

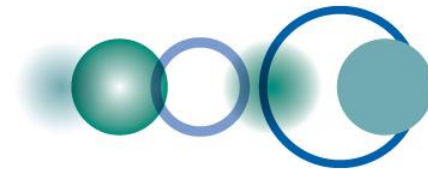


CHINA'S GEOSS

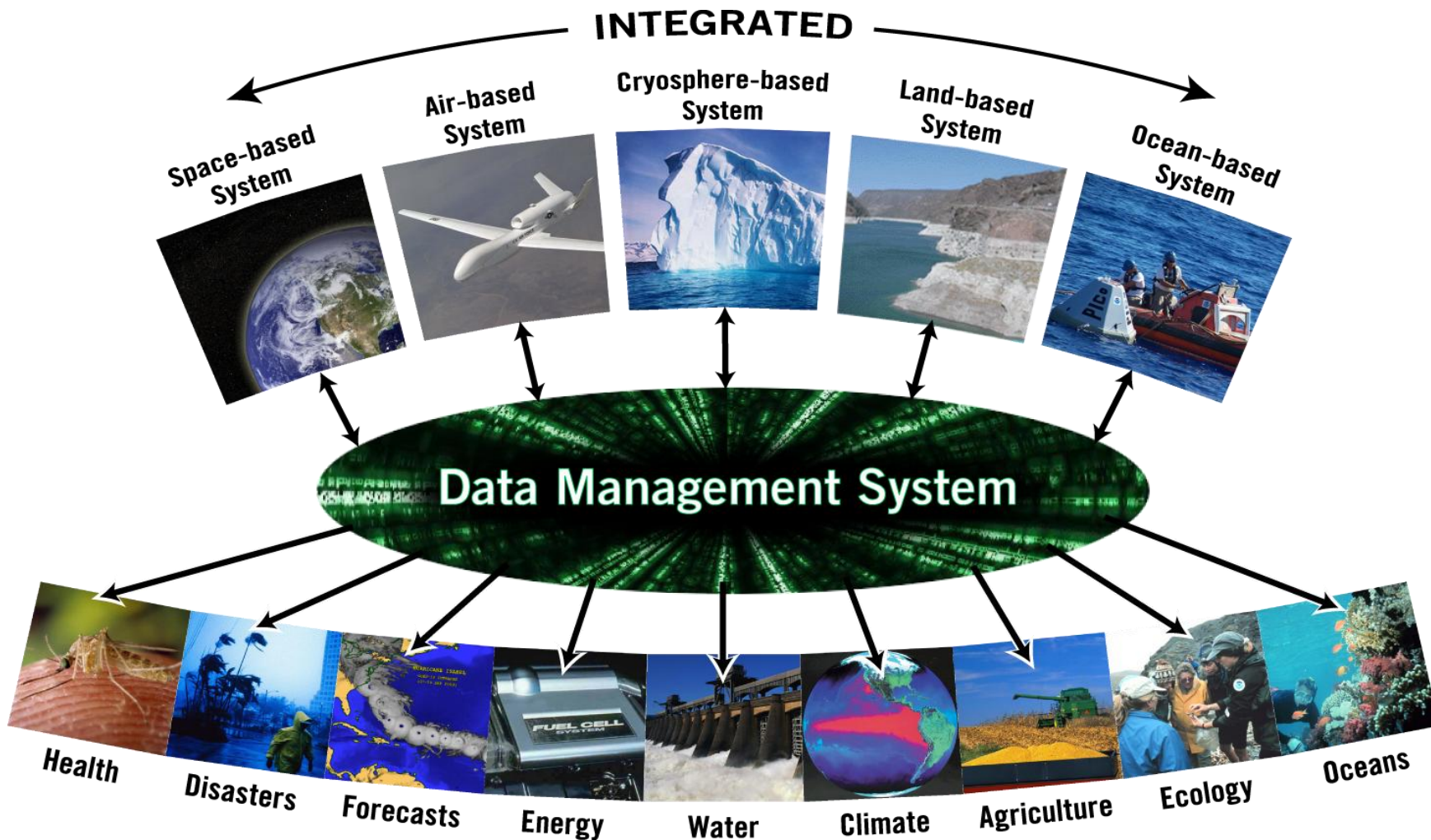
Wu, Guoxiang

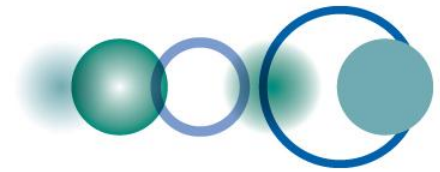
**Senior Advisor on GEO Affairs
National Remote Sensing Center of China**





Global EO System of Systems (GEOSS)





Necessity for a GEOSS in China

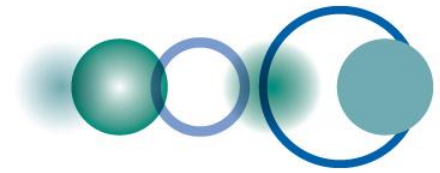
- Sustainable and green development needs EO information as fundamental
- Many EO systems have been established:
 - Ocean-, land- and air-based systems for meteorology, hydrology, agricultural, forestry, seismology, geodesy ...
 - EO satellites for resources, environment, disaster reduction, oceanography, survey & mapping, ...
- There is a lack of integration for more effective development and applications

中国综合地球观测系统
(十年规划)



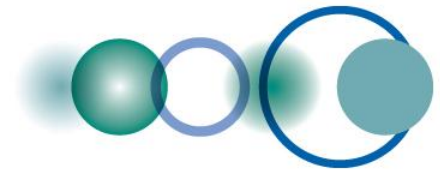
10-year plan for
GEOSS in China

System of systems is the way for China to develop its EO capacity – in 2006, China formulated its concept on GEOSS in China



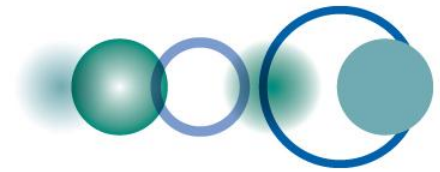
Multi-Ministry Coordination Group

- **Recently Established -- in March 2012**
- **Headed by the Ministry of Science and Technology**
- **For multi-sectional coordination in promoting a comprehensive, coordinated and sustainable GEOSS in China**
- **To enhance service capacity of China for broader applications of Earth observation**
- **To promote international cooperation, data sharing and technical assistance to developing countries**
- **With a secretariat hosted by National Remote Sensing Center of China**

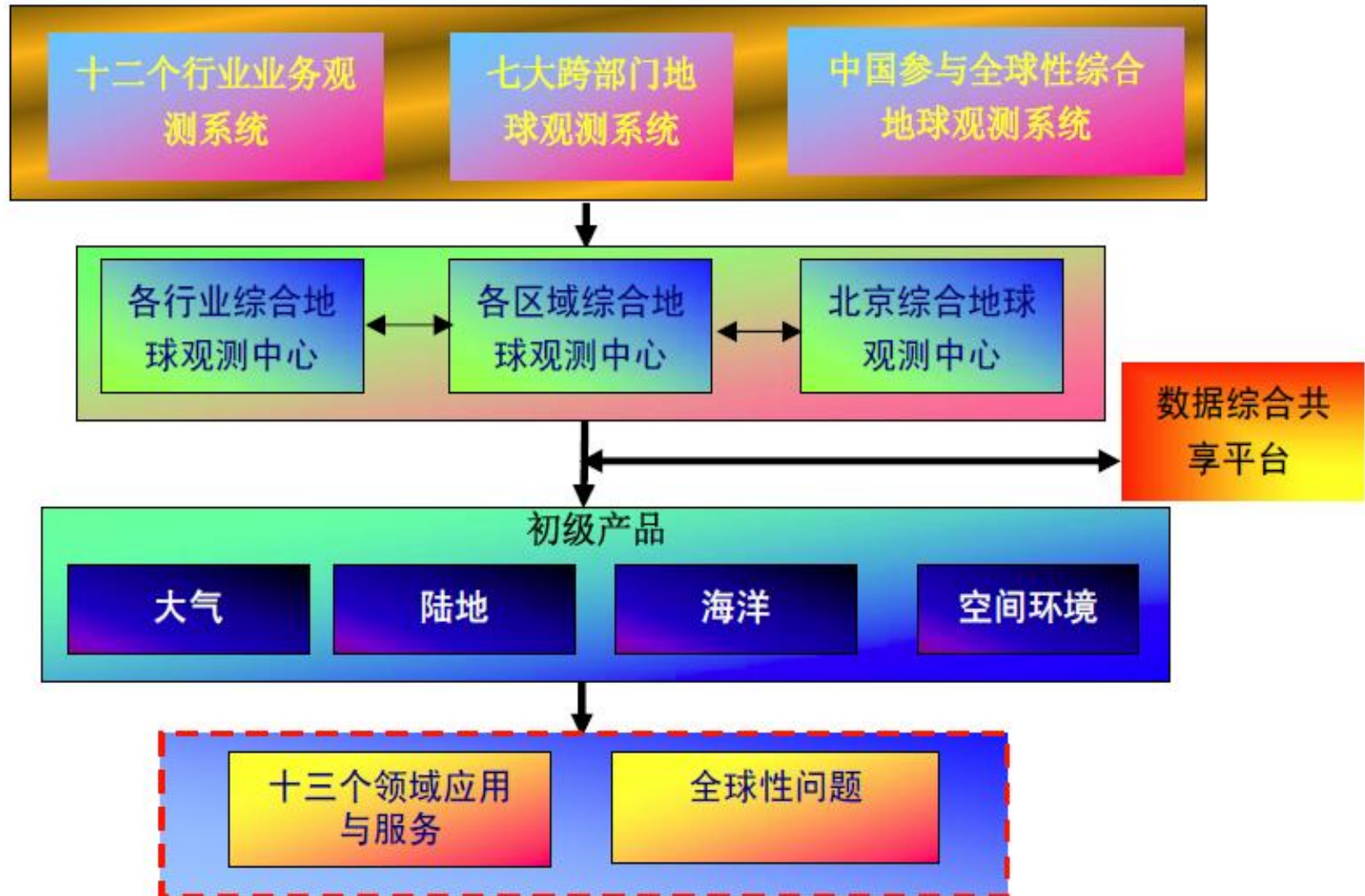


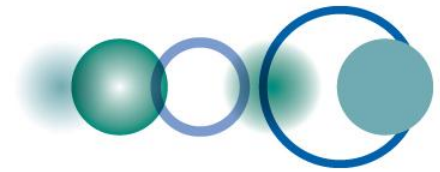
Principals for a GEOSS in China

- ✓ **To serve the needs of China in its economic, social and ecological development**
- ✓ **To coordinated develop its EO systems**
- ✓ **To share relevant technical and data resources domestically and internationally**
- ✓ **To effective use of data resources of GEO**
- ✓ **To support developing countries easier access and effective use of China's EO satellite data**

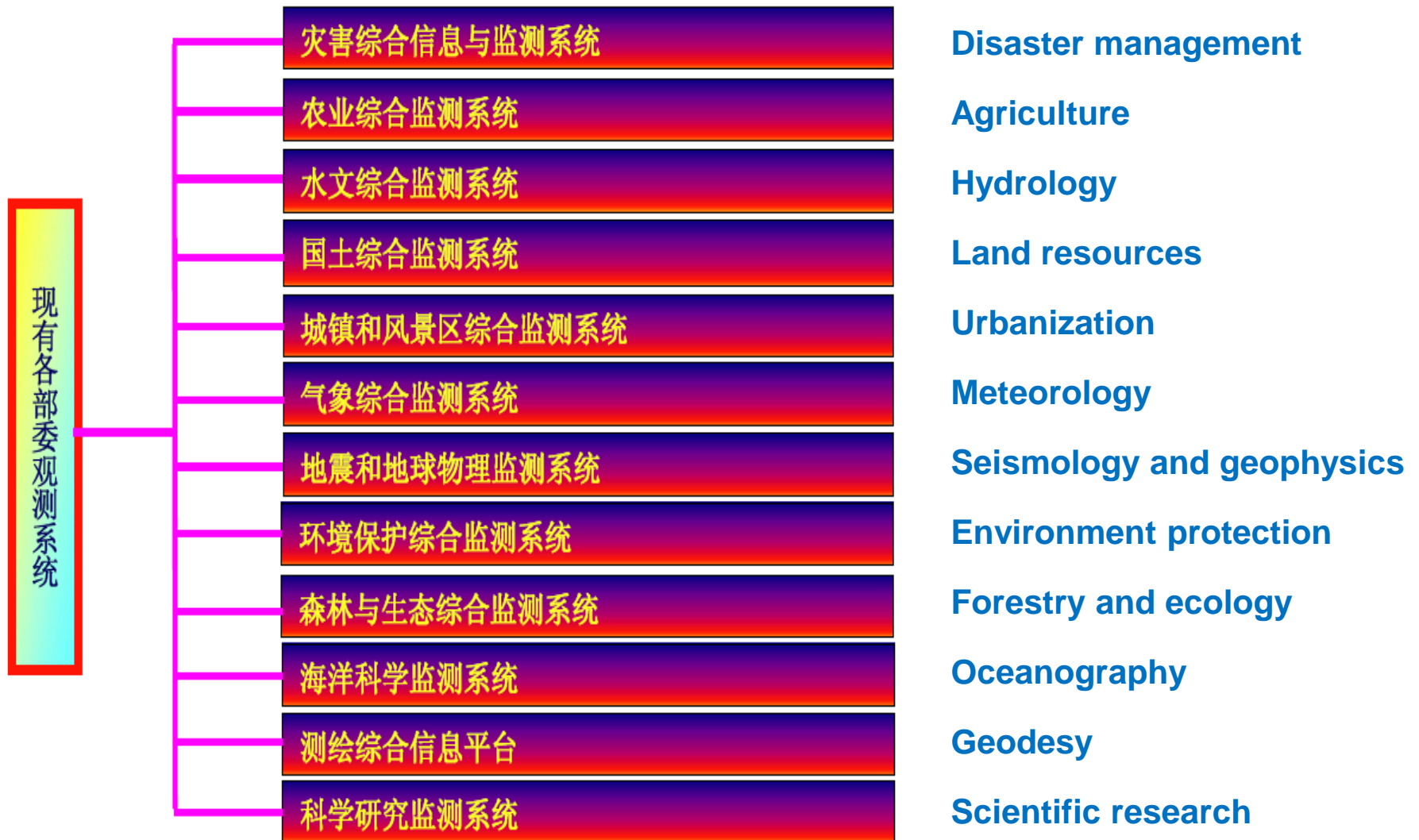


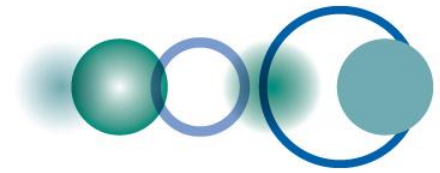
Proposed structure of GEOSS in China



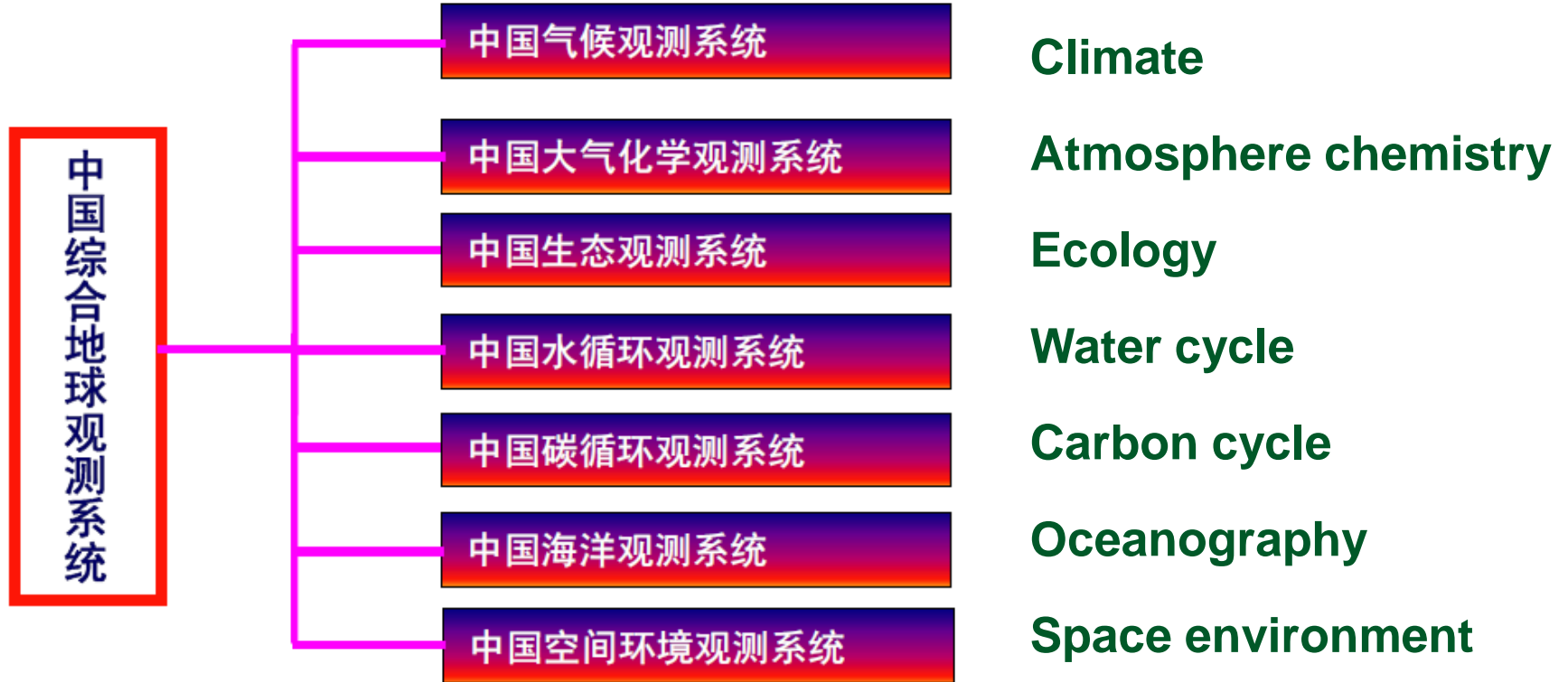


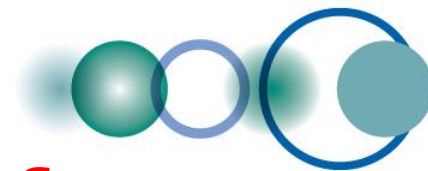
Based on existing 12 sectional EO systems



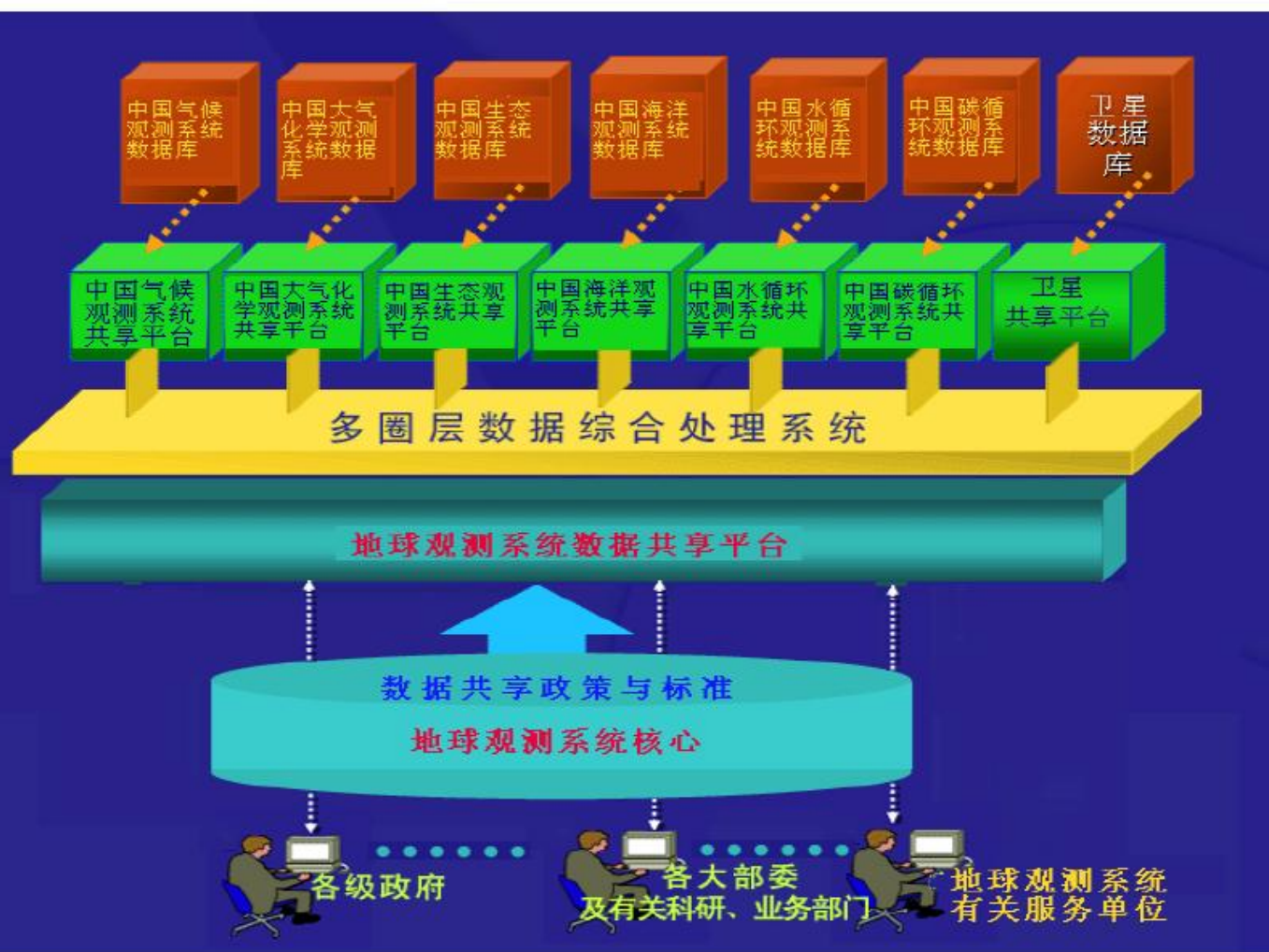


Further integration of 7 crosscutting systems





Proposed Data Sharing Platform for GEOSS in China



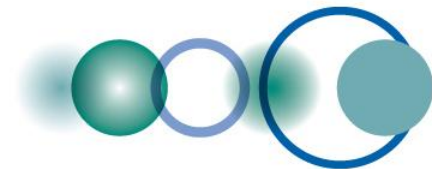
7 comprehensive EO systems

Multi-sphere comprehensive processing system

EO Data sharing platform

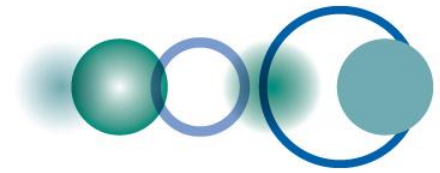
Data sharing policy and standards

User communities & service providers



Status of GEOSS in China





➤ Former FengyunCast,
as one of 3 pillars of
GEONETCast

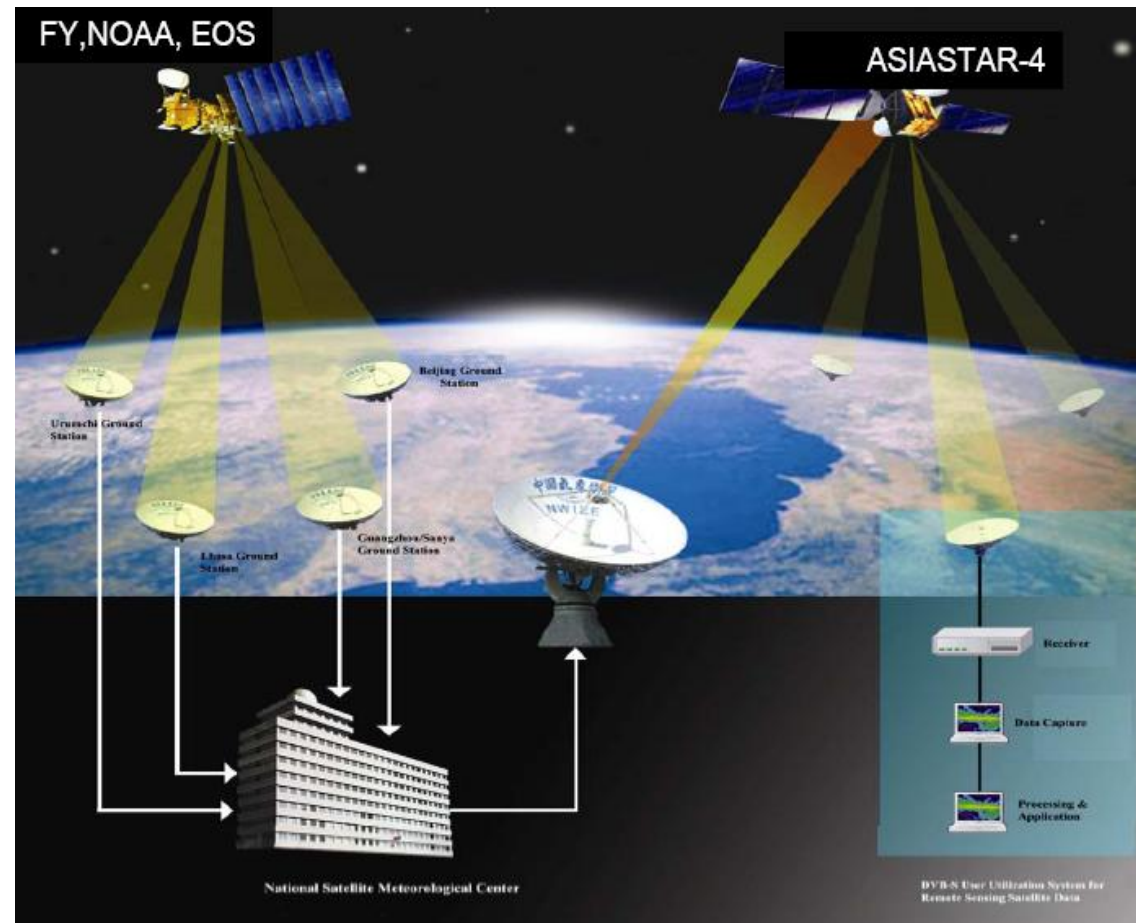
➤ Many kinds of low-
resolution satellite data,
like FY of China, are
broadcasted by comsat

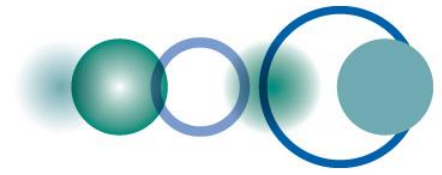
➤ European metsat data
are received and re-
broadcasted

➤ Covering 75% of AP
region

➤ Receiving equipment
were granted to 17 AP
developing countries

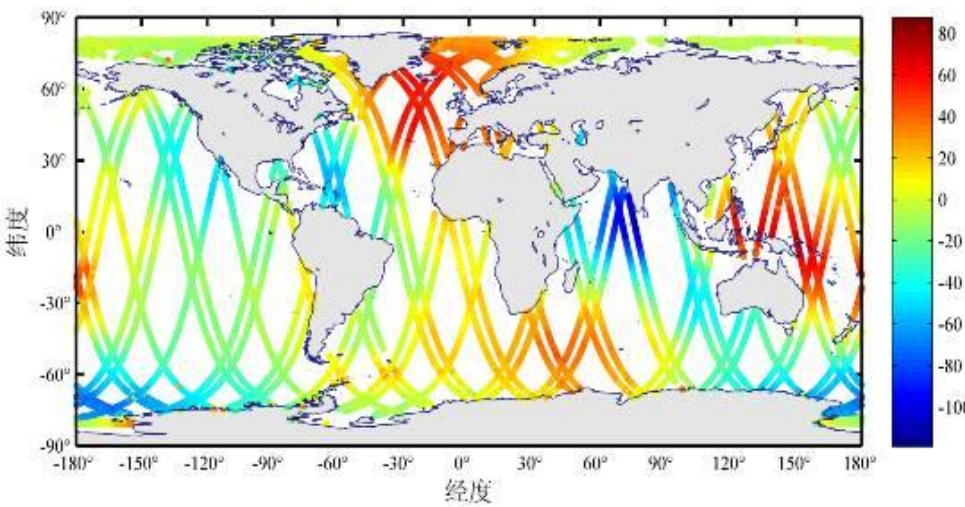
CMACast



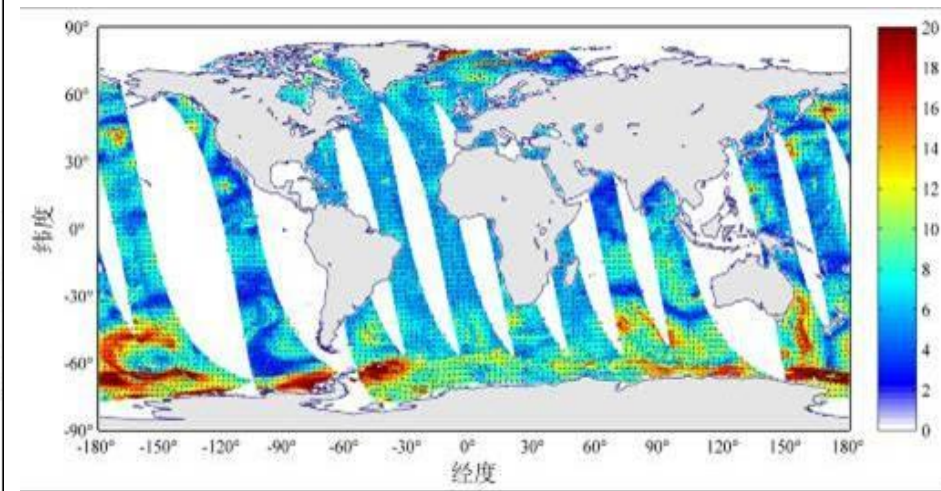


Oceanographic satellite (HY) series

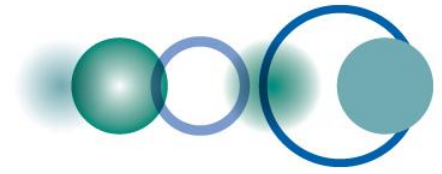
- HY-2A with active/passive microwave sensors for ocean dynamic environment observation
- HY-1B with optical sensors of 10-band ocean color scanner and 4-band coastal zone imager



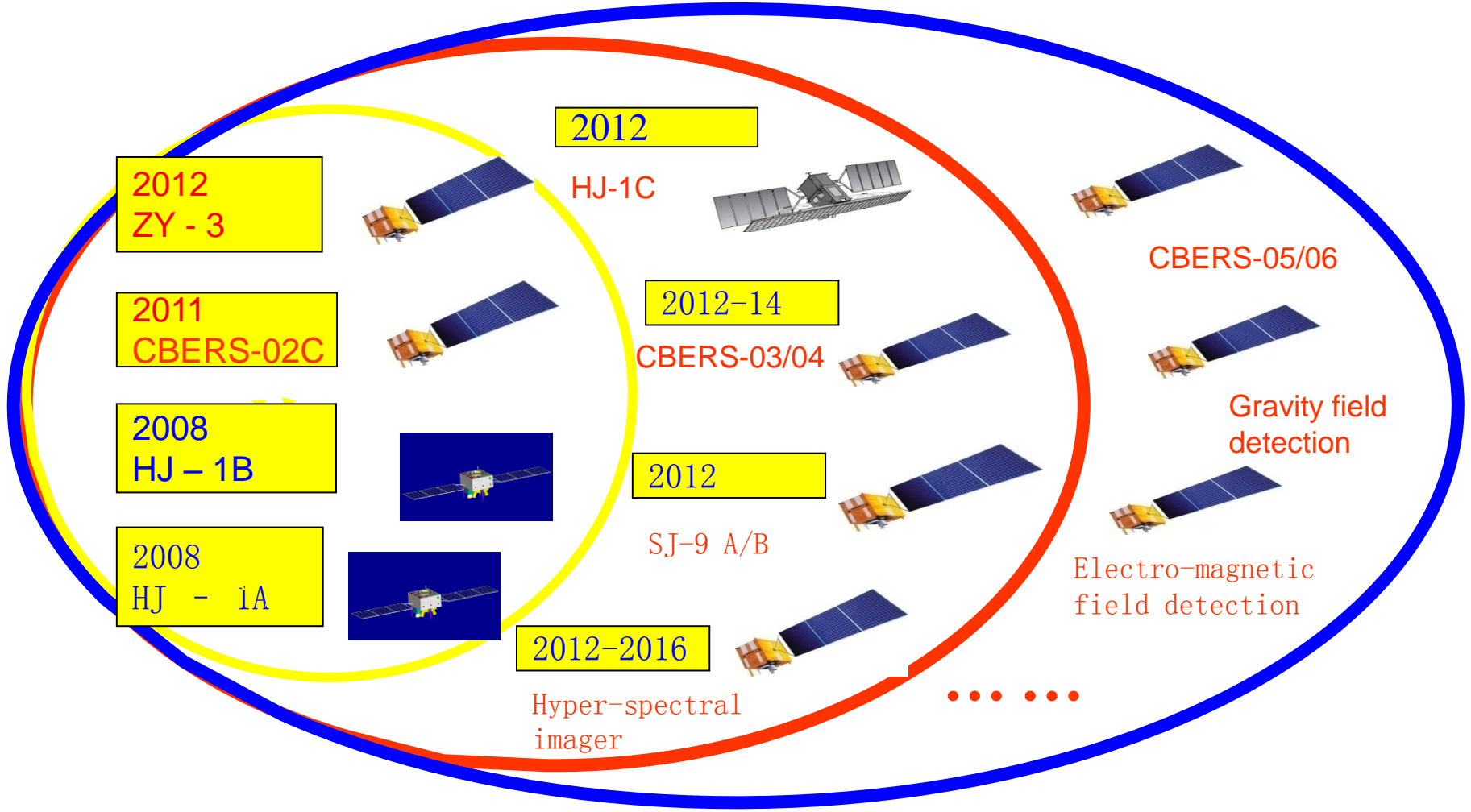
HY-2 satellite radar altimeter based
global sea surface height chart



HY-2 satellite acquired global
wind-field vectorgraph



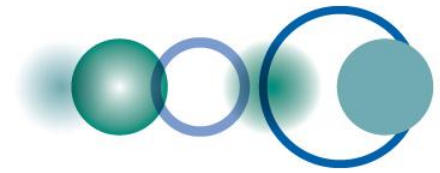
Land observation satellites (1)



In-orbit operation

To be launched soon

Under planning



Land observation satellites (2)

➤ Resources (ZY) series

- 3 were jointly developed by China and Brazil, with spatial resolution 30 m
 - Receiving station: South Africa; Egypt, Nigeria, Kenya
 - Data are free accessible on web
- ZY - 3 with resolution of 2.36m for geodesy

➤ Environment and disaster monitoring (HJ) series

- 2 in operation with optical sensors
- 1 with SAR will be launched soon
- Total 8 will be deployed as constellation for 6 hour revisit interval

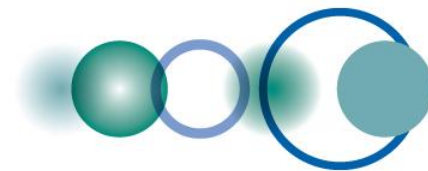
➤ Micro EO satellites

- Three new ones will be developed with UK



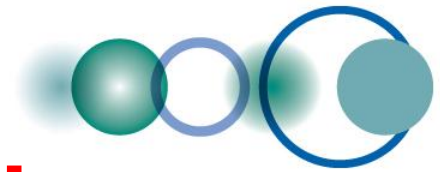
Data Sharing Centers of Sectional EO Systems

The screenshot shows a Windows Internet Explorer browser window displaying the National Science Data Sharing Center website. The browser's address bar shows the URL <http://mds.coi.gov.cn/>. The website header features the title "国家科学数据共享工程" (National Science Data Sharing Project) and "海洋科学数据共享中心" (Marine Science Data Sharing Center). The main navigation menu includes links for "首页" (Home), "本站简介" (About Us), "用户指南" (User Guide), "项目动态信息" (Project Dynamic Information), "基础数据" (Basic Data), "WebGIS" (WebGIS), "世界海洋渔业资源" (World Marine Fisheries Resources), "信息产品" (Information Products), "元数据" (Metadata), "预报服务" (Forecasting Services), "会员注册" (Member Registration), "友情链接" (Friendship Links), and "联系我们" (Contact Us). The page is organized into several columns: a left sidebar with "WEBGIS" and "世界海洋渔业资源" sections; a central "海洋基础数据" (Marine Basic Data) section with sub-categories like "水文数据" (Hydrological Data), "海洋生物数据" (Marine Biological Data), "Near-Goos 气象数据" (Near-Goos Meteorological Data), and "海洋环境监测站数据" (Marine Environmental Monitoring Station Data); and a right sidebar with "海洋信息产品" (Marine Information Products) and "预报服务" (Forecasting Services) sections. A "公告栏" (Notice Board) section is located at the bottom center. The browser's taskbar at the bottom shows the system clock as 12:25 on 2012/1/7.



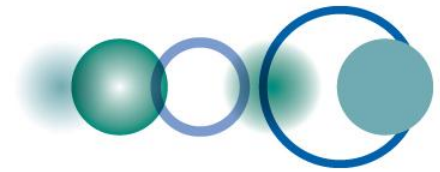
Satellite Data Sharing Platforms

The screenshot shows a Windows Internet Explorer browser window displaying the National Modis Data Center website. The browser's address bar shows the URL http://satellite.cma.gov.cn/portalsite/eos/pro_dvbs.html. The website header includes the NSMCC logo and the text '国家MODIS数据中心 National Modis Data Center'. A navigation menu at the top contains links for '主页', '项目概况', '卫星介绍', '技术指南', '资料服务', and '典型应用'. The main content area is titled 'DVB-S 广播系统' and features a diagram illustrating the system's architecture. The diagram is divided into two main sections: 'DVB-S中心站播出系统' (DVB-S Center Station Broadcast System) and 'DVB-S传输系统' (DVB-S Transmission System). The center station system includes components like '数字视频打包机', '数字视频调制器', '室外馈电单元', and a '4.6米发射天线'. The transmission system shows a satellite in orbit receiving data from the center station and broadcasting it to a 'DVB-S用户群 (可达数万站)'. A '100M Ethernet' network is also shown connecting the center station to the transmission system. The sidebar on the left contains a '综合服务' (Comprehensive Services) section with links to '项目背景', '组织结构', '项目组成', '地球观测计划', 'EOS技术参数', 'MODIS数据格式', '六站—中心汇集系统', and 'DVB-S广播系统'. Below this is a '典型应用' (Typical Applications) section listing '天气监测', '火情监测', '水情监测', '积雪监测', '冰情监测', '植被监测', '沙尘暴监测', and '典型图像'. The browser's taskbar at the bottom shows the system tray with the date '2012/1/7' and time '14:47'.



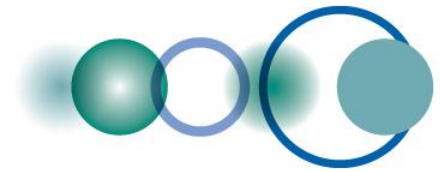
China Participated GEO Tasks

Category	Task
Infrastructure	
IN-01 Earth Observing Systems	Development and Coordination of Space-based Observing Systems
IN-02 Earth Data Sets	Advances in Life-cycle Data Management
IN-04 GEOSS Communication Networks	GEONETCast
IN-05 GEOSS Design and Interoperability	GEOSS Design and Interoperability
Institutions and Development	
ID-02 Developing Institutional and Individual Capacity	Institutional Development
	Individual Development
Information for Social Benefits	
SB-02 Global land Cover	Global Land-cover and Land-cover Change
SB-04 Global urban Observation and Information	Global Urban Observation and Information
SB-05 Impact Assessment of human Activities	Earth Observation Monitoring for World Heritage Environment



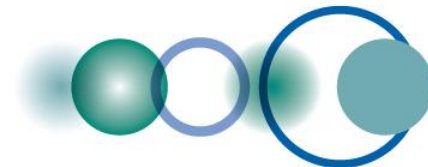
China participated GEO tasks (cont'd)

Category	Task
Information for Social Benefits	
DI-01 Risk management and Disaster Reduction	Disaster Management System
	Geohazards Monitoring, Alert, and Risk Assessment
	Tsunami Early Warning and Hazard Assessment
	Global Wildland Fire Information System
CL-02 Global Carbon Observation and Analysis	Integrated Global Carbon Observation and Analysis System
WA-01 Integrated Water Information (incl. Floods and Droughts)	Information Systems for Hydro-meteorological Extremes
	Information Service for Cold Regions
AG-01 Global Agricultural Monitoring and Early Warning	A Global Operational Monitoring System of Systems or Agricultural Production, Famine Early-Warning, Food Security and Land-use Change



Promote ChinaEONet

- **To be supported by positive data sharing policies and standards**
- **A platform for sharing EO data by Chinese users**
 - **Space-, air- and ground-based EO data**
 - **Adapting GEO standard and norms**
 - **Web accessible for different user groups**
- **A gate way for sharing data by GEO community**
- **A technical support center to assist Chinese users to access and use data under GEO framework**
- **Further strengthened CMACast to broadcast more data to broader user groups**



Thank You