China Space Contributions for Sustainable Development Goals

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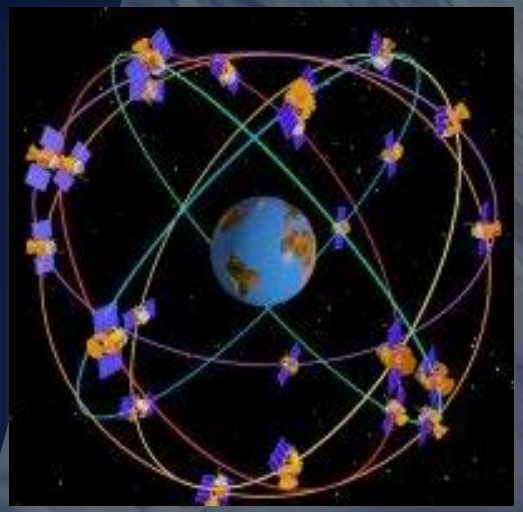
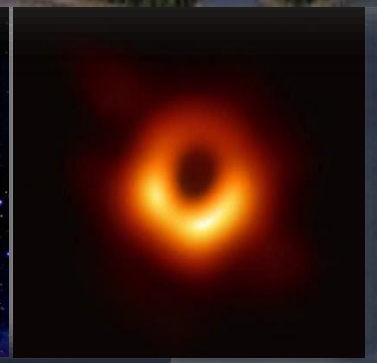
China National Space Administration

June, 2019

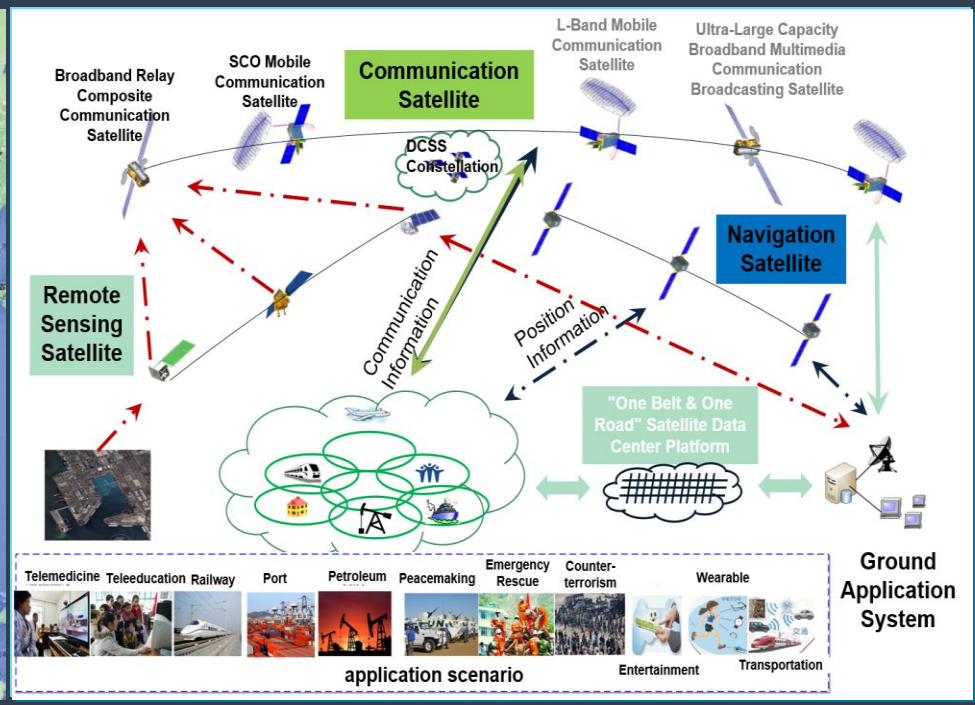
Advancing science and technology



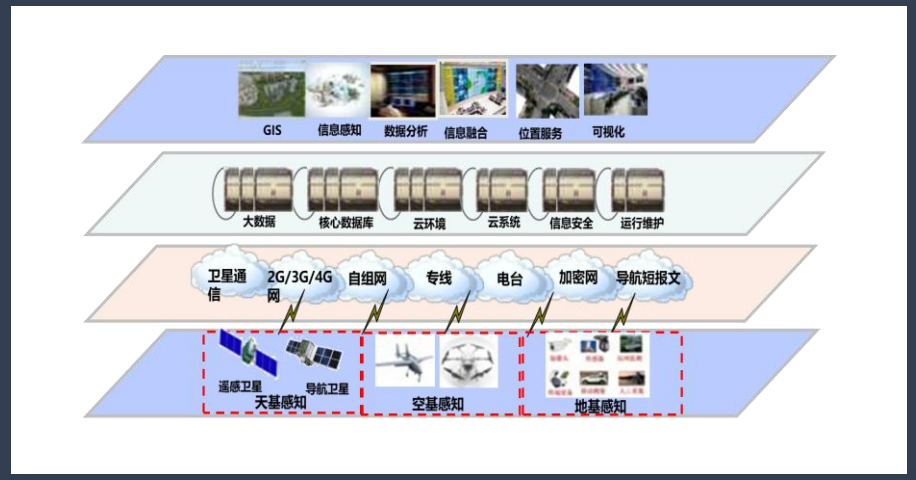
Advancing science and technology

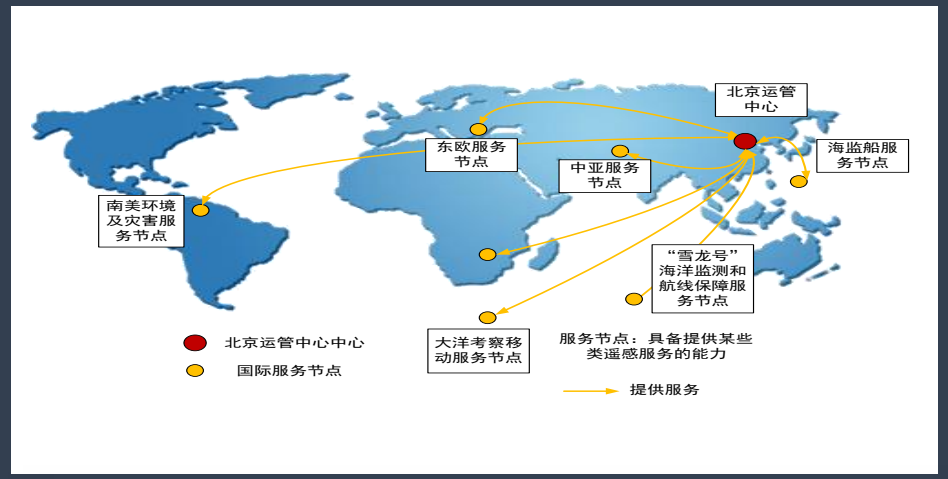


Serving the Belt & Road Initiate



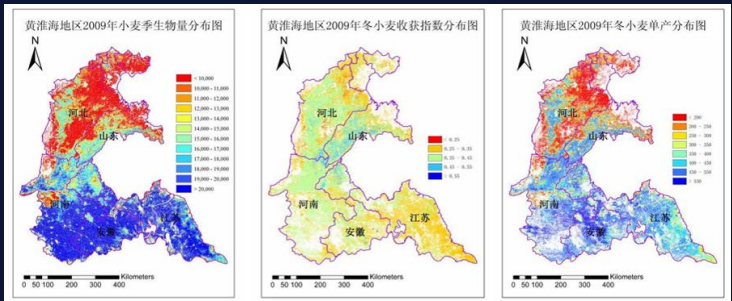
Serving the Belt & Road Initiate





Eradicating poverty and hunger

Practice in Agricultural Monitoring



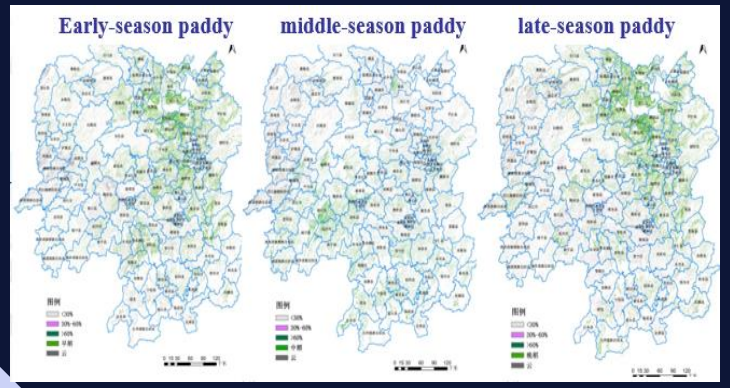
harvest index distribution map

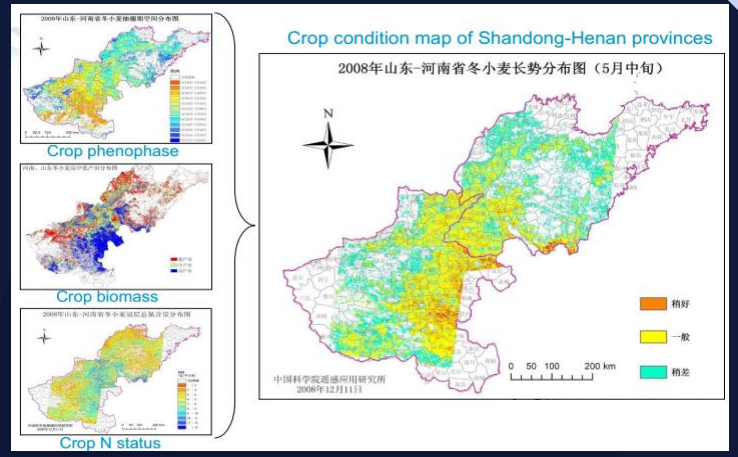
To reflect the structure characteristics of farmland crops in monitoring area

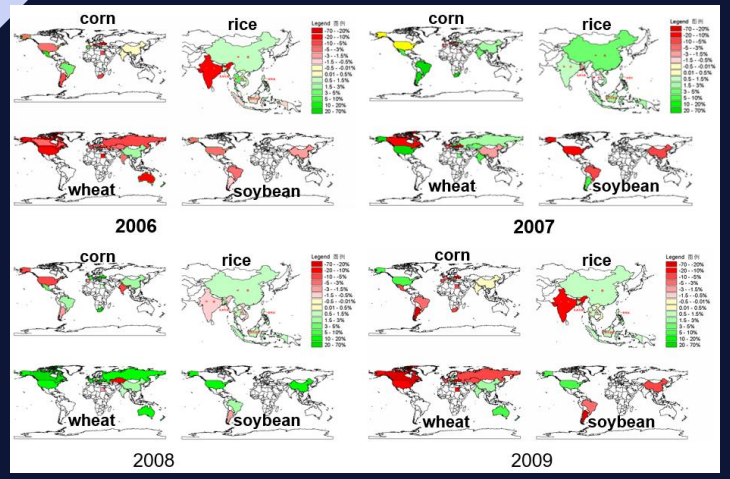
To reflect the local differences of farmland crops in monitoring area

Long time continuous observation of monitoring area

More and more observable surface biophysical parameters



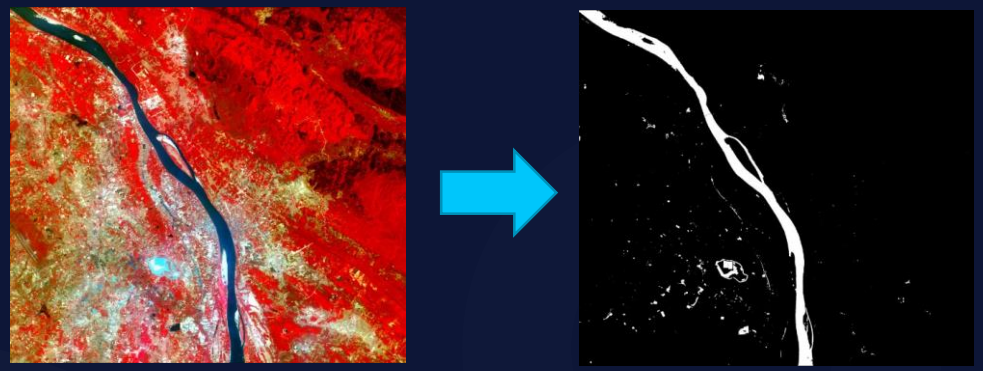


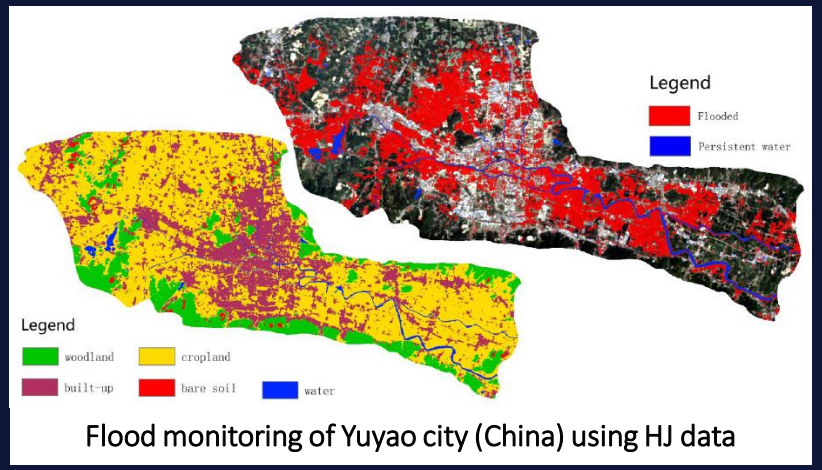


Improving Social Security

Promoting disaster prevention and mitigation

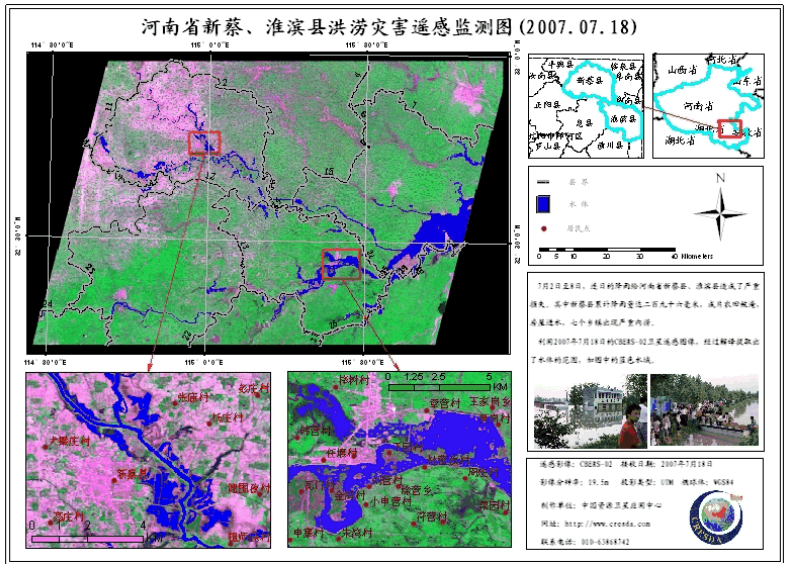
Practice in Flood





Flood monitoring of Yuyao city (China) using HJ data

River floods	• From winter and spring rains, coupled with snow melt, and torrential rains from decaying tropical storms and monsoons
Coastal floods	• Generated by winds from intense off-shore storms and Tsunamis.
Urban floods	• As urbanization increases runoff two to six times what would occur on natural terrain.
Flash floods	• Occur within minutes or hours of excessive rainfall or a dam or levee failure, or a sudden release of water.

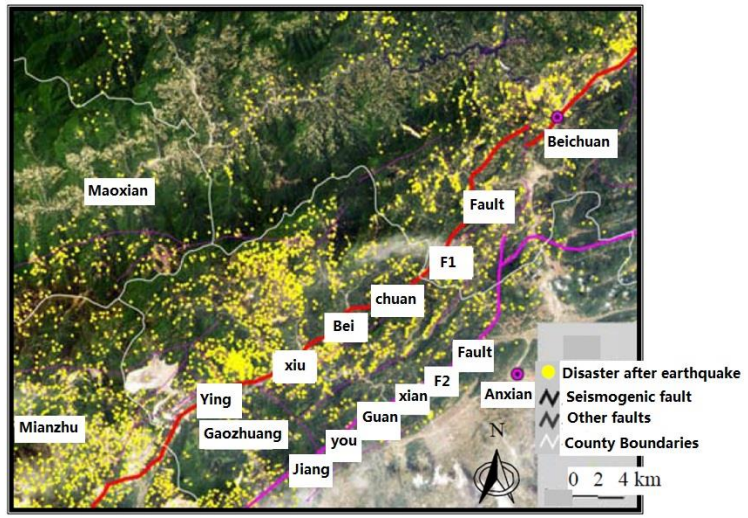


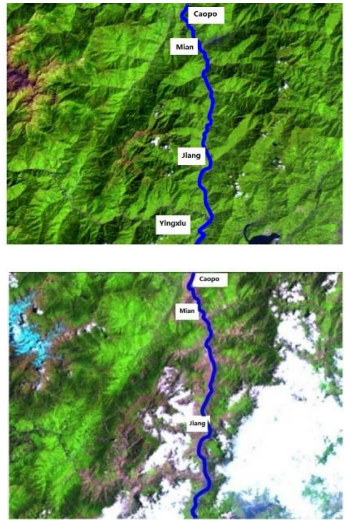
Flood evaluation map in Xincai County in Henan Province

Promoting disaster prevention and mitigation

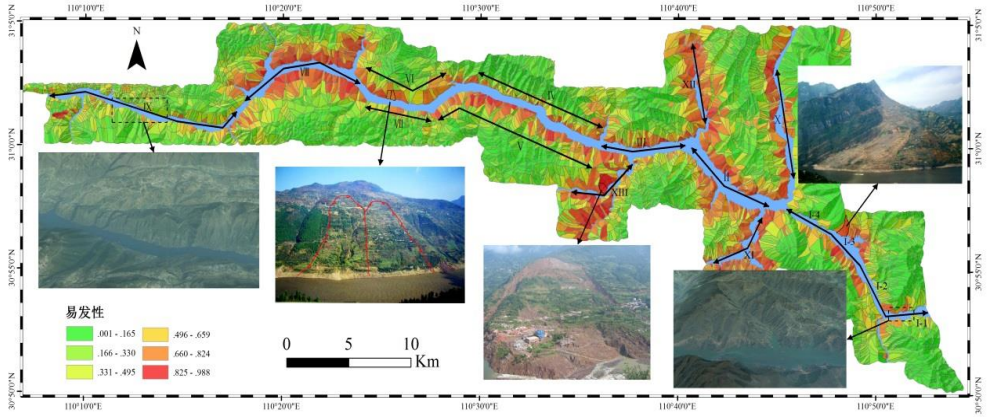
Practice in Landslides

- Regional landslide disaster
- Single landslide hazard
- Landslide Monitoring
- Landslide risk assessment





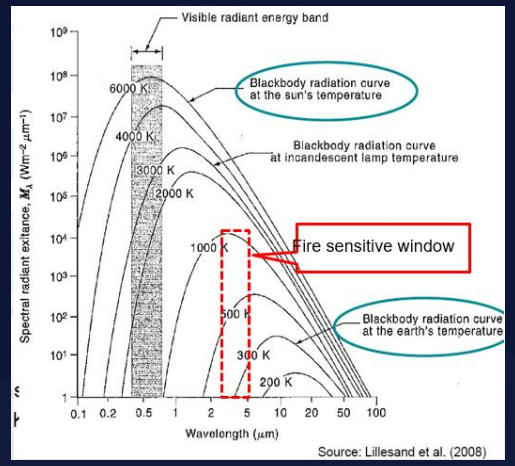
Remote sensing interpretation of geological disasters after the earthquake in Beichuan area

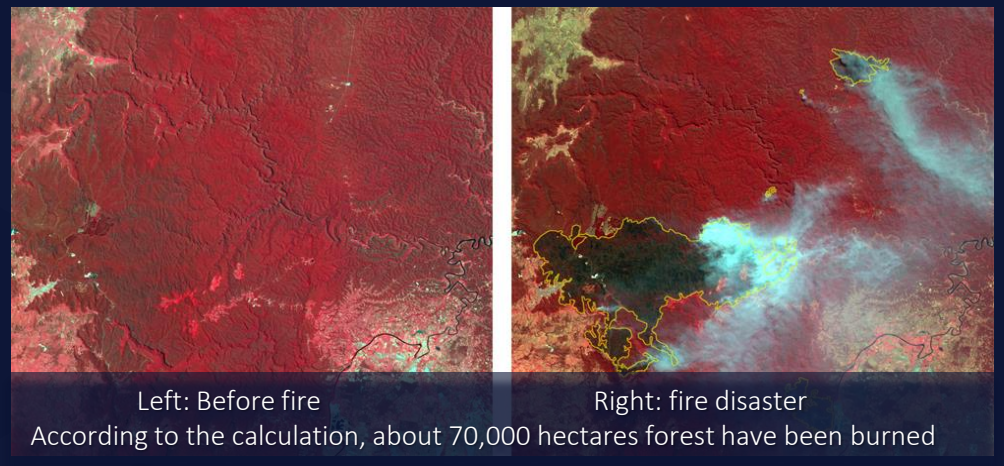


Landslide hazard prediction analysis

Promoting disaster prevention and mitigation

Practice in Forest Fire





Left: Before fire
Right: fire disaster
According to the calculation, about 70,000 hectares forest have been burned

- Through the high temperature sensitive remote sensing platform equipped with infrared sensors, we can quickly find high temperature anomalies, to report to the relevant departments, so early detection, early save.

Forest fire warning

- For the outbreak of forest fires, satellite remote sensing can be continuously track and monitor, in a timely manner to grasp the development of forest fires.

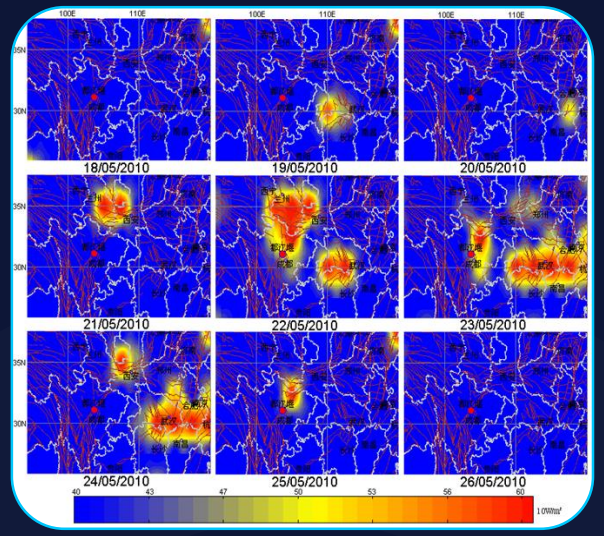
Forest fire situation monitoring

- Through the satellite remote sensing image analysis to extract the forest fire area and other information for disaster assessment.

Disaster assessment

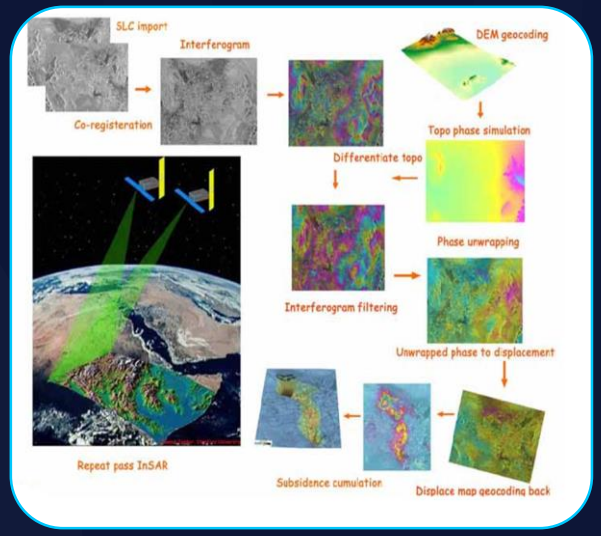
Promoting disaster prevention and mitigation

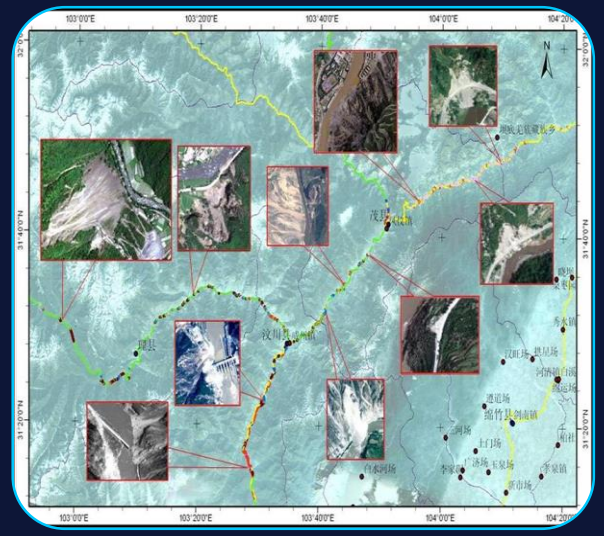
Practice in Earthquake



1.Pre-disaster imagery provides history information of the attacked area

2. Up-to-date thematic maps are provided for disaster relief

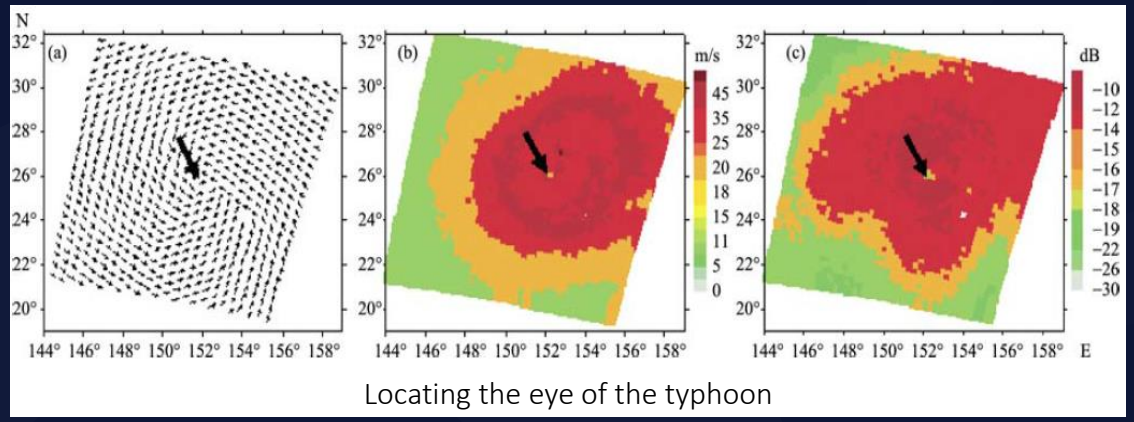




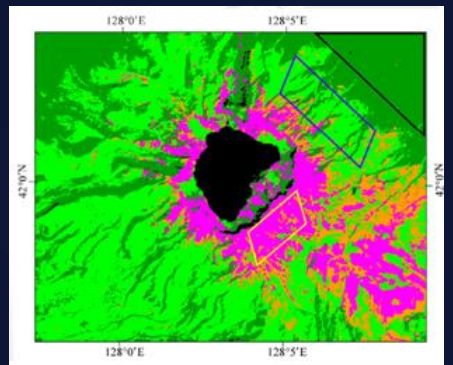
3. Information is provided to assist secondary disaster monitoring, post-disaster assessment and reconstruction second stage.

Promoting disaster prevention and mitigation

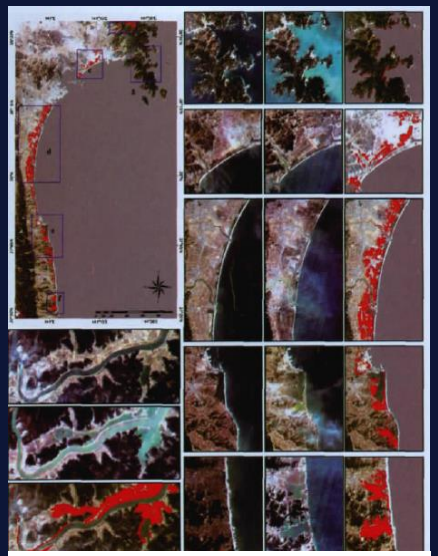
Practice in Tsunami, Cyclone and Volcanoes



Locating the eye of the typhoon



Results of volcano monitoring



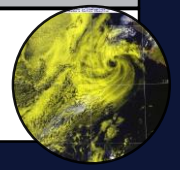
Before and after the tsunami. The red areas indicate damaged areas.

- Tsunami-affected area detected by HJ-1 satellite

Tsunami monitoring

- Determination of the typhoon according to wind direction (a), wind speed (b) and σ0 (c)

Cyclone monitoring



- Classification of land cover types on Tianchi volcano, Changbai Mountain

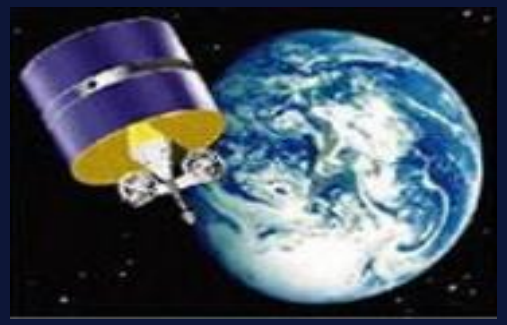
Volcano monitoring

Addressing Climate Change

Earth Observation Satellite--Meteorological Satellite

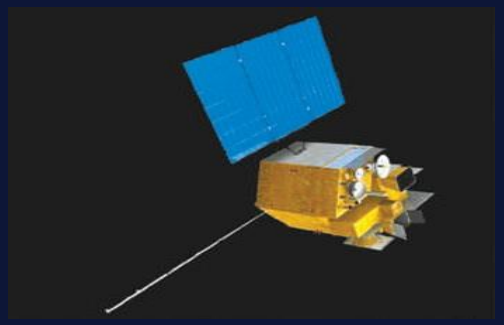
- Fengyun (FY) meteorological satellites series includes 8 satellites operating in orbit
- Forming the operational pattern of network observation with morning-orbit satellites and afternoon-orbit satellites of polar-orbiting satellites, and "multiple satellite on-orbit, overall operation, mutual backup and proper encryption" of geostationary satellites.

FY-1



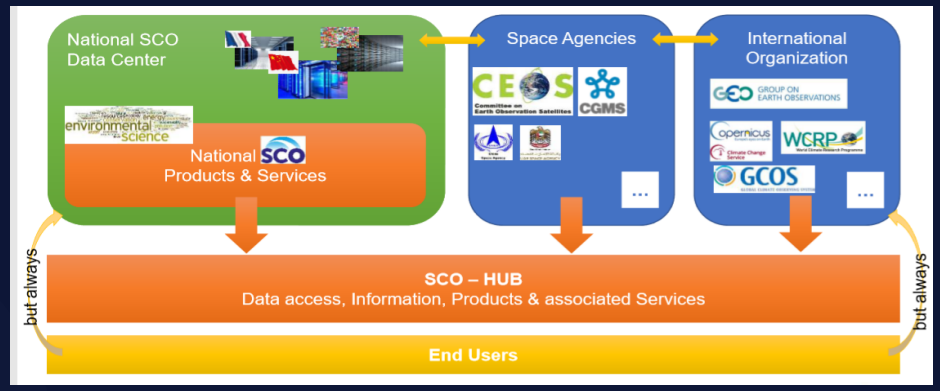
FY-2

FY-3



FY-4

Addressing Climate Change



Protecting ecological environment

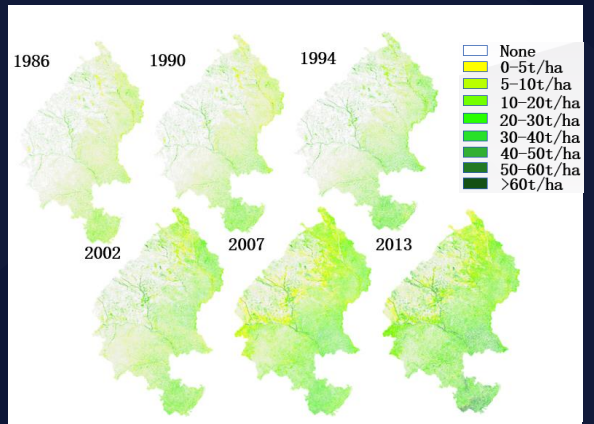
Practice in Vegetation Monitoring

Forest

Resource inventory，

Changes monitoring，

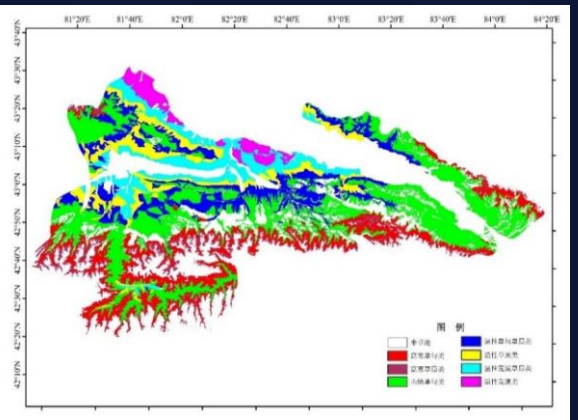
Diseases, growth situation…



Forest biomass time-series product in Yulin,Shanxi Province

Grass

Grassland resource inventory ,Changes monitoring, Urban greening inventory…



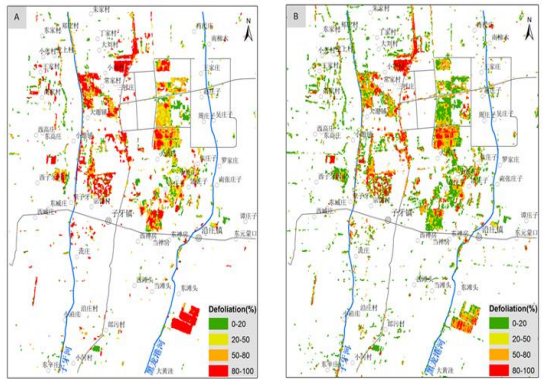
Grassland type interpretation rendering of Western Tianshan

Crop

Resource inventory，

Changes monitoring，

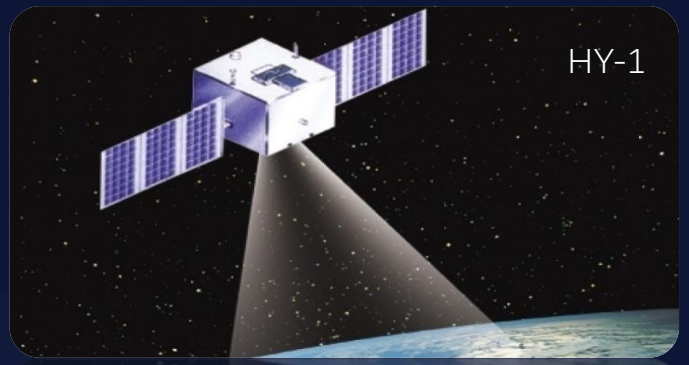
Crop growth, Insect pests monitoring…

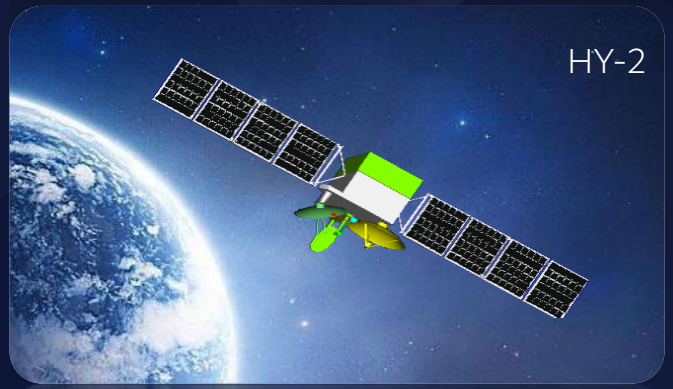


Obtaining leaf loss rate (%) in Langfang, Hebei Province based on GF-1 images and TM8 OLI images

Protecting ecological environment

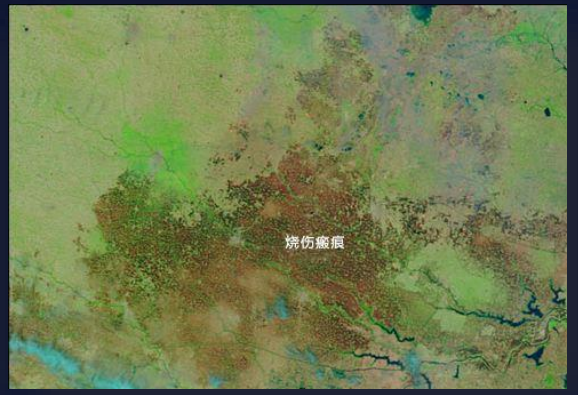
Earth Observation Satellite--Oceanographic Satellite



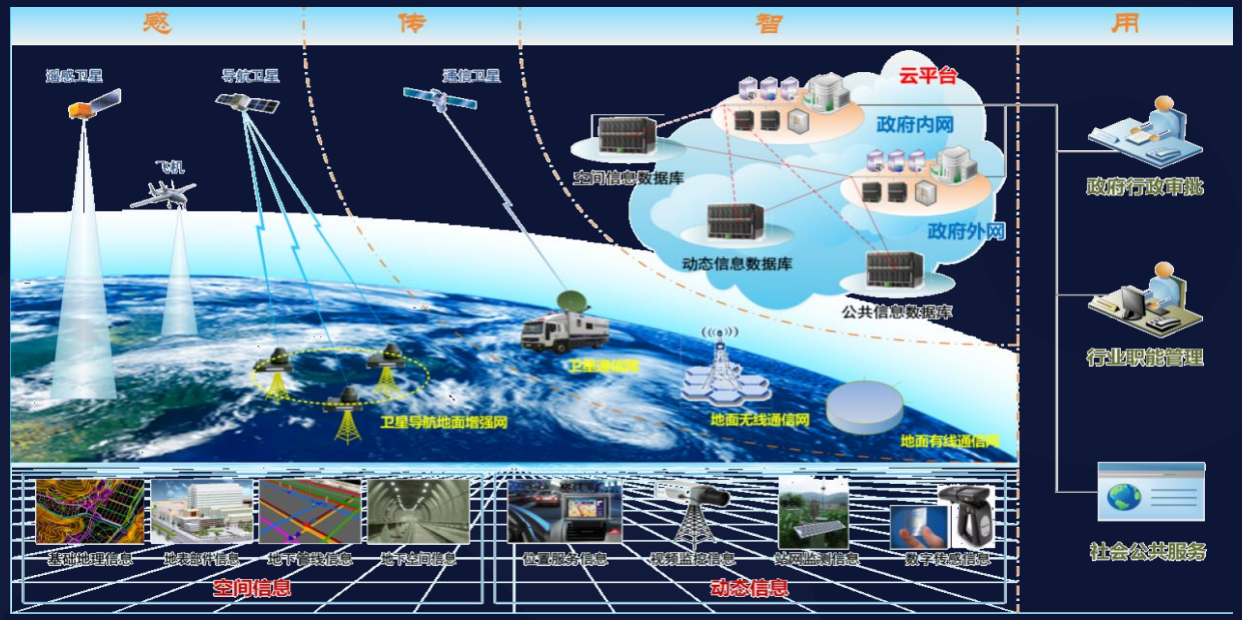


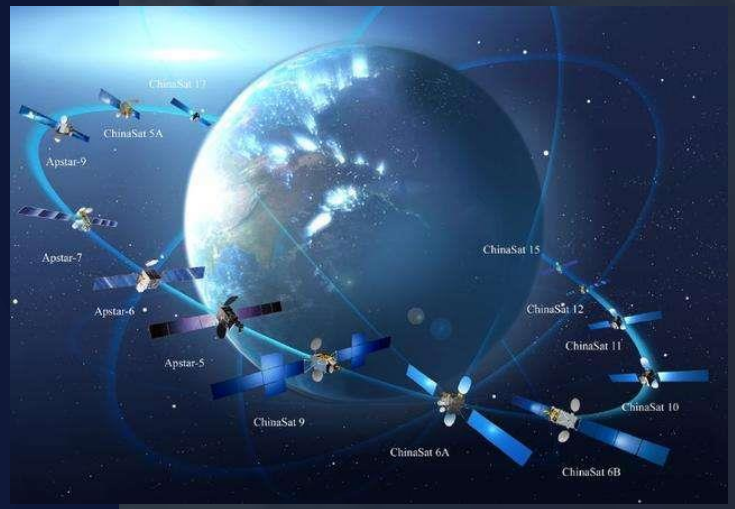
4 satellites have been launched to form three satellite series including ocean color, ocean dynamic environment and ocean radar for the high-precision comprehensive observation of parameters such as sea temperature, sea wind and sea wave.

Protecting ecological environment



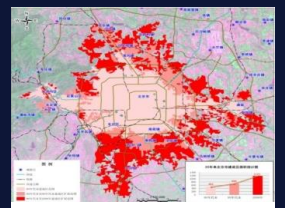
Developing space economy



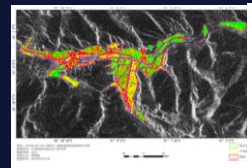


Supporting smart governance

Practice in Urban Monitoring



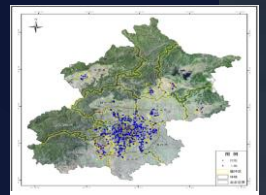
Monitoring of urban land utilization



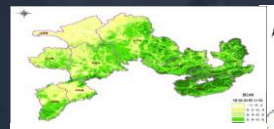
earthquake earthquake damage building distribution

Construction site distribution

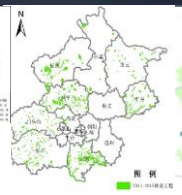
Emergency response for urban public security



Monitoring of large dirty garbage spots



water-conserved forest planning project



Sandstorm source control

Ecological water-conserved forest engineering

Resources investigation and statistics

Urban fine management

Urban environmental renovation

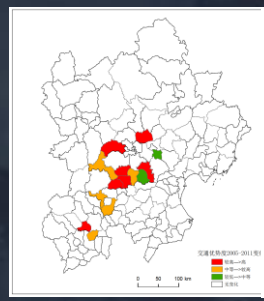
Regional analysis and planning

Monitoring of urban water sources

Rapid monitoring of urban illegal building

Monitoring of urban foul water

Monitoring of urban surface subsidence

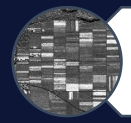


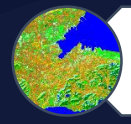
Monitoring regional new-type urbanization development pattern

Supporting smart governance

Practice in Land Use and Land Cover Monitoring

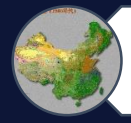

Land resources survey

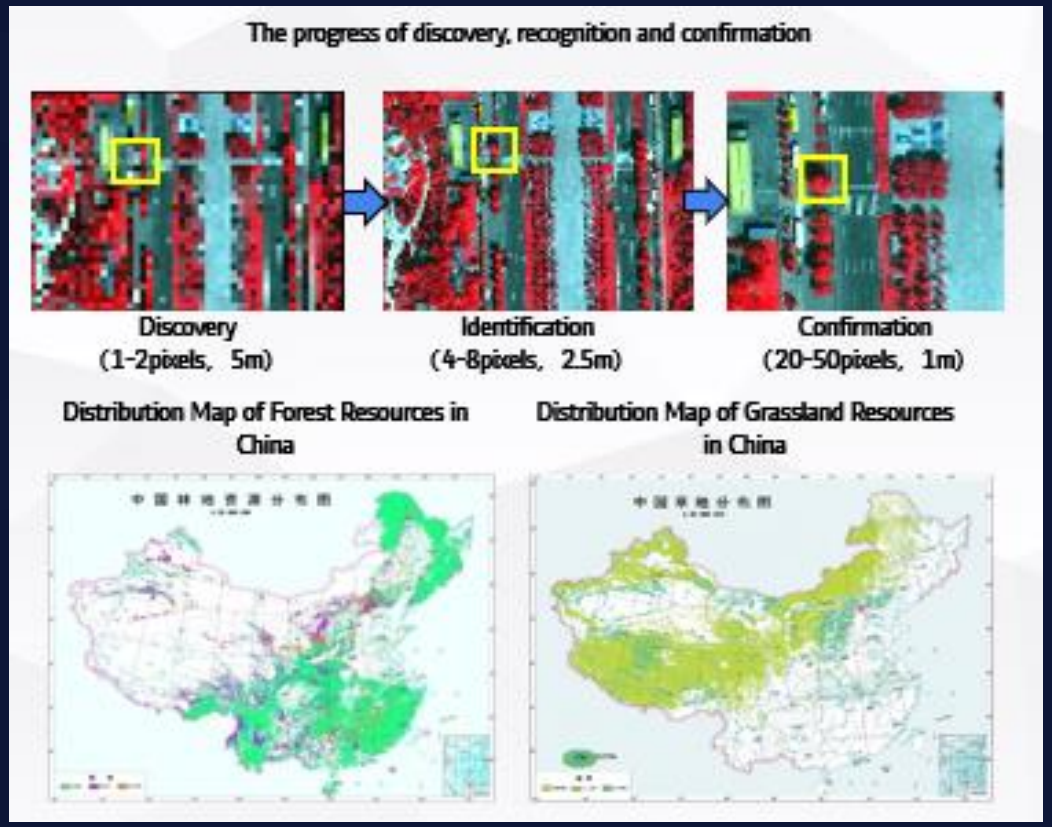

Monitoring and verification of land use change survey


Land resources all - weather remote sensing monitoring


Land use macro-monitoring

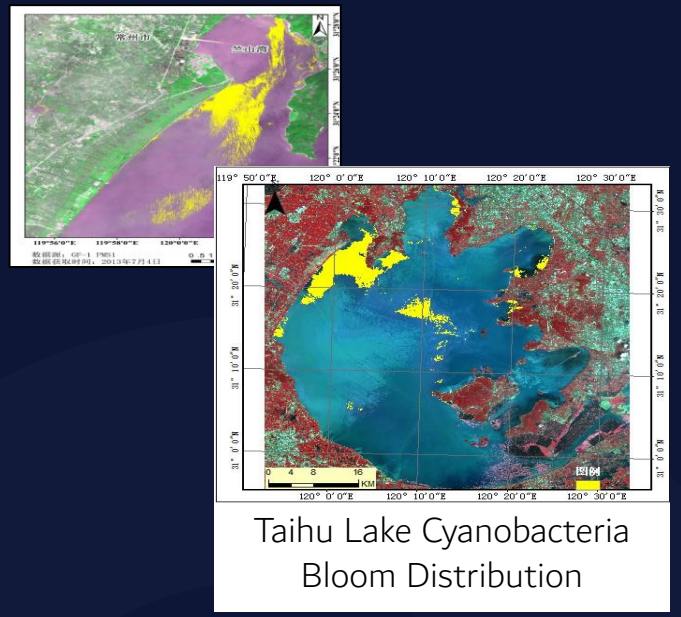

Priority area satellite surveillance and land law enforcement supervision


National comprehensive remote sensing land survey

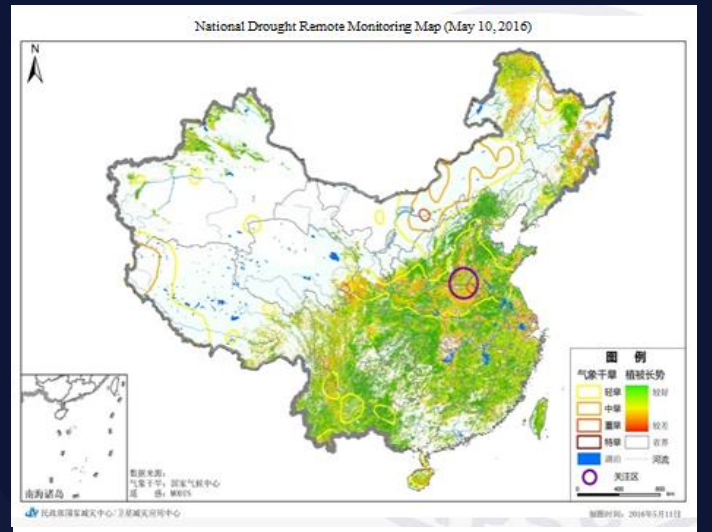


Supporting smart governance

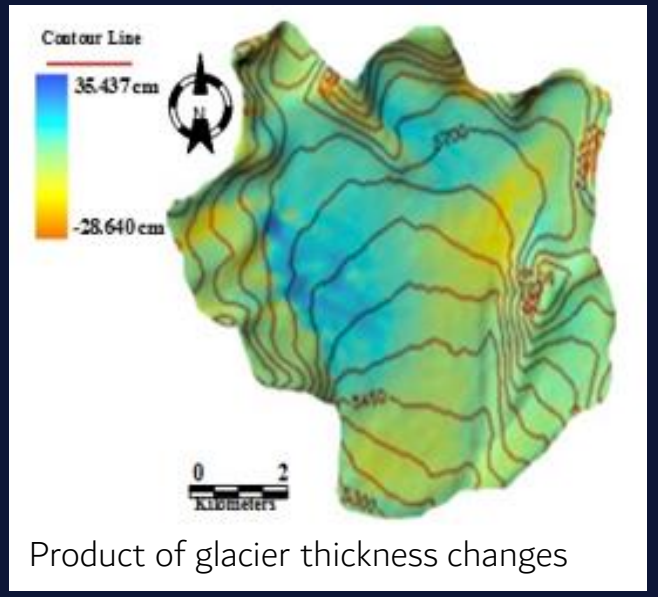
Practice in Water Resources Monitoring



Taihu Lake Cyanobacteria Bloom Distribution



National Drought Remote Monitoring Map



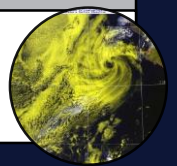
Product of glacier thickness changes

- The water pollution of the Tai Lake Basin was tested , including chlorophyll, transparency, suspended sediments concentration and turbidity, etc..

Water pollution monitoring

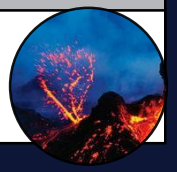
- The meteorological and water conditions and vegetation growth in most areas of China are better, but there are severe meteorological droughts

Drought disasters monitoring

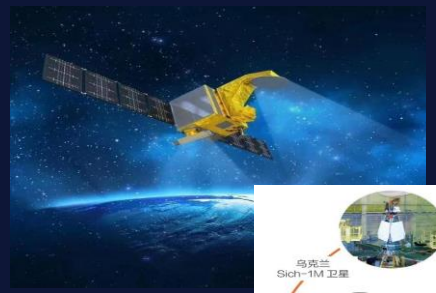


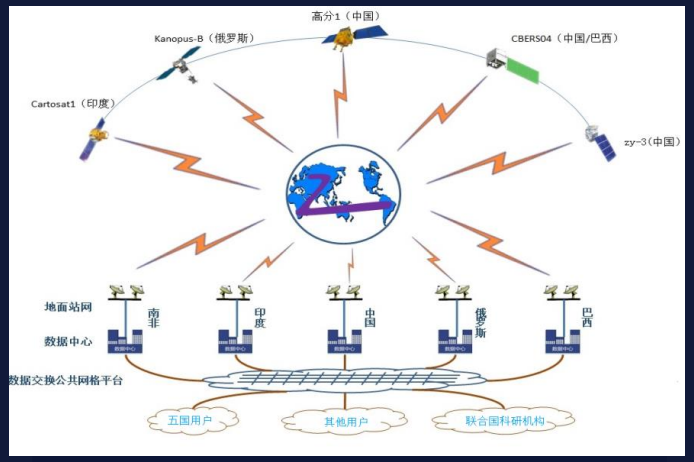
- The glacier thickness change product was obtained from SAR images of satellites GF-3 using SAR interferometry.

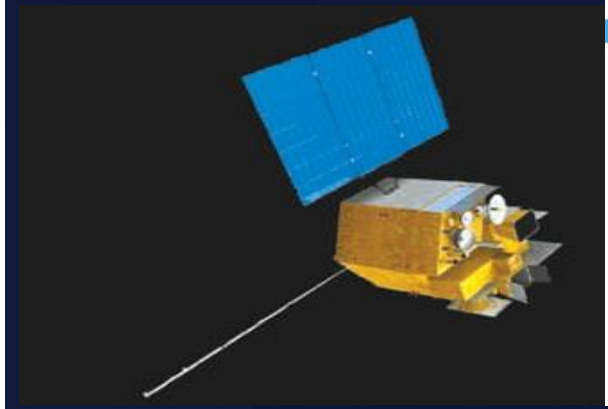
Glacier monitoring



Safeguarding equity and justice







United Nations/China Forum on Space Solutions

Realizing the Sustainable Development Goals

THANK YOU