



APSCO
ASIA-PACIFIC SPACE COOPERATION ORGANIZATION

APSCO Student Small Satellite Activity Updates

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Presentation Outline

- APSCO Student Small Satellite (SSS) Project (2015-2023)
- APSCO Cubesat Competition (ACC) Project in 2023
- APSCO Education & Training Center (ETC) Upgrade – A New Concept towards 2030 & beyond



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The Student Small Satellite (SSS) Project Life Cycle

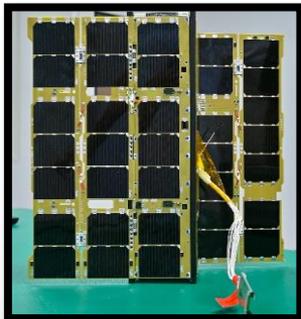
SSS-1 Microsatellite is led by Beihang University. Technical teams from Iran and Pakistan also contributed to the engineering development of the satellite.

SSS-2A CubeSat is led by Shanghai Jiao Tong University. Technical team from Pakistan contributed to the engineering development of the satellite.

SSS-2B CubeSat is led by TUBITAK-UZAY. Technical team from Thailand contributed to the engineering development of the satellite.



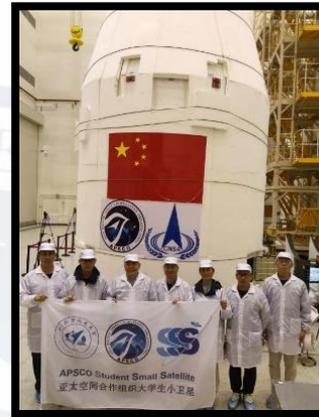
SSS-1 Model



SSS-2A Model



SSS-2B Model



SSS-1 Launch Campaign



SSS-2A Team

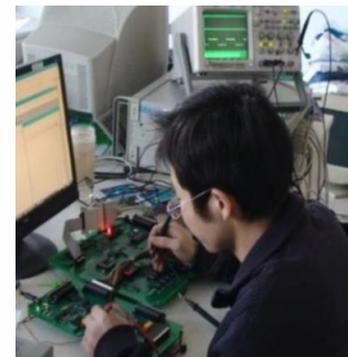
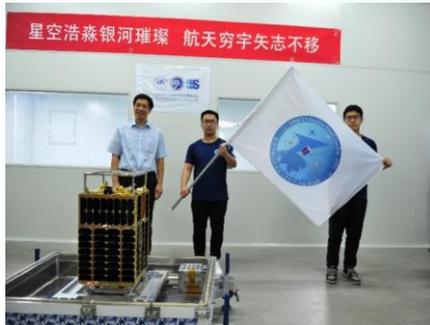




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Students' Engagement in Satellite Engineering





APSCO and Beihang University jointly recruited M.Sc. students on Micro-Satellite Technology. In total, 25 Master students from Member States have been recruited for this Student Small Satellite (SSS) Project including Bangladesh 3, Iran 5, Mongolia 3, Pakistan 3, Peru 4, Thailand 3 and Türkiye 4. This degree course facilitates the capacity building on this major in Member States.

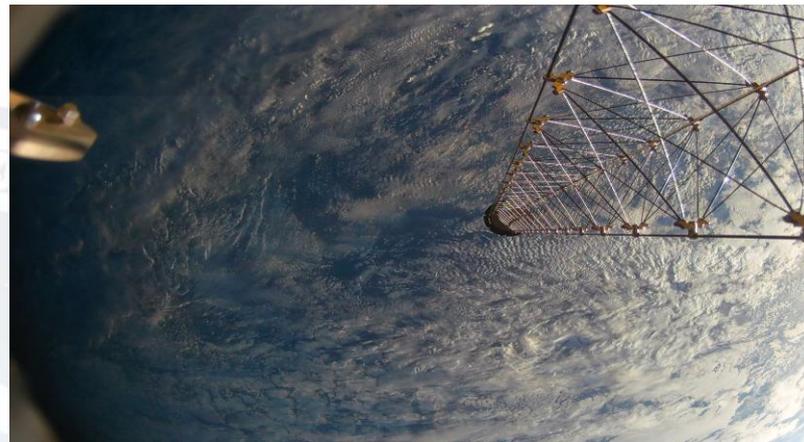


Image of Space camera, SSS-1 Model

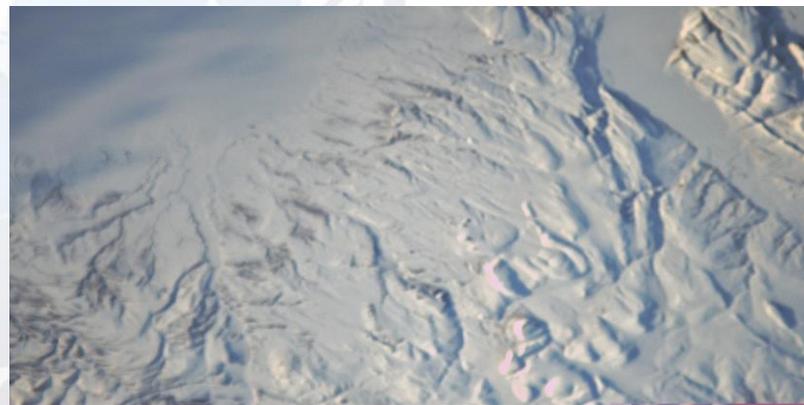


Image of Remote sensing camera, SSS-1 Model



What is ACC?

- “APSCO Cubesat Competition”, is a project initiated by APSCO and comprises a comprehensive training and educational program for APSCO Member States’ students. Participants in ACC, will undergo a multifeatured program which includes Training, Designing, Building and Testing an engineering model of a Cubesat.
- The competition will aim to design a cubesat mission for a 3U cubesat and build an engineering model. The model should include 3-Units either in an integrated form (a 3U-Cubesat) or a combination of 1/2 Unit(s) Cubesats (three 1U or one 2U plus one 1U cubesats).

Feasibility Analysis (1/12)

Availability of the Technology (1/7)

➤ To obtain the measurements of surface temperature, humidity, local vegetation knowledge, atmospheric conditions, weather data, topographic data, historical fire database, and local human activities.

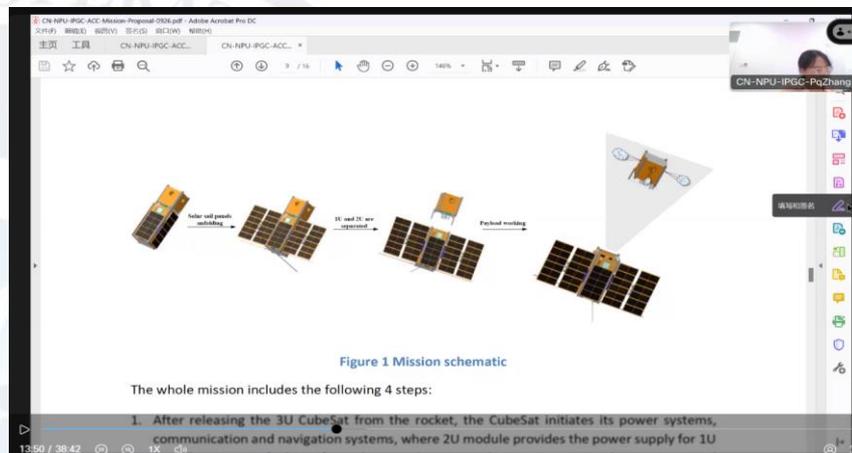
- Infrared Detectors**
 - Infrared Spectrometer
 - Infrared Radiometer
- Microwave Detectors**
 - Microwave Spectrometer
 - Microwave Radiometer
- Optical Sensors**
 - Hyperspectral Cameras
- Radar Technology**

Presenter: Yasin Gungor
Middle East Technical University



What we do in ACC?

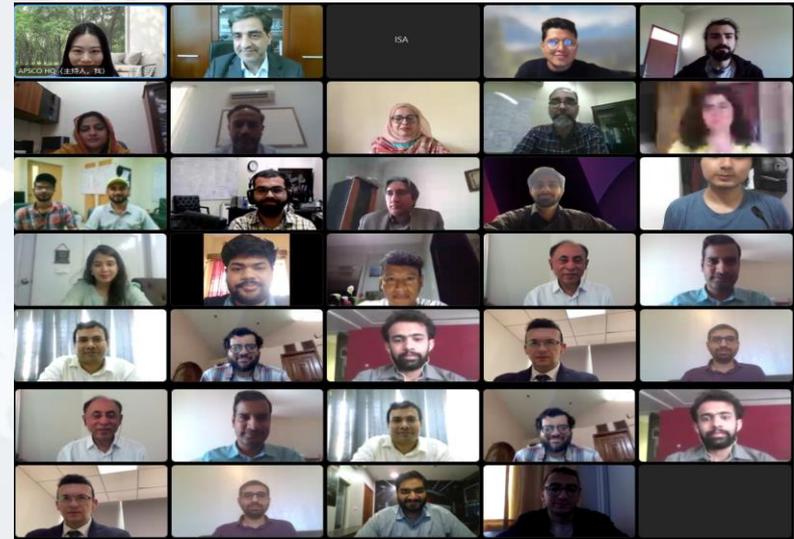
- ACC focuses on mentoring the participants throughout the lifecycle of a space mission, from theory to practice and evolves academic knowledge into practical experience.
- It is essential for participants to follow all the phases continuously, from conceptual design to model assembly and integration. If the detailed design of the teams are approved by the management board of ACC, they will proceed to the final phase to build the engineering model. The Engineering Models will be tested at the Final Competition Convention. Teams which manage to present satisfactory performance in the tests, will receive full financial support.





What we have done

- The 15th CM of APSCO approved the APSCO Cubesat Competition (ACC) Project as a Basic Activity in 2021.
- The project implementation started in late 2022. To introduce the project to all Member States, a promotion webinar was organized during 17-18 April, 2023 through virtual format.
- The team nomination and formation were done by the Member States. The first online training, the Kick-off meeting & the review of mission design of participating teams organized in July and Sept, 2023 respectively.
- The ACC will last until Sept, 2025.





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APSCO Education & Training Center (ETC) Upgrade

A New Concept towards 2030 & beyond

APSCO Education and Training Center (ETC) is the central node of APSCO Education and Training Network (ETN) which consists of eight nodes at each Member State, respectively.

The Center started its operation in 2014 and since then, many online training courses have been organized through this center.

The 17th CM of the APSCO approved the Proposal for Promotion of APSCO Education and Training Center in Nov, 2023, Cusco, Peru.



The APSCO Secretariat is working to develop a New Concept for the ETC to organize online trainings, to implement space education programs in Member States, to facilitate the implementation of various educational projects and to share available education resources in Member States in order to fulfill the Development Vision 2030 of the APSCO during the Commercial Space Age.



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Thank You!

