

8 August 2016

**The 23rd Session of the Asia-Pacific Regional Space Agency Forum**  
***“Building a Future through Space Science, Technology and Innovation”***  
**15-18 November 2016, Manila, The Philippines**

Dear Sir / Madam,

With reference to the 23rd session of the Asia-Pacific Regional Space Agency Forum (APRSAF-23), whose convening was communicated to you in the First Announcement distributed earlier, we are pleased to forward to you the enclosed Second Announcement. As you will note, this announcement contains further details of the scheduled meetings, including those of the four working groups, an updated schedule of events, and other important information addressing registration, accommodations, and visa requirements.

The APRSAF-23 will be held from 15 to 18 November 2016, in Manila, with the theme “Building a Future through Space Science, Technology and Innovation”. Looking back on the theme of the APRSAF-22—“Sharing Solutions through Synergy in Space”—we of the APRSAF community will continue to work to provide solutions enabled by innovative space technologies and their synergistic applications. With this year’s theme, the APRSAF-23 will focus on promoting further cooperation by leveraging scientific and technical expertise from within and outside of space agencies, and on encouraging innovative applications to tackle common challenges in this region.

On behalf of the co-organizers and the Executive Committee (ExCom) of the APRSAF, we would like to emphasize that your participation is very important for the success of the APRSAF-23. With your extensive experience and your valuable thoughts and insights, we believe that the APRSAF-23 will be able to yield tangible results. We also count on your support to ensure good representation of experts and managers from your organization joining us at the APRSAF-23.

To ensure that all necessary arrangements are made in time for the APRSAF-23, we would be grateful if you could register your participation **no later than 10 October 2016** through the following APRSAF website: [http://www.aprsaf.org/annual\\_meetings/aprsaf23/registration.php](http://www.aprsaf.org/annual_meetings/aprsaf23/registration.php)

Additional information concerning the APRSAF-23 will be sent directly in due course to those who have registered, and this information will be made available at our website: <http://www.aprsaf.org/>

We look forward to meeting you in Manila, at the APRSAF-23.

With warmest regards,



Masazumi Miyake  
Chairman

Executive Committee (ExCom) of APRSAF

**The 23rd Session of the Asia-Pacific Regional Space Agency Forum**  
**“Building a Future through Space Science, Technology and Innovation”**  
**15-18 November 2016, Manila, the Philippines**

**1. About the APRSAF-23**

**A) Organizers**

The 23rd session of the Asia-Pacific Regional Space Agency Forum (APRSAF-23) will be co-organized by the following organizations:

Philippines: Philippine Council for Industry, Energy and Emerging Technology Research and Development - Department of Science and Technology of the Philippines (DOST-PCIEERD)  
Japan: Ministry of Education, Culture, Sports, Science and Technology (MEXT)  
Japan Aerospace Exploration Agency (JAXA)

The APRSAF-23 will also be supported by the following organizations:

Philippines: Advanced Science and Technology Institute (DOST-ASTI)  
Philippine Institute of Volcanology and Seismology (DOST-PHIVOLCS)  
Science Education Institute (DOST-SEI)  
Department of Tourism (DOT)  
Japan: National Space Policy Secretariat, Cabinet Office, Government of Japan (*Planned*)  
Ministry of Foreign Affairs of Japan (MOFA)  
Ministry of Agriculture, Forestry and Fisheries (MAFF)  
Ministry of Economy, Trade and Industry (METI)  
Ministry of Land, Infrastructure, Transport and Tourism (MLIT)  
Ministry of the Environment (MOE) (*Planned*)  
Japan Meteorological Agency (JMA)  
Japan International Cooperation Agency (JICA)  
Japan Agency for Marine-Earth Science and Technology (JAMSTEC)

**B) Dates and Venue**

Date: 15-18 November 2016

Venue: Sofitel Philippine Plaza Manila (<http://www.sofitelmanila.com/>)  
CCP Complex, Roxas Boulevard, Pasay City, Manila, 1300, Philippines

**C) Registration**

Please visit the following registration website and complete your registration online **no later than 10 October 2016**: [http://www.aprsaf.org/annual\\_meetings/aprsaf23/registration.php](http://www.aprsaf.org/annual_meetings/aprsaf23/registration.php)

Participation in the APRSAF-23 is free of charge; however, participants are responsible for their own travel and accommodation costs.

## 2. Program

### Overall Schedule of the APRSAF-23

| Dates               | Event   | Venue  |  |
|---------------------|---|--|--|
| 12-13 November 2016 | Water Rocket Event and Can Satellite Competition  | University of the Philippines<br>Los Baños College, Laguna |  |
| 14 November 2016    | SAFE Workshop   | Sofitel Philippine Plaza<br>Manila                         |  |
|                     | Kibo-ABC Workshop   |  |  |
| 14-16 November 2016 | 8th Asia Oceania Regional Workshop on GNSS  |  |  |
| 16 November 2016    | New Cooperation Session   |  |  |
| 15-18 November 2016 | <b>APRSAF-23</b><br>➤ 15-16 November<br><b>Working Group Sessions</b><br>➤ 17-18 November<br><b>Plenary Session</b> |  |  |
|                     | Poster Contest  |  |  |
|                     | Exhibition  |  |  |
| 17 November 2016    | Welcome Reception hosted by DOST-PCIEERD  |  |  |
| 18 November 2016    | Cultural Tour   |  | Philippine National Museum<br>and Rizal Park |

### A) **Plenary Session**

The Plenary Session of the APRSAF-23 will be held from 17 to 18 November 2016.

#### The General Co-chairs are:

##### **Dr. Rowena Cristina L. Guevara**

Undersecretary for Scientific and Technological Services  
Officer-in-Charge, Office of the Undersecretary for Research and Development,  
Department of Science and Technology (DOST)

##### **Mr. Ryuichiro Shirama**

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

### B) **Working Groups**

Prior to the Plenary Session, the following working group sessions will take place in parallel from 15 to 16 November 2016. The concept notes for four working groups and initiatives are detailed in **Appendix-A**. Participants who wish to present are requested to send abstracts (approximately 400 words in length) to the APRSAF Secretariat who maintain the list of speakers.

**The Working Group co-chairs are listed below:**

|  |   |
|--|---|
| <b><u>Space Applications Working Group (SAWG):</u></b>             |   |
| Dr. Renato U. Solidum, Jr.   | Director, Philippine Institute of Volcanology and Seismology,<br>DOST-PHIVOLCS  |
| Dr. Shinichi Sobue   | Senior Engineer, Space Technology Directorate I, JAXA   |
| <b><u>Space Technology Working Group (STWG):</u></b>               |   |
| Dr. Joel Joseph S. Marciano Jr.                                    | Acting Director, Advanced Science and Technology Institute,<br>DOST-ASTI  |
| Dr. Takanori Iwata   | Director, Chief Engineer Office, JAXA   |
| <b><u>Space Environment Utilization Working Group (SEUWG):</u></b> |   |
| Dr. Rogel Mari D. Sese   | Focal Person, Philippine Space Science Education Program, DOST  |
| Mr. Fumiaki Tanigaki   | Associate Senior Engineer, Japanese Experiment Module (JEM)<br>Utilization Center, Human Spaceflight Technology Directorate, JAXA |
| <b><u>Space Education Working Group (SEWG):</u></b>                |   |
| Dr. Josette T. Biyo  | Director, Science Education Institute, DOST-SEI   |
| Mr. Nozomu Sakuraba  | Director, Space Education Center, JAXA  |

For the overall program, please refer to **Appendix-B**.

**C) APRSAF Activities**

**i. SAFE Initiative Workshop**

Date: 14 November 2016  
Venue: Sofitel Philippines Plaza Manila  
Reference: <http://www.eorc.jaxa.jp/SAFE/>

**ii. Kibo-ABC Initiative Workshop**

Date: 14 November 2016  
Venue: Sofitel Philippines Plaza Manila  
Reference: [http://www.aprsaf.org/initiatives/kibo\\_abc/](http://www.aprsaf.org/initiatives/kibo_abc/)

**iii. New Cooperation Session**

Date: 16 November 2016  
Venue: Sofitel Philippines Plaza Manila

This session explores opportunities for further space related cooperation through the framework of the APRSAF. With this in mind, the session provides presentation opportunities for those who have proposals of new cooperation ideas that are not currently addressed in the APRSAF working groups.

**iv. Water Rocket Event and Can Satellite Competition**

Co-organizers: DOST and JAXA  
Date: 12-13 November 2016  
Venue: University of the Philippines Los Baños College, Laguna  
Jose R Velasco Ave, Los Baños 4031, Laguna, Philippines  
Reference: Water Rocket Event  
[http://www.aprsaf.org/annual\\_meetings/aprsaf23/meeting\\_details.php#AWRE](http://www.aprsaf.org/annual_meetings/aprsaf23/meeting_details.php#AWRE)  
Can Satellite Competition  
[http://www.aprsaf.org/annual\\_meetings/aprsaf23/meeting\\_details.php#ACSC](http://www.aprsaf.org/annual_meetings/aprsaf23/meeting_details.php#ACSC)

**v. Poster Contest**

Theme: “My Dream Planet”  
Co-organizers: DOST and JAXA  
Date: 15-18 November 2016  
Venue: Sofitel Philippines Plaza Manila  
Reference: [http://www.aprsaf.org/annual\\_meetings/aprsaf23/meeting\\_details.php#APC](http://www.aprsaf.org/annual_meetings/aprsaf23/meeting_details.php#APC)

**vi. 8th Asia Oceania Regional Workshop on GNSS**

Date: 14-16 November 2016  
Venue: Sofitel Philippines Plaza Manila  
Reference: <http://www.multignss.asia/>

**vii. APRSAF-23 Exhibition**

Date: 15-18 November 2016  
Venue: Sofitel Philippines Plaza Manila  
Exhibition Layout: Please see **Appendix- C**  
Further details will be available at:  
[http://www.aprsaf.org/annual\\_meetings/aprsaf23/registration.php](http://www.aprsaf.org/annual_meetings/aprsaf23/registration.php)

**D) Welcome Reception**

A reception will be organized and hosted by the DOST-PCIEERD at Sunset Pavillion, Sofitel Philippine Plaza Manila on Thursday evening, 17 November 2016 to welcome the participants of the APRSAF-23. The schedule will be announced in due course.

## E) Cultural Tour

Destination: National Museum and Rizal Park  
Location: Taft Ave, Ermita, Maynila, 1000 Kalakhang Maynila,  
Date : 18 November 2016  
Time : 1:00 PM – 5:00 PM  
Fee: To be announced

For more details about the Cultural Tour, please refer to **Appendix-D** or visit the APRSAF website at:  
[http://www.aprsaf.org/annual\\_meetings/aprsaf23/cultural\\_tour.php](http://www.aprsaf.org/annual_meetings/aprsaf23/cultural_tour.php)

## 3. Logistic Information

### A) Visa

It is important for participants from overseas to check whether they require a visa for entry into the Philippines. It is strongly recommended to contact the Philippine Embassy or a consulate in your country to ascertain whether you require a visa and to determine the requirements for obtaining a visa if required. Please note that it may take several weeks to obtain a visa following submission of a visa application. Before applying for a visa, please ensure that you have a passport that is valid for at least six months from your date of arrival in the Philippines.

For further details, please go to the following URLs:

#### ■ Visa Guidelines / Requirements

<http://www.dfa.gov.ph/index.php/guidelines-requirements>

#### ■ Guidelines on the Entry of Temporary Visitors to the Philippines;

<http://www.dfa.gov.ph/index.php/list-of-countries-for-21-day-visa>

Please note that any costs involved in obtaining a visa are the responsibility of the participant. If any participant requires an invitation letter from a local organization in the Philippines for purposes of visa application, please contact:

#### **Ms. Julie Ann C. Atienza**

Science Research Specialist II

Human Resources and Institution Development Division

Philippine Council for Industry, Energy and Emerging Technology Research  
and Development, Department of Science and Technology (DOST)

Address: 4<sup>th</sup> Floor Science Heritage Building, DOST Compound, Gen. A. Santos  
Avenue, Bicutan, 1631 Taguig City, the Philippines

Telephone Number: (632) 553-8637 Mobile Phone: (63) 995-4577969

E-mail: [atienzajulieann@gmail.com](mailto:atienzajulieann@gmail.com)

**B) Accommodations**

APRSAF participants are offered special rates of a stay at Sofitel Philippine Plaza Manila, the venue of the APRSAF-23.

**Sofitel Philippine Plaza Manila**

CCP Complex, Roxas Boulevard, Pasay City, Manila, 1300, Philippines.

<http://www.sofitelmanila.com/>

|   |
|---|
| Superior Room—Single: Php 7,000 nett  |
| Superior Room—Double: Php 7,800 nett  |
| Luxury Room—Single: Php 8,000 nett  |
| Luxury Room—Double: Php 8,800 nett  |
| (per room per night, includes breakfast, internet, tax, and service charge) |

For the special rates, please complete **room reservations by 14 September 2016**. After this date, rooms with special rates are subject to availability. The special rates expire on 14 October 2016. For reservations, please complete the form at the following URL and contact the hotel directly: ([https://www.aprsaf.org/annual\\_meetings/aprsaf23/pdf/registration/Sofitel\\_Philippine\\_Plaza\\_Manila\\_Reservation\\_Form.pdf](https://www.aprsaf.org/annual_meetings/aprsaf23/pdf/registration/Sofitel_Philippine_Plaza_Manila_Reservation_Form.pdf))

**Ms. Madelene Sy** (Sales Manager, Sofitel Philippine Plaza Manila)

**E-mail:** H6308-SL10@sofitel.com **Fax:** +63 (2) 551 5621

The following hotels are located near the APRSAF-23 venue, the Sofitel Philippine Plaza Manila.

The location of each hotel can be found on the attached hotel map (**Appendix-E**).

|   | Hotel   | Distance from the venue | Address  |
|---|---|-------------------------|--|
| 1 | Hotel Jen Manila<br><a href="https://www.hoteljen.com/manila/roxasboulevard/about/">https://www.hoteljen.com/manila/roxasboulevard/about/</a> | 5 minute drive          | 3001 Roxas Boulevard, Pasay City, Manila                             |
| 2 | Century Park Hotel<br><a href="http://www.centurypark.com/">http://www.centurypark.com/</a>   | 7 minute drive          | 599 P. Ocampo Street, Malate, Manila, 1004 Manila                    |
| 3 | Midas Hotel and Casino<br><a href="http://www.midashotelandcasino.com/">http://www.midashotelandcasino.com/</a>                               | 10 minute drive         | 1501 Roxas Boulevard, 2702 Roxas Boulevard, Pasay, 1300 Metro Manila |
| 4 | Microtel by Wyndham Mall of Asia<br><a href="http://www.microtel-manila.com/">http://www.microtel-manila.com/</a>                             | 15 minute drive         | Coral Way Avenue cor Seaside Blvd. Mall of Asia Complex, 1308 Manila |

\*Please note that room reservations are the responsibility of participants. The APRSAF-23 Secretariat cannot take any responsibility for issues associated with the room reservation.

\*Please note that completion of the room reservations does not constitute the registration of the APRSAF-23. For the APRSAF-23, please register at:

[http://www.aprsaf.org/annual\\_meetings/aprsaf23/registration.php](http://www.aprsaf.org/annual_meetings/aprsaf23/registration.php)

### **C) International and Local Transportation**

Please note that participants are responsible for making arrangements and covering the costs of their international travel to and from the Philippines as well as local transportation costs, including between the airport and the hotel and between the APRSAF-23 venue and any other hotel. **Local transportation will not be provided by the organizers.**

### **D) Insurance**

We strongly recommend that participants arrange for their own overseas travel insurance. The organizers of the APRSAF-23 are unable to take any responsibility for arrangements or costs incurred associated with any accident, injury, or illness.

## **4. Contact Information**

### **A) General Information**

#### **i. Website**

Further details about the program, registration and logistics of the APRSAF-23 will be made available in due course. Please check for updates on the APRSAF website at: <http://www.aprsaf.org>.

#### **ii. Point of Contact**

##### **Ms. Kumiko Tanabe, APRSAF-23 Secretariat**

c/o Japan Aerospace Exploration Agency (JAXA)

Ochanomizu Sola City, 4-6 Kandasurugadai, Chiyoda-ku, Tokyo, 101-8008, Japan

E-mail: [aprsaf23@aprsaf.org](mailto:aprsaf23@aprsaf.org) TEL: +81-50-3362-5880

### **B) APRSAF Program**

#### **i. Working Groups**

##### **(1) Space Applications Working Group (SAWG)**

Dr. Shin-ichi Sobue

E-mail: [sobue.shinichi@jaxa.jp](mailto:sobue.shinichi@jaxa.jp) TEL: +81-50-3362-5782

##### **(2) Space Technology Working Group (STWG)**

Ms. Nanoko Ueda

E-mail: [ueda.nanoko@jaxa.jp](mailto:ueda.nanoko@jaxa.jp) TEL: +81-50-3362-4004

##### **(3) Space Environment Utilization Working Group (SEUWG)**

Ms. Yoshimi Osada

E-mail: [osada.yoshimi@jaxa.jp](mailto:osada.yoshimi@jaxa.jp) TEL: +81-50-3362-3387

**(4) Space Education Working Group (SEWG)**

Ms. Mika Hosobata

E-mail: z-kokusai@edu.jaxa.jp TEL: +81-50-3362-6438

**ii. APRSAF Activities**

**(1) SAFE Initiative Workshop**

Dr. Masahiko Honzawa

E-mail: honzawa.masahiko@jaxa.jp TEL: +81-50-3362-4116

**(2) Kibo-ABC Initiative Workshop**

Ms. Yoshimi Osada

E-mail: Kibo-ABC@aprsaf.org TEL: +81-50-3362-3387

**(3) New Cooperation Session**

APRSAF Secretariat

E-mail: secretariat@aprsaf.org

**(4) Water Rocket Event and Can Satellite Competition**

Mr. Yuki Ishida

E-mail: z-kokusai@edu.jaxa.jp TEL: +81-50-3362-6438

**(5) Poster Contest**

Mr. Yuki Ishida, JAXA Space Education Center

E-mail: z-kokusai@edu.jaxa.jp TEL: +81-50-3362-6438

**(6) 8th Asia Oceania Regional Workshop on GNSS**

Dr. Kazutoshi Sato

E-mail: satoh.kazutoshi@jaxa.jp TEL: +81-50-3362-7163

**(7) Exhibition**

APRSAF-23 Secretariat

E-mail: aprsaf23@aprsaf.org

**5. APRSAF Side Events**

During the session of APRSAF-23, there will be side events. Please refer to Appendix-F for details of each event, such as the date and time, venue, registration, etc.

**Attachments**

|                  |   |
|------------------|---|
| Appendix-A ..... | Concept Notes for the APRSAF Working Groups and Initiatives |
| Appendix-B ..... | Overall Programme Structure (tentative)                     |
| Appendix-C ..... | APRSAF-23 Exhibition Information                            |
| Appendix-D ..... | Cultural Tour   |
| Appendix-E ..... | Hotel Map and transportation                                |
| Appendix-F ..... | APRSAF Side Events  |

*The 23rd Session of the Asia-Pacific Regional Space Agency Forum (APRSAF-23)*

*Space Applications Working Group (SAWG)*

*Concept Note*

**1. Scope and Objectives of SAWG Activities**

After the 20th anniversary of the APRSAF, the Space Applications Working Group (SAWG) was formed, and its first meeting was held at the APRSAF-21 in Tokyo in December 2014. Part of the motivation for forming the SAWG was to foster enhanced cooperation with local operational agencies in each country, as well as with development aid agencies and international organizations, through promotion of the sustainable operation of space applications. During the 2014 meeting in Tokyo, it was decided to establish an ad-hoc task team to explore a potential new initiative involving synergistic applications of geostationary orbit (GEO) and low Earth orbit (LEO) satellites. This decision was motivated by the launch of Himawari-8, the first new-generation meteorological GEO satellite. Representatives and experts from existing initiatives, including Sentinel Asia and Space Applications for Environment (SAFE), also outlined their plans to better serve end users. At the next APRSAF-23 session in Manila, the Philippines, we would like to share the progress of the SAWG and its key initiatives, and to discuss further steps for sharing solutions through employing synergies among key space technologies.

1) Sentinel Asia

Sentinel Asia is an international collaboration among space agencies, disaster management agencies, and international agencies to apply remote sensing and Web-GIS technologies to support disaster management in the Asia-Pacific region. Sentinel Asia has been successfully operated through the voluntary contributions of Asia-Pacific members since its launch in 2006. During 2006 and 2012, data dissemination system to support disaster management agencies as a backbone of the Sentinel Asia has been established as step 1 and step 2. In 2013, the APRSAF-19 approved Sentinel Asia to proceed to step 3 to cover whole disaster cycles with the contributions of multiple space applications, and the number of the members has increased to almost 100 organizations from 25 Asia-Pacific countries. At the APRSAF-21 in Tokyo, to further contribute to disaster management for disaster-prone Asia-Pacific countries, three strategic pillars for the evolution of Sentinel Asia were endorsed: strategic management, end-user-oriented activities, and cooperative promotion. The Steering Committee for strategic management of Sentinel Asia was formed in 2015, and the Sentinel Asia success story about landslide early warning activity using space technology will be reported at the SAWG meeting.

## 2) SAFE (Space Applications for Environment)

SAFE is a voluntary initiative to encourage long-term environmental monitoring to better understand environmental changes. The SAFE workshop will be held on Day 0 of the SAWG (November 14, 2016). During this workshop, current SAFE prototype leads will report on the status of their prototype activities and the results of their prototyping efforts, as well as the follow up activities of SAFE prototypes. New proposals will be presented, discussed by participants, and reviewed by the review board for potential launch of new SAFE prototypes. Reports will be made and discussions of SAFE updates will be held at the SAWG meeting.

## 3) Ad-hoc team for GEO/LEO synergy

After the successful completion of the Climate R3 Initiative in the area of climate monitoring, an ad-hoc task team was formed, based on an APRSAF-21 recommendation, to discuss a potential new initiative in synergistic applications of GEO/LEO satellites. The task team organized workshops in Brisbane and Tokyo to share the latest results of Himawari-8 data utilization and to discuss potential contributions to resolve societal issues. At the SAWG meeting, the ad-hoc team will report the results of the Tokyo workshop and invite all participants to discuss the demonstration projects such as monitoring forest/bush fires, haze and ocean color, and SST to prepare to launch this potential new initiative at the APRSAF.

## 4) Thematic sessions

The application fields of disaster, agriculture, water resources, and forest monitoring are the prioritized social-benefit areas of the SAWG and SAFE framework in collaboration with the Multi-GNSS community and international donor agencies. We will focus on discussing these areas in thematic sessions in which representatives of participating countries are invited to contribute by presenting their utilizations of satellite data. However, we do not intend to limit our discussions to these areas, and presentations proposing new activities for the SAWG, especially those critical for participating countries, are also welcome. The SAWG also appreciates the sharing of experience, results of regional cooperation in satellite data utilization, capacity building, and so forth. In addition, we would like to invite representatives of the Philippines, as the host country, to organize a special session for their priority areas, such as disaster monitoring.

## **2. Results of SAWG Activities at APRSAF-22**

See Recommendations adopted at the APRSAF-22:

[http://www.aprsaf.org/annual\\_meetings/aprsaf22/recommend.php](http://www.aprsaf.org/annual_meetings/aprsaf22/recommend.php)

## **3. Draft Agenda**

1) Opening session

2) Review of the last SAWG meeting in Bali

3) Host country special session

4) Reports from initiatives and activities

- Sentinel Asia Initiative
- SAFE Initiative
- Ad-hoc task team for GEO/LEO synergistic applications
- Multi GNSS session
- International donor session

5) Thematic sessions

- Disaster, agriculture, and forest monitoring
- GEO/LEO satellites: synergistic applications

6) Overall discussions and determining the way forward

7) Conclusions and recommendations of the SAWG

*The 23rd Session of the Asia-Pacific Regional Space Agency Forum (APRSAF-23)*

***SAFE (Space Applications For Environment)***

***Concept Note***

**1. Scope and Objectives of SAFE activities**

SAFE (Space Applications For Environment) is a voluntary initiative for environmental monitoring, endorsed at APRSAF-15.

This session aims to report on the current activities of SAFE, including discussion of the SAWG.

1) SAFE Workshop

The SAFE workshop will be held on Day 0 of SAWG (14 November 2016). During this workshop, existing SAFE prototype leads will report on the status of their prototype activities and the results of their prototyping efforts, as well as the follow up activities of SAFE prototypes. Proposals for new SAFE prototypes will be presented, discussed by participants, and reviewed by the review board for potential launch.

2) SAFE Initiative Report in SAWG

The SAFE secretariat is going to report on current SAFE updates on Day 1 of SAWG (15 November 2016); the updates will mainly focus on the ongoing and new SAFE prototype activities and some instances of success stories. The SAFE secretariat will ask participants in the SAWG to discuss the promotion of SAFE as an initiative and the value of prototyping results to participating entities through knowledge transfer and capacity-building.

3) Announcement of the next SAFE Workshop

The SAFE secretariat will announce the next SAFE Workshop.

**2. Result of SAFE Activities in APRSAF-22**

See Recommendations adopted at the APRSAF-22:

[http://www.aprsaf.org/annual\\_meetings/aprsaf22/recommend.php](http://www.aprsaf.org/annual_meetings/aprsaf22/recommend.php)

**3. Draft Agenda**

[SAFE Workshop]

- 1) Review of the SAFE Mini Workshop outcomes
- 2) Presentation on new prototype proposals

3) Reports from on-going prototypes

- a. Deploying GSMaP for Decision Support in Transboundary Catchments in the Lower Mekong Basin (Mekong River Commission)
- b. Efficient Oil Palm Management Prototyping Using 3D GIS (Malaysia)
- c. Promote rice planted area and production estimation using space based technologies (Cambodia)
- d. Promote a Department of Agricultural Land Management and Statistics (DALMS) system through using Innovative rice crop area mapping and yield monitoring with space based technologies (Myanmar)
- e. Mapping and Monitoring Oil Palm Plantations Using Optical and SAR Space borne Data (Indonesia)
- f. Developing and Implementing an Operational Prototype for Advanced Flood Forecasting, Early Warning, and Data Sharing System in the Kalu Ganga Basin, Sri Lanka (Sri Lanka)

4) Reports from follow up activities

- a. SAR Technology Application for Paddy Crop Monitoring in Central Area of Paddy Production, in Indonesia (Indonesia)
- b. Rice Crop Monitoring in the Mekong Delta, Vietnam (Vietnam)

5) Review Board meeting report

[SAFE Initiative Report in SAWG]

- 1) Update of SAFE initiative including SAFE Mini Workshop and the previous day
- 2) Reports on ongoing prototypes
- 3) Reports on completed prototypes
- 4) Brief about the new proposal
- 5) Results of Review Board meeting

[SAFE Initiative Report in Plenary Session]

- 1) Summary of the SAFE Mini Work Shop
- 2) Report on results of the APRSAF-23 Workshop
- 3) Announcement of the next workshop

*The 23rd Session of the Asia-Pacific Regional Space Agency Forum (APRSAF-23)*

*Space Technology Working Group (STWG)*

*Concept Note*

**1. Background and Objectives**

The Space Technology Working Group (STWG) aims to support space technology development in the Asia-Pacific region by active information exchange among experts from space agencies, academic institutions as well as from the private sector in the region. The second session of the Working Group (WG) was successfully held in 2015 at APRSAF-22, and dealt with topics ranging from small satellite development and operation, ground facilities, and engineering management, to advanced technologies. Participants in the session also shared information about their activities in capacity building and training in this region and beyond. Participants agreed to continue this WG for the next APRSAF session and expressed interest in discussing a range of topics that includes small satellites, space technology for the Asia-Pacific region, and capacity-building.

At the conclusion of the second meeting at APRSAF-22, the following recommendations were provided for the WG:

- A) To promote cooperation opportunities and more participation by sharing activities and experiences of space technology, small satellites and launch opportunities, technology management, etc. in this area.
- B) To promote information exchange and participation about capacity-building and training opportunities in each country, especially seeking opportunities for collaboration among space agencies, industries, universities and laboratories to stimulate active discussions.
- C) To recognize the importance of taking measures with respect to space debris and promote information exchange and discussion regarding technical issues on space debris control and its removal.
- D) To strengthen cooperation among space agencies, industries, universities and laboratories as efforts toward capacity building for development of small sized satellites and their applications.
- E) To promote the continuation of this WG beyond this year for active space development in the Asia Pacific countries, as it provides excellent opportunities to discuss space technologies.

**2. STWG Program Structure**

Based on the recommendations for STWG activities listed above, the draft program structure of the STWG for this year's session is given below. The WG co-chairs are pleased to call for presentations

(approx. 15 minutes per presentation) on each topic in space technology from the Asia-Pacific region as well as from other regions and industries, and we expect a lively exchange of information and views among experts, researchers, and engineers in the relevant areas.

Participants in this WG are also expected to contribute to the discussion on ways to promote future collaborative activities, and to work toward drafting recommendations for the working group output to be presented at the APRSAF-23 Plenary, which will be held on 18th November 2016.

## Space Technology Working Group Sessions

Date: 15-16 November 2016

1. Opening of the session
2. General introduction and guidance for STWG
3. Technical sessions

### ■ Technical Session 1: Small Satellites

Technologies, missions and payloads, educational activities, current topics related to the development and applications of small sized satellites (small, micro- and nano-satellites) and their capabilities will be considered in this session. In particular, this session intends to address the following three topics:

- a) Road maps, strategy and future plans for small satellite development;
- b) Advanced, cutting-edge, and innovative technologies;
- c) Innovative missions and payloads.

Presentations on state-of-the-art technologies such as high-performance components and devices are also expected.

### ■ Technical Session 2: Test Facilities

Testing is important in decreasing risks and undertaking successful development of satellites. Presentations on activities related to testing such as vibration, outgassing, mechanical shock, thermal vacuum, thermal shock, thermo-optical measurements, thermal cycling, and antenna patterns are invited.

### ■ Technical Session 3: Launch and Experiment Opportunities

Activity information regarding launch opportunities of small (nano/cube) satellites and opportunities for experiments using space- and ground-based assets will be shared among participants.

### ■ Technical Session 4: Space Technology for the Asia-Pacific region

This session will include presentations on topics such as technologies for ground networks, communalized technology for satellites, and space-debris mitigation.

■ Technical Session 5: Engineering Management

Engineering process management is an essential part of the reliable development of spacecraft. Presentations on Systems Engineering (SE), Design and Test Standards, as well as other relevant areas, are expected.

■ Technical Session 6: Capacity-Building

Information on capacity-building and educational opportunities relevant to the topics of this Working Group will be shared among the participants. Discussion about collaboration opportunities is also encouraged, especially to highlight and further promote collaboration efforts that have been undertaken among the APRSAF participating entities, such as joint micro-satellite development and data sharing of small satellites.

\*Please note that the topics of the technical sessions are subject to change.

4. Overall discussion, future work of STWG, and drafting observations and recommendations

5. Closing of the session

\*\*\*

*The 23rd Session of the Asia-Pacific Regional Space Agency Forum (APRSAF-23)*

*Space Environment Utilization Working Group (SEUWG)*

*Concept Note*

**1. Scope and Objectives**

This working group (WG) is intended to encourage countries in the Asia-Pacific region to use the Japanese Experiment Module (JEM), called “Kibo”, which means “hope” in Japanese. Kibo is a human space facility that provides unique research capabilities in the International Space Station (ISS). In addition to enhancing the use of Kibo, the SEUWG aims to create cooperative projects for its utilization by participating countries.

Kibo consists of the Pressurized Module, the Exposed Facility, a Logistics Module, a Remote Manipulator System, and an Inter-Orbit Communication System unit. Various scientific and engineering research activities are conducted there to take advantage of the unique environment of low Earth orbit. Research is currently conducted aboard Kibo in the fields of life science, medical science, materials science, space environment monitoring, Earth observation, and demonstrations of advanced technology. The WG promotes the utilization of the Kibo Module in the Asia-Pacific region in the aforementioned fields as well as for other areas and topics.

**2. Activities and Discussion Points**

**■J-SSOD\*/Opportunities for launch and deployment of microsatellites from Kibo**

Kibo has a scientific airlock through which experiments are transferred and exposed to the external environment of space. In April 2016, DIWATA-1, the first Philippine 50-kg-class microsatellite, was successfully deployed from Kibo using the J-SSOD. The AOBA-VELOX-III microsatellite from Singapore is already scheduled for launch to Kibo for deployment, to be followed by microsatellites from other Asian countries aimed for launch after 2017. The demand from Asia-Pacific nations for microsatellite deployment has been increasing. Meanwhile, a “KiboCUBE” collaboration between the JAXA and the United Nations Office for Outer Space Affairs (UNOOSA), which aims to provide educational or research institutions from developing countries with opportunities to deploy CubeSats (1U), is also in progress.

\* J-SSOD: JEM Small Satellite Orbital Deployer

[http://iss.jaxa.jp/en/kuoa/news/160527\\_kiboabc\\_jssod.html](http://iss.jaxa.jp/en/kuoa/news/160527_kiboabc_jssod.html)

**■ExHAM\*/ New exposed experiment system of Kibo**

Using an Exposed Facility (EF) and a robotic arm, ExHAM enables experimentation for a short period of time with a lightweight existing experiment sample, and is therefore useful for satellite design. It is

currently gaining wide attention from member countries, with representatives of entities in Malaysia, Indonesia, and Singapore expressing interests for its utilization. The WG will organize discussions about opportunities for use of ExHAM by the participating nations.

\* ExHAM: Experiment Handrail Attachment Mechanism

[http://iss.jaxa.jp/en/kuoa/news/pdf/10\\_SEKUW\\_Exposed\\_Facility\\_in\\_Kibo\\_\(ExHAM\).pdf](http://iss.jaxa.jp/en/kuoa/news/pdf/10_SEKUW_Exposed_Facility_in_Kibo_(ExHAM).pdf)

### ■Special joint session with the Space Technology Working Group (STWG): Utilization of J-SSOD and ExHAM

We will have the first special joint session of the SEUWG and the STWG at the APRSAF-23 to encourage activities in the development, launch, deployment, and applications of microsatellites. The Exposed Facilities (J-SSOD and ExHAM) are useful and readily available for application. Further opportunities will also be discussed at this special joint session.

### ■Microgravity science in Kibo's Pressurized Module

Since experiments in microgravity represent unique fields of research, proposals for Kibo utilization from Asian countries, although valuable, were previously limited in number. However significant progress has recently been observed. Indonesia and Malaysia have developed plans and proposals for space experiments using the Pressurized Module and Exposed Facility of Kibo. Active discussions have facilitated effective and fruitful exchange of opinions and information among member countries. Any experimental proposal in Kibo's Pressurized Module is welcome and open for discussion at this WG.

### ■Space Environment and Kibo Utilization Workshop

The Second Space Environment and Kibo Utilization Workshop (SEKUW-2) was held on April 18–19, 2016, at the National Planetarium in Kuala Lumpur, Malaysia. Approximately 50 participants from 15 organizations, such as research institutions, ministries, agencies and space related corporations, from Malaysia, Singapore and Japan attended the SEKUW-2. As a result, a feasibility study of the proposals was undertaken, and the status of this study will be reported at this WG. The selection of the next host country of the workshop will also be discussed.

Through discussion among the participating nations, the WG aims to contribute to building cooperative projects for Kibo utilization and to provide a variety of benefits for the Asia-Pacific region.

*The 23rd Session of the Asia-Pacific Regional Space Agency Forum (APRSAF-23)*

***Asian Beneficial Collaboration through Kibo utilization (Kibo-ABC)  
Concept Note***

**1. Scope and Objectives**

Kibo-ABC is a collaborative program established by the Space Environment Utilization Working Group (SEUWG) of the APRSAF that aims to promote utilization of the Japan Experiment Module (JEM)—also called “Kibo”, which means “hope” in Japanese—in the Asia-Pacific region. Kibo is a human space facility that enhances the unique research capabilities of the International Space Station. The Kibo-ABC accumulates and shares experience among participating space agencies, researchers and engineers in Asia, and enhances cooperation projects in Kibo utilization between the member countries and Japan.

**2. Activities and Discussion Points**

■ Kibo-ABC Workshop

- ✓ Discussions and considerations for creating and conducting Kibo utilization projects
- ✓ Development of multilevel cooperative relationships among the participating countries in the field of space science

■ Asian Try Zero-G (2011–Present)

With the goal of promoting manned space experiments aboard Kibo, Japanese astronauts have been conducting selected small experiments covering the themes proposed by youth in this region. The Asian Try Zero-G 2016 mission will soon be performed by the Japanese astronaut Takuya Onishi; five out of 120 proposals were selected by the Kibo-ABC member agencies. The mission status and activities in participating countries will be reported.

■ Space Experiment for Asian Future Program: SSAF/Space Seeds for the Asian Future (2010–Present)

The third mission of this program, “Asian Herb in Space (AHIS)”, was presented by Malaysia’s ANGKASA at the APRSAF-21. Feasibility studies and ground experiments have been conducted from both scientific and technical perspectives with the aim of conducting the plant growth experiment as part of our Kibo-ABC initiative. The preparatory activities, flight experiment plan, and post-flight activities of each country will be discussed.

■ Other topics

- ✓ Kibo-ABC Monthly Web Meeting :  
Discussion for improvement
- ✓ Ground experiment opportunities for microgravity science:  
Introduction of parabolic flight and drop tower (simple freefall experiment)

*The 23rd Session of the Asia-Pacific Regional Space Agency Forum (APRSAF-23)*

***Space Education Working Group (SEWG)***  
***Concept Note***

**1. Background and Objectives of SEWG Activities**

Space has played an important role in human civilization. Throughout human history, the quest for knowledge of the universe has led humankind to learn more about where we come from and where we stand and has expanded our imaginations about where we are going.

Activities in space have increasingly become integral parts of our lives. Benefits derived from space applications have transformed the way we look at our environment and our planet, the way we communicate and interact with one another, and the way we move from one place to another, and have dramatically increased the safety, security, accuracy, predictability, and convenience of our daily lives.

Despite the growing evidence of the usefulness of space science and technology to society, the appreciation of the importance of these fields by the general public is still limited. Efforts should continue to educate people about the usefulness and importance of space science and technology. Applications of space science enhance the quality of our lives and support the sustainable development of our society.

For young people, space activities provide a source of interest, imagination and inspiration. Attractive educational materials about space can spark intellectual flames in the minds of young people not only for science and technology but also for many other aspects of human activities. Used effectively, examples of past achievements and efforts to overcome challenges in the exploration of outer space and related technological applications can motivate young people to pursue excellence in whatever they do and help them understand how important, and how rewarding, it is to work together with others to serve their society.

It is with this conviction that the Space Education and Awareness WG was established at the 8th session of the APRSAF in July 2001. As of 2014, the name was changed to the Space Education WG with the aims of: i) effectively using space materials to enhance the education of young people; ii) providing education and training opportunities for educators and young people in space science and technology; and iii) contributing to enhancing mutual understanding among countries in the Asia-Pacific region through exchange opportunities for educators and young people.

**2. Results of SEWG Activities at APRSAF-22**

See Recommendations adopted at the APRSAF-22:  
[http://www.aprsaf.org/annual\\_meetings/aprsaf22/recommend.php](http://www.aprsaf.org/annual_meetings/aprsaf22/recommend.php)

**3. Draft Agenda**

- (1) Opening of the session
- (2) Adoption of the agenda
- (3) General exchange of views on space education
- (4) Joint educational activities for educators and young people
  - a. Water rocket activities

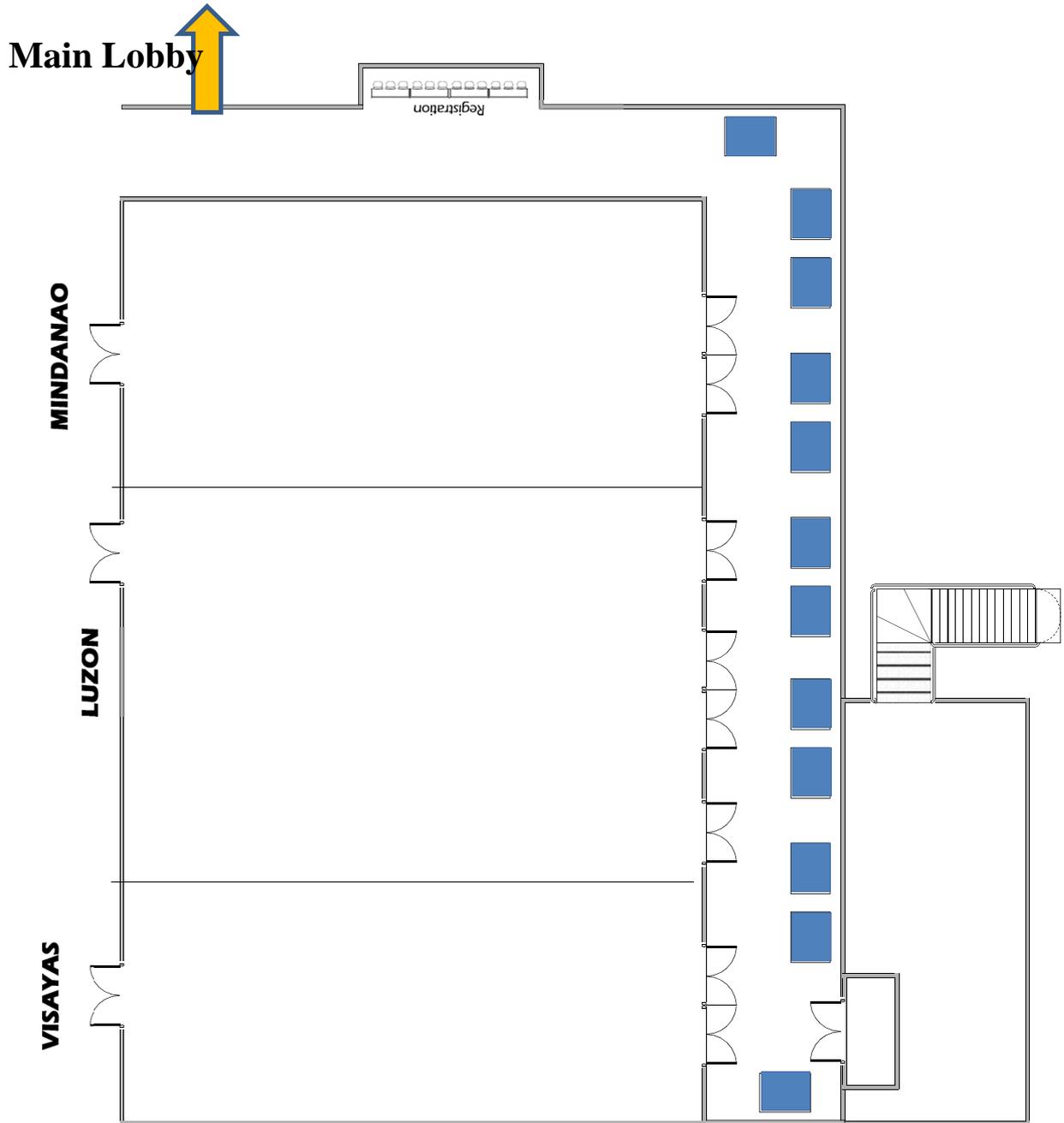
- b. Poster contest
  - c. Space education seminar for educators
  - d. Other activities (CanSat Competition, International Space Camp, etc.)
- (5) Discussion about enhancing space education opportunities for future host countries of the APRSAF
  - (6) Enrichment of space education through sharing teaching materials
  - (7) Other matters

\* Time and title for each session is subject to change.

As of 8 August 2016

| Monday, 14 November   | Tuesday, 15 November                                   | Wednesday, 16 November          | Thursday, 17 November  | Friday, 18 November  |
|---|--|---------------------------------|--|--|
| <b>INITIATIVE ACTIVITIES</b>                                      | <b>WORKING GROUP SESSION</b>                           | <b>WORKING GROUP SESSION -2</b> | <b>PLENARY SESSION - 1</b>   | <b>PLENARY SESSION - 2</b>   |
| 8:30  |  |                                 |  |  |
| 9:00  | SAFE WS   Kibo-ABC WS                                  | SA WG   ST WG   SEU WG   SE WG  | Opening<br>Welcome Remarks<br>Keynote Speech (The Philippines)<br>Summary of APRSAF-22 and APRSAF ExCom Report<br>Photo Session  | Space Cooperation in Asia Pacific Region<br>- Presentations by international organizations or entities in other regions    |
| 10:00   |  |                                 | Coffee Break   | Summary Report by WGs/Related Projects   |
| 11:00   |  |                                 | <b>Space Leaders Session and Country Report</b><br>Heads of space agencies and relevant entities are invited to deliver speeches.  | Coffee Break   |
| 12:00   | Lunch Break  | Lunch Break                     | Lunch Break  | <b>Adoption of Recommendations of APRSAF-23</b><br><b>Announcement of APRSAF-24</b><br>Closing Remarks (General Co-Chairs) |
| 13:00   | SAFE WS   Kibo-ABC WS                                  | SA WG   ST WG   SEU WG   SE WG  |  | Lunch Break  |
| 14:00   |  |                                 | <b>Special Session - 1</b><br><i>Space for society: Disaster management and sustainable development (TBD) Organized by DOST</i><br>Sentinel Asia Highlights  | Cultural Tour  |
| 15:00   |  |                                 | Coffee Break   |  |
| 16:00   |  |                                 | <b>Special Session - 2</b><br>Featuring Philippine's DIWATA-1<br><b>Initiative Updates - 1</b><br><b>Initiative Updates - 2</b><br><b>Special Session - 3</b><br>Building Future through Space Science, Technology & Innovation - Creating New Synergy through APRSAF Activities |  |
| 17:00   |  |                                 |  |  |
| 18:00   |  | New Cooperation Session         |  |  |
| 19:00   |  |                                 | Reception hosted by DOST-PCIEERD   |  |
| 11/12 & 11/13<br>Water Rocket Event/<br>Can Satellite Competition | 11/15- 11/18<br>Poster Contest<br>APRSAF-23 Exhibition |                                 |  |  |

APRSAF-23 Exhibition Layout (Tentative)  
@Lobby Floor  
SOFITEL Philippine Plaza Manila



## **APRSAF-23 CULTURAL TOUR**

**VENUE:** PHILIPPINE NATIONAL MUSEUM AND RIZAL PARK

Taft Ave, Ermita, Maynila, 1000 Kalakhang Maynila,

**DATE:** November 18, 2016

**DURATION:** 1:00 PM to 5:00 PM (TBD)

**FEE:** TO BE ANNOUNCED

**HOW TO APPLY:** Register online and pay the fee at the Information Desk at the APRSAF-23 Venue

**DESCRIPTION:**

### **NATIONAL MUSEUM**

The Museum was founded in 1901 as official repository and custodian of the Philippines Cultural and Natural Heritage. It houses more than a million anthropological, archaeological, art, botanical, geological and zoological collections.

More info on the National Museum here: <http://www.nationalmuseum.gov.ph/#>

### **RIZAL PARK**

Named after our National Hero, Dr. Jose P. Rizal .The Pride of Manila. Hailed as the first urban park in Asia, it boasts of world- class sculptures, historical markers, beautiful gardens, facilities for photo & art exhibits, event venues, and various forms of entertainment

More info on Rizal Park here: <http://faq.ph/visit-rizal-park-in-manila/>

### **ITINERARY**

1:00 pm - Depart for National Museum

1:30 pm - Arrive at National Museum

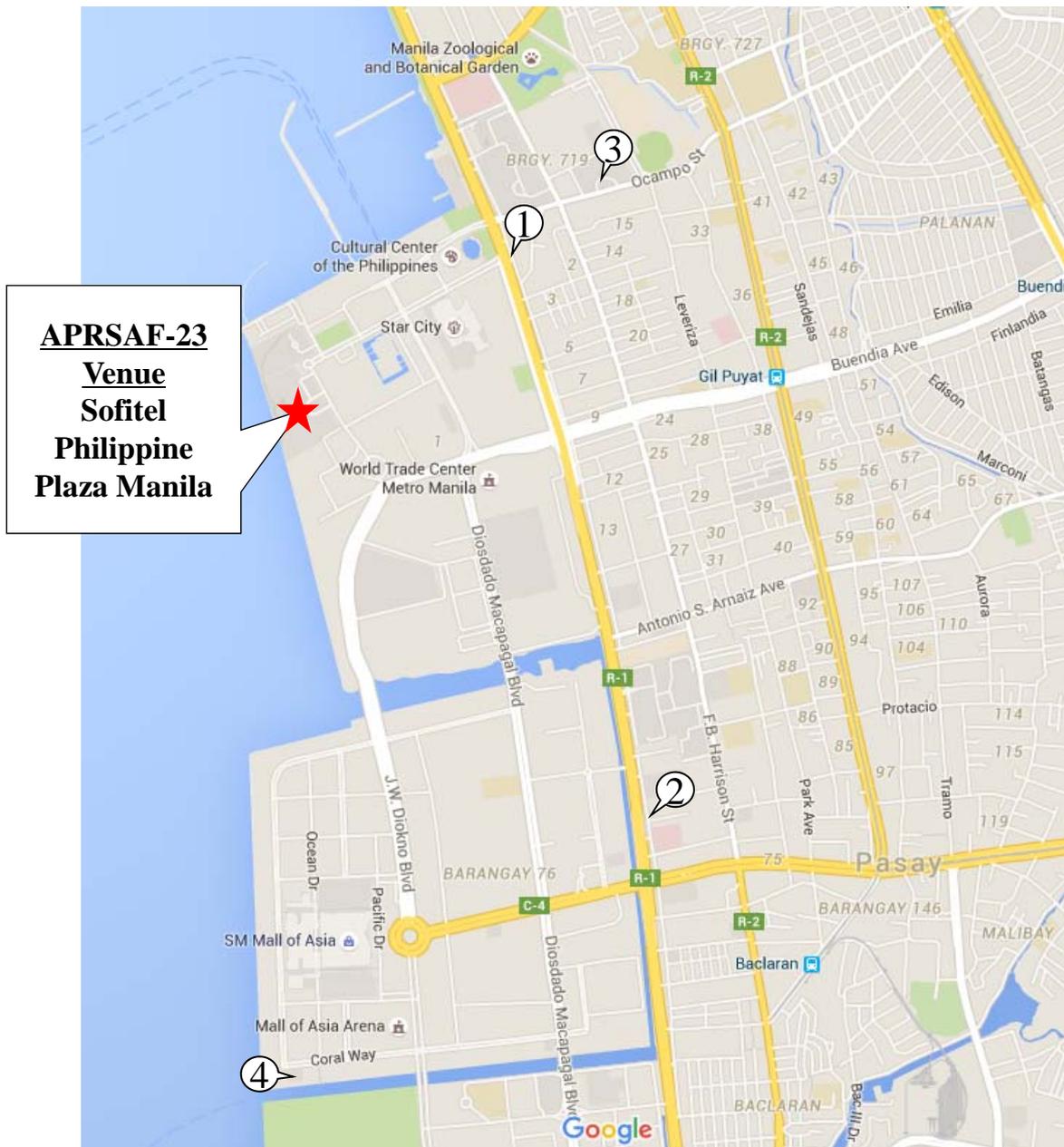
3:00 pm - Depart for Rizal Park

3:20 pm - Arrive at Rizal Park

Rizal Monument (photo op)  
Rizal's Light and Sounds Complex

5:00 pm - Back to hotel

<Hotel Map>



★ **Sofitel Philippine Plaza Manila**

- **Venue of APRSAF-23**

- Both domestic and international airports are only 25 minutes away.
- Rooms at special rates are available for APRSAF-23 participants.

- 1 Hotel Jen Manila
- 2 Midas Hotel and Casino
- 3 Century Park Hotel
- 4 Microtel by Wyndham Mall of Asia

## Transportation from Ninoy Aquino International Airport

The most reliable and safe way to get to the hotels from the airport is hotel airport pickup service. If you take a taxi to the hotels, you have following two options:

### - Coupon Taxi -

Look for the coupon taxi (fixed rate taxi) counter after exiting the arrival gates. All coupon taxis are WHITE. Tell the staff at the counter your destination. He/she will give you a dispatch slip with information about your destination, as well as the plate number of your taxi and the fixed fare amount. After reaching your destination, you will pay the taxi driver the amount indicated on the dispatch slip.



### - Metered Taxi (Yellow Taxi) -



After you collect your baggage and go through customs, look for metered taxi signs and then for the line for yellow airport taxis. Tell the staff member your destination. He/she will give you a white dispatch slip. This dispatch slip contains information about your destination and the plate number of your taxi.

Upon getting into the taxi, make sure that the taxi driver resets the meter. If he refuses to do so, get out of the taxi and find another.

\* Keep the white dispatch slip given to you for the following purposes:

- a. in case you have complaints about the taxi,
- b. in case you accidentally leave something behind.

\* Make sure to have small peso bills with you when riding a metered taxi to avoid the situation that the taxi driver does not have change for you. Converting large bills into 100 peso bills is sufficient.

## APRSAF-23 Side Events

The following side events will be held in conjunction with the APRSAF-23. Further information will be provided in due course.

| <b>The 3rd Asia-Pacific Space Generation Workshop (AP-SGW2016)</b> |  |
|--|--|
| Organizer  | Space Generation Advisory Council (SGAC)   |
| Co-organizer   | National SPACE Development Program of the Philippines  |
| Date   | 12-13 November 2016  |
| Venue  | SEARCA Conference Facility, The University of the Philippines Los Baños  |
| URL  | <a href="http://spacegeneration.org/apsgw-2016">http://spacegeneration.org/apsgw-2016</a>  |
| Contacts   | <p>* Event enquiries:<br/>Dr. Shashank Khurana (Event Manager)<br/>shashank.khurana@spacegeneration.org</p> <p>*SGAC Enquiries:<br/>Mr. Zihua Zhu (SGAC Asia-Pacific Regional Coordinator)<br/>nicholas.zhu@spacegeneration.org</p>  |
| Event Description  | <p>AP-SGW2016 is a two-day regional workshop for students and young professionals in the Asia-Pacific region to be held at the University of the Philippines Los Baños on November 12 (Sat.) and 13 (Sun.).</p> <p>Students and young professionals below 35 years of age mainly from the Asia-Pacific region will discuss “approaches to promoting Asia-Pacific regional collaboration in the space sector — the next generation perspective”.</p> <p>Eminent speakers from the region will be invited to provide opportunities for participants to learn from and interact with the current generation leading regional cooperation in the space sector.</p> |

| <b>International Workshop on “Building Regional Space Policy Cooperation in Asia”</b> |   |
|---|---|
| Organizer   | The University of Tokyo Policy Alternatives Research Institute (PARI)   |
| Co-organizer  | National Institute of Advanced Studies (NIAS)   |
| Date  | 16 November 2016  |
| Venue   | TBD   |
| Contact   | Mr. Yuichiro Nagai<br>nagai.yuichiro.01@gmail.com   |
| URL   | TBD   |
| Event Description   | <p>The University of Tokyo Policy Alternatives Research Institute (PARI) and the National Institute of Advanced Studies (NIAS) jointly organizes an international workshop that addresses space policy in the Asian-Pacific region and how policy analysis can help identify possible areas of cooperation among Asian-Pacific nations.</p> <p>Under the theme of “Building Regional Space Policy Cooperation in Asia,” the workshop invites several experts to examine space policies and programs of the Asian-Pacific nations, including Japan, India, and possibly China, Korea, the Philippines, Malaysia, Thailand, Vietnam, and others.</p> <p>We expect that space policy research helps to identify specific areas and activities where cooperative efforts in this region will not only bring mutual benefits to countries involved, but in a larger context, benefits the region on a whole.</p> |