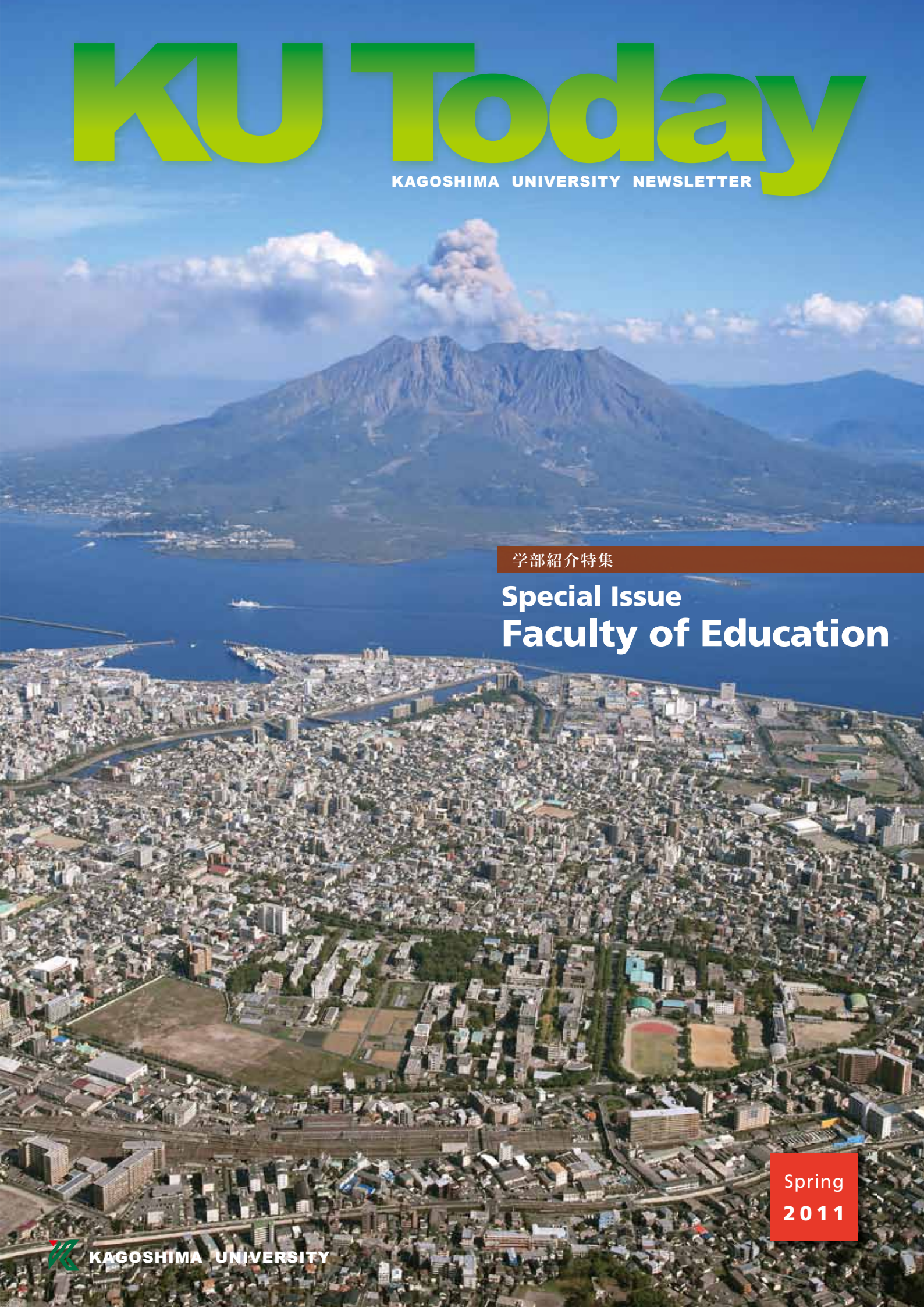
KU Today

KAGOSHIMA UNIVERSITY NEWSLETTER



学部紹介特集

Special Issue
Faculty of Education

Spring
2011

KAGOSHIMA UNIVERSITY

KU Today
KAGOSHIMA UNIVERSITY NEWSLETTER
No.1 Spring 2011

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KUToday is a biannual publication to present information about Kagoshima University to a wider international audience. Each edition will feature one faculty for prospective overseas students as well as other topics such as educational programmes, research and alumni information. Some articles are translations from the Japanese-language publication, Kadai Journal, upon which KUToday is loosely based. Any comments or suggestions about KUToday will be warmly received.

PDF files on KUToday can be downloaded from http://kokusai.kuas.kagoshima-u.ac.jp/kucip/

A Note on Names
Following convention East Asian names appearing in KU Today are written family name followed by given name.

Spring
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THE INAUGURAL EDITION OF "KAGOSHIMA UNIVERSITY TODAY"

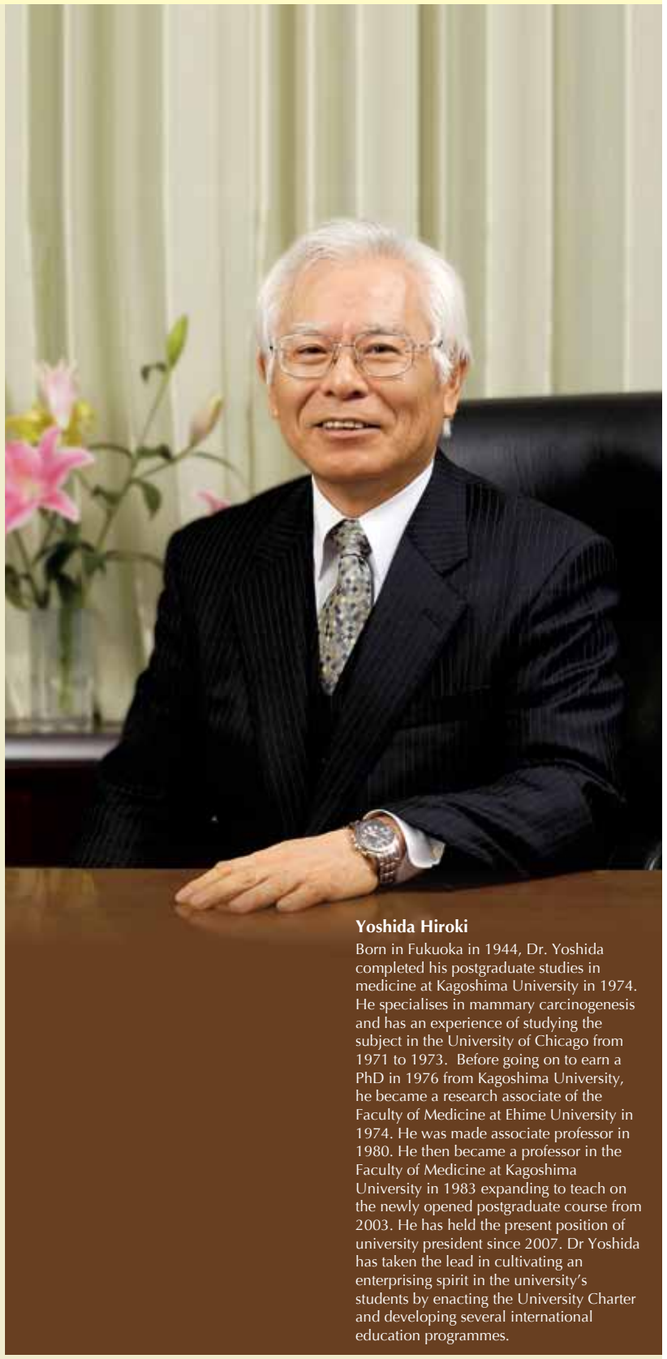
It is with great pleasure that we are able to publish the first edition of Kagoshima University Today. We hope that this regular publication will provide you with information about the research and education undertaken at our university and that this will lead to an expansion of our international cooperation.

Kagoshima has long produced people who have played progressive roles in Japanese society. In the mid 19th century Satsuma, as Kagoshima was then known, sent 19 young people to England to learn about modern technology breaking the national rule of sakkoku, which kept Japan a closed country at the time. Many revolutionaries and leaders also hailed from Kagoshima during the Meiji Restoration, which saw Japan change from a feudal to modern society.

It is with this historical background that Kagoshima University has adopted *shinshu no kifū*, the spirit of enterprise, as its fundamental policy for our students to develop their potential during their studies at our institution. However this cannot be achieved if students only passively undertake educational programmes in the classroom.

I am confident that active communication with the international community can have a positive effect to foster students' potential. In line with our motto, we hope that we can further expand international cooperation, and warmly welcome foreign students to our campuses as well as vigorously encourage Japanese students to go abroad. We are certain that any foreign student who is willing to study in Japan will be able to enjoy their student life here supported by our university and the international atmosphere in Kagoshima.

Hiroki Yoshida
President of Kagoshima University



Yoshida Hiroki
Born in Fukuoka in 1944, Dr. Yoshida completed his postgraduate studies in medicine at Kagoshima University in 1974. He specialises in mammary carcinogenesis and has an experience of studying the subject in the University of Chicago from 1971 to 1973. Before going on to earn a PhD in 1976 from Kagoshima University, he became a research associate of the Faculty of Medicine at Ehime University in 1974. He was made associate professor in 1980. He then became a professor in the Faculty of Medicine at Kagoshima University in 1983 expanding to teach on the newly opened postgraduate course from 2003. He has held the present position of university president since 2007. Dr Yoshida has taken the lead in cultivating an enterprising spirit in the university's students by enacting the University Charter and developing several international education programmes.

Special Issue

Faculty of Education

This feature issue of KUToday is aimed at helping those considering applying to study in the Faculty of Education. It covers the faculty's three departments (teacher training, special needs teacher training and lifelong learning), as well as the postgraduate course and the affiliated Centre for Educational Research and Development. We introduce 17 members of faculty, which we hope will show the breadth and depth of academic activity. We also cover the faculty's JICA training programme with countries in English-speaking Africa and take a look at the overseas students currently studying with us.
For more detailed information in English about courses and research in the faculty, go to the faculty website at **http://www.edu.kagoshima-u.ac.jp/**

(edited by Kamitani Junsaburo)

Umezaki Hikaru

Associate Professor, Japanese Education

My research centers on the history of the Japanese Language, in particular, changes that have occurred in sounds, sound patterns and orthography. For instance, studying the traditional readings of Buddhist texts used in various ceremonies, we see rules for reading Chinese characters according to Japanese accent patterns. These show diachronic accent changes in Japanese up to the early modern period, such as the behavior of obstruent gemination and Sino-Japanese morpheme adaptation to final-voicing constraints, and diacritic marks indicating such features.

Michishita Yoji

Associate Professor, Science Education

My field is high-energy physics. I study the quantum effects of elementary particles and gravity that are not treated by everyday low-energy physics. Though we cannot see these in everyday life they underpin all natural phenomena. In particular the quantum effects of gravity are still a mystery, and we look at these from theoretical standpoints that allow interesting predictions. I'm also studying ways to present everyday effects, e.g. sound, light, electricity and heat transmission, in school science classes using computer simulation, so students can deepen their understanding of the physical world through their own experience.

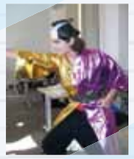
Number of Overseas Students Studying at Faculty of Education 2010–2011

Countries	Institutions Graduated From	Undergraduate	Graduate
China	Changchun Nissho Gakuen High School	1	
	Changsha University		1
	Hunan Agricultural University	1	
	Inner Mongolia University for the Nationalities	2	3
	Inner Mongolia Finance and Economics College	1	
	Inner Mongolia Technical College for the Nationalities		1
	Inner Mongolia Normal University		3
	Northeast Yucai Foreign Language School	1	
	Northeast Normal University	1	
	Shanghai Jianqiao College	1	
	Suzhou Vocational College		1
	University of Macau		1
	Xiangtang University		1
	Yunnan Agricultural University		1
Germany	University of Bonn	1	1
Korea	Cheju National University	1	
	Chonbuk National University	1	
	Kagnung National University	2	
	Kagwon National University	1	
	Pukyong National University	2	
Ukraine	National Taras Shevchenko University of Kyiv	1	
Vietnam	Hanoi National University	1	
Total		18	13

Yamaguchi Takeshi

Professor, Mathematics Education

My field is epistemological and semiotic analysis of social interaction in mathematics education. When children construct their mathematical knowledge, an important part of the process is how they compare their ideas with each other. This is known as social interaction or communication. In addition to this, mathematics tends to generalize by using symbols. I, therefore, analyze teaching and learning process of mathematics in terms of both generalization and social interaction with mathematical symbols.



Shimohara Miho

Professor, Art Education

In our modern globalized society there is a need to develop individuality in a global context. Art and cultural activities develop our powers of expressing our individuality together. In recent years I have performed workshops in Italy, Finland and Britain of Narikiri-emaki, said to be a source of animated cartoons. My workshop deals with 1) the process of scrolling from left to right while reading the words and visual effects, 2) telling a story over a wide shot, 3) acting the roles of the characters, 4) high culture and subculture to join us.

Yokodaido Satoshi

Associate Professor, Social Science Education

My field is modern Japanese constitutional law, especially the following three aspects: 1) Constitutional rights need to be promoted rather than prescribed; I thus study the effect of new laws on constitutional freedom of speech. 2) Since the terrorism of Sept. 11, 2001, how should we balance freedom of speech with national security? 3) Hitherto, constitutional questions have putatively been settled by the judiciary, but since in reality executive interpretation has a role to play in settling disputes, I investigate that interpretive role, too.

Nakamori Seiichi

Professor, Technology Education

My specialist field is electrical technology and I research the estimation of stochastic signals, the restoration of two-dimensional images, the pattern recognition of facial images and system control of the inverted pendulum. Since 2001, I have been engaged in joint research with a group from the University of Granada in Spain into the estimation problem of signals from uncertain observed values. I lecture on electrical and information engineering on the undergraduate and graduate courses and have supervised undergraduate dissertations using a microcontroller PIC (peripheral interface controller). I have also supervised three postgraduate students from the People's Republic of China.

Tajima Mariko

Professor, Domestic Science Education

Eating habits in Japan have changed greatly in the last 50 years. From a diet that was once based on carbohydrates, we are now eating more good quality proteins and animal fats as well as a great variety of processed and ready-made foods and varying our diet with dishes from other countries. On the other hand, looking at the eating habits of the individual we see many problems from unbalanced diets to skipping meals and eating alone. Therefore since our eating habits are so closely connected to our health education can be used to teach children the basics. In Japan, children are taught about food in domestic science classes that run from primary school until senior high. In my lectures we look at food from a scientific point of view as well as think about how to control our eating habits and also how to pass on our food culture to future generations.

Ishida Masashi

Lecturer, Music Education

My field is composition, and I have written orchestral, chamber, solo, piano, opera and choral pieces, which have been performed at various venues throughout Japan, including Tokyo and Kagoshima. Most of my work is modern music that is often thought to be difficult to understand, but I occasionally compose in a more popular idiom. My students not only learn the skills needed to teach at elementary and junior high school but also pursue the possibilities of further expression through analysis of various fields and styles of composition and actually composing in those styles.

Niwa Saki

Associate Professor, English Education

My main area of research is early-modern English drama, including Shakespeare and the University Wits. I am particularly interested in the relationship between drama and its political background in the 16th and 17th century, and the visual effect on the audience of that period. In my classes, I teach English literature both at undergraduate level and in the graduate school. I also try to use drama as a method of teaching English for students who are going to be teachers at junior high schools. In "Teaching of English and American Literature," for example, students are required to produce the English script for the play they want to perform, do the actual piece, and give a trial lesson using the expressions in the play.

Koyanagi Masashi

Professor, School Education (Pedagogy)

I have five post-graduates from China, mostly studying Japanese/Chinese education systems. Change in China is rapid, especially that from rote learning to practical application. As smaller classes allow more individual potential, single children have become "Little Emperors" of 30, with an adolescent struggle for independence as acute as in Japan. We gain much from comparing Japanese and Chinese education reforms. I've been to China four times, and each time I'm surprised by the speed of change -- which must be true for other Asian countries. We welcome students from all these countries.

Kaneko Mitsuru

Associate Professor, Adult and Community Education

My area of expertise is in the following three fields: 1) research into social and cultural environment of child development, 2) research into the demand for closer cooperation between schools and the community from the viewpoint of adult and community education, 3) research into social rejection and research into community building both centred on social capital theory. I have also been conducting action research based on the previous three fields in Kagoshima, Kanoya and other municipalities in Kagoshima Prefecture. In Kanoya, in particular, I have been involved in town development projects based on social capital theory. I am also conducting research into school and adult education in Korea, based on my experience as a MEXT researcher there.

Hirose Katsuhiro

Associate Professor, Health and Physical Education

Our main aim is to improve the quality of physical education at schools. This can be done through maximizing the potential of teachers, children, and exercise and sports equipment. I focus on ball games. The principle concept is that games improve through play: the TGfU (Teaching Games for Understanding) model; and that students' skills and tactics improve through study, learning-transfer, and interaction between students and teachers. At the present moment, we have 3 post-graduate and 12 undergraduate students (3rd and 4th years) in the department, who meet once a week for seminar activities.

Kumoi Miyoshi

Associate Professor, Education for Children with Special Needs

My research centres on the education of children with disabilities. Disabilities in people arise from their individual conditions and their interaction with their environment. This is why education needs to deal not just with effective training but also in improving the learning environment. One approach is using psychology to develop education for the individual based on the psychological mechanisms of the adaptation process. My research currently focuses on the following five areas: 1) developing teaching materials to aid reading and writing for children with learning disabilities, 2) assessing the different cognitive functions and their development based on the characteristics of physiological markers such as brainwaves and heartbeat, 3) clinical research to support communication in severely multi-disabled children, 4) group therapy activities to support social skills in children with development disorders, and 5) thought-provoking educational activities for teachers and pupils to promote understanding of disabilities.

Otsuka Kiyoe

Associate Professor, International Study Education

The areas of my academic pursuits and teaching are varied: English teaching, intercultural communication, gender-related issues and tourism. Since English is now a lingua franca globally, most of my time and energy are spent teaching English. Successful international communications, however, require not only a good command of foreign languages but the knowledge of cultural differences. "Culture" means the pattern of perceptions and behaviour taught, expected and shared by an ethnic group. Through the course in intercultural communication, I teach the importance of knowing cultural differences or disparities of behavioural norms before Japanese meet foreigners. Likewise, men and women differ greatly in mind and body. So the communications between the sexes are also "cross-cultural" and complicated. My course on gender-related issues aims to close the gender gap and improve gender communication skills. Last but not least, the recent expansion of international tourism is giving a strong impetus to foreign language learning and fostering international understanding, which will eventually lead to global peace and democratization. So in my lectures on tourism, I strongly encourage students to travel extensively both at home and abroad by presenting the world's natural and cultural heritage.

Kariyazono Akihiko

Professor, Psychological Science Education

The main theme of my research is dialogue and cooperation: analyzing issues and cognitive characteristics that arise when people work together on a single problem. I have developed teaching plans for dialogue and cooperation based on previous research: lesson designs that teach ethics and arithmetic problem solving through dialogue in elementary school children. Dialogue and other language activities are now valued at school, but actual lessons are still ineffective in encouraging these activities. I hope my research will answer these needs.

Hashiguchi Tomo

Professor, Health Education Course

The health education course trains students to be able to give instruction on health and exercise to all ages so that we can build a society where anyone can enjoy meaningful and rich lives. My field of expertise is adolescent psychiatry and sports psychiatry. On the undergraduate course I teach about mental health and health psychology, while postgraduate classes concentrate on mental and physical development as well as medical support for developmental disorders. My research looks at the desired cooperation between school mental health and community counselling and medical facilities from a psychiatrist's point of view, as well as psychiatric problems in sports and the practice and theory of education to prevent doping.

Makihara Katsushi

Professor, Centre for Educational Research and Development

Before joining the centre in April 2010, I had worked from 1984 as a primary school teacher in Kagoshima Prefecture. My research aims at fostering professional competence in educators, looking at curricula and class design for teacher training as well as developing teaching training so that it can reflect both the area and the times. I have also been researching the foreign language activities which will be introduced into the 5th and 6th years of all state primary schools from 2011. These classes will not simply be a case of teaching the current secondary school English earlier; instead they will concentrate on listening, speaking and communication skills in a fun way with the major premise of making students like English.

Research Topics of Graduate Students and Research Students in 2010-2011

Courses	Name	Country	Research Topics in Graduate School of Education, Kagoshima University
Domestic Science Education	Bai Yingge	China	School Children's Development and Education: Comparative Study of China and Japan
	Bao Guilan	China	Family Support in Early Childhood Care and Education: Comparative Study of China and Japan
	Dabuxilatu	China	Development and Education in Infancy and Childhood: Comparative Study of Inner Mongolia and Japan
	Wang Hong	China	Degree of Satisfaction in Life and Housing for Residents of Yunnan, China.
English Education	Huang Ying	China	Foreign Language Education in China for a Comparison with Japan.
Health and Physical Education	Bao Baolin	China	Comparative Study of Inner Mongolia and Japan on the Health and Lifestyle of College Students
School Education	Nguyen Quynh Mai	Vietnam	Influences of School Education in the Meiji Period
	Mei Ge	China	Democracy and Freedom in Education
	Wu Minjie	China	Ethnic Education and its Historical Background in a City of Multiple Languages in Inner Mongolia
	Luan Zhenjun	China	Comparative Study of China and Japan on English Education in School
	Liugerile	China	Special Activities in School: A Comparison between China and Japan
	Bai Xuelian	China	Respect for Individuality in School Education
Social Science Education	Han Yanli	China	Societies in Mongolia and Japan during the 13th Century Mongol attacks
Adult and Community Education	Liu Xiaoxiao	China	Community Participation of College Students and Lifelong Learning: Comparative Study of China and Japan
	Lan Zhini	China	Ethnic Minority Education: A Case Study of Guangxi Autonomous Region in China
	Chen Liujia	China	China's One Child Policy and its Effect on the Independence of Young Adults

Special Issue
Faculty of Education

Topics

JICA Program in Faculty of Education: Improvement of Teachers' Training in English-speaking Africa

Starting in 2009, the Faculty of Education started a three year programme aimed at English-speaking Africa to provide group training to improve the quality of basic education. Each year the training takes place over four weeks in November and has so far received 28 trainees, who are administrators in teacher training facilities or in government bodies involved in developing curricula for teaching training, from eight countries: Malawi, Nigeria, Sierra Leone, Swaziland, Tanzania, Ethiopia, Gambia and Lesotho. The trainees received lectures on school administration in Japan as well as the curricula at Japanese teaching training colleges. They also viewed classes at the university affiliated primary school and in other small local schools and paid visits to the boards of education of Kagoshima Prefectural Government and Kagoshima City and Kagoshima Prefectural Institute for Education Research. This enabled the trainees to think about improvements that can be made in education in developing countries, and it is hoped that they will be able to share their experiences with respective institutions on their return home. A further three year programme involving in-service training for African educators will begin in 2012.

(by Uchida Yoshio)

JOURNEY OVER TO KAGOSHIMA

卒業生 輝く

Dong Bin (China)

MSc in Fisheries 2010

It's early winter and the rain in Kagoshima has me unconsciously reminiscing about the snow back home. I'm now in my fourth year in Kagoshima. I graduated last March and started working for a trading company in the city, where I am in charge of bringing overseas tourists to Kagoshima. People often ask me what a fisheries graduate is doing in the travel industry, to which I always reply "I just love to travel!", but if I think about it a little more seriously then I suppose the real reason is that I want to tell the world about Kagoshima, its onsens, the active volcano of Sakurajima, all the good food, and I want to see this city that I love boom.

I come from Changchun in north-eastern China, it is so cold there in winter that it can give Hokkaido a run for its money. When I was little I loved Japanese anime and music and so I started learning the language dreaming one day that I would be able to visit. My first step to fulfilling that dream was to study Japanese for business at university in Dalian. After graduating I got a job with a Japanese firm in Shanghai, where I got to know many Japanese people, but not matter how much Japanese I spoke I still didn't know the culture and felt that this was becoming a real obstacle for communication, so I took the plunge, gave up my job and came to Japan.

The image I had of Kagoshima before I arrived was of some small island (shima=island). But when I arrived I realised it wasn't an island after all, even though it did feel quite small for someone like me who was used to living in Shanghai. But after two and a half years as a student in Kagoshima I began to realise that I love the place, Sakurajima, the onsens, the shochu, the friendly local people - they had all become part of my life.

For someone like me who had never seen a volcano before, the symbol of Kagoshima, Sakurajima, was stunningly beautiful. Wherever you go in the city you can see it as it changes colour with the seasons, as beautiful as the cherry blossoms. With the volcano come the hot springs. I love them and try to go at least once a week. I've been to many, the sand baths in Ibusuki, the outdoor onsen on Sakurajima itself, as well as to onsen in the Kirishima mountains. Of a weekend I often take the ferry across Kinko Bay with a couple of friends to the mixed outdoor onsen on Sakurajima where you can relax listening to the waves lapping against the shore and let time slip by.

When I was a student I was funding myself so to pay tuition fees I worked part-time at an izakaya in the city centre. It was a small place serving Hakodate food, but the Japanese people I worked with were all very friendly. When I first started working there it was hard to remember the names of all the dishes as well as understand the local dialect, Kagoshima-ben, but people didn't mind, in fact I think they could see how hard it was for a foreigner and so they helped me a lot. Working there I learned about Japanese food and shochu, as well as local culture from all of the friendly Kagoshima people I met who came there.

When I graduated from Kagoshima University I decided to have a shot at making Kagoshima my home, so instead of finding working in Shanghai again, I got a job with a company in Kagoshima. I am currently working happily bringing overseas tourists to Kagoshima in the hope that they will also like the place too.

I believed that life is like a journey - so why not journey over to Kagoshima and see what it has to offer. I am sure you want be disappointed.

鹿大の知検探

Aiming at Clinical Xenotransplantation Using Pig Organs: Dr. Kazuhiko Yamada and His Research Projects

Xenotransplantation: a potential solution to relieve the critical shortage of donor organs

Due largely to improvements in immunosuppressive therapies, organ transplantation has become the only accepted cure for end-stage organ failure in the United States, Europe, as well as Japan. However, the current shortage of donor organs is a critical problem. One attractive solution to this critical shortage is cross-species organ transplantation, also known as xenotransplantation. From a phylogenic viewpoint, nonhuman primates would be the best choice since they are considered concordant to humans. However, with nonhuman primates there is significant concern for the transmission of viruses, which is thought to occur more likely between closely related species than from more distant species. This concern led to a virtual moratorium on nonhuman primate transplantation.

Pigs as organ donors for clinical xenotransplantation

Today the pig is viewed as the most realistic source of organs for future xenotransplantation. Pigs have favorable breeding characteristics and reach sexual maturity within three months. Size, litter size, and anatomic similarities with humans make them favorable donors. In addition, the risk of transmission of viruses from the pigs to humans is lower than that from nonhuman primates.

Overcoming the first major hurdle prohibiting xenotransplantation in a pig-to-primate model: hyperacute rejection

Despite pigs being the best candidate for xenogeneic organ donation, “hyperacute rejection (HAR),” caused by a response from the primate (baboon or human) immune system, was a major hurdle in the field of xenotransplantation until recently. Primate blood contains native antibodies (NAb) directed toward pig cell-surface carbohydrates called ‘galactose-alpha-1,3-galactose (Gal), which unless removed, results in hyper-acute rejection.

To avoid HAR, Dr. Yamada and his colleagues in United States produced knockout pigs (Gal-KO) in 2002 by genetically modifying the DNA of miniature swine. Dr. Yamada performed the first-ever xenogeneic kidney transplantation using a GalT-KO pig and recipient baboon in 2003. The initial results of his xenogeneic renal transplantation using Gal-KO animals showed that HAR was completely eliminated.

Continued immunologic hurdles in transplantation from pig-to-primates: T-cell mediated rejection

Then, the next hurdle in transplantation could be clearly seen by him. His initial experience with GalT-KO renal transplantation demonstrated the presence of anti-donor T-cells in rejected organs, with organ survival reaching a maximum of one month, suggesting that overcoming acute T-cell mediated rejection is of great importance for any attempt at preclinical xenotransplantation. In an attempt to control these very powerful T-cell responses many strategies had been developed to block various parts of the immune system response, but most of these had limited success.

Yamada’s innovative strategy to overcome strong xenogeneic T cell responses: Vascularized Thymic Transplantation

Because immunosuppression alone is prohibitively morbid, Dr. Yamada believed a strategy for xenogeneic tolerance induction was imperative for successful xenotransplantation. Transplantation tolerance, which uses the body’s own immune system to re-teach T-cells to suppress the anti-donor response, was first attempted by him using the simultaneous transplantation of a donor pig thymus. He decided to use the thymus because it was known to play an integral role in self-tolerance and in tolerance across allogeneic (intra-species) barriers. Because T-cell education occurs in thymus, thymic transplantation is thought to lead to tolerance by a central mechanism, much like the education of T-cells in a normal developing child. Dr. Yamada observed an advantage to using pre-vascularzed thymic tissue over non-vascularized thymic tissue.

This model, however, would be difficult to apply to clinical scenarios of transplantation and Dr. Yamada developed the thymokidney, which is a composite tissue graft consisting of a donor kidney injected with autologous thymic tissue underneath the renal capsule. He first attempted to demonstrate this model’s efficacy in a pig-to-pig model, then extended his strategy to a pig-to-baboon model in 2003. Utilizing GalT-KO swine donors for vascularized thymic tissue donation and thymokidney donation, graft survival was markedly prolonged, extending renal xenograft survival, with normal renal function, to more than 80 days.

Dr. Yamada feels that although initial trials demonstrated marked improvement, over studies (his and others) without thymic co-transplantation, the rate of early complications remained high. Therefore, he has has attempted to reduce early operative death from infection associated with the induction protocol. For the past 5 years, Dr. Yamada has successfully eliminated steroids and whole body irradiation from the induction regimen which has led to: 1) decreased complication rates, from elimination of steroids and irradiation (mean survival to greater than 50 days); 2) demonstration of baboon thymopoiesis (reeducated T-cells) in transplanted, vascularized pig thymic grafts; and 3) in vitro evidence of donor-specific tolerance.

More recently, Dr. Yamada successfully produced GalT-KO miniature swine in Japan in collaboration with the NIBS Research Institute (Yamanashi, Japan) and Professor Nagashima from Meiji University. This achievement by Dr. Yamada and colleagues is the first successfully produced GalT-KO miniature swine in Japan. His project of xenogeneic renal transplantation using newly developed GalT-KO pigs produced in Japan is in progress. They have successfully avoided HAR and early xenograft humoral rejection, confirming the validity of his GalT-KO swine donors. Yamada is currently attempting to develop new immunosuppressive regimens in collaboration with Dr. Maruyama in Kagoshima University to avoid protein loss in the urine of transplantation recipients, which has been a challenging problem (described below).

Strategy to cure diabetes: 2-month regulation of blood sugar levels following porcine islet transplantation in monkeys in Yamada’s laboratory in Kagoshima University

Currently, the International Xenotransplantation Association (IXA) and the World Health Organization (WHO) are drafting regulations for the clinical application of xenotransplantation. The most likely initial clinical xenotransplantation application for humans will be the transplantation of porcine islets to cure human diabetes. Diabetics and pre-diabetics account for one-sixth of Japan’s total population, representing 6% of the total annual cost of the Japanese medical system. There are mounting expectations for islet transplantation. Islet transplantation is capable of inducing patient insulin-independence, and is less invasive than pancreatic transplantation. The supply of donor islets relies solely on human donation and multiple donors are required for each transplant. Thus, the most serious

obstacle is a shortage of donor pancreata from which islet grafts are retrieved.

Dr. Yamada's laboratory in Kagoshima University has already launched an islet xenotransplantation project for the purpose of solving a shortage of available donor islets and also a lack of appropriate immunosuppressive regimens suited for islet transplantation.

Because porcine and human insulin differ by only one amino-acid, and porcine is physiologically active in humans, human blood glucose levels can be controlled using porcine insulin. Based on his experience with Gal-KO renal xenotrasnsplantation Dr. Yamada recognized that the porcine islets naturally lack the Gal antigen for which GalT-KO pigs were produced. Thus, the function of porcine islets may be prolonged, even without use of GalT-KO pigs, if supported by the appropriate immunosuppressive regimen. With extensive experience in the field, Dr. Yamada designed a unique pig-to-primate islet xenotransplantation project using GalT-positive CLAWN miniature swine developed by Dr. Nakanishi of Kagoshima University in collaboration with the CLAWN Research Institute Kagoshima. His recent work has demonstrated normal blood sugar levels for 2 months following pig-to-monkey islet transplantation that leading to insulin independence. This is the first demonstration of durable porcine islets function in nonhuman primates in Japan.

Future Approaches

Although his strategy markedly prolonged xenograft survival, two major obstacles remain before a clinical trial can begin. According to Dr. Yamada, the first is to develop clinically applicable induction protocols to induce immunologic tolerance with xenogeneic porcine vascularized thymic grafts, in addition to the elimination of maintenance immunosuppression. This approach will limit infectious complications following transplantation and reduce the cost of chronic immunosuppression.

Dr. Yamada now aims to determine the causes of xenograft kidney, an ongoing chronic problem observed in xenografts. Despite the success with his current regimen, proteinuria associated with glomerulopathy possibly due to vascular injury in renal xenografts, likely contributes to late graft-loss despite in-vitro evidence of T-cell tolerance. Dr. Yamada hopes to determine the causes of this proteinuria in the next 5 years, by treatment with pharmacologic agents and the use of kidneys from GalT-KO pigs with additional transgenes capable of blocking cellular injury and complement activation. He is currently widely collaborating with both national groups and groups overseas (Australia, Korea, China as well as United States).

Dr. Yamada stated that his recent results of kidneys cotransplanted with thymic grafts and islets are encouraging. Additionally, these advances continue to offer hope that xenotransplantation will be the future of transplantation, and that the future may be just around the corner. He concluded that donor organs from other species, "xenotransplantation", remains at the forefront of the search for a solution to the organ shortage, and that long-term tolerance to pig xenografts in primates appears to remain an attainable goal.

(edited by Nakatani Sumie based on an interview in Oct 2010)

Dr. Yamada Kazuhiko, Professor at Frontier Science Research Center of Kagoshima University

Dr. Yamada is a world renowned scientist in the field of xenotransplantation and has the world's record for the longest surviving life-supporting xenogeneic kidney graft in a pig-to-baboon model. He serves as a Councilor of the International Xenotransplantation Association (IXA) and he sits on the editorial board of several major journals in the field of transplantation.

1994-1998
Research Fellow, Transplantation Biology Research Center(TBRC), Massachusetts General Hospital (MGH), Harvard Medical School(HMS).
1998-2000
Instructor in Surgery, Harvard Medical School
2000-2004
Assistant Professor of Surgery, Harvard Medical School
2004-2006
Associate Professor of Surgery, Harvard Medical School
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国際交流

KUFSA
There is Unity in Diversity

Shiela Villamor, KUFSA President 2010–2011

This year, there are 272 foreign students enrolled in Kagoshima University who come from 41 countries around the world. Years back, KUFSA (Kagoshima University Foreign Students Association) was organized by the foreign students of Kagoshima University with the objectives to unite and foster good relationships among foreign students in Kagoshima University and to promote friendship and better understanding between the foreign students and the Japanese. To realize these objectives, KUFSA organizes various activities participated in by foreign students as well as by the Japanese community in Kagoshima. The activities are classified into parties (welcome, farewell and BBQ), country talks, Japanese culture, sports events and International Night.

Newcomers are being greeted during welcome parties which are held in April and October where they get to know more about KUFSA, University officials and staff, life in the University and in Kagoshima and other essential information that will make their academic and social life worthwhile. At summer break, a BBQ party is held to build a relaxing atmosphere where foreign students together with Japanese friends and students enjoy the hot summer while having a delicious BBQ and enjoying fun games. Also, graduating students are being sent off and honored during the farewell party held in March where they share their experiences to inspire the remaining students.

At different months, Senegal, Pakistan and Bangladesh hosted the country talks wherein their respective culture and traditions were presented in the form of various ceremonies, dances, songs, costumes and food. This kind of activity has created more knowledge and a deeper understanding among the foreign students and the Japanese community who attended the said events.

Japanese cultural events such as making satsumaage, calligraphy and origami were organized to make a deeper appreciation of Japanese culture among the foreign students.

In order to take a break from monotonous academic life, sports events like futsal, badminton, table tennis and basketball tournaments were conducted to maintain the physical fitness and wellness of students.

The much awaited main event of the year, the International Night is held every last Sunday of November to showcase the unique culture of different countries around the world through music, dance, costumes and other entertaining performances. This year, around 600 guests got the chance to enjoy the artistic performances and fashion show of traditional clothes by the foreign students as well as Japanese students and friends. Also, the guests were able to have a unique taste of traditional foods from 18 countries.

The success of the abovementioned activities were made possible through cooperation among the foreign students. The university particularly the International Student Office and International Student Center also continue to support KUFSA financially and in kind. Moreover, a large amount of monetary support came from Kagoshima International Association, Kagoshima International Citizens Society, Soroptimist International Kagoshima, Rotary Community Corps Southern Friends, Kagoshima Southern Wind Rotary Club and Kagoshima Prefectural Police. Most of all, the invaluable voluntary services of each Executive Committee member served as a strong foundation to manage KUFSA and to make every activity a successful one.

Being President of KUFSA for the academic year 2010-2011 is a great learning experience for me. To lead KUFSA has also given me the opportunity to bring honor to and to represent my beloved country the Philippines. KUFSA has opened my eyes and my heart to the reality that unity is possible in the midst of diversity in race, language, culture and points of view. I hope that KUFSA will continue to strive to realize its objectives and have a unique impact on the lives of foreign students in Kagoshima University.

Kagoshima University has developed sister university relationships with seventy four overseas universities through the exchange of Memoranda of Understanding (MOU) for academic and educational cooperation including student exchanges. Various research and educational programs have been conducted in collaboration with those universities. In this article we introduce a short term overseas educational program in collaboration with Northeastern University, one of our sister universities in China.

Overseas Educational Programme on Desert Greening

In September 2010, a group of Kagoshima University students participated in a desert greening programme in the Autonomous Region of Inner Mongolia in the People's Republic of China, where desertification has intensified mainly due to the large number of immigrants into the region, excessive pasturage and depletion of the traditional nomadic way of life. The goal of the programme was to visit the desert in Khorchin and to witness the desertification and its effect on peoples' lives. It was also hoped that the programme would help Japanese students foster the ability to adapt to different cultures through communication with their Chinese counterparts.

Prior to the trip to China, the students were given lectures on global environmental issues and the desertification of Inner Mongolia and they also went on a field trip to a rural area for physical experience in agriculture. The field trip was conducted from 4th - 11th September with 18 Japanese and 5 Chinese students. It started in Shenyang, capital of Liaoning Province, where Northeastern University is located, before moving on to Tongliao, the city closest to the desert, for lectures on greening activities, reforestation methods and desertification in Inner Mongolia given by Narita Masayuki of Friends of the Earth Japan and by Dr. Nozaki Tsutomu, Professor Emeritus of both Kagoshima University and Northeastern University. After that the group visited the site and helped with reforestation by planting pine and elm trees.

In addition to the reforestation experience, the students visited the world cultural heritage sites of the Qing Dynasty Imperial Palace and Tombs as well as a local enterprise, NEF SOFT, and a produce market in Shenyang, giving the Japanese students chance to experience both the dynamism of China and its long history. Above all though the most valuable experience of the programme was the close communication with Chinese students with the highlight being a forum where they could exchange views and information on the respective cultures. The programme not only provided a good opportunity for the participants to consider the fragility of the global environment, but also consider the lives of people of the same generation from a different culture. Although a large number of students had had a negative image of China and Chinese people prior to the field trip to China, those images were completely eradicated through their direct communication with the Chinese students and other people they met in Inner Mongolia. Since the programme is part of an educational exchange between the two universities, Kagoshima is preparing to welcome a group from Northeastern in May 2011.

(by Katō Yasuhisa)

Participants comments

Matsumoto Yumi

2nd year, Faculty of Education, Kagoshima University

The most impressive part of the programme for me was the cooperation extended by the Chinese students to help us learn many new things. They were very interested in our explanation on various issues in Japan with and in return they taught us a lot about Chinese history, health care and environmental problems. Seeing their serious approach to their studies, we could understand the reason why the China has developed so rapidly and where their potential exists. On the other hand, we were also able to observe severe gaps within Chinese society. From Japan all we can see is the surface picture of development but the other side of the rapid development can be seen when we physically visit China. I realised that China is a profound country. Although it is often reported recently that Japanese students are becoming more inward looking, taking part in this programme highlighted to me the importance of seeing the world with my own eyes.

Participants comments

Chan Bibi

4th year Japanese language major, Northeastern University

When I first stepped into the real desert, my idea of what a desert was totally changed. The emotion I felt then is still clear in my mind, though it cannot be presented by words. Looking at that magnificent desert, I had mixed feelings: we should prevent desertification but, at the same time, preserve the desert, which has been a part of nature for such a long time.

I made some new discoveries while working on the reforestation with the Japanese students. One of them is the love of nature shown by the students from Kagoshima, most of whom belong to the Faculty of Agriculture. When I saw their serious attitude toward nature, I was also impressed. I think I could communicate with nature from a different angle. Discussing with the students and teachers from Kagoshima openly, I could understand the difference between our two countries and why I am a Chinese. I learned that your own ideas and activities would be always supported by your own culture and background, even though I stayed in other countries for some years. I could revisit myself and China thanks to communication with the people from Kagoshima University.

New Kagoshima University Network Ambassadors in China

In March 2010 Dr. Yoshida Hiroki, President of Kagoshima University, and Dr. Maeda Yoshizane, Executive Director for Research and Community Cooperation, visited three sister universities, Xiangtang University, Hunan Agricultural University and Nanjing University of Technology (NJUT) to appoint 13 alumni working there as network ambassadors.

The network ambassador was set up as part of Kagoshima University's global network to promote the active transmission of information about the university by providing up-to-date information regarding our education and research activities. The purpose of the project is the further globalization of the university in recruiting talented students from overseas, and in promoting joint research, industry-academia collaboration and other activities. The title of network ambassador is appointed to former students working in institutes of higher education throughout the world.

Unraveling the structure of toxins in sea sponges

Associate Professor Hamada Toshiyuki of the Graduate School of Science and Engineering is a member of a research team involving Tokyo University, Hokkaido University, Riken, and Johann Wolfgang Goethe University (Germany) that has succeeded in unravelling the three-dimensionally structure of the polytheonamide B (pTB), the strong cellular toxin found in sea sponges. At present pTB is the smallest molecule known to be able to act as an ion channel. They are hopeful that this pore-forming toxin will find many uses in biotechnology.

Off to the Asian Rugby Championships

Shimoyama Shōhei (Education, 1st year) was selected as a member of the Japanese national under 20s team for the Asian Rugby Junior Championships held in Bangkok in August 2010. Shiroyama played in all the matches and contributed to Japan winning the trophy.

Inauguration of the Research Centre for the Pacific Islands

The commemoration ceremony of the Research Centre for the Pacific Islands was held on the 2nd October 2010 attended by 133 people including Dr. Yoshida, staff, students and members of the general public.

The Research Centre for the Pacific Islands was reorganised in April 2010 taking over from its predecessors, the Research Centre for the Southern Regions set up in 1980 and the Research Centre for the South Pacific developed in 1981. The aim of the centre is to play a major role towards the resolution of issues in local society by promoting interdisciplinary educational programmes and fostering individuals who can work actively in global society.

In the ceremony, Dr. Yoshida, President of Kagoshima University, gave the opening address laying out the main roles and purposes of its re-opening as a centre for education and research activities and interdisciplinary educational courses. Next, Renster Andrew, Deputy Chief of Mission, Embassy of the Federated States of Micronesia in Japan, made a congratulatory speech. In addition, Professor Noda, Director of the Centre, introduced the centre's research activities and Professor Tominaga, Deputy President, presented a new interdisciplinary programme for the graduate school, the Island Studies Course.

Following the ceremony, a symposium titled "Nesia-Empowerment"– Developing Island Futures – was held and Mr. Andrew provided a special lecture titled "Designing Rainbownesia – Connecting Micronesia and Kagoshima". Mr. Hamada, former Director of the JICA Office in Micronesia, Dr. Campbell, a visiting professor at the centre and Professor Nagashima made presentations, discussing actively with the participants.

University President's Visit to Brazil

A delegation headed by Dr.Yoshida visited Brazil from 24th to 28th October 2010 for the purpose of further development of academic exchange activities including mutual exchange programs of students and staff between Brazil, where many people of Kagoshima origin live, and the university. This is the first visit to Brazil for Dr. Yoshida and was planned as part of the the university's global network project.

The university contingent attended an alumni reunion held in Sao Paulo and appointed six members of alumni as network ambassadors including Sonoda Akinori, President of the Association of People from Kagoshima Prefecture in Brazil, and others to cooperate and assist in the development of mutual exchange activities between Brazil and Kagoshima University.

In addition, meetings were held with academic staff at the University of Sao Paulo and at University of San Carlos to discuss the possibilities of academic exchange. Visits were also made to Iguassu to meet farmers whose families had emigrated from Kagoshima.

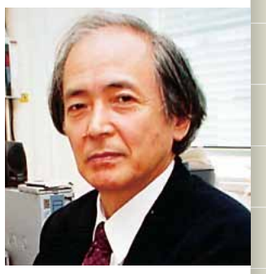
For further development of the cooperative ties with Brazil, Kagoshima University is planning to send students under a university-financed support project for students' overseas educational programmes in the 2011 academic year.

Neural stem cells and anti-epilepsy drugs to help spinal cord injuries

Dr. Abematsu Masahiko, orthopedic surgeon at Kagoshima University Hospital and former researcher at the Nara Institute of Science and Technology, and his team have developed treatment, labelled HINT therapy, using neural stem cells and anti-epilepsy drugs to graft neural cells efficiently and enable mice with severe spinal injuries to walk again. The research team transplanted the neural stem cells into the mice and administered valproic acid for one week. After 6 weeks 15 of the 21 injured mice used in the experiment were mostly able to walk again and a recovery of function could be clearly seen in the remaining six. Until now the regenerative ability of the brain and spinal cord has been quite low, and once paralysis sets in any kind of treatment has been difficult. The use of neural stem cells and anti-epilepsy drugs is a world first but the results look promising for those suffering from spinal injuries and strokes.

Research team awarded 2010 MEXT Prize for Science & Technology, following Baelz first Prize in 2008

Professor Maruyama Ikurō of the Graduate School of Medical and Dental Sciences and his research team have accomplished a global first by succeeding in using thrombomodulin, which prevents cerebral and cardiac infarctions caused by blood clotting in blood vessels, as a drug. Thrombomodulin is a protein present in blood vessels and has excellent blood clot preventing characteristics. As well as developing a new anti-thrombotic drug from genetically recombined thrombomodulin, the team was also commended for proving that it could contribute to improvements for those suffering from the acute thrombotic disorder, disseminated intravascular coagulation.



探訪 かごしま

EXPLORING KAGOSHIMA

WAITING FOR THE BIG ONE?

桜島火山南岳の最近の噴火活動

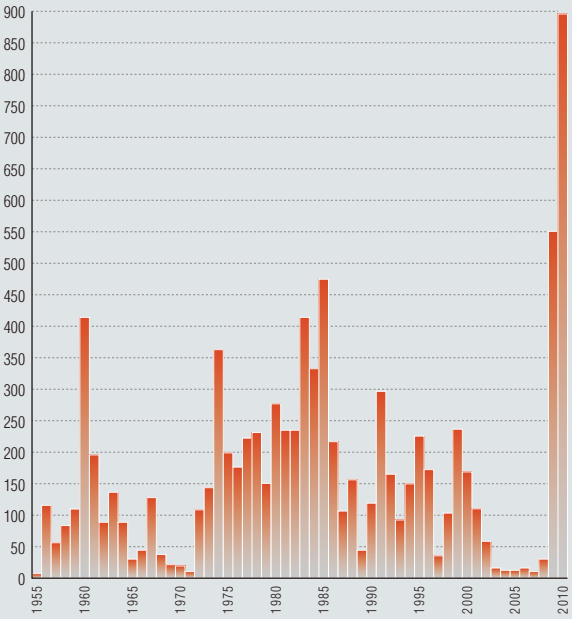
Professor Kobayashi Tetsuo,
Graduate School of Science and Engineering

The southern peak of Mt. Sakurajima has been erupting continuously since 1955. Sometimes the eruptions are accompanied by loud blasts, shockwaves, plumes of ash ascending several kilometres into the air, as well as volcanic bombs. These kinds of eruptions are known as Vulcanian. As can be seen in the graph, 1960 and 1985 were particularly active, but until 2008 there were relatively few eruptions. Mt Sakurajima has suddenly become active in 2009 and the annual eruptions in 2010 counted 896 times, a largest record after 1955. Total 9122 were recorded 1955 and 2010.

This kind of continuous long-term activity may seem unusual, but it has been going on since the southern peak was formed 3000 years ago. At present the Showa crater on the southern peak is most active, and if the eruption style changes to one where lava is ejected then a new volcanic edifice might emerge.

It is often said that if a volcano keeps having many small eruptions it stops there being a large one, but this is not always the case. Magma has been building up under Sakurajima so in the not too distant future there will probably be an eruption similar to the one in 1914 when the then island of Sakurajima became fused to the mainland by lava flows.

No. of eruptions



Source: Kagoshima Meteorological Office

An eruption on 9th April 2009 which covered the university campus in ash

＊Front Cover

Sakurajima and Kōrimoto Campus

The active volcano of Mt.Sakurajima across Kinko Bay can easily be seen from Kagoshima University's Kōrimoto Campus. The presence of the volcano has led to a special ecosystem for animal and plant life in the area. The history of the city and the university is also deeply connected with the volcano, which is an object of research and education.

① Kōrimoto Campus ② University Affiliated Schools
③ Shimoarata Campus ④ International Residence Hall
⑤ Faculty of Education