

CHINA SATELLITE NAVIGATION OFFICE

# The 9th Meeting of International Committee on GNSS



*Update of GNSS IDM and  
discussion on  
infrastructure in China*

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# 1. Understanding of GNSS as critical infrastructure

- *Investigation has been conducted in China after 3rd IDM workshop in Geneva in July 2014.*

*Our point of view:*

- *National critical infrastructure can be defined as those assets which belong to the nation or public, most important to national security, social stability, economic development and public life, if lost or destroyed, would significantly impact on national defense and economic security.*



## Question 1:

*Do you consider Global Navigation Satellite System or their services to be National Critical Infrastructure? How does your answer impact the protection of GNSS and its service in your nation?*

- **BDS is national important space infrastructure at present. As the application increasing, the protection of BDS and its services in China is becoming vital.**



- **Other Global Navigation Satellite Systems such as GPS and GLONASS, have been widely applied in China. But the signal and service should be promised sufficiently safe and reliable for GNSS as national critical infrastructure .**
- **If other Global Navigation Satellite Systems are national critical infrastructure in China, there's still no deterministic answer.**



*Question 2: What do you consider to be the definition of “International Critical Infrastructure” ?*

- **There’s still no definition for international critical infrastructure, it need more discussion and investigation.**

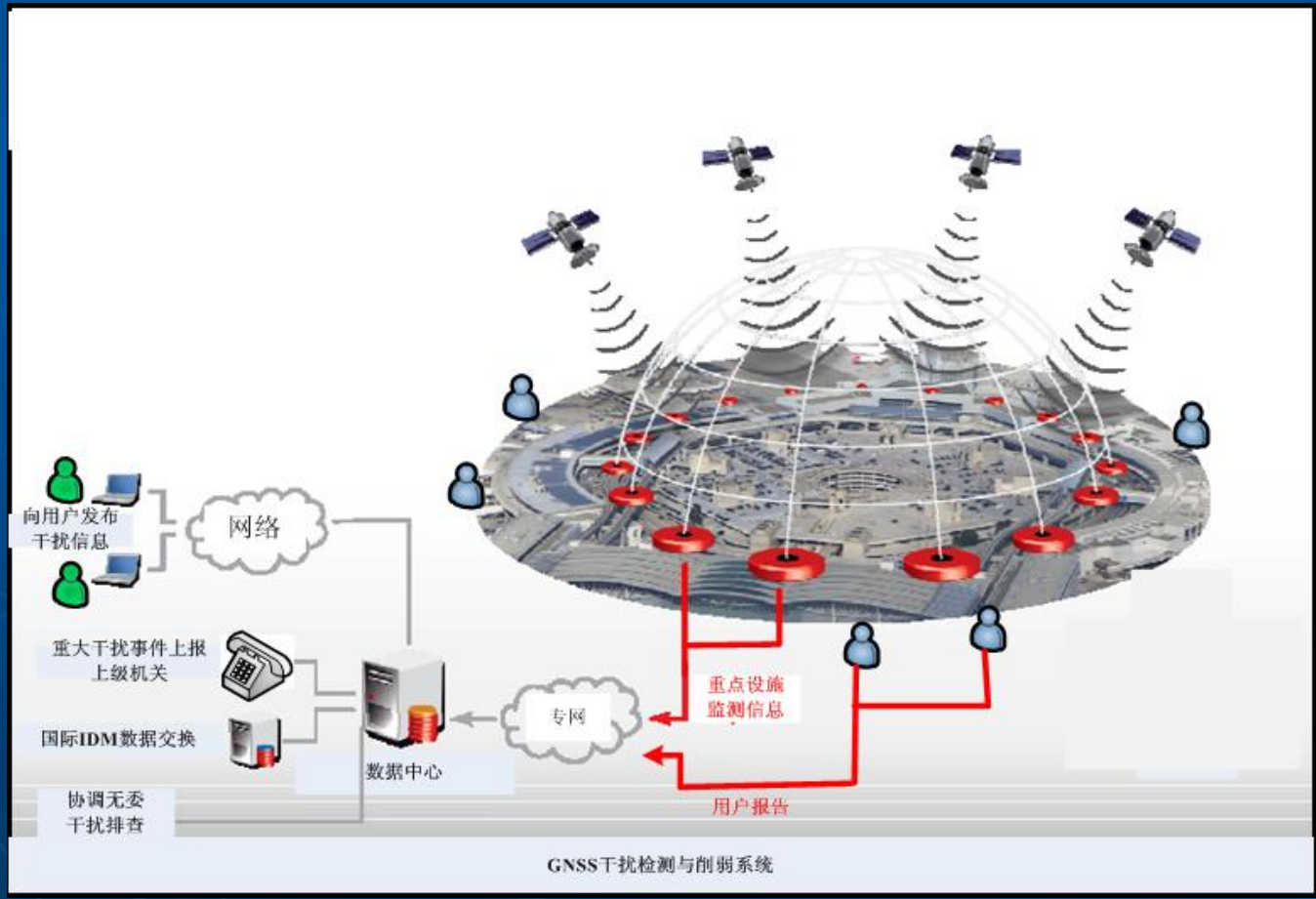
*Understanding and Discussion:*

- **Is there any example as international critical infrastructure at present?**



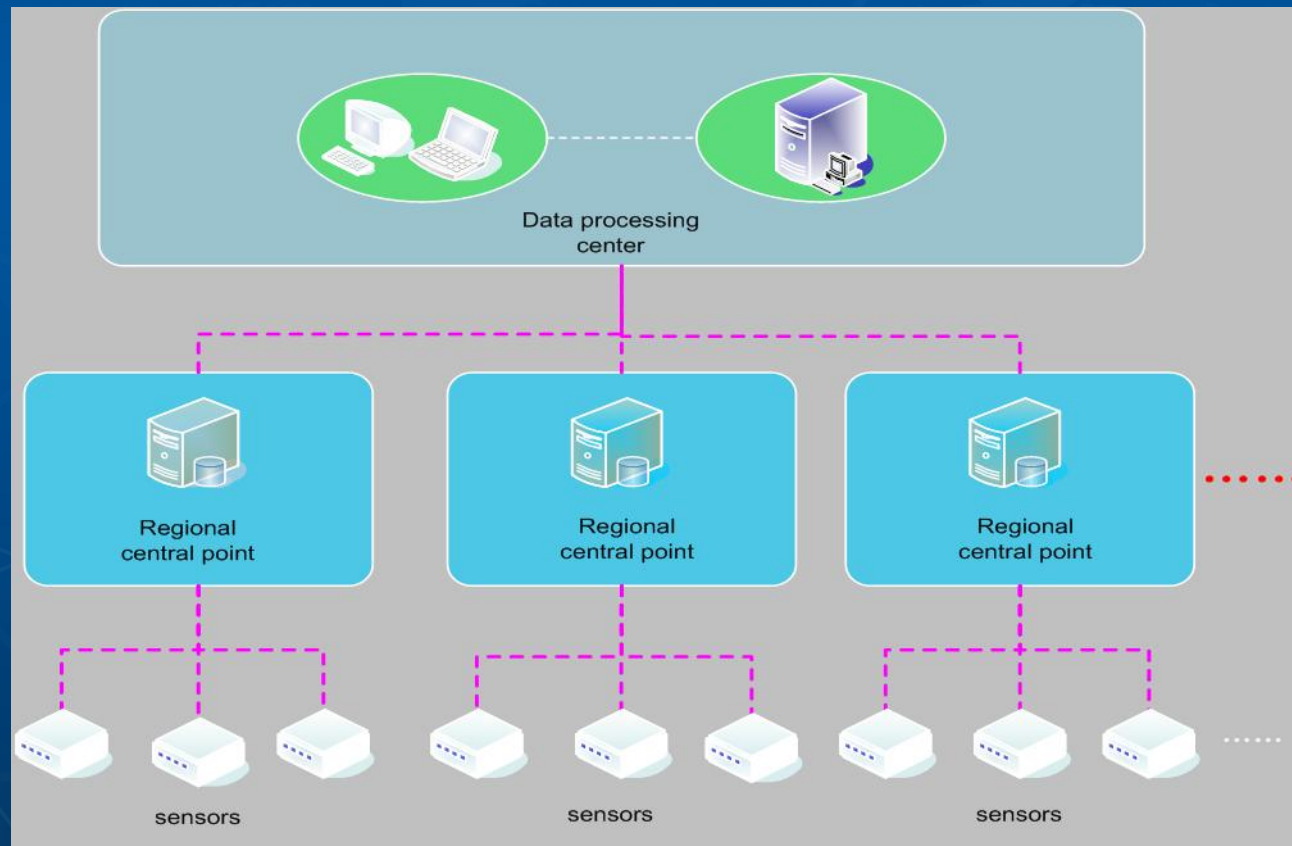
# 2. Update of GNSS IDM

1) The GNSS IDM system has been planned.





## 2) Technology of GNSS interference detection and localization based on grid is studied.







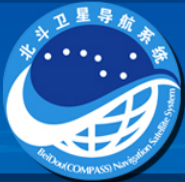
### 3) Device for grid monitoring is developed.

#### Main function and characteristics:

- measurements of frequency, power level, bandwidth, code rate etc.
- fast wideband spectrum scanning
- measuring of multi stations, combined TDOA/POA location
- sensor : small size, light weight, unattended operation, convenient for management



*sensor*

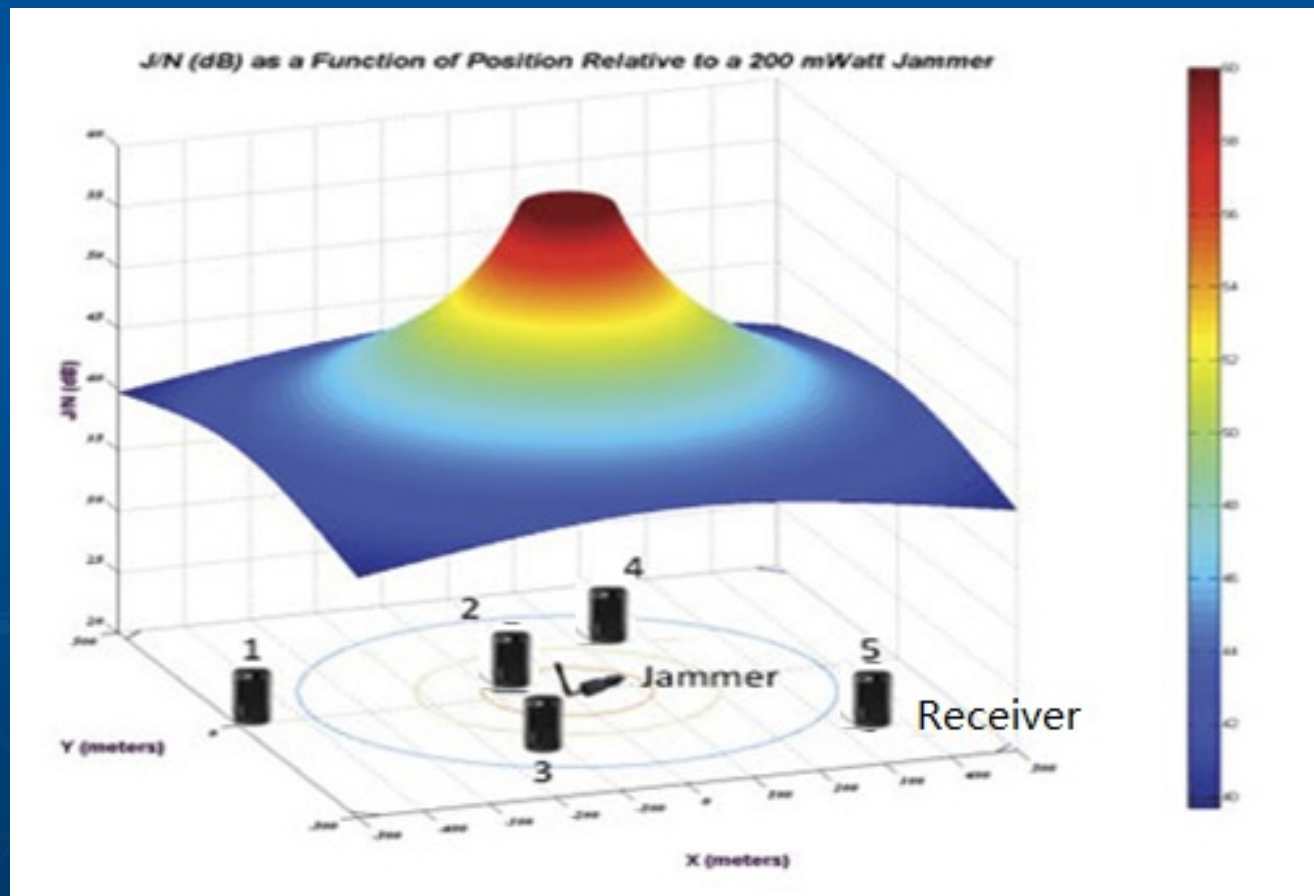


# The grid electromagnetic environment monitoring system for Qingdao Olympic base can monitor GNSS RFI.





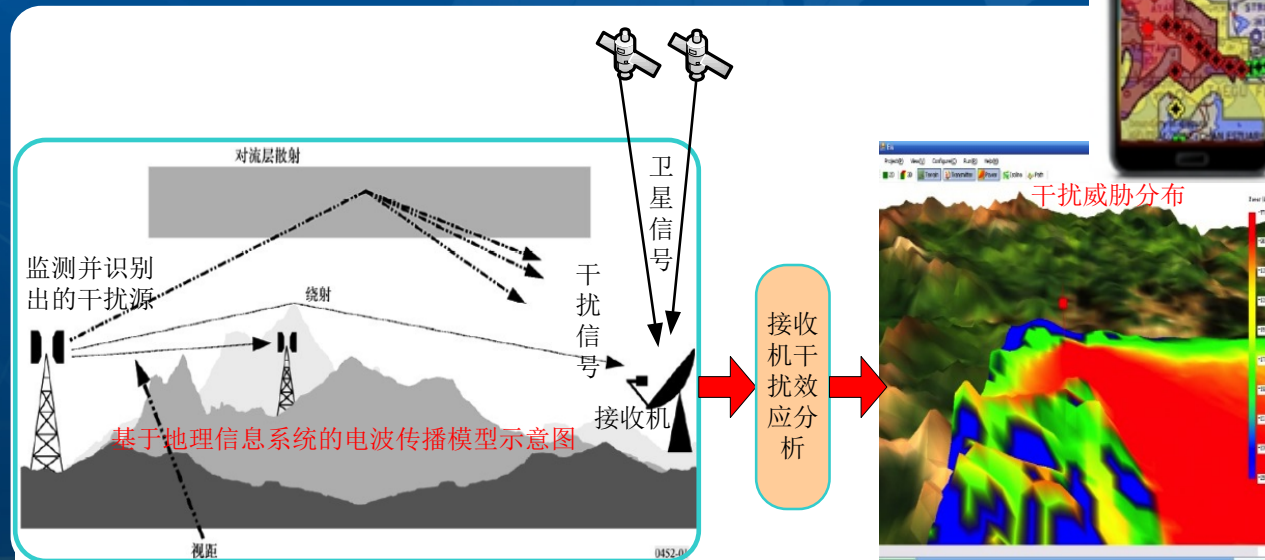
## 4) Study on RFI detection and localization technology based on GNSS navigation receiver is conducted.

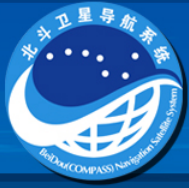




## 5) RFI Threat evaluation based on geography and surface feature

- The RFI signal can be recognized based on information of RFI sources and radio propagation on different geography and surface feature.
- RFI threat on receivers at different sites can be analyzed and evaluated.





## 3. Summary

- **BDS and its service is national important infrastructure in China.**
- **Update of GNSS IDM is reviewed.**



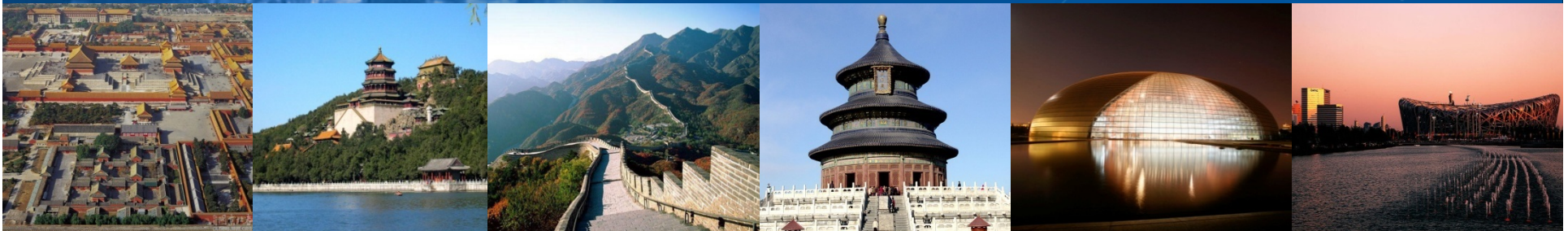


# Thank you!

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