

Kobe University Newsletter "Kaze"

Vol. 03

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30km under the sea:
a closer look at giant underwater volcanoes

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Never dine alone

Port of Kobe celebrates 150th anniversary



The Port of Kobe opened to international merchants on Jan 1, 1868. At that time, Kobe was a “sleepy village well known locally for its thriving sake and fishing industries” (Japan Times). Kobe was chosen to be one of Japan’s four new international trading hubs (the other three were Yokohama, Niigata and Nagasaki). The port flourished, and by the end of the 19th century roughly 2,000 people lived in Kobe’s foreign settlement.

The city’s role as one of the first open trading ports has made Kobe one of the most international places in Japan. Marks of its history as a gateway to the world can be seen throughout the city: the former foreign residences on the slopes of Kitano, a thriving Chinatown, and Japan’s first permanent mosque, built in 1935 and still used for worship today. And there are the less visible marks of internationalization – for example, the citizens of Kobe are some of the largest bread consumers in Japan. There is also an openness about Kobe, an acceptance of diversity and new ideas.

This year the 150th anniversary of the port opening was celebrated in style, with events in and around the port since April: music festivals, food markets and of course many maritime-themed activities. Festivities peaked in July, when tall ships from other international and domestic ports visited Kobe for a parade on Marine Day. Kobe University has also been celebrating, with tours of the harbor on one of the training yachts at the Faculty of Maritime Sciences.

The Port of Kobe is now on major international sea routes to over 500 ports in over 130 countries and regions. Kobe continues to be a hub for global trade and business, and the University is proud to be a part of this lively and outward-looking city.

Why “Kaze”?

There are two main concepts behind the title “Kaze”, meaning “wind”. Firstly, Kobe University’s goal to innovate, creating a wind of change. Secondly, our location at the foot of Mt Rokkō, an area known for the invigorating wind of Rokkō-oroshi that blows down from the mountain range.

The calligraphy on the cover of “Kaze” was created by Professor Emeritus UOZUMI Kazuaki, a researcher of calligraphy at Kobe University.



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 Kobe University



神戸大学

SPOTLIGHT

KOBEC has embarked on two observation voyages to the Kikai Caldera, in October 2016 and March 2017, for a total of 25 days. The training ship Fukae Maru of the University's Graduate School of Maritime Sciences was loaded with the latest observation equipment, and on its first voyage they confirmed the existence of a giant lava dome within the caldera. What does this mean?



30km under the sea: a closer look at giant underwater volcanoes

"Tomorrow a volcanic eruption could occur that takes the lives or livelihoods of over 100 million people in Japan." The Kikai Caldera Project run by the Kobe Ocean-Bottom Exploration Center (KOBEC) is a research project that aims to image a magmatic system beneath the volcano and predict such catastrophic eruptions before they occur. The Kikai Caldera is a 20km diameter submarine caldera south of Japan's main islands. Roughly 7300 years ago it triggered a massive eruption said to have wiped out culture in southern Kyushu. KOBEC Director Professor TATSUMI Yoshiyuki is working on the first high-precision imaging and monitoring of this volcano. We talked to him about the significance of this project.

It could happen at any time – predicting massive volcanic eruptions

Why did you decide to survey the Kikai Caldera?

The Kobe Ocean-Bottom Exploration Center was established in October 2015 as part of organizational reforms to improve maritime training and technological development. In addition, we also created this center as Kobe University's response to the sense of crisis that "we have to do something about this giant caldera eruption".

The Kikai Caldera is the most recent giant caldera in Japan. When a caldera-forming catastrophic eruption occurs, there is a pyroclastic flow incomparably larger than normal eruptions and a deep layer of volcanic ash covers a wide area, potentially causing long-term destruction of the

livable environment for humans. If such an eruption occurs now in central Kyushu, at worst it could cause the deaths of over 100 million people or create unlivable conditions. Based on statistical analysis of past events, there is approximately a 1% chance of a giant caldera erupting near the Japanese archipelago within the next 100 years. This is a similar probability to that of the Great Hanshin Earthquake before it occurred. In other words, it could happen any time.

The general public isn't aware of that level of danger.

The government's stance is "we cannot prepare for something that may or may not happen". So until now there have been no countermeasures, appropriate observation or research. But this isn't just an issue for Japan. No research to date has used imaging to show magma accumulation in the

Earth's crust, the cause of such large-scale eruptions.

What is imaging?

Think of it like a CT scan of the Earth's crust. For example, an indirect diagnosis of illness from the observation that someone has a fever is very different from a diagnosis based on a CT scan. Right now, the magma accumulation is only shown indirectly.

We're surveying the Kikai Caldera to carry out monitoring and accurate imaging of the location and size of the magma accumulation. From there we will collect data to help predict eruptions, such as the composition of the magma, the mechanism behind a massive caldera eruption, and the phenomena preceding an eruption.

Now I see what you mean by "first in the world".

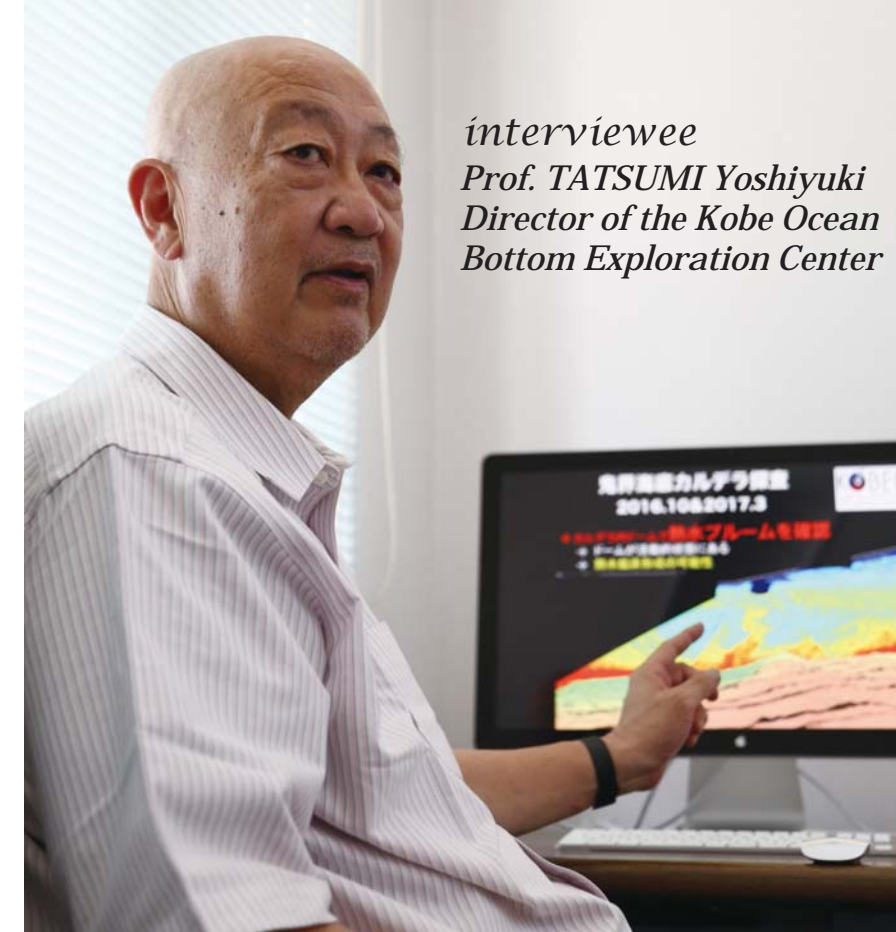
Magma imaging is also happening at Yellowstone in Central America, but the observation is not that accurate and they cannot monitor the details. Volcanoes are monitored using seismic waves, but at Yellowstone they use natural earthquakes. In order to increase precision levels, you need to trigger artificial earthquakes and increase the seismic waves passing through the magma, but this cannot realistically be done on land because it would affect the surrounding towns. For submarine volcanoes, this method is possible. If you clear it with the local fishing industry, you can survey a wide area by boat and freely trigger earthquakes.

The world's largest lava dome

What were the results of the observation voyage?



Remote-controlled underwater robot SHINDAI-2K



interviewee
Prof. TATSUMI Yoshiyuki
Director of the Kobe Ocean Bottom Exploration Center

The most important result was a better understanding of the seabed terrain. In the first observation voyage, we collected data on the internal structure and composition of the elevated geological formation within the caldera. We used multi-narrow beam echo sounders to measure the seabed landscape, and reflective seismic profiling with artificial earthquakes to measure the fault lines in the Earth's crust. On the second voyage we filmed the ocean floor using "SHINDAI-2K", a remotely-operated vehicle.

The results confirmed that the elevated geological formation is a huge lava dome roughly 10km in diameter, and part of the dome is actively emitting gas bubbles and hydrothermal plumes.

Are you saying a giant volcano is forming within the Kikai Caldera?

Yes. The last Kikai Caldera eruption was 7300 years ago. After that the dome formed - by simple calculations releasing roughly 40 cubic km of magma. It needs to be confirmed, but it's probably the world's largest lava dome. It was formed over just 7300 years, the fastest speed among Japan's volcanoes. In other words, it is an unusually active volcano.

How is this related to the eruption of the giant caldera?

We still don't know. If 40 cubic km of magma have already left the magma pool, a giant eruption may not occur. However, there could still be large amounts of magma beneath the dome. During our recent voyage we took a lava sample from the dome. We have to analyze this sample with our other data.



Checking the visual feed from SHINDAI-2K



Sample from the ocean floor



Kikai Caldera
2nd observation voyage crew

Evaluating deposits and training maritime specialists

What other research are you working on?

Evaluating hydrothermal deposits. There may be metal deposits within the hydrothermal plumes found during the survey. Japan used to export copper and silver, and we were famous for 'Kuroko (black ore)' deposits. Kuroko is a mineral that includes high concentrations of various metals such as zinc, lead, copper and silver. We know it is formed within submarine caldera, but we don't know how. The hydrothermal plumes in the Kikai caldera could be the first step towards analyzing the process behind Kuroko formation. We're sharing these findings with the Japan Oil, Gas and Metals National Corporation (JOGMEC) and it could help future searches for resources.

What about future explorations and research?

As well as analyzing data from previous voyages, we will embark on observation voyages this coming

October and next March. Imaging the Kikai Caldera is still a work in progress. The magma reservoir is probably located at a depth of ~10km, so we have to carry out accurate imaging for that depth, and to survey the magma-plumbing system we need an artificial seismic wave survey up to a depth of 30km. This is a huge undertaking that cannot be done by Kobe University alone – we have a partnership with the Japan Agency for Marine-Earth Science and Technology (JAMSTEC) so we are hoping to work with them for the next steps. Together with the Fukae Maru surveys, we plan to send divers to shallow areas for collecting rock and mineral samples. The survey includes constant monitoring, but we will continue to gather basic data and evidence to make a long-term forecast.

How are you training people?

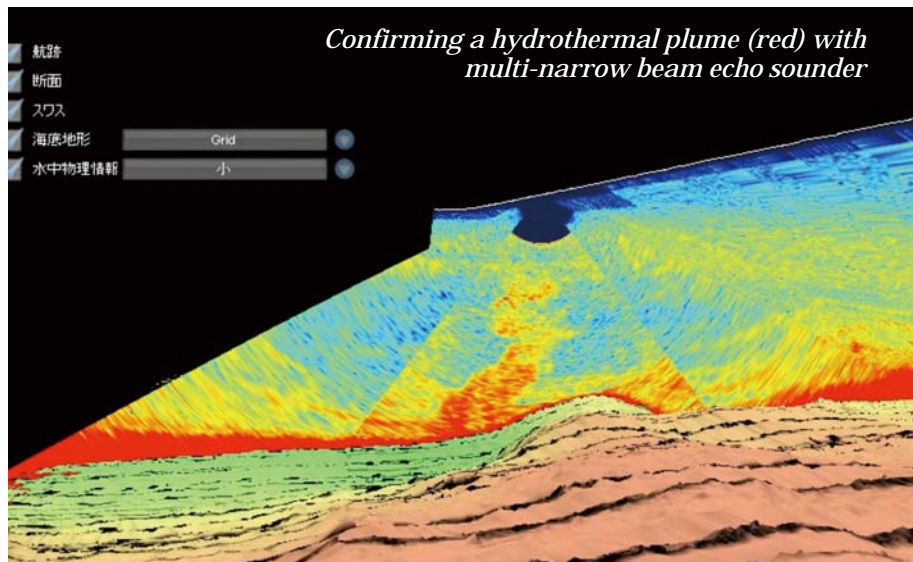
The Kikai Caldera survey voyages include members from our graduate schools and other universities. There are no other boats in Japanese universities now with the same capacity as Fukae Maru for surveys and sea exploration training. From this year the sea training course is

compulsory for members of our Graduate School of Science, and we have started to take students from other universities too. Japan cannot fulfil its potential as a maritime nation without trained specialists, and to achieve this we must continue our research and let students experience the appeal of what we do. As part of this, we've concluded an agreement with the Kochi University Center for Advanced Maritime Core Research. We will also partner with the Kyoto University Sakurajima Volcano Research Center, and we have an agreement with JOGMEC to evaluate the Kikai Caldera deposits.

Finally, what is the significance of predicting a giant caldera eruption?

A giant caldera eruption would cause catastrophic damage, and some people say "If it happens that's the end, there's no point predicting it". But should we really leave it at that? This isn't an issue for us scientists to decide. The job of scientists is to determine the scale of the disaster in the event of an eruption, and how to forecast this eruption – the next steps are up to the Japanese people.

However, if the danger levels are correctly understood, certain national organizations may start moving, and it is very important to prepare the basic data for this. In order to prepare for a giant caldera eruption, we need to raise awareness among the general population, not just the government. I want to disseminate these research results very widely.



Confirming a hydrothermal plume (red) with multi-narrow beam echo sounder



SHINDAI-2K visuals – gas emissions

SHINDAI-2K visuals – underwater lava dome

Breaking ground in genome-editing technology

A new biotech business venture in Kobe





Professor Nishida (far right) in his research laboratory on Port Island

Genomes are the blueprints of living creatures; chromosomes and genes within all our cells encode information about life. Genome editing technology that can change these chromosomes and genes has developed rapidly. From drug development and gene therapy, improvements to crops and livestock, to creating useful microorganisms to replace petroleum, this technology has started to have a significant impact on our societies.

Professor NISHIDA Keiji (Graduate School of Science, Technology and Innovation) has developed a new genome editing technology and established a business venture based on his research findings. He is on the front lines of genome editing in both business and research.

Choosing the road less travelled

Prof. Nishida: After 5 years working on my research in the United States, I returned to Japan and realized that my home country was lagging behind in genome editing technology. Many people are involved in research that uses genome editing technology, but not so many people are researching genome editing itself. Genome editing is a tool that can impact every field related to living things. I also chose this line of research because I could see it potentially complementing other research at Kobe University.

Originally from Kobe, he obtained his PhD researching evolution on a molecular level at the Tokyo University Graduate School of Science, Department of Biological Sciences. For 5 years from 2008 he continued his research at Harvard Medical School in the United States.

Prof. Nishida: Research into evolution looks at the composition of organisms in the past. Many areas of this field have already been thoroughly covered by other researchers, so I had to specialize further. I decided that it would be a good idea to look for a different field of study, and I shifted my research focus to synthetic biology, a growing discipline in the United States. Synthetic biology can be described as the process of imitating evolution – creating living organisms. In the US I worked on research that involved adding a mechanism to yeast cells that responds to magnetic fields. Manipulating the genes effectively was a vital part of this, and I experienced a complex and frustrating process. All roads led to genome editing research.

The breakthroughs

In 2013 he returned to Japan and took up his current post at Kobe University. He works with Professor KONDO Akihiko, Dean of the Graduate School of Science, Technology and Innovation, who is currently leading a research project at Innovative Bioproduction Kobe.

Prof. Nishida: I also had the options of staying at Harvard or returning to University of Tokyo, but I decided that Professor Kondo Akihiko's research team could provide the best environment for me to pursue my interests. When I started at Kobe University I hadn't decided on my research topic, so I chose to research technology development for genome editing because it

“For better or worse, our technology cannot stop at the borders of Japan.”

was a field that could complement many of Professor Kondo's research areas.

The year before he came back to Japan, the revolutionary gene editing technology CRISPR/Cas9 was developed.

Prof. Nishida: I was very impressed by the research breakthrough. Ideally CRISPR/Cas9 slices the DNA at the target point, and the DNA repairs itself into a new altered form, but the alteration does not always go as planned, and sometimes the target cell dies of cytotoxicity. I aimed to create a genome editing technology that does not cleave DNA, and so I developed a new genome editing technology called “Target-AID” that uses a deaminase enzyme. I had been interested in deaminases since my time in the United States.

In total it took over two years from beginning the research to publishing a paper, but I established the technology over 3 or 4 months of experiments after coming up with the concept. It is comparatively easy to make a breakthrough in unexamined research fields, so I think it's important for researchers to challenge themselves by choosing newer research fields.

From research result to patent

On August 5, 2016, his paper was published in the online edition of Science,

and reported by many media outlets in Japan. In April of the same year, Kobe University's Graduate School of Science, Technology and Innovation opened. This Graduate School covers education and research in fields from natural sciences to business administration areas such as intellectual property rights and finance, with the aim of commercializing research findings.

This cross-disciplinary approach bore fruit in February 2017 when Professor Nishida established a business venture based on his research. His new biotech company is called “Bio Palette Co., Ltd”.

Prof. Nishida: When you are putting your research results out into society, I think that in addition to publishing a paper, it's also important to demonstrate its usefulness in a way that is easy to understand, such as through a company. Ever since my stay in the United States I had been thinking about commercializing my research results, so the establishment of the Graduate School of Science, Technology and Innovation was perfect timing for me. I don't think I could have started up a business venture in such a short time at another university.

Why it has to be international

In the United States, genome editing business ventures are receiving huge

sums of investments, and at the same time there are increasing disputes concerning patent rights. You have to be speedy when it comes to raising funds and creating a strategy for intellectual property rights. In May 2017, Professor Nishida received approximately 400 million yen (roughly 3.7 million dollars) of investment funds from a major fund with headquarters in Boston, USA.

Prof. Nishida: For better or worse, our technology cannot stop at the borders of Japan. We must see the overseas market as our main battleground. We have to understand the current global conditions for patents and intellectual property strategy, and it is necessary to negotiate, including alliances with overseas universities and business ventures. By working with a strong fund in the main arena of the United States, I want to create a business framework that can develop globally.

Genome editing technology can potentially be applied to many different fields, including medicine, agriculture and microorganisms. At Bio Palette Co., Ltd we have started building the business, and we are choosing our targets. I think that university professors are in very good positions to work on business ventures. I hope to continue contributing to society through both research and business.

Editor's note: This article can also be found on the Research at Kobe website under “Researchers”



The website of Professor Nishida's new business venture Bio Palette Co.,Ltd

International Clinical Cancer Research Center opens

On April 2, an opening ceremony and private viewing was held for the new International Clinical Cancer Research Center (ICCRC), part of the Kobe University Graduate School of Medicine and University Hospital.

The International Clinical Cancer Research Center, headed by Professor Tetsuo AJIKI (Kobe University Graduate School of Medicine), opened on Port Island within the Kobe Biomedical Innovation Cluster

as a new base for medical care, research and education. It is partially funded by Sysmex Corporation. The Center was established to expand opportunities for the next generation of medical specialists and contribute to international medicine in cooperation with Kobe University's School and Graduate School of Medicine and Kobe University Hospital.

The Kobe Biomedical Innovation Cluster is the largest in Japan, currently incorporating 336 medical organizations, research organizations and companies. Within this group, the Center takes a role as an international base for the development of advanced surgical treatment for cancer, next-generation medical treatment, research and development for new medical equipment.

Basic principles of the center:

Patient-focused, training physicians rich in compassion and humanity, development and promotion of advanced medical treatment, global contribution in the medical sphere, and strengthening local collaboration in medicine.

The center provides three courses funded by Sysmex Corporation:

Overview of the Funded Courses

Course titles:

- (1) Development and Application of Advanced Medical Technology Department
- (2) Advanced Cancer Research and Treatment Department
- (3) International Medical Cooperation and Promotion Department

Running period:

April 2017 – March 2020

Key research themes:

- (1) Application of leading-edge technologies, such as artificial intelligence and robotics technology, to the surgical domain
- (2) Establishment of surgical treatment methods for cancer that are minimally invasive and offer complete cures



Kobe SALAD 2017

Summer School at Kobe University

'One-week experience in Kobe University'

During the week of July 10-15, Kobe University hosted our 3rd summer school on natural sciences: 'One-week experience in Kobe University'. This program is organized by five natural sciences-focused graduate schools (Science, Engineering, Agricultural Science, Maritime Sciences, and System Informatics) to invite students from partner universities around the world. This year, 18 students from Singapore, China, the Philippines, Indonesia and Taiwan participated in the program alongside students from Kobe University.

The week started with opening remarks from Professor Hiroshi Takeda (President) and Professor INOUE Noriyuki (Executive Vice-President in Charge of International Exchange). They expressed their delight in welcoming participants from around the world and hopes to continue this program to expand international student exchange. Students took lectures in English across the five graduate schools and broadened their knowledge on specific topics in the natural sciences. They participated in a ride on Kobe University training ship Fukae Maru, hands-on training in visualization using π -Viz Studio and a field trip to the Food Resources Education and Research Center. They

also enjoyed a visit to research centers near the campus, including the K supercomputer, SPring-8 (the world's largest synchrotron radiation facility) and SACLA (SPring-8 Angstrom Compact Free Electron Laser).

All participants enjoyed stimulating lectures and their study at Kobe. They also got a chance to experience Japanese culture and exchange ideas with Kobe University students. Visits to SPring-8 and SACLA were particularly highly acclaimed by participants.

'Kobe SALAD 2017'

The annual Summer School of Asian Law and Dispute Management ("SALAD") was held at Kobe University from August 21 to August 25. The program has been an important part of the Global Master's Program in Law (GMAP in Law) since 2014. It aims to gather Asian law students, academics, researchers, and legal experts working in international disciplines. The participants attend lectures and seminars in English on the latest aspects of business law and dispute resolution in Asia given by lecturers from Kobe University, partner universities, law firms, arbitral institutions, and commercial courts in various Asian jurisdictions. This year 47 participants from China, Macau, Malaysia, Vietnam, Korea and Japan took part in this intensive program.



Visit to K supercomputer



Field trip to the Food Resources Education and Research Center

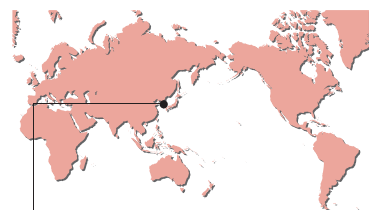
International voices

Approximately 1,200 international students from countries around the world are currently studying at Kobe University. In this corner, our international students introduce their native countries and offer some insights on studying abroad in Japan.



GANG Sunhwa

3rd year undergraduate at the Faculty of Science, Department of Biology. Originally from the Republic of Korea, she came to Kobe University in October 2014. Recently she likes using the Japanese phrase "ki no sei" (maybe I'm imagining things) with her friends.



Republic of Korea

The Republic of Korea, located at the southern part of the Korean peninsula, has a population of roughly 51 million people. The capital is Seoul. Dramas, films and music from this country are popular worldwide, and many people visit from Japan.

Why did you choose Kobe University?

I wanted to study in Japan, firstly because Japan is strong in the natural sciences, and secondly because I read a book by IKEGAYA Yuji, a neuroscience researcher at Tokyo University, and decided that I wanted to become a researcher too.

I'm part of a program that allows 100 students from the Republic of Korea to study at national universities in Japan. Among the choice of universities, the biology curriculum here was the closest match to what I wanted to study.

Your Japanese is very good. How did you learn the language?

I like Japanese dramas, and I learned the hiragana and katakana scripts at middle school. I chose Japanese as my second foreign language for high school, but I only learned simple greetings. The

program I joined included a 6-month preparatory program in Japanese at a Korean university, so I studied intensively from morning until night. After I arrived here there was another 6-month Japanese program, so in total I studied fairly intensively for about a year.

What aspects of Japan do you feel are different from Korea?

From a food perspective, Japan doesn't have many spicy dishes. For example, even if the food sold at convenience stores in Japan says "spicy" on the packet, it often isn't. When I go back to Korea in the summer vacation, I realize that we have a lot of "red" food.

I was also surprised by Japan's café culture. In Korea drinks are the main feature in cafés, and cakes and sandwiches are a side option, but in Japan lots of cafes serve pasta and lunch menus too. At first I didn't think of these places as cafés, so I thought that Japan didn't have many cafés

Inspired to become a researcher in Japan

For this issue we spoke to an international student from Japan's close neighbor, the Republic of Korea. GANG Sunhwa is an undergraduate at the Faculty of Science. She talked to us about the differences between Japan and Korea, things that surprised her about Kobe University, and her dreams for the future.



Gwanghwamun Square



Changgyeonggung Palace, Secret Garden



Nurimaru APEC House

[laughs]. In Korea, we think it's strange to have lunch in a café. Maybe it comes from these differences, but in Korea people often study for one or two hours in cafés over a coffee. There are many cafés near universities, and students use them a lot, but in Japan students don't seem to do that so much. Sometimes I think it's a bit hard finding a place to study around town.

Did anything surprise you about Kobe University?

Many universities in Korea are in the middle of busy towns, so I was surprised by the natural surroundings at Kobe University. It's peaceful, the air is fresh, and it's a great place to focus on studying and research. There are cafeterias and libraries, but I wouldn't mind somewhere close to the campus to hang out as well [laughs].



View of Mt Rokko from Tsurukabuto 1st Campus

What are you studying at the moment?

I'm an undergraduate student, so I'm studying a wide range of subjects. I was initially interested in the study of behavior, and I wanted to learn about the links between brain functions and actions. My field of interest was quite narrow, and the Department of Biology covers a very wide area, so to start with I had to study some areas I wasn't that interested in, and my first two years were a bit tough at times. But thanks to this system, I also discovered interesting areas that I hadn't known about before. Now I'm a third year, I'm looking forward to taking classes in my initial fields of interest, such as neurobehavior.

What are you doing when you're not studying?

There is a coffee bean shop near my house that I visit a lot, and I've got to know the shop owner and the other customers. We are all from different age groups, but I often spend time with them and have tea. I also go out to eat with

friends from my faculty, and go out with other students from Korea to do various fun activities. Recently I started k-pop style dancing. I'm still a beginner, but I'm going to keep at it.

What are your dreams for the future?

I still want to do research. Studying a wide range of different subjects here made me interested in other fields, and I'm still not sure what field to specialize in, but I want to become a researcher. When I start my fourth year I'll visit the research labs here. If I find a lab that fits my interests I want to continue to graduate school at Kobe University. If other universities have good programs, I'll think about that too.

Where's your favorite place on campus?

I really like the Centennial Hall. The view is very beautiful, and I used to eat lunch there a lot. The cherry blossoms around the Faculty of Agriculture are beautiful too. Kobe University is surrounded by nature, and I enjoy taking walks around the campus.



COMMUNITY IMPACT

Table for Two - Kobe University Project

Never dine alone: a healthy cafeteria menu that connects the world

The popular "TFT menu" is a special menu that appears in the Kobe University cafeterias twice a year. Part of the meal costs go to provide school lunches for children in developing countries. We spoke to two representatives for the Table for Two Kobe University Project.



Left: bibimbap udon noodles, above: sanshoku-don, Below: chicken and vegetable vinegar marinade

Among the world's population of 7 billion, roughly 1 billion people suffer from malnutrition. At the other end of the scale, around 2 billion people are obese. "Table for Two (TFT)" is a movement that started in 2007 in Japan to help resolve this dietary imbalance. The independent donation initiative spread to 14 countries including America and Switzerland, and many businesses, groups and students are participating within Japan. TFTKP is one such group.

Firstly, please tell us about the organization and significance of TFT.

Asai: TFT means that when you buy a certain dish or food product in a developed country, as a rule 20 yen of the cost is sent to a developing country,

where it covers the cost of one school meal. There are rules for the nutritional balance of these dishes, and every time someone in a developed country eats one of these healthy meals, they can feed a child for one meal. In other words, we tackle malnutrition in developing countries at the same time as obesity and other lifestyle-related diseases in developed countries.

Watanabe: At the end of 2015 there were 647 businesses and organizations involved in TFT. Students from various universities, including us, are participating in the TFT University Association. In developing countries many children from poor families work, and can't go to school. The idea is that if they go to school in order to eat lunch, they can improve their education, which could create a foothold for escaping poverty.



Table For Two Kobe University Project Representative **ASAI Mina**

3rd year, School of Business Administration

In developing countries, some people lack the basic essentials. I want this project to draw attention to this reality. In the future I want to work in a business linked to benefiting developing countries.

What are the main activities of TFTKP?

Asai: We started by suggesting TFT to eateries in Kobe about 6 years ago. After that, we submitted a proposal to the Kobe University Co-op [a non-profit cooperative co-owned by students and employees], and the cafeterias started to offer our TFT menu. These are our two main activities.

Watanabe: We often get enquiries from eateries in Kobe who want to include TFT in their menus. We visit them, check if their dishes are suitable, and if they qualify we include them in the program. We collect a 20 yen donation for each meal. It isn't just meals – some eateries also offer tea.



Table For Two Kobe University Project Representative **WATANABE Minori**

3rd year, Faculty of Agriculture
I've been actively volunteering since middle school. Recently I decided to start a project related to children in developing countries, and I feel like my future path is starting to take shape.

We visit each place every so often to see how they're doing. Sometimes we're invited to food-related events, and some shops offer TFT as a one-day special. At Kobe Garden Café 2016, an event on the theme of "world food" including Kobe eateries, shops, and artists, we were honored to introduce the TFT project onstage. We're currently involved with about 10 eateries.

Asai: The University Co-op offers TFT dishes for a few weeks twice a year as part of the cafeteria menu. Currently we have 24 members. We work together to come up with recipe suggestions for sides, mains, rice bowls and noodle-based dishes. We narrow it down to 10 ideas, then after we've tried making them ourselves we



Stall at Kobe University festival "Rokkosai"

approach the University Co-op. The last step is asking the cafeteria staff to make the dishes, then we talk to them, adjust for the cost of ingredients and efficiency, and the dish is complete.

We aim to create a healthy menu using lots of vegetables and seasonal ingredients, but we also need it to be approved by the University Co-op and chosen by students. As well as safety and cost, the dish should also be as tasty and filling as the rest of the menu. For example, for meat we often use cheap and healthy chicken. We ask the cafeteria staff to count the number of dishes purchased, and we use this data and opinions to come up with new menus.

Watanabe: This time one of my menu ideas, sanshoku-don (three-colored rice bowl) was selected. I'm very happy that one of my ideas will help collect donations. The University Co-op TFT menu includes a 10 yen donation for each dish - we adapt our donations based on prices at each facility.

What do students think of your dishes?

Asai: Lots of people tell us that the TFT menu is always tasty. We're very grateful that awareness seems to be spreading. When I see someone ordering the TFT menu in the cafeteria I always think "Ooh!" (laughs).

Watanabe: We also sell healthy rusks at the university festival, which are popular every year. Each purchase includes a 5 yen TFT donation. We're looking forward to selling other things this year.

Is there anything you'd like to improve?

Asai: We're happy that people like the TFT menu, but I feel like many people don't know what TFT is about. At the moment people at Kobe University are eating 7000 TFT meals during the two weeks it is offered in the cafeteria. But at the same time I often hear conversations like "What is TFT?" "I don't know". Ideally, when someone is wavering between the everyday katsu-don (pork cutlet rice bowl) or the TFT sanshoku-don, I want them to think "I choose sanshoku-don, because it helps feed children in developing countries". I want everyone to understand the significance of TFT.

Watanabe: We're posting about TFT activities on social media for the general public, but as a member of TFT-UA, I think it's important to spread the word among students too.

How are you planning to develop this project?

Watanabe: To raise the profile of TFT among students, I want to increase the places that offer TFT dishes both inside and outside the University, including eateries near our University and lunchboxes sold at the University Co-op. I want to suggest recipe ideas to eateries as well. We're having meetings and study camps with TFT associations at other universities to share ideas.

Asai: I want to start a communications team that raises awareness all year round, including new publicity initiatives. We'll continue to discuss ideas and actively work on new plans.



Members of the Table for Two Kobe University Project

International special feature

Strong partnership with Europe

A word with the experts

Kobe University has strong ties with European universities and research institutions, and we have established two offices in Europe (in Belgium and Poland). We asked Professor YUI Kiyomitsu (Executive Assistant to the President in Charge of International Collaboration) and Professor YOSHIDA Ken-ichi (Executive Director of the Kobe University Brussels European Centre) to tell us why Europe is important, and their vision for future activities with Europe.

Europe as a strategic partner: Why Europe?

Prof. Yui: The world is now in transition and Japan and Europe face societal challenges. Thanks to our common values, we found it easy to start collaborating with European researchers to tackle these issues. The first official collaboration for Kobe University was participation in the EU Institute in Japan, Kansai (EUIJ-Kansai), a

consortium that manages EU studies programs and disseminates information about EU affairs in Japan. Kobe University now has more than 130 partners in Europe, and it's the most popular study abroad destination for our students.

Kobe University's activities with and in Europe

Prof. Yui: First of all, I must say that Kobe University's collaboration with Europe is very active, with two overseas offices in Europe, one in Brussels and one in Kraków. We hold annual symposia and workshops in Brussels, as well as seminars in Europe with Japanese governmental institutions including the Japan Foundation.

Prof. Yoshida: Workshops in Brussels are usually held by Kobe University's researchers about 10 times in a year and partly supported by the University's budget. Since workshops are bottom-up projects, I encourage researchers to apply for support from the University.



Interviewee

*Professor YOSHIDA Ken-ichi (left)
Executive Director of the Kobe University
Brussels European Centre (KUBEC)
Graduate School of Science, Technology and
Innovation*



Interviewee

*Professor YUI Kiyomitsu (right)
Executive Assistant to the President in Charge of
International Collaboration
Graduate School of Humanities*

Prof. Yui: Another new initiative is a joint lecture series program with our European partners. Through this program, Kobe University sends or accepts professors to lecture in Kobe or at a partner university. This program started with Jagiellonian University in 2015, where our Liaison Office in Kraków is located.

Prof. Yoshida: We also have experience participating in European research projects. From September 2013 to February 2017, Kobe University worked as a consortium member of the Japan-EU Partnership in Innovation, Science and Technology (JEUISTE). Participation in this project enables Kobe University to share European research policies with European funding agencies.

Prof. Yui: Participation in Erasmus+ also provides us with opportunities for student and staff mobility. We have seven Erasmus+ partners in Europe at the moment, and we've been adopted as a Jean Monnet Centre of Excellence and the Jean Monnet Chair program.

Kobe University's strengths in collaboration with Europe

Prof. Yoshida: Kobe University was the first Japanese university to establish an overseas office in Brussels. We recognize that Brussels has long been home to representatives of numerous European and international institutions with headquarters at the heart of Europe.

Prof. Yui: I've heard that European or Japanese government staff sometimes say, 'mentioning Kobe University always brings up something about Europe'.



Prof. Yoshida: I've heard that too. Last year we held a symposium celebrating 150 years of Japan-Belgium friendship and an academic lunch with the Belgian King and Queen. We were the only Japanese university to host this memorable event - an example that shows Kobe University's strong presence and close connections with European organizations.

We also initiate participation in European research and education projects, like Horizon 2020 and Erasmus+. Since Mr. Patrick Vittet-Philippe, the former Head of Japan and Russia Desks, Directorate-General for Research and Innovation at the European Commission, was appointed as advisor to KUBEC last February, KUBEC has joined Unilion, the network of overseas offices in Europe started to support applications for European grants. I expect KUBEC activities will strengthen with Mr. Vittet-Philippe's assistance.

Prof. Yui: The Liaison Office in Krakow works well as a base for collaboration with Central and Eastern Europe. Kobe University received the Visegrad University Studies Grant and

from October 2017 we are starting a course titled "The Place of V4 Countries in Europe and Japan" to study the importance of Central and Eastern Europe within the EU, links between Japan and the region, and its position in Japan.

Future Perspectives

Prof. Yui: Kobe University is now expanding activities from Brussels to central and southern Europe. Since our international collaboration with central Europe has strengthened through the Liaison Office in Krakow, our next target is southern Europe.

Prof. Yoshida: Speaking of southern Europe, we're just starting government-academia collaboration on the 'Smart City' project with Barcelona, one of Kobe's sister cities. Since Barcelona and Marseille are sister cities of Kobe, we will contribute to governmental collaboration using these networks in southern Europe.



Liaison Office in Krakow (est. 2015)



Brussels European Centre (est. 2010)

International special feature

Strong partnership with Europe

Erasmus+ mobility with Jagiellonian University

In May and June 2017, three professors and three administrative staff from Kobe University participated in the Erasmus+ mobility programme with the Jagiellonian University.

Kobe University has been actively participating in the Erasmus+ Programme with several partner universities. The Jagiellonian University is one of our dynamic exchange partner universities in Europe.

In 1998, Kobe University started collaboration with the Jagiellonian University in the humanities, expanding this collaboration to a university-wide agreement, including student exchange in 2012. Since 2013, we have been members of the EU-Japan Advanced Multidisciplinary Master Studies project (EU-JAMM) consortium. In 2015, Kobe University established a liaison office within the Centre for Comparative Studies of Civilizations at the Jagiellonian University. Our universities have co-operated to organise various programmes and events, such as joint lecture series in Japanese Studies and Law and the symposium 'New Research Perspectives from Japan and Poland' in 2016.

On 15-19 May, Dr Joanna Guzik (JU Faculty of International and Political Studies) visited the Graduate School of Humanities at Kobe University. During her 5-day stay in Kobe, she delivered intensive lecture series, together with her host Prof. Kiyomitsu Yui, and led a seminar on 'Migration and Multiculturalism: Cases of EU, Poland and Japan.' During the seminar, she examined societal challenges concerning multiculturalism from the perspectives of the EU, Poland and Japan, together with Prof. Kazunari Sakai (Intercultural Studies, Kobe University). She also held a seminar to introduce the Jagiellonian University to students interested in study abroad programmes, which provided them an opportunity to learn about JU and student life in Poland.

My stay at Kobe University was a great experience, thanks to the warm welcome and kind support I received from Prof. Kiyomitsu Yui. Daily meetings with professors, the seminar I was honoured to deliver, as well as classes with students, inspired me by providing new ideas for conducting my research and teaching activities. I am very grateful.

(Dr J. Guzik)

On 22-26 May, two professors from Kobe University visited the Jagiellonian University. Prof. Kantaro Ohashi (Graduate School of Humanities) stayed at the JU Institute of Philosophy, his host being Dr Jakub Petri. Prof. Ohashi held a series of lectures titled 'Recent trends of nostalgia

in Japanese culture' at the Centre for Comparative Studies of Civilisations, a public lecture 'Monster and Disaster: Imagination and aesthetics of catastrophe in modern Japan' and an online lecture 'Monster and Disaster: Modern philosophy about monstrosity' in Academia Electronica. Moreover, he gave a presentation titled 'Brief history of Japanese modern aesthetics' for members of the Department of Aesthetics, followed by a discussion on international research collaboration.

My first stay in Krakow was really exciting, thanks to the hospitality of the Jagiellonian University professors and staff. It was also a significant visit for our academic relationship in order to cultivate future collaboration in the humanities.

(Prof. Ohashi)



Dr Joanna Guzik visits Kobe University



Professor Masato Karashima at Jagiellonian University

Prof. Masato Karashima (Graduate School of Intercultural Studies) visited the Institute of Intercultural Studies – his host was Dr Franciszek Czech, and the Institute of Middle and Far East where he was received by Dr Ewa Kamińska. Prof. Karashima delivered a seminar on Japanese society and culture, prompting a vivid discussion with faculty members and students of the Department of Intercultural Studies. During his stay at JU he participated in Dr Kamińska's course on Japanese society and culture. Both scholars discussed joint short-term student study programmes.

This programme gave me a wonderful opportunity to exchange ideas and opinions with JU scholars and students. In particular, I was excited to see the JU students planning to study at Kobe within our exchange scheme.

(Prof. Karashima)

On 19-23 June, three administrative staff from Kobe University participated in the Erasmus+ Staff Training Week 'JUst a Week' organised in Kraków. On these days, they discussed the internationalization of higher education with other participants from universities in Europe, including Spain, Belgium, the UK and Hungary as well as non-EU countries such as China, Mexico and Kenya. During the one-week training, they attended seminars focused on international affairs including international co-operation within Erasmus+ and international support services. They also get to know international activities

Prof. Kantaro Ohashi
–
Kobe University

"Monster and Disaster: Modern philosophy about monstrosity"



Graphics: Umi-bōzu by Kuniyoshi Utagawa

Academia Electronica
oraz
Instytut Filozofii UJ

24 maja (środa)
o godz. 19.00
Blue City



carried out at other universities. Last but not least, they had the opportunity to learn some Polish as part of the training, enjoyed visits to the JU Collegium Maius and the Wawel Castle and walked around the beautiful city of Kraków.

Here are the comments of our participants:

Taking part in the Erasmus+ Staff Training Week was a precious experience for me. It strongly inspired me not only to improve myself but also in contributing to the international strategy of Kobe University.

(Yuriko Okuno, Student Affairs Section, Faculty of Global Human Sciences)

Throughout the week, I had the opportunity to participate in interesting workshops and seminars conducted by JU staff and guest speakers and was able to experience and learn about practices concerning

international support at various higher education institutions.

The training was incredible and convinced me that we, administrative staff, can play an important role in the process of internationalization. I hope and believe that every participant, myself included, can use this knowledge to promote international activities at each institution. Many thanks to all the JU staff and other participants who made this week such a memorable one, and the KU staff who made it possible for me to attend this useful training.

(Yoshiko Yamada, Research Support Section, Graduate School of Engineering).

JUst a Week gave me brilliant ideas regarding how to make universities better for international students and researchers.

(Yuto Tokumoto, Student Affairs Section, Graduate School of Law).



Erasmus+ Staff Training Week 'JUst a Week' in Kraków



Europe

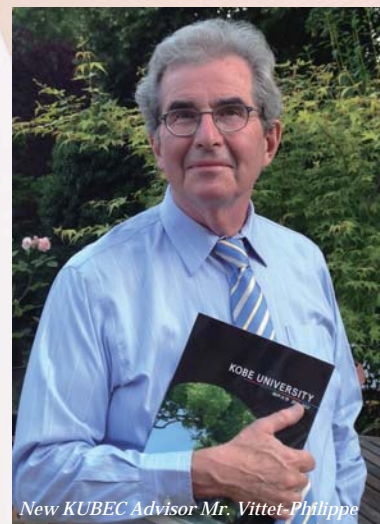
Activities at the Kobe University Brussels European Centre (KUBEC)

Established in September 2010, the Kobe University Brussels European Office is the first centre founded in Brussels by a Japanese university. It is our primary base for strengthening collaboration in education and research between Japan and Europe.

New Advisor appointed to KUBEC

In February 2017, Mr. Patrick Vittet-Phillipe, formerly Head of Japan and Russia Desks at the Directorate-General for Research and Innovation, European Commission, was appointed as the new Advisor to KUBEC. As part of his previous responsibilities, Mr. Vittet-Philippe regularly gave presentations to Kobe University on the European Commission's policy for international cooperation in research and higher education, and encouraged the University to develop its activities in Europe, particularly through participation in European research programmes.

Comment from Mr. Patrick Vittet-Phillipe:
I am truly delighted and honored to have been asked to contribute to the Initiative for Excellence launched by one of the most forward-looking universities in Japan. I am impressed by Kobe University's resolute engagement



New KUBEC Advisor Mr. Vittet-Phillipe



Unilion Core Group Meeting

in international research activities, particularly with Europe, and by its commitment to meet the challenges and expectations of 21st Century education in the global environment. Engaging in a constructive dialogue between Japan and Europe, and building innovative international partnerships represent, in my view, the best ways to develop students with a global mindset and find answers to the World's key societal challenges'.

Unilion Core Group Meeting

On September 21, Kobe University hosted the Unilion Core Group Meeting. Unilion is an informal network of 31 members collaborating together in Brussels and representing 93 Universities. Kobe University joined the network in February 2017 to strengthen activities in Brussels.

In the meeting, Professor Ken-ichi Yoshida (Executive Director of KUBEC) introduced the latest developments in education, research and innovation, key international activities with special focus on Europe, and discussed new opportunities for cooperation with European universities and research centres.

Visegrad Project kicks off

Using the Visegrad University Studies Grants, from October 2017 Kobe University has started a course titled "The Place of V4 Countries in Europe and Japan" to study the importance of Central and Eastern Europe within the EU, links between Japan and the region, and its position in Japan. The course is open to Kobe University students including exchange students from our partner universities, and taught with cooperation from scholars in our V4 partner universities: Jagiellonian University (Poland), Eötvös Loránd University (Hungary), Comenius University in Bratislava (Slovakia), and Charles University (Czech). This course is also planned

to form part of the Kobe University Educational Program on Current Japan, an English and Japanese-taught program focusing on current issues in Japan.

On May 29, Kobe University held the Visegrad Project Kick-Off Workshop titled "Prospects of Visegrad Project: Comparative Studies on Migration and Social Movements in V4 Countries, Japan and Asia" at Jagiellonian University in Kraków, Poland.

Asia

Joint symposium with Beijing Foreign Studies University

On June 23, the Kobe University Center for Asian Academic Collaboration and Beijing Foreign Studies University jointly hosted the Second Beijing Foreign Studies University – Kobe University Joint Symposium at Kobe University.

At the start of the symposium, a signing ceremony took place for the updated Kobe University and Beijing Foreign Studies University International Collaborative Research Base Action Plan. Both universities pledged to deepen cooperation in the areas of social sciences and humanities including legal studies, international relations, subcultures, and Japanese/Chinese language studies.

In the symposium, the morning session focused on social sciences under the topic of "Japan and China's Relationship in Diversifying World Economics" and the afternoon session focused on the humanities with the theme of "East Asian Cultures, Languages and Nations as 'Spaces for Communication'". Both universities examined further developments in collaborative relationships with other researchers in China, Asia and worldwide.



Joint symposium with Beijing Foreign Studies University

Forum for Leaders of Japanese Studies

The 5th Annual Conference: the Forum for Leaders of Japanese Studies was held on September 27. The Kobe University Center for Asian Academic Collaboration hosts this event every year, and it demonstrates how collaborative exchange among researchers in this field is significant for global society. This year we were honored to host eminent researchers in the field of Japanese Studies from Cambodia, China, Vietnam, and South Korea.

In the morning session, attendees discussed the future direction of the forum and their expectations for Kobe University. The afternoon session was held on Asian perspectives of Japan in the age of global structural transition. The event ended with an active and thought-provoking discussion. This conference has further strengthened the

existing network of leaders in Japanese Studies by sharing insights from various academic fields through the lens of Japan.

On the previous day, the 2nd KU-FTU Cooperation Symposium titled "Role and Prospect of Japan-Vietnam Academic Exchange" was held. This symposium aimed to strengthen the partnership between Kobe University and Foreign Trade University (FTU), where Kobe University Hanoi Liaison Base is located. Participants from FTU also joined the Forum for Leaders of Japanese Studies to explore research collaboration between our institutions.

Americas

Students visit from University of Southern California



Visit from USC Business Japanese Course

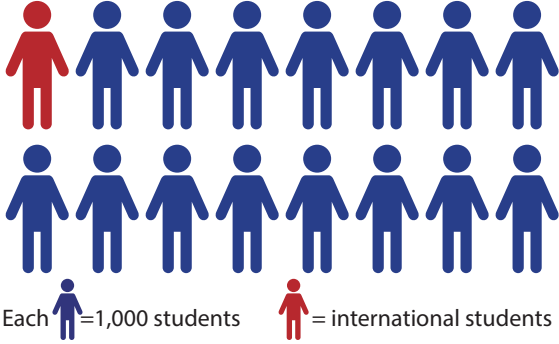
Kobe University hosted 10 undergraduate students from the University of Southern California's Business Japanese Course. The initial two weeks of the course are spent at the USC campus to develop language skills, learn Japanese business customs, and focus on case studies. The class moves to Japan for the second half of the course to obtain more practical knowledge about Japanese business and society through company visits, business lectures and other activities. During their stay, the delegation members had opportunities to attend lectures, visit local companies including newspapers and sake breweries, and collaborate with Kobe University students. They also enjoyed a baseball game with a stadium tour.



KOBE UNIVERSITY

Founded in 1902

4 campuses | 10 faculties | 15 graduate schools

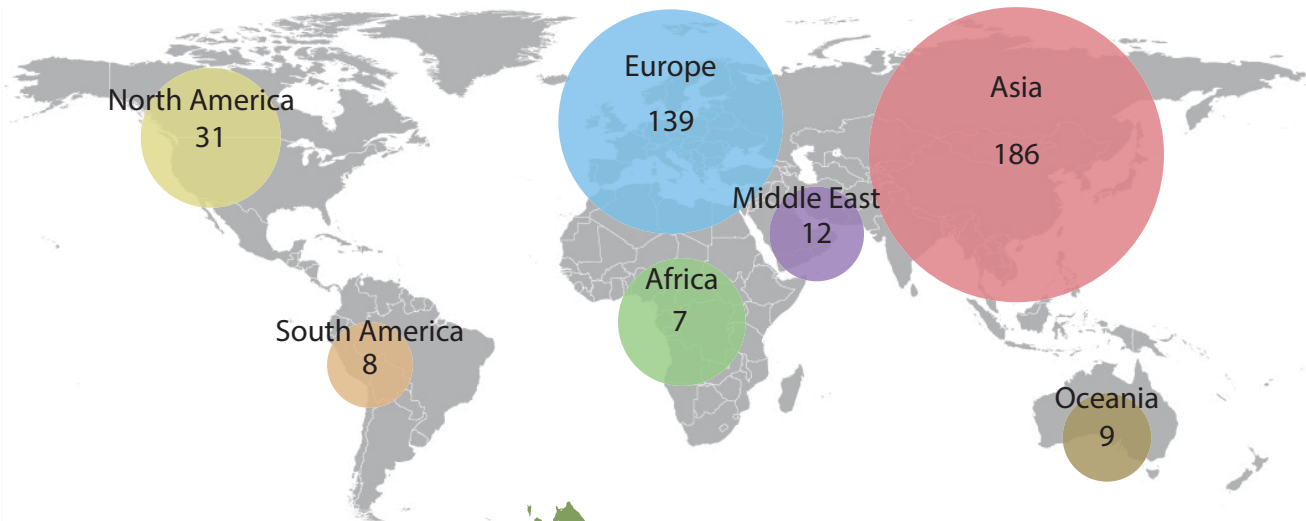


16,144 students including 1,201 international students comprising over 85 nationalities

3,741 staff including 1,641 teaching staff 2,100 administrative staff 135 faculty staff in attached schools

Partner Universities

Kobe University currently has 392 partner agreements in 60 countries/regions.



Faculties and Graduate Schools

- Letters / Humanities
- Intercultural Studies
- Human Development and Environment
- Law
- Economics
- Business Administration
- Science
- Medicine
- Health Sciences
- Engineering
- System Informatics
- Agriculture / Agricultural Science
- Maritime Sciences
- International Cooperation Studies
- Science, Technology and Innovation
- (NEW!) Global Human Sciences

All data as of May 1, 2017