the participants attended a lecture on a method for water circulation monitoring from Associate Professor Negishi at the Faculty of Environmental Earth Science, Hokkaido University.

The participants learned the necessity of protecting the forests that provide water sources to secure sustainable underground water veins and that the study of water circulation by stable water isotope ratio analysis is an effective research method because it is not susceptible to the effects of the soil from basins and geological conditions.

They also had a lecture on a forest monitoring method using spectrum analysis via satellites by Professor Takahashi at the Space Mission Center (SMC) of the Creative Research Institution of Hokkaido University. They learned that it was possible to monitor the forest environment through remote sensing by analyzing the spectrums of plant leaves.

Participants also learn about Ainu culture

On the fourth day, the participants learned about nature in Hokkaido and Ainu culture under the guidance of specially appointed researcher Mr. Kosuge of Rakuno Gakuen University at Hokkaido Museum.

They also learned about mixed needleleaf and broadleaf forests in the cool temperature zone in Hokkaido's Nopporo Shinrin Kouen Prefectural Natural Park under the guidance of Professor Kaneko at Rakuno Gakuen University. After that, the participants enjoyed a nature game focused on sustainable food issues under the leadership of Rakuno Gakuen University students.

The participants had a lot of fun at the evening barbecue and enjoyed communicating beyond the language barriers. It was a cold day for the Malaysian students, but they warmed themselves by the charcoal, saying, "This warms not only my body but also the depth of my heart. I feel as if everyone were united as one."

Keisei High School students will visit both of the Malaysian schools for a scientific exchange in January 2016.

Discussing natural and cultural differences between Japan and Malaysia

SSH science English: Experiment of extracting DNA

Shedding tears after saying good-bye to his host family!

Day	Program	Venue
1	Arrival, Orientation	
2	Joint training session	Rakuno Gakuen University
3	Joint training session	Hokkaido University
4	Joint training session (start of forest camp)	Nopporo Shinrin Kouen Park
5	After the camp, visit each host family home, Sightseeing with host family	Nopporo Shinrin Kouen Park Sapporo City
6	Training session: High school students; experience of classes at Keisei High School, Undergraduate/graduate students; lectures at Rakuno Gakuen University	Hokkaido Sapporo Keisei High School or Rakuno Gakuen University
7	Opinion exchange meeting, Farewell party	
8	Departure for home	

Faculty from Myanmar experience Japanese marine science

November 6–15, 2015 Japan Agency for Marine-Earth Science and Technology

With the support of the SSP program, Japan Agency for Marine-Earth Science and Technology (JAMSTEC) invited 10 faculty members, who are expected to engage in research on earth science in Myanmar, from Dagon University and Mawlamyine University, and carried out technology and research exchanges.

Prior to the implementation of the program, JAMSTEC concluded a document regarding cooperation in marine and earth sciences with the Department of Research and Innovation, Ministry of Science and Technology of Myanmar on August 18. Thus promotion of research collaboration between JAMSTEC and Myanmar's universities and research institutions was publicly announced. This exchange program was planned as part of its cooperative activities.

JAMSTEC has promoted various advanced research and development projects for marine science and technology as a comprehensive research institute in Japan. Through development and operation of research vessels and equipment including *Chikyu*, a deep sea drilling vessel, it has accumulated superior technologies and returned them as research results. By offering lectures and showing its facilities to invitees through the exchange program, JAMSTEC intended for them to experience these research results.

It is said that Myanmar is a very interesting country from the perspective of earth science, because large scale research has not yet been conducted, though its land is located on a complex geological structure.

Attending a wide range of marine-earth science lectures

In Myanmar, it is planned to establish a marine-earth science research institute that includes study of mitigating disaster damage. Earth science education at universities in Myanmar, taking into consideration establishment of an institute, became one of the main topics discussed in this exchange program. In addition, during the students' stay in Japan, lectures on various subjects were delivered including biogeochemistry, earthquake research, research on marine resources, offshore drilling science, and ocean engineering. Marine and earth sciences are interdisciplinary studies, and analysis is conducted by collecting samples and data using various types of equipment.

On the first and second days, Myanmar participants observed JAMSTEC's research vessels and vehicles utilized in marine and earth sciences.

In the last part of the program, participants discussed Japan-Myanmar cooperation in science in the future based on their individual research themes. Though JAMSTEC takes an organizational, top-down approach for research exchange, actual exchanges are supported by steady, face-to-face, bottom-up approaches by linking individual researchers.

By inviting faculty members from Myanmar's universities through the SSP program, JAMSTEC was able to accomplish face-to-face interaction. In a participant questionnaire, "expectation for continued program" was mentioned. As a receiving organization, we also expect to have an opportunity to carry out the program continuously.

Receiving a drilling science lecture

Explanation about a remotely operated vehicle at Yokosuka Headquarters

A group photo with research vessel Natsushima

Day	Program	Venue
1	Arrival, Orientation, Visit JAMSTEC Yokosuka HQ	JAMSTEC Yokosuka HQ
2	Visit JAMSTEC Yokohama Institute	
3	Material preparation for debriefing session	
4	Presentation on marine-earth science education in Myanmar and discussion, Lecture (earthquake studies) and discussion	
5	Presentation on marine-earth science education in Myanmar and discussion, Lecture (marine drilling technology) and discussion	
6	Visit Enoshima Aquarium	Fujisawa City
7	Lectures (ocean engineering / biogeoscience / marine resources) and discussion	JAMSTEC Yokosuka HQ
8	Lectures (ocean drilling science/earthquake studies) and discussion	
9	Debriefing session	
10	Departure for home	

Introduction of Ishikawa Pref.'s craftsmanship, science and technology

January 28–February 3, 2016 Ishikawa Foundation for International Exchange

Ishikawa Foundation for International Exchange (IFIE) accepted nine high school students from the Province of Sichuan, China.

Although they stayed just one week, the participants enjoyed the exchanges among high school students and the Japanese way of life as well as science and technology through visits to advanced universities and companies in the prefecture, an exchange with the students of Ishikawa Prefectural Kanazawa Izumigaoka High School, which is designated as a SSH, and homestays in Nakanoto Town.

On January 29, the participants joined English and mathematics classes at Kanazawa Izumigaoka High School. In the mathematics class, they were asked questions about things that they had not learned in their home country but they enjoyed a friendly group activity of teaching and competing with each other.

Courtesy visit to Ishikawa Prefectural Deputy Governor

On February 1, the participants paid a courtesy visit to Ishikawa Prefectural Deputy Governor Yoshiaki Nakanishi (IFIE Director). When asked by the Deputy Governor, "What is different from your expectation of Ishikawa Prefecture?," a Chinese high school student answered, "I had imagined that Ishikawa would be a city, with skyscrapers and high-rise buildings, but I was impressed with the townscape created by the mixture of historic architecture and near-future scenes." Another student said, "I want to study Japanese to enjoy interaction with my host family in Ishikawa again."

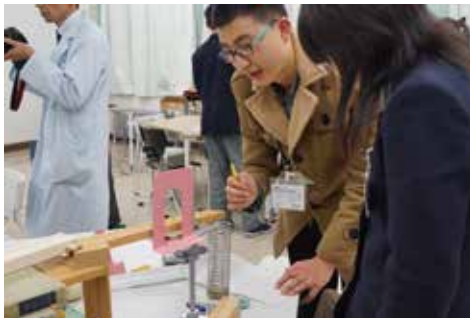
At Kanazawa University, they had a lecture about studies of solar power generation and plant-origin carbon fiber. As the presentation was done by a Chinese student from their home country, the Chinese participants could ask many questions and enjoyed active discussions in spite of a high-level specialized field.

On February 2, they visited Japan Advanced Institute of Science and Technology (JAIST) and had a study tour of the supercomputer, the cleanroom, and the electronic microscope room. They also had time to get advice from Chinese students studying at JAIST about campus life, which made them very familiar with studying in Japan in the future.

The participants also visited ACTREE Corporation and observed the incineration equipment and the waste analysis room. As China has many issues with waste disposal, students could learn the research results in Japan, an advanced country in this field, and the current conditions of waste disposal plants with great interest.

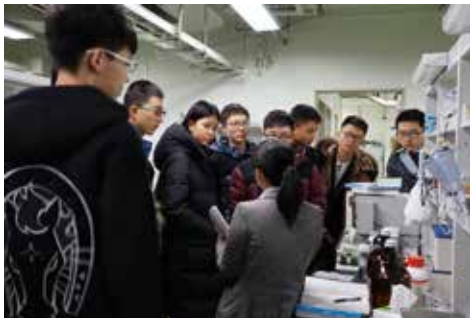
When the participants visited Kaiho Sangyo Co., LTD., one of the latest automobile recycling business operators, they were impressed with its slogan of "The Best Greeting in Japan, the Cleanest Factory in the World" and were glued to the scene of demolishing a car using a power shovel.

On February 1, they had a study tour about the process of manufacturing bottling systems at Shibuya Corporation, which has the world's top bottling system technology. They actively asked questions about management efforts for maintaining the top domestic share with international environment standards.



Visiting Ishikawa Prefectural Kanazawa Izumigaoka High School

A courtesy visit to Ishikawa Prefectural Deputy Governor



Visiting Kanazawa University

Day	Program	Venue
1	Arrival	
2	Orientation, Visit Kanazawa Castle and Kenroku-en, Visit Kanazawa Izumigaoka High School	Kanazawa City
3	Meet with host family, Welcome party	Nakanoto Town
4	Exchange with host family, Visit Cosmo Isle Hakui	
5	Visit Shibuya Corporation, Visit Kanazawa University, Courtesy visit to Deputy Governor of Ishikawa Prefecture	Kanazawa City
6	Visit JAIST, Visit ACTREE Corporation, Visit Karakuri Memorial Museum	Nomi City Kanazawa City
7	Visit Science Hills Komatsu, Departure for home	Komatsu City

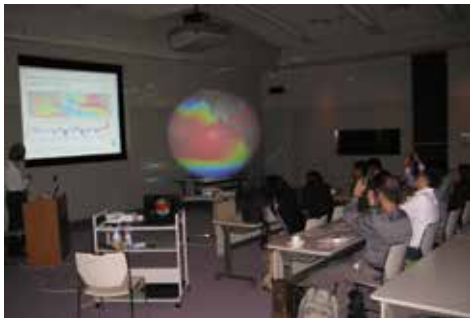
Solidarity among researchers from national organizations in Asia

October 19–28, 2015 Remote Sensing Technology Center of Japan

The Remote Sensing Technology Center of Japan (RESTEC) is an organization with an advanced technology that can provide specialized training in the field of "remote sensing," a space technology that uses satellites.

In the 2015 SSP program, RESTEC invited 10 researchers in agricultural studies from eight countries and regions (Cambodia, Indonesia, Laos, Malaysia, Taiwan, Thailand, the Philippines, and Viet Nam), who work at a national organization in their homeland. Based on the program previously conducted in 2014 with 10 invitees from six countries, RESTEC reviewed the content and enhanced the program content by focusing on the specialized field of remote sensing.

As a skill enhancement or capacity building program for excellent invitees, RESTEC offered a remote-sensing course at Tokyo Denki University and Rissho University, with the cooperation of nearby universities in Saitama Prefecture, and conducted remote-sensing training at RESTEC. Moreover, invitees visited Josai University where they learned about a case study applying remote-sensing technology to agricultural products. They also visited local farmers, the production site of agricultural products.



Lecture on the fundamentals of remote sensing by RESTEC staff

Remote-sensing lecture at Tokyo Denki University

Program participants also experience Japanese culture

On the second day, invitees enjoyed Japanese culture including calligraphy at Daito Bunka University and Japanese washi papermaking, designated a UNESCO Intangible Cultural Heritage, in a hands-on activity in a local community. Thus, the Center implemented a program to encourage invitees to experience different fields and culture.

Through the program, RESTEC not only applied its expertise, but also aimed to encourage invitees to be interested in science and technology exchanges that utilize a network of industry-academia-government-local community collaboration, and exchanges with professionals in different fields. Moreover, the Center aimed to help them know more about the local community of Hatoyama Town, Hiki County, Saitama Prefecture, and Japan itself.

Participants made following comments about the program.

"This exchange program was very comprehensive. We could learn and experience many important topics regarding remote-sensing technology, advanced Japanese agriculture, science and technology, and space development. Meanwhile, I would like to suggest allocation of more time to practical case analysis, which can contribute to the development of agricultural statistics in our country." (Philippines)

"Centering on skill-up training in remote-sensing technology, I could achieve an experience with Japanese culture combined with the keyword 'agriculture.' By sharing the experience with other participants, we will be able to promote more exchanges. Personally, I will pursue a master's degree in this field in Japan." (Laos)

By sharing the voices of program participants with all members of RESTEC and further enhancing the program content, the Center strives to contribute to enhancement of remote-sensing technology in Asia and foster human resources.

Experiencing Japanese culture at Daito Bunka University

Day	Program	Venue
1	Arrival	
2	Orientation, Presentation by invitees, Visit Kawagoe City, Lecture at Earth Observation Research Center, JAXA	RESTEC Headquarters (Toranomon, Tokyo), Kawagoe City, JAXA
3	Lecture (Fundamentals of Remote Sensing), Lecture in different fields (humanities and social science),	Tokyo Denki University, Daito Bunka University
4	Lecture (Fundamentals of Remote Sensing), Lecture in different fields (pharmaceutical sciences), Field work	Rissho University, Josai University
5	Lecture (Fundamentals of Remote Sensing), Exchange meeting with Tokyo Denki University and local government officials, Experience of Japanese culture (papermaking)	Tokyo Denki University Tokigawa Town
6	Visit research facilities in Tsukuba City, Visit Tsukuba Space Center, JAXA	Tsukuba City
7	Visit Miraikan	Tokyo
8	Application of satellite data (lecture and practice)	RESTEC Headquarters (Toranomon, Tokyo)
9	Application of satellite data (practice), Closing ceremony, Farewell party	
10	Departure for home	

Information exchanges and training with Chinese researchers

March 6–12, 2016 Horiba, Ltd.

For the third consecutive year of SSP, Horiba, Ltd. invited two researchers involved in the X-ray measurement field at Beijing Center for Physical & Chemical Analysis (BCPCA), aiming to enhance comprehensive knowledge on analytical techniques and use it to promote research and development and contract analysis at BCPCA.

The program consists of various activities: information exchanges and technical training using the company's state-of-the-art X-ray analyzer; a tour of the company's production site for physics and chemical products as well as Horiba Biwako E-Harbor, a newly built consolidated base for development, design, and production operation in the field of gas measurement; and a visit to Advanced Science, Technology & Management Research Institute of KYOTO (ASTEM), and Toray Research Center (TRC).

On the second day, after having received introduction about the company, the researchers observed a pH meter production site for physics and chemistry equipment and a printed circuit board factory. They visited ASTEM to observe industry-academia collaboration in various fields of science and technology.

Training using cutting-edge analyzers

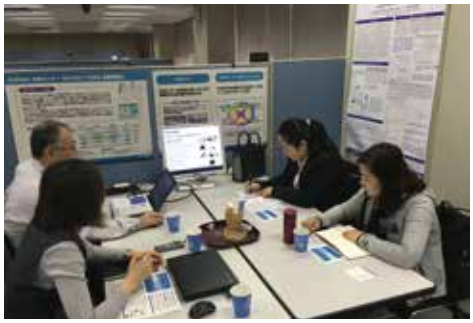
On the third and fourth days, using Horiba's fluorescent X-ray analyzer (XGT-7200, MESA-50, XGT-5200) and energy dispersive elemental analyzer + an electron microscope (SEM/EMAX), Chinese researchers performed practical training in addition to receiving explanations about principles, hardware, software, and analysis cases.

At the SEM/EMAX practice, they intently acquired techniques and knowledge of image processing and updated software functions while confirming with engineers on-site in Beijing over the phone. As the SEM/EMAX analytical system is installed in Beijing, the researchers asked a lot of questions such as analytical methodology of difficult samples on-site and how to find out analysis conditions.

For the practice of fluorescent X-ray analyzer (MESA-50), as anyone can easily analyze a sample, one of the Chinese researchers analyzed her necklace to verify whether or not the gold was authentic by herself, and was relieved to find out it was 18-karat gold. On the fourth day, they visited TRC's Shiga Laboratory to observe material analysis using cutting-edge instruments.

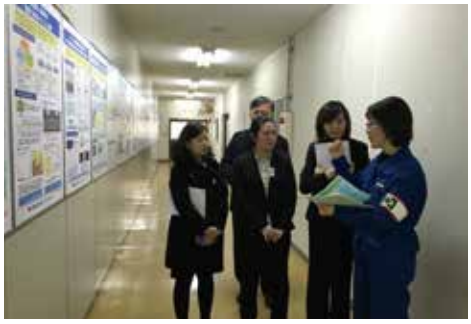
Currently, BCPCA, similar to other examination organizations in China, focuses on analysis of safety and environment related to people's lives. Specifically, they perform analysis on such substances as pesticide residue and food additives, medicine, toys, river water, drinking water, atmospheric air, and hazardous constituents in soil, in accordance with Chinese National Standards (GB).

On the other hand, at TRC, for requests such as material analysis, structure analysis, and foreign object analysis, researchers try to research and develop a new analytical methodology by themselves to improve the level of examination. Thus, they meet the requests from clients and try to expand their business. Chinese researchers seemed to be very impressed to know the TRC way.



Receiving explanation about x-ray principles

XRF analyzer training



TRC laboratory tour

Day	Program	Venue
1	Arrival	
2	Plant visit, introduction of company and products at Horiba	Horiba, Ltd.
3	Practical training of equipment (XRF)	
4	Practical training of equipment (SEM/EMAX)	
5	Visit companies asking for contract analysis, Visit Horiba Biwako E-Harbor	
6	Cultural exchange, Debriefing of training	Shiga Pref.
7	Departure for home	

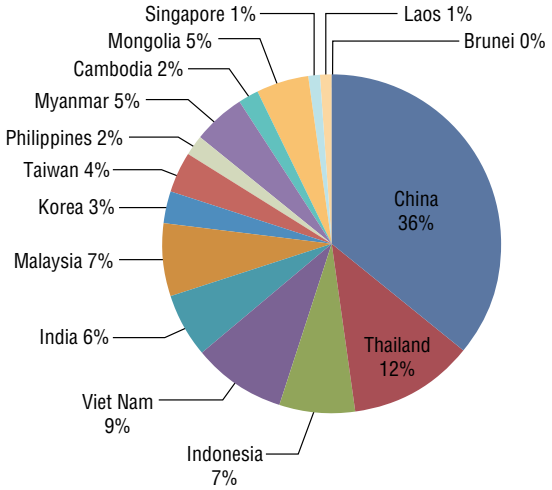
1. Open Application Course FY2015 <Statistics Material>

(1)Number of invitees (by country and region)

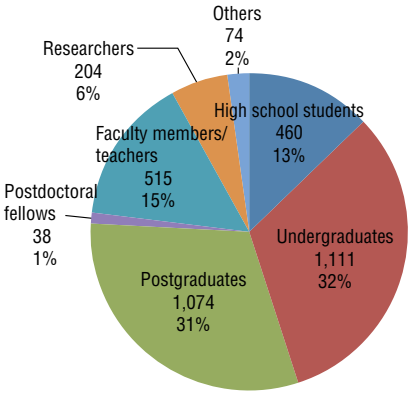
Classification / Country/region	Course			Total	Affiliation							Total
	A	B	C		High school student	Undergraduate	Postgraduate	Postdoctoral fellow	Faculty member/ teacher	Researcher	Others	
Brunei Darussalam	8	0	3	11	4	3	1	0	2	0	1	11
Kingdom of Cambodia	48	3	6	57	0	32	5	0	12	2	6	57
People's Republic of China	843	227	175	1,245	91	362	493	18	187	61	33	1,245
Republic of India	114	102	1	217	9	58	113	7	25	5	0	217
Republic of Indonesia	185	43	22	250	31	108	52	0	44	12	3	250
Republic of Korea	54	24	18	96	20	40	31	0	3	1	1	96
Lao People's Democratic Republic	32	14	0	46	0	19	3	0	6	14	4	46
Malaysia	151	49	44	244	34	83	91	3	23	6	4	244
Mongolia	150	5	0	155	73	33	13	1	25	10	0	155
Republic of the Union of Myanmar	105	52	0	157	10	37	39	4	52	11	4	157
Republic of the Philippines	59	21	4	84	11	33	19	1	14	4	2	84
Republic of Singapore	37	5	3	45	22	6	4	0	11	1	1	45
Taiwan	105	18	6	129	8	36	72	0	9	3	1	129
Kingdom of Thailand	299	71	59	429	93	148	94	3	47	32	12	429
Socialist Republic of Viet Nam	249	42	20	311	54	113	44	1	55	42	2	311
Total	2,439	676	361	3,476	460	1,111	1,074	38	515	204	74	3,476

Note: Invitees in 2015 SSP amounted to 4,226 persons, including participants in the Open Application Course (above), the SAKURA Science High School Program (656 pers.), and administrative officers and others (94 pers.).

(2)Breakdown of invitees by countries and regions



(3)Breakdown of invitees by affiliations



(4)Number of selected programs per receiving organization

Universities / Technical Colleges / High Schools

	Organization name	No.
1	Aoyama Gakuin University	1
2	Asahi University	1
3	Azabu University	1
4	Chiba Institute of Technology	2
5	Chiba University	6
6	Chubu University	1
7	Chuo University	1
8	Daido University	1
9	Fukui Senior High School	1
10	Fukui University of Technology	1
11	Fukuoka Institute of Technology	1
12	Fukuyama University	1
13	Gifu University	2
14	Gunma University	1
15	Hiroshima University	10
16	Hokkaido Information University	1
17	Hokkaido Sapporo Keisei High School	1
18	Hokkaido University	4
19	Hokurikugakuin University	1
20	Hosei University	3
21	Hyogo Prefectural Kobe High School	1
22	International University of Health and Welfare	1
23	Inter-university Research Institute Corporation, National Institutes of Natural Sciences	3
24	Inter-university Research Institute Corporation, High Energy Accelerator Research Organization	3
25	Inter-university Research Institute Corporation, Research Organization of Information and Systems, National Institute of Informatics	1
26	Iwate University	2
27	J. F. Oberlin University	1
28	Japan Advanced Institute of Science and Technology	5

	Organization name	No.
29	Josai University	1
30	Kagawa University	3
31	Kagoshima University	2
32	Kanagawa Institute of Technology	1
33	Kanazawa Institute of Technology	1
34	Kanazawa University	2
35	Kansai University	2
36	Kobe University	3
37	Kobe Women's University	1
38	Kochi University	2
39	Kochi University of Technology	1
40	Kumamoto University	10
41	Kwansei Gakuin University	2
42	Kyoto Institute of Technology	1
43	Kyoto Sangyo University	2
44	Kyoto University	6
45	Kyushu Institute of Technology	5
46	Kyushu University	7
47	Maebashi Institute of Technology	1
48	Meiji University	1
49	Meikai University	1
50	Mie University	2
51	Miyazaki Kita High School	1
52	Nagaoka University of Technology	2
53	Nagasaki University	4
54	Nagoya City University	1
55	Nagoya Institute of Technology	3
56	Nagoya University	7
57	Nagoya University Affiliated Upper and Lower Secondary Schools	1
58	Nara Institute of Science and Technology	1
59	Nara Prefectural Seisho Junior and Senior High School	1

(Universities / Technical Colleges / High Schools, continued)

	Organization name	No.
60	National Institute of Technology, Okinawa College	2
61	National Institute of Technology, Hachinohe College	1
62	National Institute of Technology, Kagoshima College	1
63	National Institute of Technology, Kisarazu College	1
64	National Institute of Technology, Kitakyushu College	1
65	National Institute of Technology, Kurume College	1
66	National Institute of Technology, Miyakonojo College	1
67	National Institute of Technology, Nagaoka College	1
68	National Institute of Technology, Oshima College	1
69	National Institute of Technology, Sendai College	1
70	National Institute of Technology, Tsuruoka College	1
71	National Institute of Technology, Tsuyama College	1
72	Nihon University	1
73	Niigata University	1
74	Notre Dame Seishin Gakuen Seishin Girls' High School	1
75	Oita University	1
76	Okayama University	11
77	Osaka City University	1
78	Osaka Dental University	1
79	Osaka Institute of Technology	1
80	Osaka Prefecture University	3
81	Osaka Prefecture University College of Technology	1
82	Osaka University	11
83	Ritsumeikan Junior and Senior High School	1
84	Ritsumeikan Keisho Junior & Senior High School	1
85	Ritsumeikan Senior High School	1
86	Ritsumeikan University	5
87	Saga University	2
88	Saitama Institute of Technology	1
89	Saitama Medical University	1
90	Saitama University	6
91	Salesian Polytechnic	2
92	Sapporo Nihon University Senior High School	1

	Organization name	No.
93	Senior High School at Sakado, University of Tsukuba	1
94	Shibaura Institute of Technology	4
95	Shimane University	4
96	Shizuoka University	10
97	Sojo University	1
98	Soka University	1
99	Sophia University	1
100	Takasaki University of Health and Welfare	2
101	Teikyo University	1
102	The Kitasato Institute	1
103	The University of Aizu	1
104	The University of Electro-Communications	4
105	The University of Kitakyushu	6
106	The University of Tokyo	12
107	Tohoku University	7
108	Tokai University	5
109	Tokushima University	2
110	Tokyo City University	10
111	Tokyo Institute of Technology	2
112	Tokyo Medical and Dental University	2
113	Tokyo Metropolitan University	3
114	Tokyo Tec High School of Science and Technology	1
115	Tokyo University of Agriculture and Technology	2
116	Tokyo University of Marine Science and Technology	4
117	Tokyo University of Science	8
118	Tokyo University of Technology	1
119	Tokyo Women's Medical University	1
120	Tottori University	1
121	Toyohashi University of Technology	3
122	University of Fukui	3
123	University of Miyazaki	11
124	University of Toyama	4
125	University of Tsukuba	4
126	University of Yamanashi	1
127	Wakayama Prefectural Hidaka High School	1
128	Waseda University	1
129	Yamagata University	3
130	Yokohama City University	3
131	Yokohama National University	6
Total		340

SSP implemented by University of Toyama
Casting practice by graduate students from Thailand

Incorporated Associations

	Organization name	No.
1	Asian Peace Making Center	1
2	Association for Communication of Transcultural Study	1
3	Fukuoka Asian Urban Research Center	1
4	Environmental and Science Educational Laboratory	1
5	International Center for Environmental Technology Transfer	2
6	International Lake Environment Committee Foundation	1
7	Japan Agency for Marine-Earth Science and Technology	2
8	Japan Association for Chemical Innovation	1
9	Japan Internaitonal Science and Technology Exchnage Center	2
10	Japan-Malaysia Association	1
11	Japan-Thailand Economic Cooperation Society	1
12	Japan-China & Asia Friendship Center of Culture and Education	1
13	Japan and China Educational Medical Cultural Exchange General Incorporated Foundation	2
14	International Good Neighbourhood Association	2
15	National Institute for Fusion Science	1
16	National Institute of Advanced Industrial Science and Technology	3
17	National Institute of Radiological Sciences	1
18	Remote Sensing Technology Center of Japan	1
19	RIKEN	5
20	The Japan China Medical Association	1
21	Tohoku Tabunka Academy Foundation	1
22	Toshiba International Foundation	1
Total		33

Private Companies

	Organization name	No.
1	Cathay Tri-Tech., Inc.	1
2	Daiwa Corporate Investment Co., Ltd.	1
3	Horiba, Ltd.	2
4	Japan Royal Jelly Co. Ltd.	1
5	Nippon Koei Co., Ltd.	1
6	Sumitomo Chemical Company, Limited	2
7	Yamashita Sekkei, Inc.	1
Total		9

Local Governments and Others

	Organization name	No.
1	Aichi Prefectural Government	1
2	Higashikawa Town, Hokkaido	1
3	Hiroshima International Center	2
4	Ishikawa Foundation for International Exchange	1
5	Ishikawa Prefectural Government	1
6	Kanagawa International Foundation	1
7	Kochi International Association	1
8	Shizuoka City Association for Multicultural Exchange	1
Total		9

Open Application Course FY2015

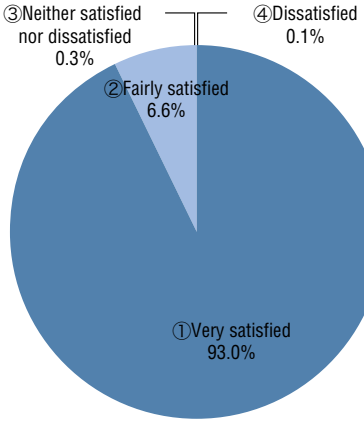
Selected Organizations: 168

Selected Programs: 391

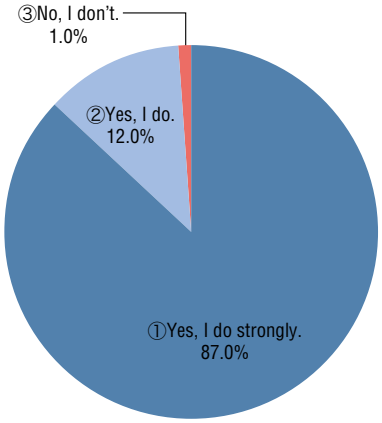
2. Participant Survey Results

Targeted survey respondents	SSP participants in Open Application Course FY2015 (including supervisors)
Survey method	Conducted after completion of each SSP program
Number of responses	3,365
Gender	52% male; 48% female

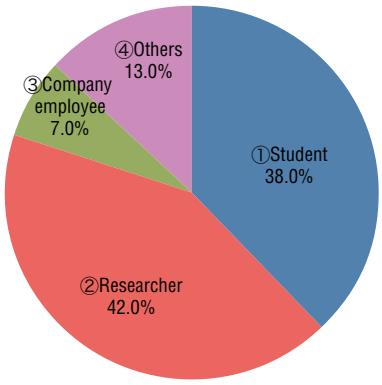
Q1: Were you satisfied with SSP program and visiting Japan?



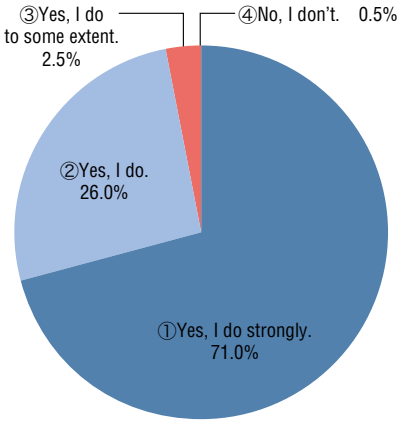
Q2: Do you wish to return to Japan?



Q3: (For respondents who selected ① or ② for Q2) In what capacity would you like to return to Japan?



Q4: Do you want to receive further information about science and technology in Japan, and study opportunities in Japan after returning to your country?



SSP implemented by Shizuoka University
Group photo of high school students from Thailand and Indonesia at Hamamatsu Technical High School

Japan-Asia Youth Exchange Program in Science

SAKURA Exchange Program in Science

Activity Report of Open Application Course 2015

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