

*Twenty-first Session of the Asia-Pacific Regional Space Agency Forum (APRSAF-21)*

*SEU (Space Environment Utilization) Working Group Activities*

*Proposed Outline*

**1. The scope/objectives of SEU WG activities**

This Working Group deals with two major themes: continued activities on utilization of space environment and newly introduced theme on space exploration. In the session on “Space Environment Utilization”, discussion will focus on the full utilization of the Japanese Experiment Module (Kibo) onboard the International Space Station (ISS) with the aim of bringing benefits back to people in the Asia-Pacific region. In the new session on “Space Exploration,” a future framework for the expansion of the human frontier will be discussed.

Space Environment Utilization

Several activities have already been initiated in some Asian countries making use of Kibo laboratory on the ISS. The ISS, which accommodates Kibo as an experimental platform, is a gigantic manned facility. Kibo consists of the Pressurized Module and the Exposed Facility to carry out observations of Earth and Space. Various scientific and engineering researches as well as educational activities are being conducted in such a unique environment in low Earth orbit.

In the Pressurized Module of Kibo, protein crystal growth experiments have been conducted by ANGKASA of Malaysia. A mission for plant growth observation experiments called “SSAF-2013” was successfully carried out in 2013 across the region with the participation of eight countries, and the next mission is now being shaped.

Utilizing the Exposed Facility of Kibo, a number of missions to deploy small satellites from the ISS into space were conducted. The series of deployment of small satellites were carried out using the unique feature of Kibo, including a robotic arm and an airlock system. In 2013, “Pico Dragon,” a small satellite jointly developed by Viet Nam and Japan was deployed by the command of JAXA astronaut Koichi Wakata, the first Asian Commander of the ISS. Needs for small satellite deployment from the ISS are now being increased in the region. This Working Group will aim to further expand the achievements of space environment utilization by conducting productive cooperation programs in the Asia-Pacific region and also with the United Nations.

## Space Exploration

A special session on Space Exploration will be held for the first time.

Human space exploration is the greatest challenge in the history of humankind, which requires innovative, technological development. In order to promote such development, international cooperation through the ISS Program has already played an important role. Through the activities of astronauts from various countries as well as numerous technological demonstrations and experiments, activities on the ISS are contributing to the technological standards that are indispensable for space exploration.

At the International Space Exploration Forum (ISEF) held in January 2014, the importance of the “post-ISS” international space exploration was recognized by participating countries, based on the ISS International Cooperation Program.

In this session, the conclusion of ISEF and JAXA’s concept of the Space Exploration Innovation Hub will be introduced, and views, needs and ideas from countries in the Asia-Pacific region will be exchanged by participants. The Working Group discussion aims at contributing building cooperative framework for future international space exploration in bringing a variety of benefits to the Asia-Pacific region.

## **2. Draft Agenda**

### Day 1(Dec.2)

- (1) Opening of the Session
- (2) Review of the last SEU WG at the APRSAF-20
- (3) SEU WG Focus and Adoption of the agenda
- (4) Space Environment Utilization
  - a. General exchange of views on SEU activities: Country Report  
Kibo utilization status update
  - b. Small Satellite Orbital Deployment from ISS/Kibo
  - c. Kibo Exposed Facility experiment/ ExHAM
  - d. Launching new programs
  - e. Other
- (5) Special session for Space medicine  
JAXA Astronaut presents Space medicine program and the exchange of views etc.

### Day 2(Dec.3)

Special session on Space Exploration