The Compatible Navigation Terminal System and Its Applications in Asia-Pacific Region
November, 2012
• **APSCO Introduction**
• **APSCO GNSS Projects**
• **APSCO Cooperation with China Satellite Navigation Office**
Asia-Pacific Space Cooperation Organization (APSCO) is an intergovernmental organization aim to promote the peaceful uses of outer space in Asia-Pacific Region, and to carry out the cooperation in the fields of space science, space technology and space applications among Member States and regional countries.
a) In November of 1992, the *Asia-Pacific Workshop on Multilateral Cooperation in Space Technology Applications* was held in Beijing, which marked the multilateral cooperation in space among Asia Pacific countries started.

b) **China, Pakistan and Thailand** proposed the institutionalization of the mechanism which was agreed by the participants from 16 Asia-Pacific Countries.
c) On October 28th of 2005, the Signing Ceremony of APSCO Convention was held in the Great Hall of the People, Beijing. 8 countries in Asia-Pacific Region signed the Convention, which included Bangladesh, China, Indonesia, Iran, Mongolia, Pakistan, Peru and Thailand.

d) On June 1st of 2006, the representative of the Government of Turkey signed the APSCO Convention in Beijing. Totally 9 Signatory Countries were presented.
• On December 16th of 2008, the Inauguration Ceremony of APSCO was held in Beijing, China. It represented APSCO started its formal operation.
Current Status of APSCO

• International Recognition
  APSCO is drawing more international attention since it was created. It has been granted as a *permanent observer* by the United Nations Committee on the Peaceful Uses of Outer Space (UN-COPUOS) on the 52nd Session of Committee meeting in Vienna, on 12 June 2009.
The Host Country Agreement was successfully signed by Dr. Zhang Wei, Secretary-General of APSCO and Mr. Li Yizhong, Minister of Ministry of Industry and Information Technology of China signed on 15 July 2009 in Beijing, China.

It marked the legal status of APSCO in Hosting Country was steadily confirmed.
Current Structure of APSCO

APSCO COUNCIL

Secretary-General

Department of External Relations And Legal Affairs
Department of Strategic Plan And Program Management
Department of Education/Training And Database Management
Department of Administration And Finance

Secretariat
Chairman of the Council: Mr. Khondaker M. Asaduzaman (Bangladesh),
Vice-Chairmen of the Council: Mr. Chen Qiufa (China),
Mr. Hamid Fazeli (Iran).

The current Chair-board of APSCO Council
The current Secretariat

Secretary-General:
Dr. Zhang Wei (China)

Director-General of ER/LA
Mr. Ahmad Talebzadeh (Iran)

Director-General of SP/PM
Dr. Maqbool Ahmed Chaudhry (Pakistan)

Director-General of F/A
Ms. Liu Xiaohong (China)

Director-General of ET/DB
Mr. Tsoodol Nyamkhuu (Mongolia)
Communication with International Organizations

- In September, 2010, APSCO delegation visited the ESA Headquarter for an official meeting.
- In October, 2010, APSCO Officials met with NASA representatives in IAC meeting.
- In October 2009, APSCO received a delegation from Japan Aerospace Exploration Agency (JAXA).
- In July 2010, APSCO met with delegation from The Federal Space Agency of Russia.
- In October 2010, APSCO visited National Space Agency of Ukraine (NSAU).
- In June, 2011, APSCO delegation visited National Space Agency of Kazakhstan (KAZCOSMOS).
- In October, 2011, APSCO delegation visited Space Agency of South Africa (SANSA).
- In November, 2010, APSCO officers attended the workshop on Space Law “Activities of States in Outer Space in Light of New Developments” in Thailand.
- In October, 2011, APSCO exhibited the in IAC meeting in South Africa.
- In June, 2012, APSCO official participated in Scientific and Technical Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS)
- In October, APSCO exhibited the in IAC meeting in Naples Italy.
In order to achieve the aim to
✓ Promoting cooperative activities for social and economical benefit of M.S.,
✓ Improving M. S. space technology capacity,
✓ Effectively integrate the advantage of the region in finance, technology, infrastructure, human resource, market and etc.

APSCO developed several cooperative programs and education/training programs.
## Cooperative activities in APSCO

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The feasibility study of the Applications of Compatible Navigation Terminal System project was approved in First APSCO Council meeting.

The objective of the proposal is to conduct the feasibility study of the applications of compatible navigation terminal systems and to promote the applications of satellite navigation system (Compass, GPS, GLONASS, and Galileo) in Asia-Pacific region.

The purpose of the project is to investigate the requirements of Asia-Pacific region in GNSS application and improve technical capacity of the industries in Member States through the joint development and implementation of the project. It will further extend the application systems and explore the potential market based on derived applications.
Introduction

During the feasibility study, 13 projects were proposed by the Member States based on their need and interest in navigation applications. The proposed projects covered the application in various fields including transportation, logistic, aviation, timing, disaster management, environment monitoring and etc..

Through the joint efforts by experts from Member States, according to the common interests, there were 2 projects shortlisted as priority options. As well, the feasibility study of those 2 prioritized projects were consolidated.

The prioritized projects are:

a) Development and Demonstration Applications of Compatible GNSS Terminals for Emergency Management and Disaster Rescue

b) Software Compass/GPS Receiver
Development and Demonstration of Applications of Compatible GNSS Terminals for Emergency Management and Disaster Rescue

- Leading Country: China
- Implementation duration: 3 years

Objectives:

- Develop terminals for Emergency Management and Disaster Rescue based on GNSS compatible system (EMDR)
- Build applications demonstration using terminals to verify it’s functionality
- Promote personnel training and technology, industry and cultural exchanges among APSCO Member States and Asia Pacific region
Terminal Software System

Data display and review
Data editing
Spatial analysis and query
Data input and output
Spatial analysis and query

Satellite setting
Satellite position
Satellite navigation
Location data selection
Attribute data editing
Multimedia data acquisition

Data transferring
Communication function
Satellite position function
Mobile communication function
Mobile data collection function

Emergency project management function
Embedded GIS function

Emergency rescue system handset software
Online data communication function

Raster files
Vector files
Other files

GSM/GPRS function
Service setting

Satellite navigation

Attribute data editing

Location data selection

Data display and review

Data editing

Spatial analysis and query

Data input and output
Construction of EMDR application demonstration system.
Software Compass/GPS Receiver

- Leading Country: Pakistan
- Implementation duration: 2.5 years

Objectives:

- To design a software Compass/GPS receiver as a complete radio navigation package set.
- To provide navigation services to APSCO countries for applications in Aviation, Maritime and marine operations, Agriculture, Surveying and mapping, Land and rail transport.
- Provide training and exchange technology to improve the capabilities of APSCO Member States and Asia Pacific region.
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Recognizing the achievement that the BeiDou Navigation Satellite System has started providing Initial Operational Services since the end of 2011, and plans to provide Full Operational Services by the end of 2012 to the Asia-Pacific region;

Believing that the promotion of applications of BeiDou System on the APSCO multilateral cooperation platform and the pooling of space resources will benefit the social and economic development of its Member States.

With the guidance of the Chinese Government, APSCO and China Satellite Navigation Office agree to establish long-term and stable cooperative relationship, for joint promotion of exchange, cooperation and application of BeiDou Navigation Satellite System among M.S. of APSCO.

Both agreed:
Jointly promote BeiDou System and its application and launch BeiDou/GNSS Application Demonstration & Experience Campaign (BADES) among Member States of APSCO. As an regional organization, APSCO facilitate CSNO in bilateral and multi-lateral cooperative consultations with Member States of the APSCO.

Jointly hold BeiDou thematic training courses, seminars and technical exchanges among Member States of APSCO by using existing resources and education schema. China Satellite Navigation Office shall actively support APSCO’s cooperation programs in the field of satellite navigation.
Achieved Cooperation:
APSCO witnessed BADES first Campaign in Pakistan in September, 2012
APSCO invited experts from China Satellite Navigation Office gave the lecture in
APSCO training course in Bangladesh.

APSCO will keep close cooperating with China Satellite Navigation Office.

Expecting more cooperation with regional organizations and industries,
integrate the advantages of the region in technologies, resources and
market, and promote collaborative programs of common interests.
Thank You!