

CHINA SATELLITE NAVIGATION OFFICE

# The 7th Meeting of International Committee on GNSS



## BADEC Status, Progress & Follow-up Plan

International Cooperation Research Center, CSNO

Beijing, China

Nov. 7, 2012



# Contents

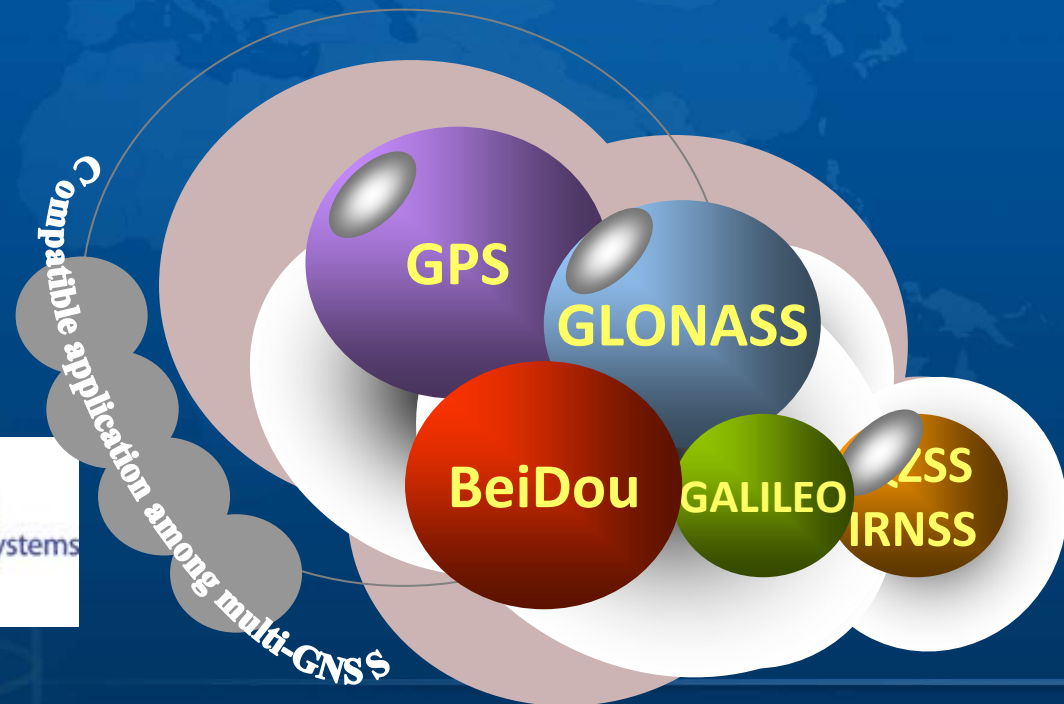


- **Overview**
- **Previous Progress**
- **Follow-up Plan**



## I. Background

**BADEC, proposed by China under the ICG framework in December, 2011, is short for BeiDou+ Application Demonstration & Experience Campaign (BeiDou+ stands for multi-GNSS including BeiDou).**

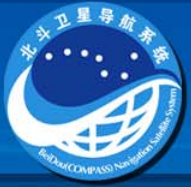




## I. Background

**BeiDou System will provide regional service by the end of 2012, which will be another important contribution of China to the international application of GNSS, mainly reflected as:**

- With more GNSS satellites available, better than single system service performance will be achieved through multi-GNSS compatibility and interoperability.**
- BeiDou system is the first operational triple-frequency navigation satellite system.**
- Integrated design of navigation satellite system and Wide Area Differential System will enable users acquire differential services conveniently.**
- Positioning report based on RDSS of BeiDou system will play an important role in fields of disaster monitoring, command, mitigation and designation, etc.**



## II. Significance

- To promote GNSS benefit the economic and social development for countries not only in the Asia-Pacific region, but also all over the world
- To upgrade satellite navigation technologies in the world, especially in countries within the Asia-Pacific region
- To push forward compatible development and mutual-beneficial cooperation of GNSS





### III. Purpose

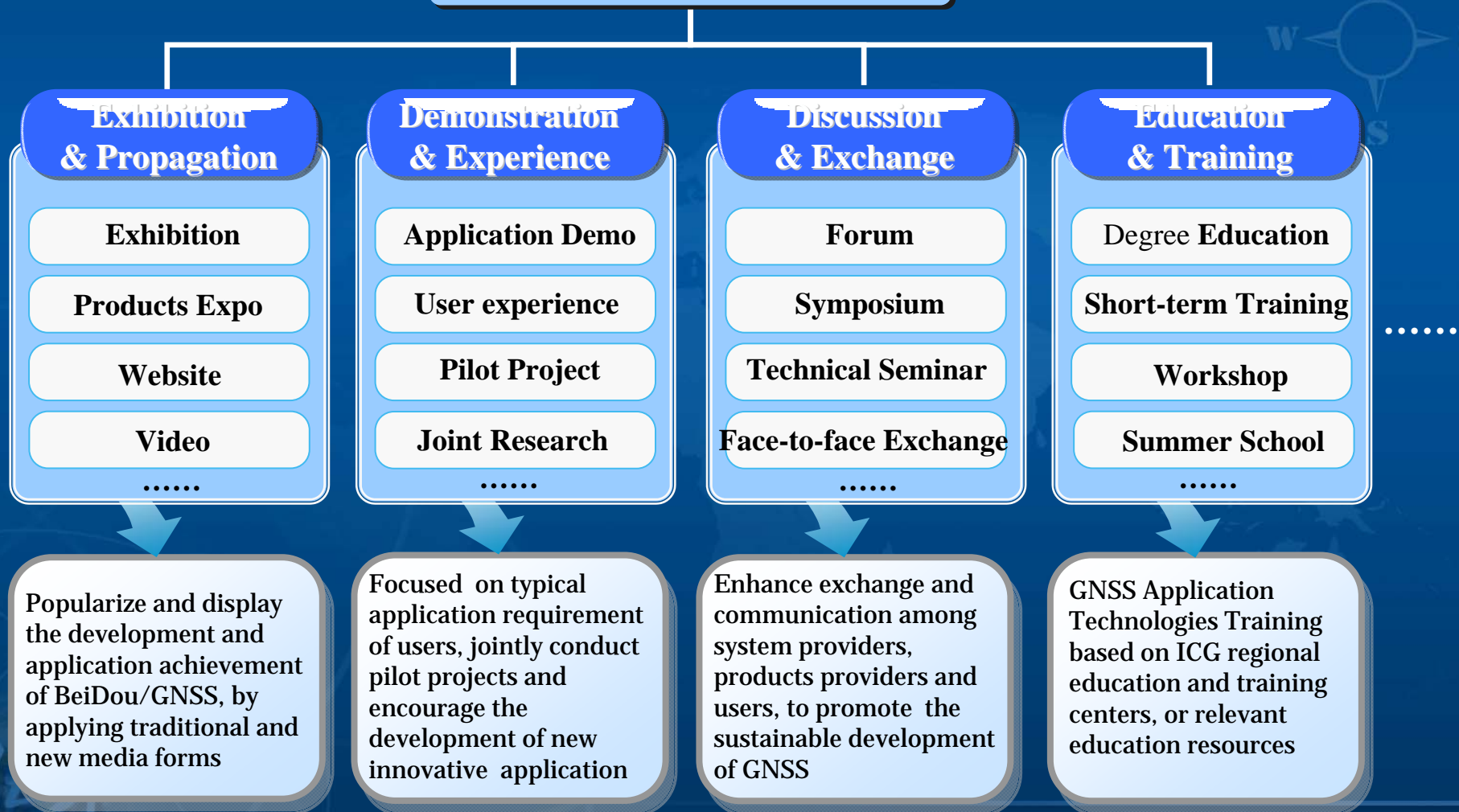
•BADEC is aimed to advocate international users, especially for those developing countries in the Asia-Pacific region, to learn about and apply BeiDou/GNSS, encourage governmental departments, industries and relevant enterprises to jointly carry out multi-GNSS Application Demonstration & Experience Campaign, survey and collect requirements from international users, explore new applications together, so as to provide better GNSS services to the mankind and realize mutual development of all GNSS.

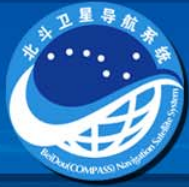




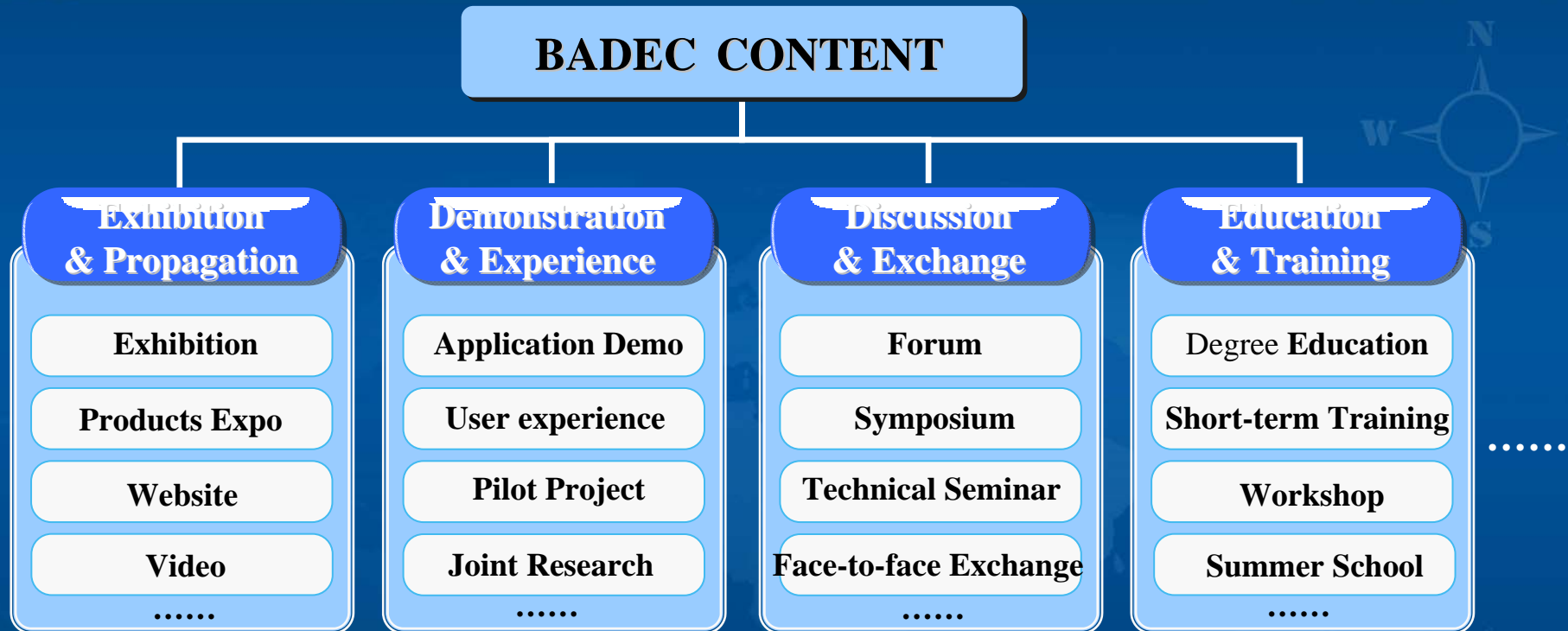
## IV. Main Activities

### BADEC CONTENT





## IV. Main Activities



The above structure could be extended based on activity progress and optional activities can be organized according to different situation in vast countries, such as in Pakistan, BADEC was mainly focused on exhibition, application demonstration, seminar and face-to-face exchange with industries, while in Korea, BADEC will be mainly focused on application demonstration, user experience, pilot projects and joint research.



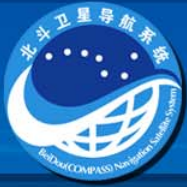


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## I. BADEC in Pakistan

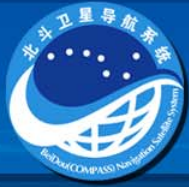
- **From September 25 to 26, 2012**
  - **In Karachi, Pakistan**
  - **Jointly organized by CSNO and SUPARCO**
  - **Theme: Sensing BeiDou and applying BeiDou**
  - **Aim: To promote technical and practical cooperation**
- 
- **The event presented establishment and application achievements of BeiDou system, and promoted bilateral cooperation.**
  - **Several hundreds representatives from governmental organizations, such as departments of transportation, agriculture and disaster mitigation, relevant enterprises, academic institutions and universities visited exhibition, attended “Seminar on BeiDou/GNSS And Its Application”, and conducted face-to-face exchanges with Chinese enterprises.**



## I. BADEC in Pakistan

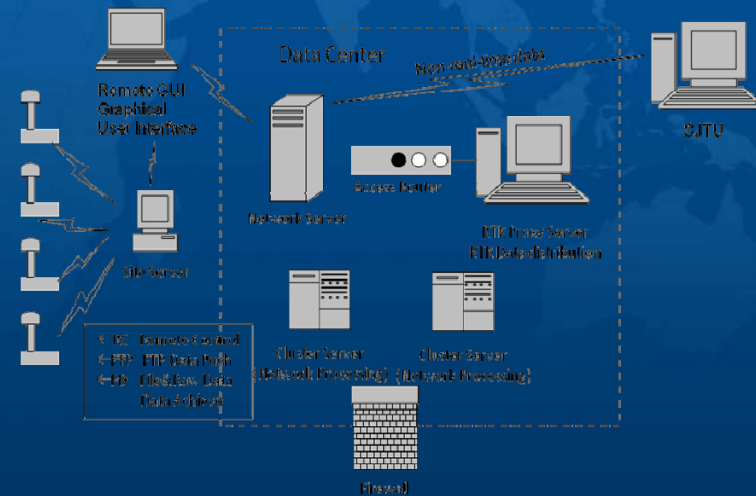
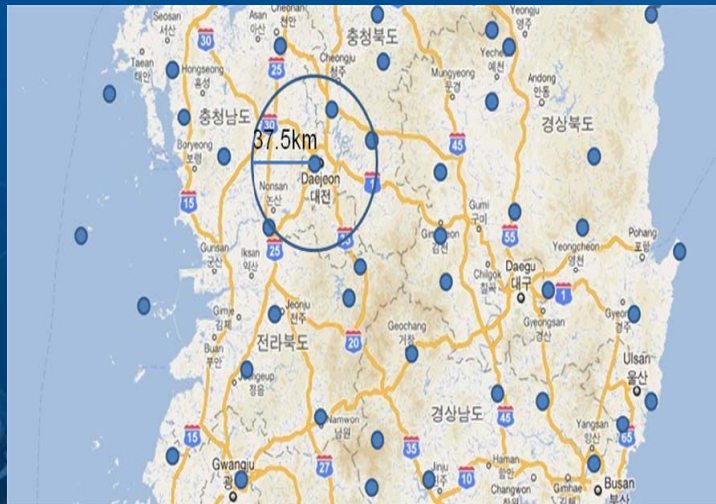
- BADEC in Pakistan showed that this event was effective and popular. It integrated report, seminar, exhibition, demonstration and on-site shows, provided a good opportunity of face-to-face communication and exchange between users and product providers. The event has achieved good effect for the popularization and promotion of GNSS application, and also provided experiences for follow-up BADEC event.

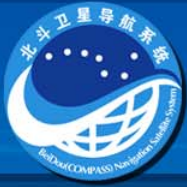




## II. BADEC in Korea

- Under the framework of BADEC, in cooperation with National GNSS Research Center (NGRC) of Korea, Shanghai Jiaotong University started to establish a small-scale CORS network test system in late October 2012, to carry out test and research in fields of high-accuracy mapping, timing, differential navigation, and worked out primary results.





### III. Cooperation with APSCO

In August 2012, CSNO and APSCO signed the tentative agreement to jointly carry out BADEC event. Future bilateral cooperation will mainly focus on:

- **BeiDou+ Application Demonstration & Experience Campaign**
- **International GNSS Monitoring & Assessment System**
- **BeiDou/GNSS Application Training in the Asia-Pacific region**
- **Joint R&D *and cooperation* on GNSS civil technologies**





## IV. Cooperation with Other International Organizations

- **CSNO carried out communication with IGS, ESCAP, UN-SPIDER and other international organizations as for jointly organizing BADEC event, and gained active response and support.**
- **Chinese experts participated in International Training on Data Geographic Investigation hosted by ASEAN, Symposium on “Application of multi-GNSS in regional sustainable development” hosted by UN-ESCAP, Munich Satellite Navigation Summit, ION Conference, etc, and made presentations on the development progress of BeiDou system, application development of multi-GNSS and BADEC initiative, which aroused great interest among participants.**

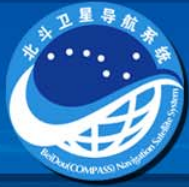




## V. Education and Training

- The first session of Summer School on International GNSS Frontier Technologies was successfully on August 25 to 31, 2012, relying on Beihang University, which popularized and promoted the application of GNSS, and won high praise among more than 60 trainees from the Asia-Pacific region.
- In September 2012, the first session of MASTA program recruited over 20 under-graduate students from 7 countries in the Asia-Pacific region to complete master degree in Beihang university .
- In August 2012, BeiDou/GNSS International Communication and Training Center was officially established in Beihang University.





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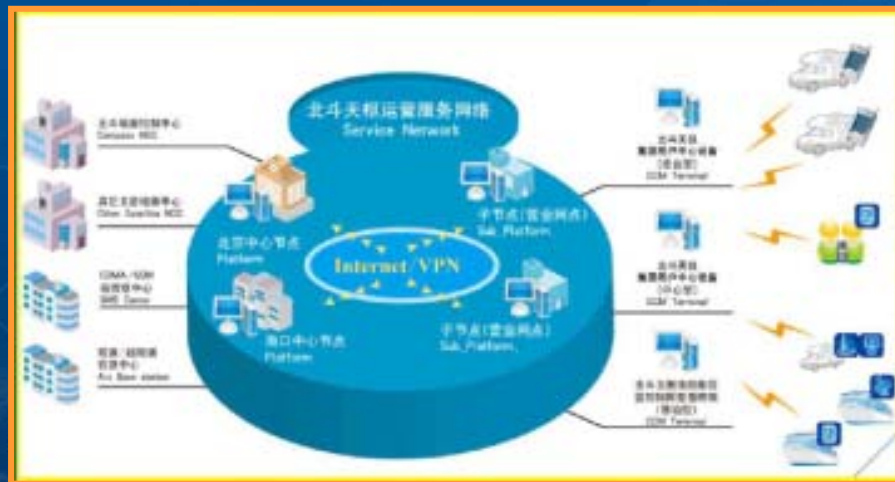
## I. BeiDou's Tour to the Asia-Pacific Region

- We are planning to conduct itinerant BADEC activities majorly in the Asia-Pacific region, and will make detailed scheme and arrangement based on specific status and requirements from different countries.



## II. Launch International Application Projects

- **Jointly launch international application pilot projects and relevant application promotion activities focused on the fields with wide application requirements, such as disaster monitoring, emergency management, transportation, marine fishery, personal LBS, etc.**





### III. Forum on Development of Satellite Navigation in the Asia-Pacific region

- Aimed at innovative development in the field of satellite navigation, establish a regional academic symposium every 1-2 years, to discuss about innovative application, technology innovation, fundamental resources sharing, and cooperation in technology transfer.
- Establish a forum on GNSS Application in the Asia Pacific region, based on voluntary participation and rotating host by countries in this region.

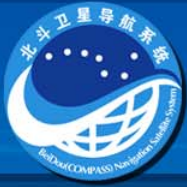




## IV. BeiDou/GNSS Education and Training

- We will mainly focus on developing countries, jointly conduct GNSS education training requirement analysis, establish rational courses for different countries; cooperate to establish BeiDou/GNSS education and training organizations, relying on universities and research institutions in relevant countries.





## Summary

•Based on the successful experience gained from previous BADEC event, we are willing to invite more ICG members to join us, establish joint action group to conduct BADEC sustainably. We recommend to include this initiative into ICG framework and action plan so that more countries and people in the world especially those developing countries could share the achievements of GNSS application and development, upgrade GNSS application level and make GNSS better serve the mankind.

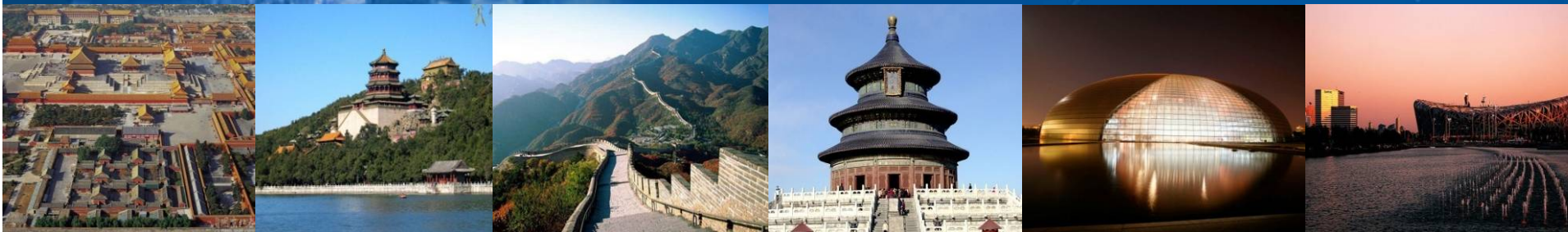




# Thank you!

[www.beidou.gov.cn](http://www.beidou.gov.cn)

[www.compass.gov.cn](http://www.compass.gov.cn)



BEIDOU NAVIGATION SATELLITE SYSTEM