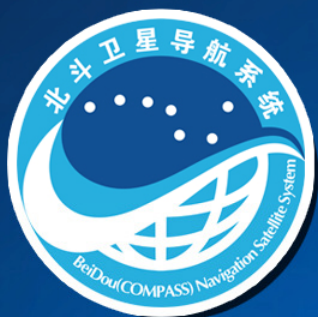


CHINA SATELLITE NAVIGATION OFFICE



BeiDou : Bring the World and China to Your Doorstep

China Satellite Navigation Office

June , 2012



Contents

Part I: BeiDou System Progress

**Part II: China Satellite
Navigation Conference**

Part III: Activities related to ICG

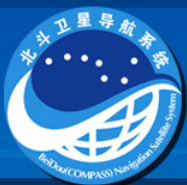


Contents

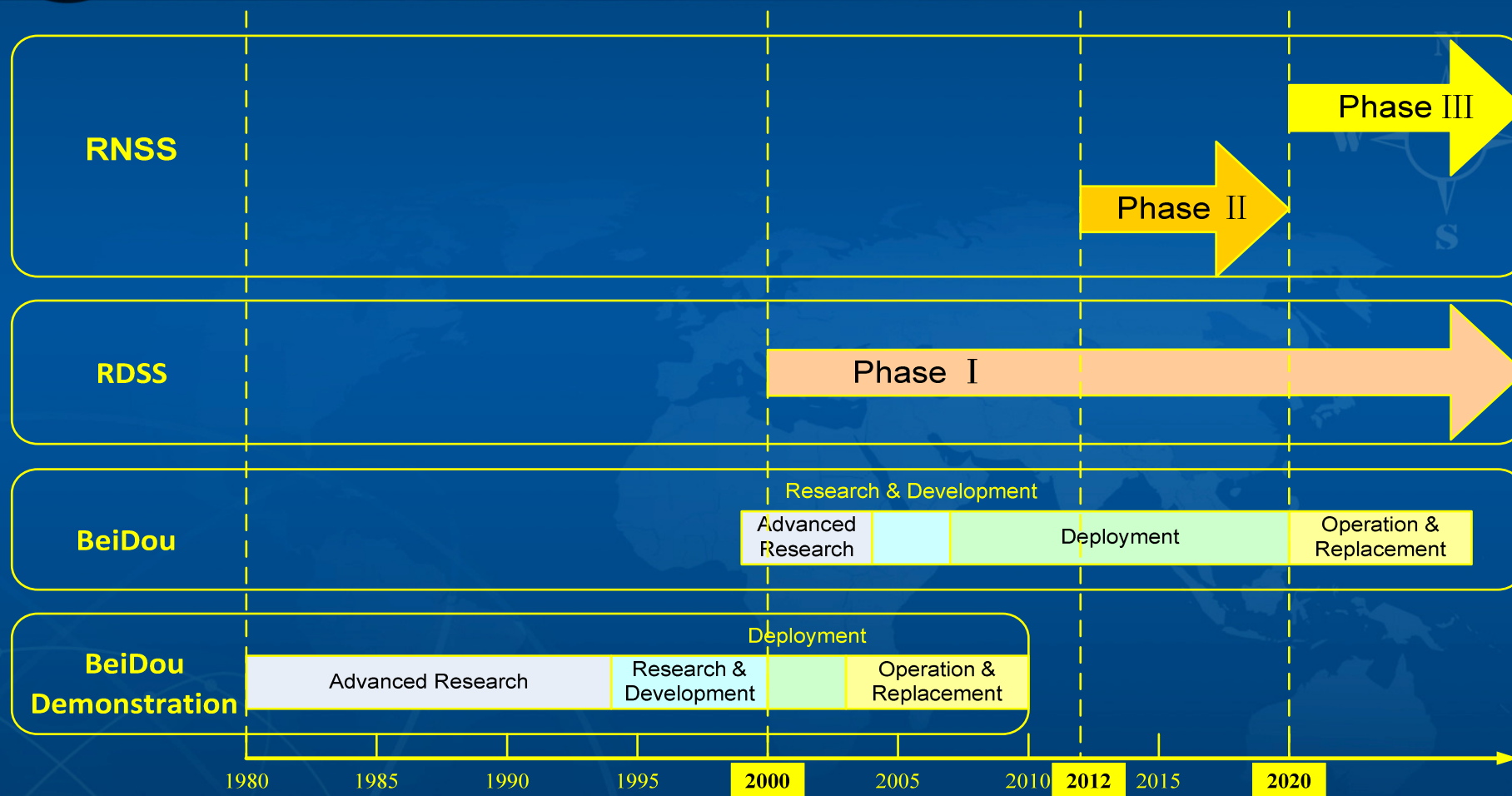
Part I: BeiDou System Progress

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Navigation Conference**

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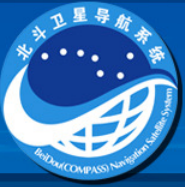


Development Plan



*BeiDou-Demonstration — BeiDou Navigation Demonstration System
RDSS — Radio Determination Satellite System

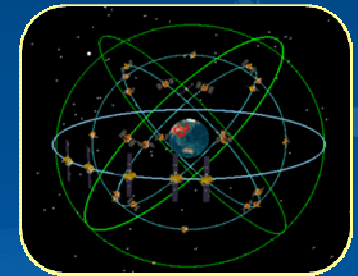
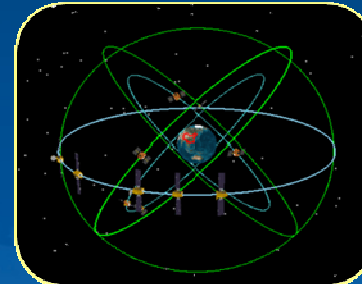
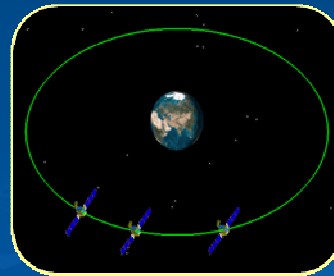
BeiDou — BeiDou Navigation Satellite System
RNSS — Radio Navigation Satellite System



Progress——System Description

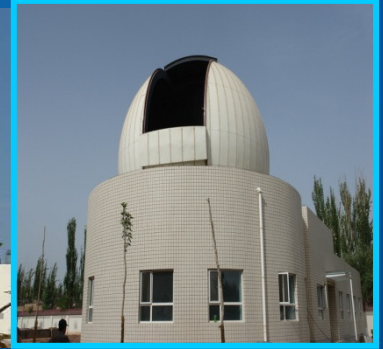
Space Constellation

- 5 GEO satellites
- 30 non-GEO satellites(include 27 MEO satellites and 3 IGSO satellites)



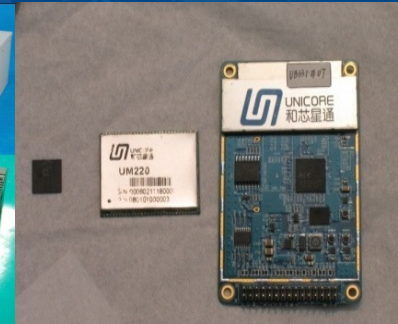
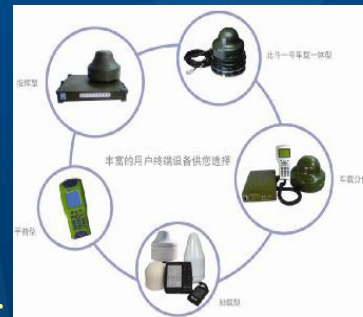
Ground Control Segment

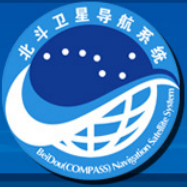
- Master Control Stations (MCS)
- Upload Stations (US)
- a network of globally distributed Monitor Stations (MS)



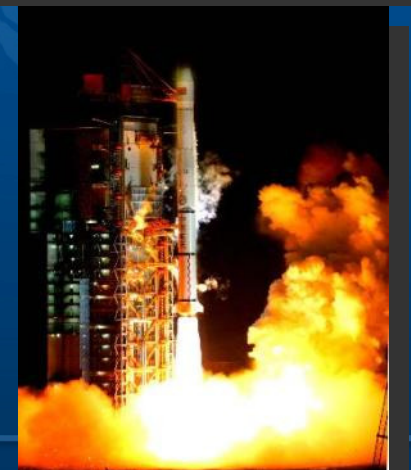
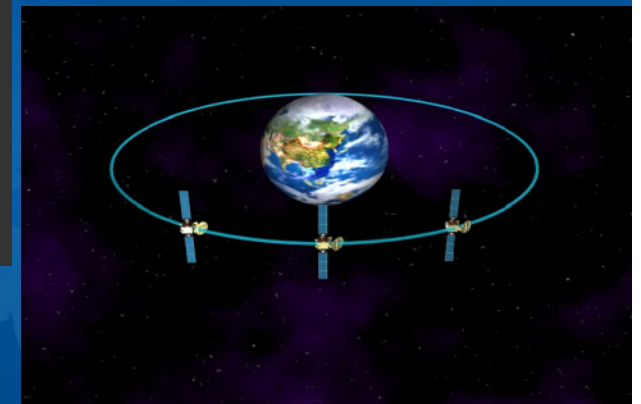
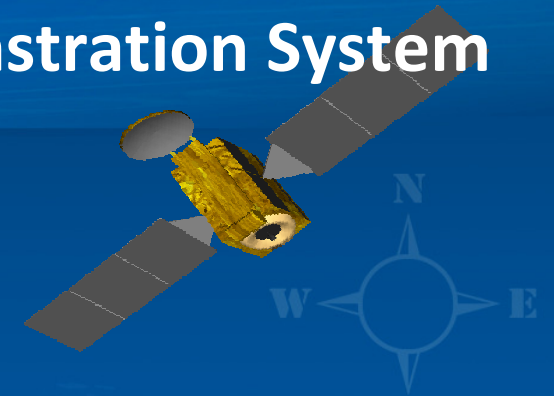
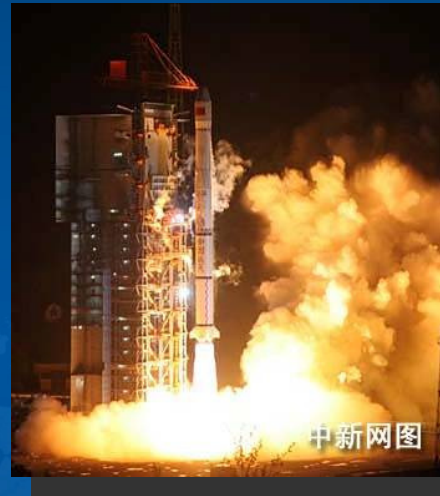
User Terminals

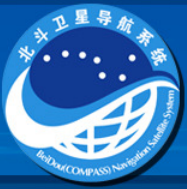
- BeiDou user terminals
- terminals compatible with other navigation satellite systems





BeiDou Navigation Satellite Demonstration System

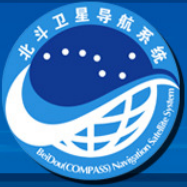




BeiDou Navigation Satellite System



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System Construction

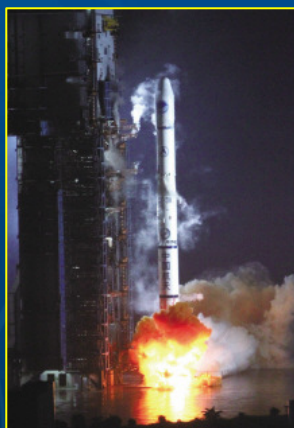
■ Space Constellation

- 3 BeiDou satellites were launched in 2011.
- So far this year, three BeiDou satellites have been launched. Now the number of operational satellites in orbit has reached 11.

2011.4.10



2011.7.27



2011.12.2

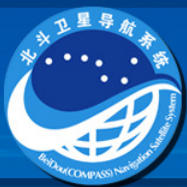


2012.2.25



2012.4.30





System Construction

■ Space Constellation

Stage	BeiDou Demonstration System				BeiDou Navigation Satellite System												
	01	02	03	04	01	02	03	04	05	06	07	08	09	10	11	12	13
Type	GEO	GEO	GEO	GEO	MEO	GEO	GEO	GEO	IGSO	GEO	IGSO	IGSO	IGSO	IGSO	GEO	MEO	MEO
Date	2000. 10.3 1	2000. 12.21	2003. 5.25	2007. .2.3	2007. 4.14	2009. 4.15	2010. 1.17	2010. 6.2	2010. 8.1	2010. 11.1	2010. 12.18	2011. 4.10	2011. 7.27	2011. 12.2	2012. 2.25	2012. 4.30	2012. 4.30
Status																	



Deorbit



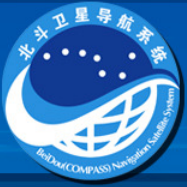
Operational



Flight test



In maintenance



Progress——Operational Capability

- Initial Service of BeiDou System has been announced

On Dec. 27 2011, the State Council Information Office, P.R.C. held a press conference to announce the initial service of BeiDou System.

新闻办公室
INFORMATION OFFICE, P.R.C.

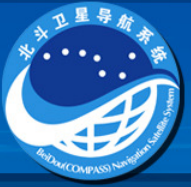


北斗卫星导航系统
www.beidou.gov.cn

国务院新闻办公室
THE STATE COUNCIL INFORMATION OFFICE, P.R.C.



北斗卫星导航系统
www.beidou.gov.cn

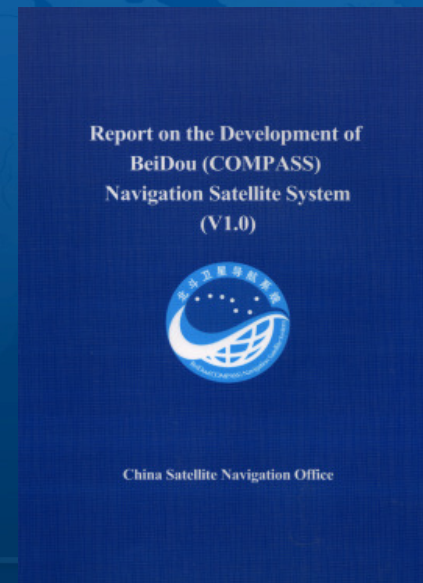
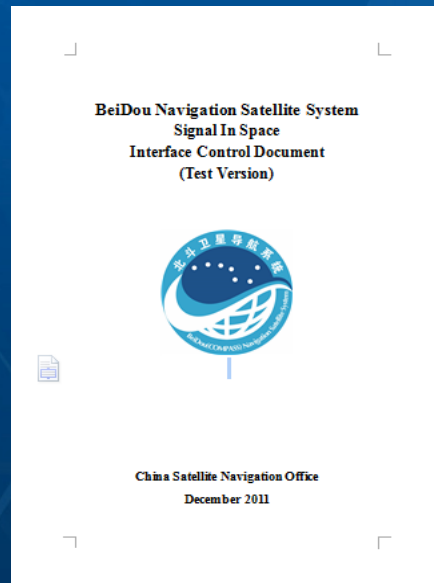


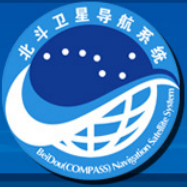
Progress——Operational Capability

- Published two files

- Development of BeiDou Navigation Satellite System (V1.0)

- Interface Control Document (ICD) of BeiDou Navigation Satellite system (test version)





Progress——Operational Capability



● Performance of Initial Operational Service

□ Service Coverage Area

✓ From 84° E to 160° E; from 55° S to 55° N

□ Positioning Accuracy

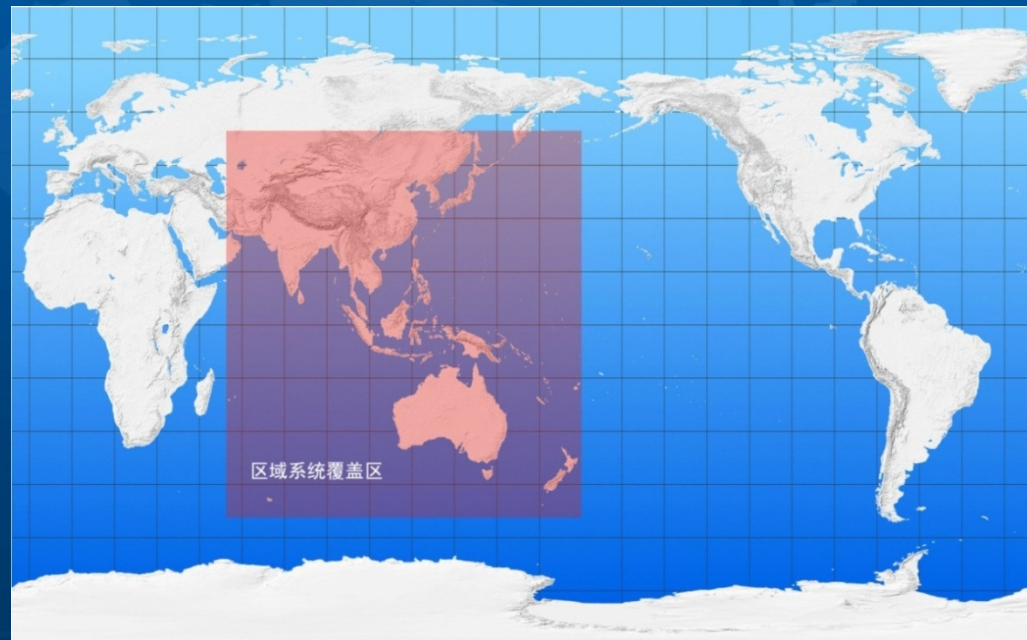
✓ Horizontally 25meters, Vertically 30 meters

□ Velocity Accuracy

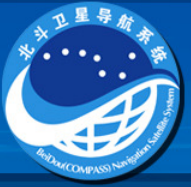
✓ 0.4m/s

□ Timing Accuracy

✓ 50 ns

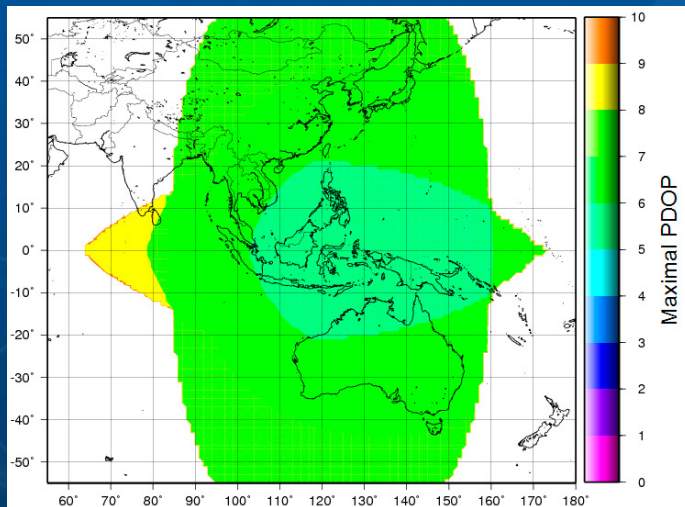


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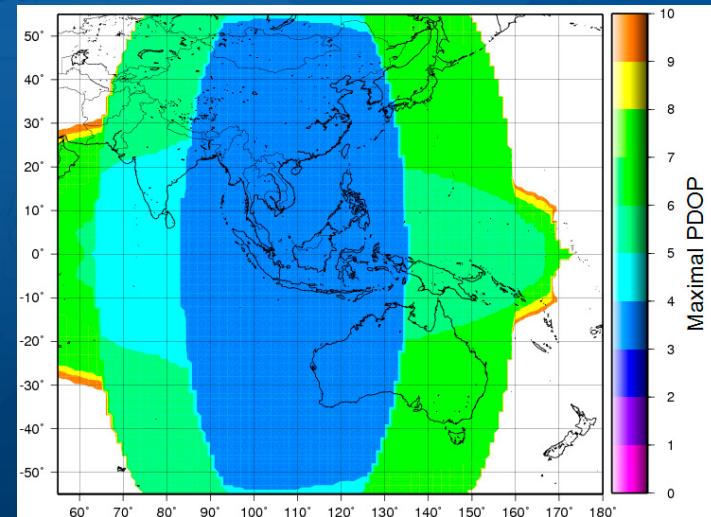


Progress——Operational Capability

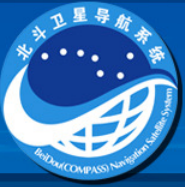
Since IOC, the system has performed stably. The space constellation performance has been improved apparently, and the user experience for the PNT service performance has been enhanced significantly.



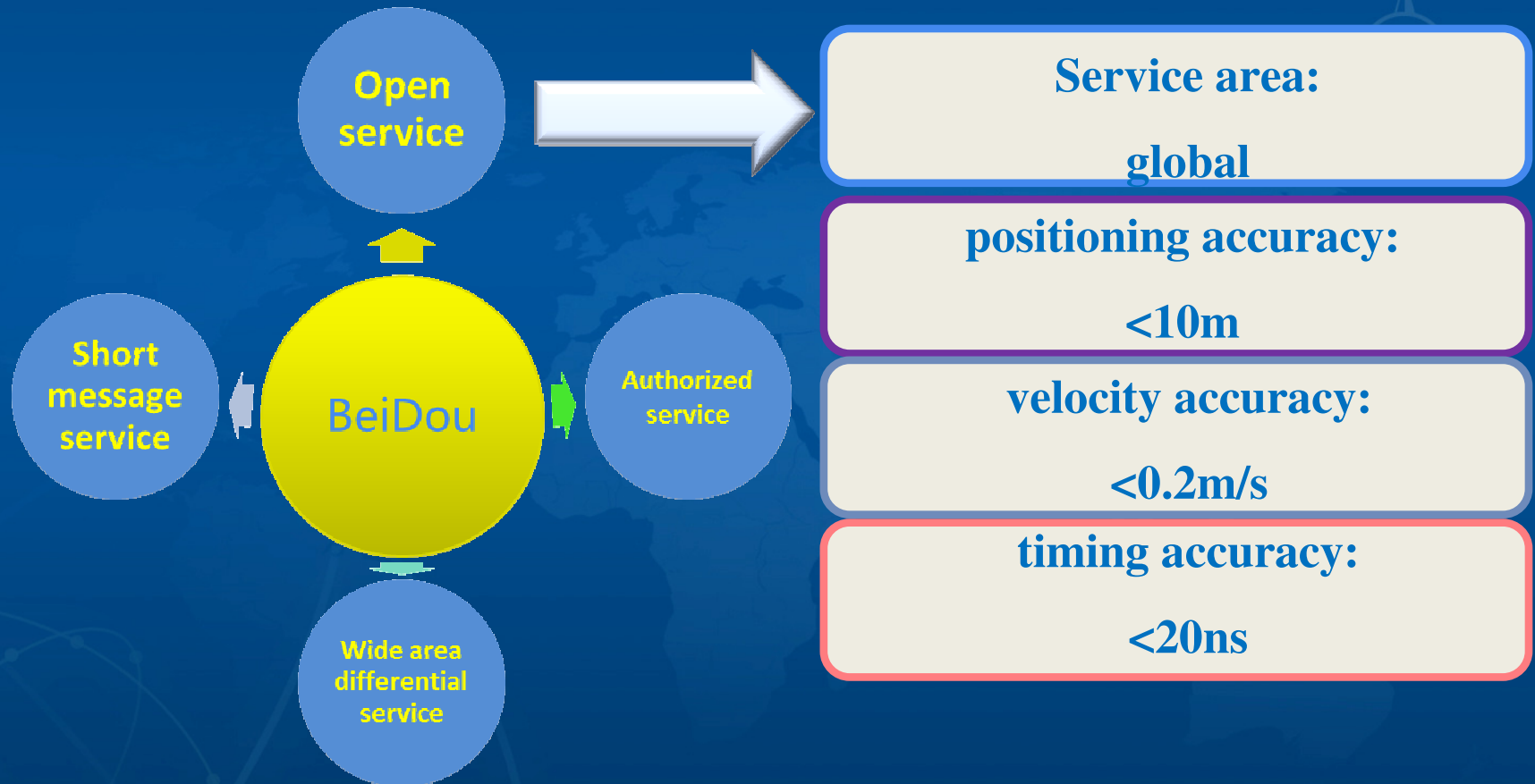
“3GEO+3IGSO” PDOP

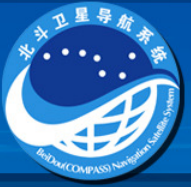


“4GEO+5IGSO+2MEO” PDOP



Service Performance—Global Service



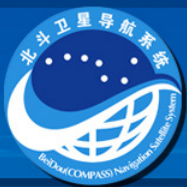


Application Popularization and Industrialization

Application amid construction, construction facilitating application, and application promoting construction

- **To strengthen the R&D of fundamental chips and modules**
- **To carry out demonstration in various industries and regions**
- **To speed up the construction of BeiDou ground-based augmentation system**
- **To implement the argumentation and construction of China Location Based Service**

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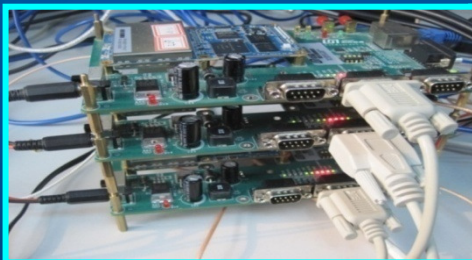


System Applications--Chips and terminals R&D



◆ BeiDou/GPS dual-mode chip

◆ Be applied in vehicle terminals



OEM board



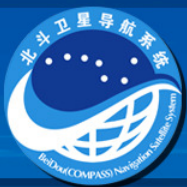
chip



antenna

• **Components of BeiDou/GPS dual-mode vehicle terminal**

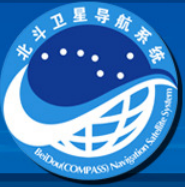
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Civil Aviation

- Airborne test
- Focus on reliability and safety
- Promote civil aviation application standards



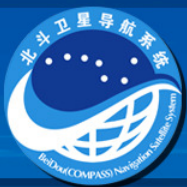


Transportation

Transportation monitoring & management demonstration system



- Collecting traffic information
- Preventing fatigue driving
- Monitoring dangerous goods
- Ensuring safety
- Improving service efficiency



Surveying & Mapping

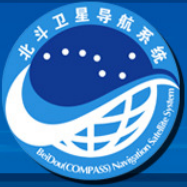
➤ **Develop high-precision receiver**

➤ **Improve precision**



➤ **Test B1/B2 dual-frequency RTK**





Meteorology

Atmosphere, ocean , space monitoring & early warning demonstration system

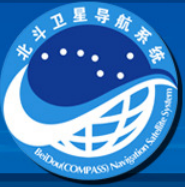
➤ High altitude detecting balloon

➤ Ionosphere and water vapor monitoring

➤ Sea wind and waves

➤ Meteorological disaster early warning and information dissemination





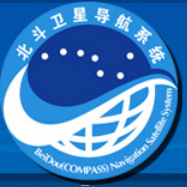
International Cooperation

Openness and cooperation, mutual benefits and win-win results

- To carry out GNSS compatibility and interoperability and frequency coordination
- To participate in all activities of ICG
- To promote BeiDou to merge into international standards
- To promote BeiDou to merge into GNSS



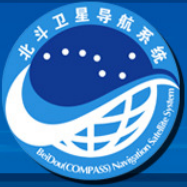
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International Cooperation

Carrying on multilateral and bilateral coordination and promoting compatibility and interoperability

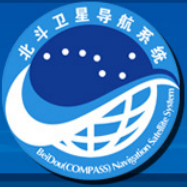




International Cooperation

Carrying on multilateral and bilateral coordination and promoting compatibility and interoperability



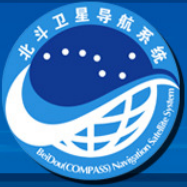


International Cooperation

Initiating and promoting international initiatives, and speeding up merging into the international community

- **Proposing the initiative of iGMAS**
- **Participating in Multi-GNSS experiment of IGS and the Multi-GNSS demonstration plan in Asia and Oceania**
- **Initiating BeiDou/GNSS Application Demonstration and Experience Campaign (BADEC)**
- **Supporting new frequency resource extension of satellite navigation**



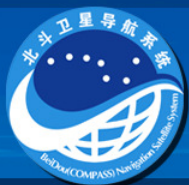


International Cooperation

Carrying on international cooperation and exchange, and promoting GNSS applications



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International Cooperation

Carrying on international cooperation and exchange, and promoting GNSS applications



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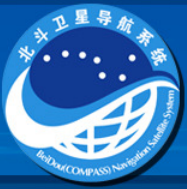


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China Satellite Navigation Conference

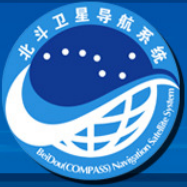
China Satellite Navigation Conference is an open platform for academic exchanges that aim at

- **enhancing academic innovation to promote cooperation and exchanges in the field of satellite navigation.**
- **strengthening technological innovation to accelerate engineering construction of satellite navigation systems.**
- **intensifying theoretical innovation to facilitate theory progress of satellite navigation .**
- **reinforcing application innovation to boost scientific development of the satellite navigation industry.**


第一届中国卫星导航学术年会
China Satellite Navigation Conference
中国·北京 2010


第二届中国卫星导航学术年会
The 2nd China Satellite Navigation Conference
中国·上海 2011

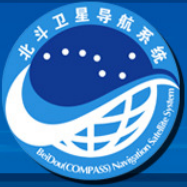

第三届中国卫星导航学术年会
中国·广州 2012



China Satellite Navigation Conference (CSNC-2010)

- The first CSNC was held in Beijing from May 19 to 21, 2010, including special workshop、 international technical exchange、 science popularization etc. The technical exhibition of the first CSNC was also hosted.
- Participants of CSNC-2010 account for over 1100.

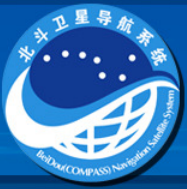




China Satellite Navigation Conference (CSNC-2011)

- The second CSNC was held in Shanghai from May 18 to 20, 2011
- Participants of the CSNC-2011 account for over 1660, and 582 technical papers were published in the conference proceeding.

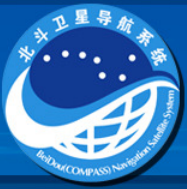




China Satellite Navigation Conference (CSNC-2012)

- The third CSNC was held in Guangzhou from May 16 to 19, 2012. registered personnel and units account for 2000 and 80 separately
- The thesis of the third CSNC is “BeiDou (COMPASS) going to application”, aiming at perfecting system capacity, evaluating system, renewing application model, discussing application technology and developing industrial links.

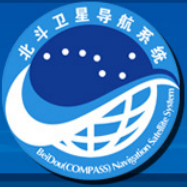




China Satellite Navigation Conference (CSNC-2012)

- The first CSNC-ION Joint Panel was held in Guangzhou on May 15th, 2012.
- GNSS Providers were invited to update system and service provision .
- Invited Presentations
- English Session was included in every report session.





China Satellite Navigation Conference (CSNC-2013)

The 4th CSNC

■ Wuhan, Hubei Province, China

■ May , 2013



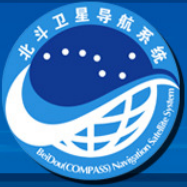
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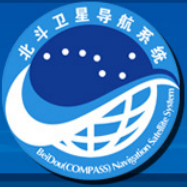


Activities related to ICG

- **1999: Resolution 54/68 of UNISPACE-III and Vienna Declaration.**
- **2001: Action Team on Global Navigation Satellite Systems**
- **2005: Establishment of the International Committee on Global Navigation Satellite Systems (ICG)**
- **China as a member of ICG and its Provider Forum**



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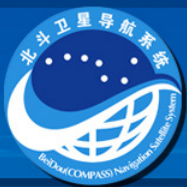


Activities related to ICG

- Working Group A, B, C ,D and Provider's Forum
- 6 plenary meetings and 8 Provider's Forum meetings held from 2005 till now
- Discussion on “The key consideration of the future of ICG”

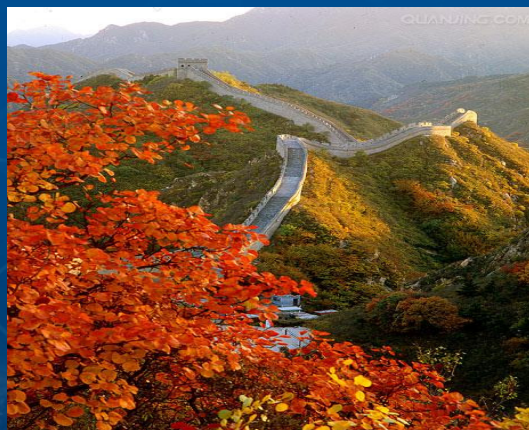


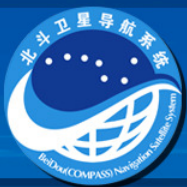
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ICG-7

- Participated in ICG General Assembly Meeting and ICG Providers Forum;
- The 7th Meeting of ICG will be held in Beijing from Nov.4 to 9,2012.

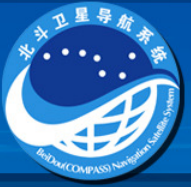




Agenda

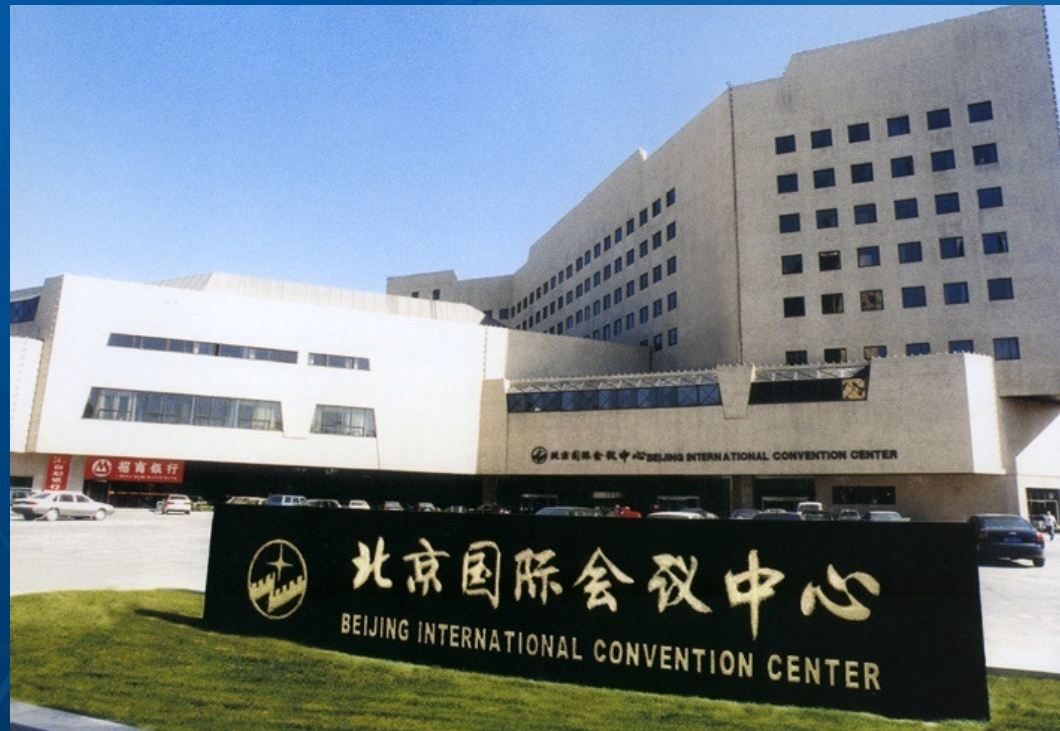
	4 Nov. Sun	5 Nov. Mon	6 Nov. Tue	7 Nov. Wed	8 Nov. Thu	9 Nov. Fri
MORNING		Registration	Application and/or Expert Forum			
		Opening Ceremony & 1st Plenary Session	2nd session of Provider s' Forum	Meeting of WG A	Meeting of WG C	2nd Plenary Session
AFTERNOON	Registration					
	Meeting with the WGs Co-Chairs & 1st session of Providers' Forum	Application and/or Expert Forum	Technical Tour	Meeting of WG B	Meeting of WG D	3rd session of Provider s' Forum
EVENING						
		Welcome Dinner		Welcome Reception		

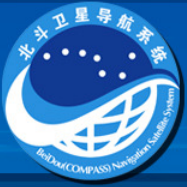
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Venue

- **Beijing International Convention Center (BICC for short) is located within Asian Games village in the northern part of Beijing**
- **One of the top conference centers well known nationwide where has hosted numerous spectacular international events and high level conferences**





Technical Tour

Time: Nov.6th, PM, lasts for 4 hrs. Tourism routes are as follows:



China Academy of Space Technology (CAST): Visit the exhibition center and learn about comprehensive capabilities of satellites manufacturing in China

China Academy of Aerospace Electronics Technology: Learn about the operation status of BeiDou system, overall structure of iGMAS, and performance of its monitoring stations and equipment.

Summer Palace: Visit the royal landscape and digest different culture

Group 1:



China Academy of Aerospace Electronics Technology



China Academy Of Space Technology



Summer Palace

Group 2:



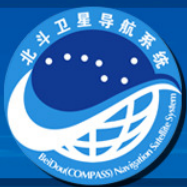
China Academy Of Space Technology



China Academy of Aerospace Electronics Technology



Summer Palace



Website Highlights

The website of ICG-7 (www.icg2012.cn) has been officially launched on May 15th, including following sessions:



The screenshot shows the official website for the Seventh Meeting of the International Committee on Global Navigation Satellite Systems (ICG-7). The header includes the UN logo, the ICG logo, and links for 'Upload Files' and 'Download Files'. The main banner features a satellite orbiting Earth with the text: 'Seventh Meeting of the International Committee on Global Navigation Satellite Systems (ICG-7) Beijing, 5th November (Mon.) - 9th November (Fri.), 2012'. A left sidebar lists navigation options: General Information, Registration, Sponsors, Agenda, Venue, Technical Tour, Previous meetings review, Service Information, and Contact Us. The 'General Information' section is active, displaying details about the meeting hosted by the Government of the People's Republic of China. It includes a welcome message from the Chinese government, a description of the ICG as a voluntary body for promoting cooperation in GNSS, and a list of participants. The meeting is held at the Beijing International Convention Center (BICC). The chair, RAN Chengqi, is introduced. At the bottom, a footer provides the website URL and copyright information.

General Information

Seventh Meeting of the International Committee on Global Navigation Satellite Systems (ICG-7)
hosted by the Government of People's Republic of China
Beijing, 5th November (Mon.) - 9th November (Fri.), 2012

On behalf of the Government of People's Republic of China for the Seventh Meeting of the International Committee on GNSS (ICG-7), we have the pleasure to invite you and warmly welcome you to Beijing, China this coming November. The ICG-7 will be held in Beijing, China, from 5th to 9th November, 2012.

The International Committee on Global Navigation Satellite Systems is established on a voluntary basis as an informal body to promote cooperation, as appropriate, on matters of mutual interest related to civilian satellite-based positioning, navigation, timing and value-added services, as well as the compatibility and interoperability of global navigation satellite systems, while increasing their use to support sustainable development, particularly in developing countries.

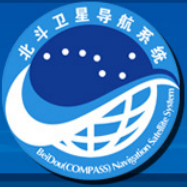
Participants are system providers, international governmental organizations and international non-governmental organizations. This ICG-7 meeting will include an agenda to permit time for the plenary session discussions, Providers' Forum discussions and Working Groups meetings. The meeting will take place at the Beijing International Convention Center (BICC) in Beijing, which is located on the North Fourth Ring road, 20 kilometers from the Beijing International Capital Airport (BICA). It has served almost 1,000 different international and domestic conventions, exhibitions and meetings each year since its establishment.

We look forward to seeing you in Beijing!

RAN Chengqi
CHAIR, ICG-7
Director General
China Satellite Navigation Office (CSNO)

FOR ANY FURTHER INFORMATION ON ICG PLEASE REFER TO THE ICG PORTAL AT: <http://www.icgsecretariat.org>

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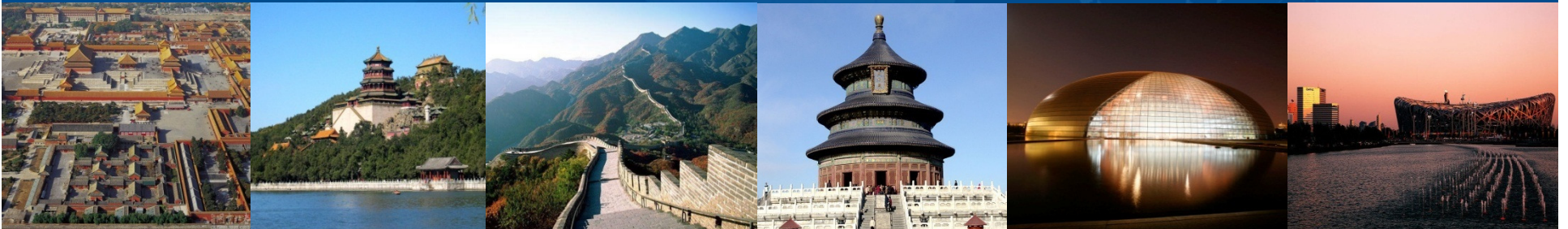


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