

Topics of Small Group Discussions
version 13 (as of Nov.15, 2013)

1) New Applications for “Store and Forward” Communication

Moderator: Ayumu Tokaji, University of Tokyo, Japan

Assistant: Takehiro Ohira, Tokyo Metropolitan University (TMU)

After a short presentation of basic “Store and Forward” (S&F) communication ideas, a brainstorming session to discuss new applications for S&F communication will be held. Anybody interested in S&F communication is welcome to join.

(S&F communication is a satellite-based data collection system. Measured data are sent from an on-ground sensor to a receiving device on a satellite. The satellite stores the transmitted data and then forwards the data to a ground station.)

2) Opportunities and Challenges associated with University Satellite Projects

Moderator: Ertan Umit, Istanbul Technical University, Turkey

Assistant: Mitsuhiro Masuda, TMU

In the 20th century, it was almost impossible for university students to build, launch, and operate satellites. However, this opportunity has become a reality in the 21st century. In this session, the pros and cons, difficulties, and opportunities associated with satellite design and operation will be discussed to understand how university student can participate in practical space projects.

3) Micro-Satellite Constellation for Earthquake Precursor Study

Moderator: Masashi Kamogawa, Tokyo Gakugei University, Japan

Assistant: Shizuku Tsukishima, Tokai University

This group will discuss the possibility of international collaboration on the Micro-Satellite Constellation for Earthquake Precursor Study. This mission idea won 2nd place in the Mission Idea Contest (MIC2). The presentation can be viewed at the following site: http://www.spacemic.net/mic2finalists_1-5.html.

4) Successfully Launching University Satellites: From Design to Orbit

Moderator: Roland Coelho, Cal Poly, USA

Assistant: Keisuke Kondo, Tokai University

It is essential to find affordable launch opportunities for university satellite projects while providing the best chance for mission success. In this session, difficulties associated with university satellite launch projects, lessons learned, and possible innovative solutions will be discussed.

5) Open-Source Space Exploration

Moderator: Ahmed Saieed - Mentor, Space Tech Program, BA Planetarium Science Center

Assistant: Yasuo Arai, TMU

Open-source software has been crucial for the development and neutrality of the Internet. In the context of space technology education, the availability of source code, hardware schematics, and full-text documentation of best-practices for low-cost space research was very helpful for accelerating the capacity-building process for the new generations of space technology students. In this session, we will be discussing the following:

- Success stories from space tech projects/missions that were partially/completely based on open-source technologies.
- Open access to space research materials.
- Open-source software as the driver for future growth in this field (brainstorming).

6) CanSat Activities in UNISEC

Moderator: Ryusuke Konishi, Keio University, Japan

Assistant: Kentaro Nishi, and Takeshi Sakuma, TMU

In this session, various CanSat activities in UNISEC-Japan will be introduced, and effective ways to use CanSat at various educational levels and future possibilities of expansion and evolution of CanSat activities will be discussed. The current CanSat activities includes “CanSat beginner’s cup,” “Advanced CanSat Mission Competition,” “CanSat Information Center,” and “World CanSat Competition.”

7) How to Manage UNISON in Each Region/Country and Future Possibilities of UNISON-Global (target participants: students)

Moderator: Azusa Muta, NEC, Japan (UNISEC Student representative in 2011) and Takahiro Ito, Osaka Prefecture University, Japan (UNISEC Student representative in 2011)

Assistant: Shutaro Nishikizawa. TMU

UNISON is a UNISEC student organization. It is governed by students, and many activities proposed by students are currently underway in Japan. In this session, UNISON activities and management will be introduced, and the possibility to organize UNISON branches in different regions will be discussed, as well as the creation of “UNISON-Global” as a future vision.

8) Ground Station Network (GSN) through the UNISEC-Global Network

Moderator: Naomi Kurahara, Integral Systems Japan

Assistant: Herbert Akihito Uchida, Tokai University

The Ground Station Network (GSN) has been used by many university satellite projects in Japan. It enables collaboration in receiving data and software development. In this session, ways in which the GSN can contribute to satellite projects in other regions and the associated obstacles will be discussed. Additionally, examples of outreach activities in Japan will be shared.

9) CanSat and Rocket Collaboration

Moderator: Ryuichiro Kanai, Hokkaido University, Japan

Assistant: Masaki Watanabe, TMU

UNISEC-Japan is composed of two groups, namely a satellite group and a rocket group. These two groups collaborate on CanSat launch experiments. In this session, examples of collaboration and various types of suborbital rockets will be introduced. Then, possibilities of collaboration with international CanSat teams will be discussed.

(Note: This group focuses on how to aid collaboration between satellite students and rocket students by introducing the example cases in Japan. Exchanging rocket technology or research expertise is not the purpose of the group.)