

APRSAF No. 18

NEWS

LETTER

JULY 2014



APRSAF
ASIA-PACIFIC REGIONAL
SPACE AGENCY FORUM

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APRSAF-21 December 2-5, 2014, Tokyo, Japan

The 21st session of the Asia-Pacific Regional Space Agency Forum (APRSAF-21) will be held from December 2 to 5, 2014, at the National Museum of Emerging Science and Innovation (Miraikan) and Tokyo International Exchange Center (Plaza Heisei), Tokyo, Japan.

Japan holds the APRSAF for the first time in 9 years. The last session in Japan, APRSAF-12, was held in 2005 in Kitakyushu, Southeast Japan. During the 9 years, APRSAF has marked significant improve-

ments; for example, several initiatives have been established out of working group discussions and the number of participants was more than doubled not only from space agencies but also from related ministries and agencies, user organizations, international organizations, industry, research institutions, etc.

Under the main theme, "Leap to the Next Stage: Delivering Innovative Ideas and Solutions," APRSAF-21 will open the next phase of APRSAF to extract more value from space.



Date December 2-5, 2014
Venue National Museum of Emerging Science and Innovation (Miraikan)
Tokyo International Exchange Center (Plaza Heisei)
Organizers Ministry of Education, Culture, Sports, Science and Technology of Japan (MEXT)
Japan Aerospace Exploration Agency (JAXA)

Miraikan is a museum where you can experience the state-of-the-art science and technology. The earth-like display on the photo is the symbol exhibit of Miraikan, Geo-Cosmos, which produces a rendition of our Earth shining brightly in space with a super high precision exceeding 10 million pixels. The images of clouds on the globe reflect the everyday image data taken by the weather satellites.



Humanoid Robot, ASIMO, an exhibit at Miraikan



SHINKAI 6500 (full-scale model), a manned research submersible that can dive to a depth of 6,500 meters, an exhibit at Miraikan



Songs of ANAGURA — Missing Researchers & the remaining Devices, an exhibit on spatial information science at Miraikan



Message from General Co-chair

Dr. Keisuke Isogai

Deputy Director General
Research and Development Bureau
Ministry of Education, Culture, Sports, Science and
Technology of Japan (MEXT)

Konnichiwa, APRSAF participants. I am pleased to announce that the Ministry of Education, Culture, Sports, Science and Technology (MEXT) of Japan and Japan Aerospace Exploration Agency (JAXA) will host the 21st session of the Asia-Pacific Regional Space Agency Forum (APRSF-21) from December 2 to 5 this year, in Tokyo. MEXT and JAXA are very much honored to be given this special opportunity to host APRSAF-21 for the first time in 9 years.

APRSF marked its 20th anniversary last year. First, I would like to express my gratitude to the Vietnam Academy of Science and Technology, which co-organized the 20th memorable session of APRSAF with us and led it to a successful conclusion, as well as all the organizers, parties, and participants that contributed to APRSAF in the last 20 years.

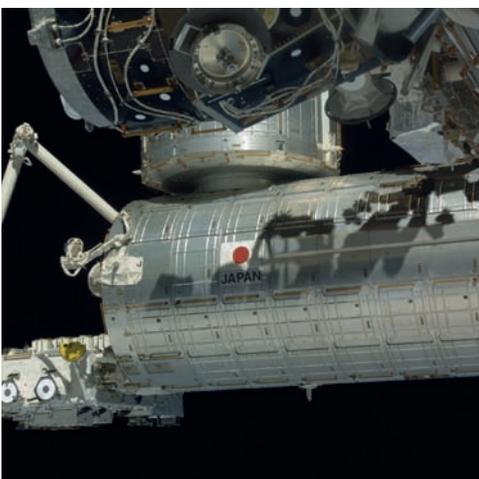
Over the past 20 years, APRSAF has played a great role in providing opportunities for space cooperation and promoting of space utilization in the Asia-Pacific region. The “Sentinel Asia” project, which aims to contribute to disaster management in the region, or participation from Asian countries in various space environments under the framework of “Kibo-ABC,” which aims to promote utilization of the International Space Station (ISS)/Japanese Experiment Module “Kibo,” are some of the concrete results.

Considering such results in the last 20 years, APRSAF is at the stage of change for the next 20 years. The scale of APRSAF has been expanding steadily; there were more than 420 participants in APRSAF-20. At the same time, it was referred in

the Recommendations of APRSAF-20 to renovate the current framework of working groups toward a new socio-economic outcome-oriented structure. I expect that APRSAF will continue and enhance playing its role of solving problems in the Asia-Pacific region.

On the contrary, globally, international discussion about future international space exploration is gathering momentum. This January, the International Space Exploration Forum (ISEF) was held in the United States, and 35 countries, regions, and organizations participated in the ISEF. ISEF participants recognized that human and robotic space exploration will be most successful by building on accomplishments and expanding partnerships with the long-term goal of human exploration of Mars. Considering that Japan will be hosting the next ISEF, expansion and collaboration of space development and utilization in the Asia-Pacific region will help us play important roles in the future international space exploration.

Astronaut Koichi Wakata, who sent us a video message from the ISS in APRSAF-20 last year, accomplished his mission as the ISS commander by applying the Japanese traditional spirit of “和” (“Wa”), which means harmony and consideration of others. I also intend to contribute to the Asia-Pacific region through space technologies, by cooperating with all of you with a spirit of “和,” under the new APRSAF. I am looking forward to seeing you in December in Tokyo.



Japanese Experiment Module, Kibo, of the International Space Station



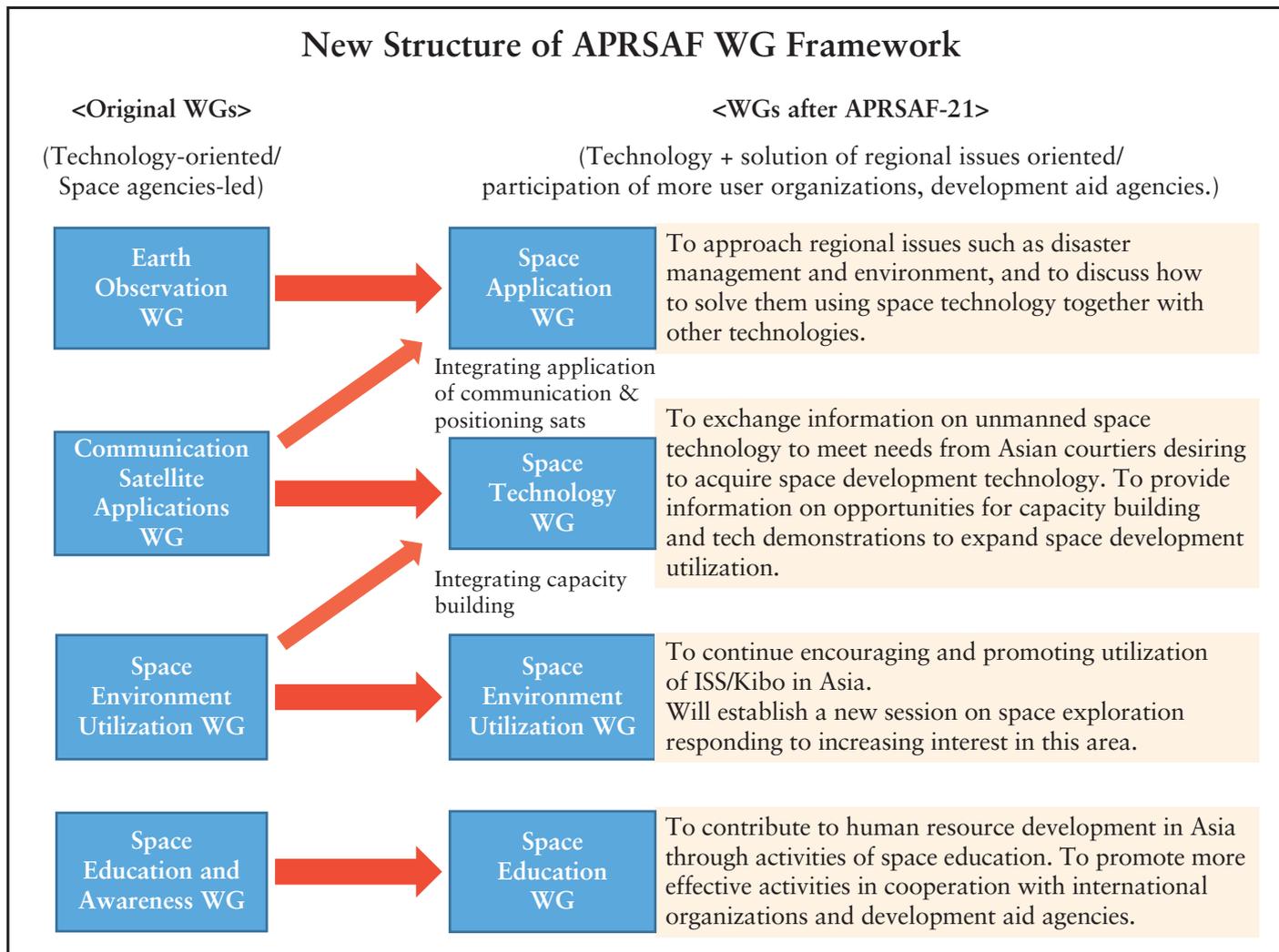
The Advanced Land Observing Satellite-2 "DAICHI-2" (ALOS-2), unpacked from its shipping container



H-IIA launch vehicle No.24

REPORT FROM APRSAF EXCOM

After its 20 years of activities of APRSAF, the participants of APRSAF-20, held from December 3 to December 6, 2013 in Hanoi, Vietnam, endorsed further discussion by the APRSAF Executive Committee (ExCom) to renovate the framework of working groups toward socio-economic outcome-oriented structure as stated in the Recommendations #41. Responding to this recommendation, the ExCom would like to suggest the new framework of working groups as follows to contribute to solving common issues in the Asia-Pacific region through APRSAF:



■ Renovation of the framework of WGs

- ✓ Space technology-oriented "Earth Observation WG" will shift to "Space Application WG," to solve regional socio-economic issues through promoting cooperation with other technology fields.
- ✓ "Communication Satellite Applications WG" will shift to "Space Technology WG," aiming to meet needs from countries desiring to acquire space development technology, and to exchange information on technology and capacity building.
- ✓ "Space Environment Utilization WG" will expand its activities of ISS/Kibo utilization and establish a new session on space exploration responding to increasing interest of Asian countries toward space exploration, etc.
- ✓ "Space Education and Awareness WG" will place space education as the center of its activities and change its name to "Space Education WG."
- ✓ Each WG will deepen inter-WG cooperation.

This new structure will be reflected in the next session of APRSAF, to be held in December this year. New WG Chairs will be announced soon through APRSAF News Mail and Announcements of APRSAF-21.

Please stay tuned for further updates, and we look forward to meeting you all in Tokyo!

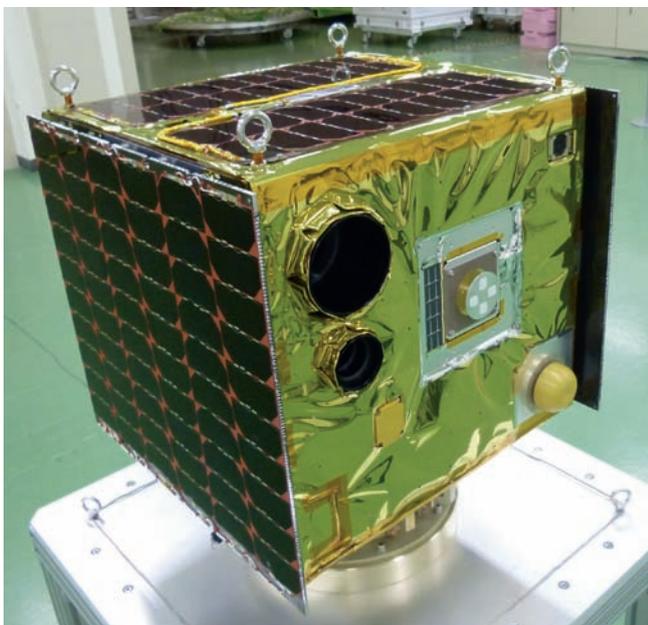
Japanese new Earth observation satellite “DAICHI-2” and UNIFORM-1 satellite were launched with other small satellites

On May 24, Japanese new Earth observation satellite “DAICHI-2” (ALOS-2) was launched aboard H-IIA launch vehicle No. 24 from Tanegashima Space Center. DAICHI-2 is follow-on mission succeeding its predecessor “DAICHI” (ALOS). DAICHI-2 carries L-band SAR payload “PALSAR-2,” providing improved spatial resolution (spotlight mode: 1-3 m/high-resolution mode: 3-10 m), all weather, day-and-night observations. The satellite is expected to contribute to monitor disasters not only in Japan but all over the world and its data are supposed to be used for Sentinel Asia, International Disaster Charter, and other disaster management mechanisms.



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Observation image of Izuoshima Island by ALOS-2



©UNIFORM Project

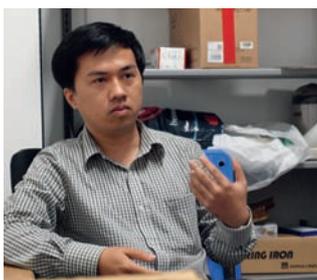
UNIFORM-1

H-IIA No. 24 also carried four small satellites: UNIFORM-1, RISING-2, SOCRATES, and SPROUT. Among them UNIFORM-1 is developed by “UNiversity International FORMation Mission” or “UNIFORM” project. This project is an international collaboration project and merged a former APRSAF initiative “STAR program.”

Some young engineers from APRSAF community countries have joined this project to learn space engineering. Mr. Nguyen Dinh Chau Minh from the Vietnam National Satellite Center is one of them. He visited Japan and joined UNIFORM project in September and October 2012. Having background of mechatronics, he worked for development of “UNIFORM-1” in cooperation with other staff members of UNIFORM project. “The experience of UNIFORM project was precious and beneficial,” says Minh, now studying satellite technology at

Keio University in Japan, “I saw the launch via Internet and it was very exciting moment. And I am happy hearing that we received first signal from UNIFORM-1.”

Minh emphasizes “Enthusiasm is most important to accomplish small satellite development, especially for young engineers.” APRSAF continues to encourage young engineers and researchers to expand their ability through this UNIFORM project.



Mr. Minh from VNCS

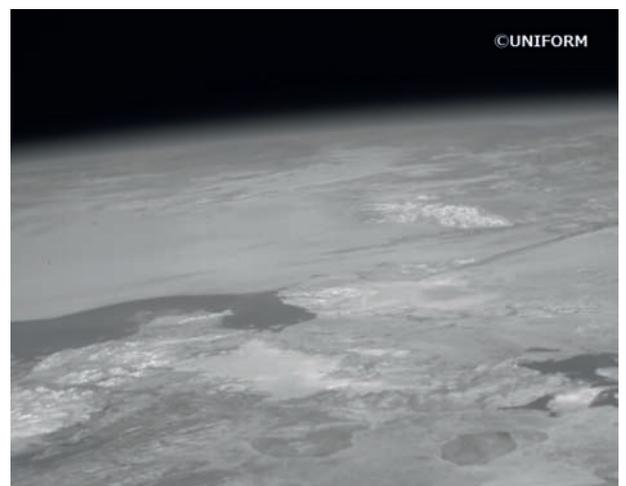


Image of the Arctic taken by UNIFORM-1

NEWS ON APRSAF ACTIVITIES

The 6th Space Applications For Environment (SAFE) workshop held in Malaysia



The sixth SAFE workshop has been successfully held. The comments below were provided by one of the co-chairs of the workshop, Dr. Abdul Rashid Bin Mohamed Shariff from Universiti

Putra Malaysia (UPM)/the Institution of GeoSpatial and Remote Sensing Malaysia (IGRSM), and the executor of Malaysian SAFE prototype, Dr. Farrah Melissa Muharam from UPM.



Dr. Abdul Rashid Bin Mohamed Shariff
Universiti Putra Malaysia

The sixth SAFE workshop was held on April 23, 2014, in Kuala Lumpur, Malaysia in conjunction with the 7th IGRSM International Conference and Exhibition on Remote Sensing & GIS (IGRSM 2014). About 45 participants from 8 countries attended the workshop. The workshop was jointly organized by the Malaysian Space Agency (ANGKASA), UPM, IGRSM, and the Japan Aerospace Exploration Agency (JAXA). The workshop also welcomed local participants

from nonparticipating prototype executor to allow them to venture the opportunity of applying the SAFE prototype in future.

This sixth workshop was of special significance to Malaysia as it is the first time it is organized in conjunction with the International Conference of IGRSM. The involvement of IGRSM, which is the Malaysia professional institution for Remote Sensing and GIS, augurs well for future collaboration involving industry and society.

Participants and presenters were highly motivated at this workshop, particularly as one of the participants had been awarded the BEST Paper award at the IGRSM conference

concluded the day earlier. The award also signifies the good level of practical research with sufficient research elements in SAFE prototype to justify international recognition.

The SAFE workshop, which was co-chaired by Dr. Lal Samarakoon from the Asian Institute of Technology (AIT) and myself, Dr. Abdul Rashid Bin Mohamed Shariff from UPM/IGRSM, started with a review board meeting for new SAFE proposals and followed by the report session from ongoing prototype projects. Unfortunately, none of the reviewed proposals was accepted this time. Positive feedback for improving the proposals was provided and the applicants were recommended to resubmit at the next opportunity. Currently, SAFE has six ongoing prototyping. Three prototyping were successfully completed, which were from Indonesia, Cambodia, and Bangladesh. Also, three special presentations were made during the session, which were from Forest Research Institute Malaysia (FRIM), UPM, and Central Environment Agency (CEA) Sri Lanka.

It was certainly a positive experience for me to co-chair this workshop with Dr. Lal Samarakoon who is already well seasoned to handle workshops of this nature. I hope the participants and presenters enjoyed the occasion as much as we did and the closing informal dinner provided was an excellent occasion that strengthened our friendship and created further wonderful memories to take back home.

For further information on the 6th SAFE workshop, please visit the SAFE portal: http://www.eorc.jaxa.jp/SAFE/events/6thwrs_report.html

Space education workshop, SpaceEd, held in NZ

SpaceEd, a workshop on space education for school teachers, was held on February 13 and 14 in Auckland, New Zealand. The workshop was co-organized by KiwiSpace Foundation and JAXA. The program consisted of several topics on space education such as radio astronomy, CanSat, robotics, and microgravity, including some hands-on demonstrations.

Astronaut Akihiko Hoshide gave a lecture on his mission and the Try Zero G program at SpaceED which was also streamed live to schools throughout New Zealand. The workshop was followed by SpaceUp, a space “unconference.” For further information, please visit the SpaceUp NZ website (<http://spaceup.org.nz/>).

Try Zero G 2014 performed by Astronaut Wakata

Try Zero G is a science experiment program that an astronaut demonstrates in on-orbit experiments proposed by young people in the Asia-Pacific region. The performance is recorded for educational use. Try Zero G is organized by the member agencies of the Kibo-ABC, one of the APRSAF initiatives, for promoting the

utilization of the Japanese Experiment Module “Kibo” of the International Space Station (ISS) in educational purposes. In this year 2014, Japanese astronaut Koichi Wakata carried out three experiments, which were selected out of 45 proposals from 5 countries in the Asia-Pacific region.

Selected themes

Proposed by	Title	Proposals
Victorian Space Science Education Centre (VSSEC) team (Australia)	Capillary Action	Does capillary action work differently in space? Place the end of a drinking straw or narrow clear tube in a floating globule of water.
Fabien Bouhier (Malaysia)	Growing Bubbles in Water	Are the bubbles formed bigger in zero gravity and do the water particles keep the same momentum after explosion?
Sabrina Binti Mohammad Salim & Zakiah Binti Mohammad Salim (Malaysia)	Bernoulli’s Principle	Does Bernoulli’s principle occur in space? (Bernoulli’s principle states that as the liquid flow speed increases, its pressure decreases. If liquid flow speed becomes low, its pressure is increased.)

The three experiments were performed by Astronaut Wakata on February 27, 2014, to see what is observed under microgravity condition. Having received the result of their experiments, one of the three proposers, Mr. Fabien Bouhier from Malaysia (Growing Bubbles in Water), was glad to confirm his hypothesis that the bubble at the straw end does not break and stays there and grows bigger. Another proposer team, Ms. Sabrina Binti Mohammad Salim and Ms. Zakiah Binti Mohammad Salim, Malaysia, concluded that the result showed space has Bernoulli’s principle.

Both of them appreciate the Try Zero G project, hoping it will be continued: Mr. Bouhier said that it was open to people with curiosity and could help create the next generation of scientists, and Ms. Sabrina and Ms. Zakiahth at the Try Zero G gave them spirits to study further in physical education and increased their love for physical education.



Astronaut Wakata performing “Growing Bubbles in Water”

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MESSAGE TO APRSAF COMMUNITY MEMBERS

Gil-Hong Kim

Director, Sustainable Infrastructure Division, Regional Sustainable Development Department
Asian Development Bank (ADB)

The Asian Development Bank (ADB) is a regional development bank whose purpose is to facilitate sustainable economic growth and poverty reduction of its developing member countries (DMCs) in Asia and the Pacific. We recognize the importance of space technology to enhance the effectiveness and efficiency of its development activities.



We have been applying space technology, especially remote sensing, in our projects in many different sectors including agriculture, climate change mitigation and adaptation, disaster risk management, energy, environment, urban management, and water and natural resources management. For example, we supported the governments of Bangladesh, Philippines, and Viet Nam to apply satellite rainfall data to improve their flood forecasting capacity, and introduced satellite-based drought monitoring system for food security cooperation in Greater Mekong Subregion with the support of JAXA.

We have been actively participating in the APRSAF since 2010. It is important for us to learn about readily

available practical applications from space technology providers and be able to address our DMCs' needs and conceptualize development projects applying space technology in an effective way. APRSAF provides us with a good venue to exchange information and discuss about these topics with space agencies and user agencies in the region. ADB

is also a member of Sentinel Asia as a Data Analysis Node. In the case of Typhoon Yolanda, which severely damaged the central part of the Philippines in November 2013, ADB conducted damage assessment based on the satellite-based information and shared it with the government agencies.

We would like to continue the dialog with important players of space sectors in the region through APRSAF so that we can realize the sustainable operations of space technology applications, which will eventually contribute to the achievement of inclusive, resilient, and sustainable development in the region.

APRSAF CALENDAR

July	Aug	Sep	Oct	Nov	Dec
▲ 1st Announcement		▲ 2nd Announcement		▲ Final Announcement	▲ 2-5 APRSAF-21
		APRSAF-21 Registration			▲ 11/29-30 Water Rocket Event
▲ ExCom		▲ ExCom		▲ ExCom	▲ 1 Kibo-ABC Initiative Workshop
			▲ 9-11 Asia Oceania Regional Workshop on GNSS	▲ 18-21 Sentinel Asia JPTM*	▲ 1 SAFE Initiative Workshop
▲ News Letter No. 18				▲ News Letter No. 19	▲ 2-5 Poster Contest
					▲ 2-5 Exhibition

*JPTM: Joint Project Team Meeting.

APRSAF Secretariat



APRSAF
ASIA-PACIFIC REGIONAL
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We welcome your updates on space-related activities and also your comments and suggestions to the APRSAF Secretariat.

For further information about APRSAF, please visit

<http://www.aprsaf.org>