



# **Space-Based Information for Emergency Management in China**

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**Disaster  
Situation**

02

**Satellites  
Resources**

03

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**International  
cooperation**



01

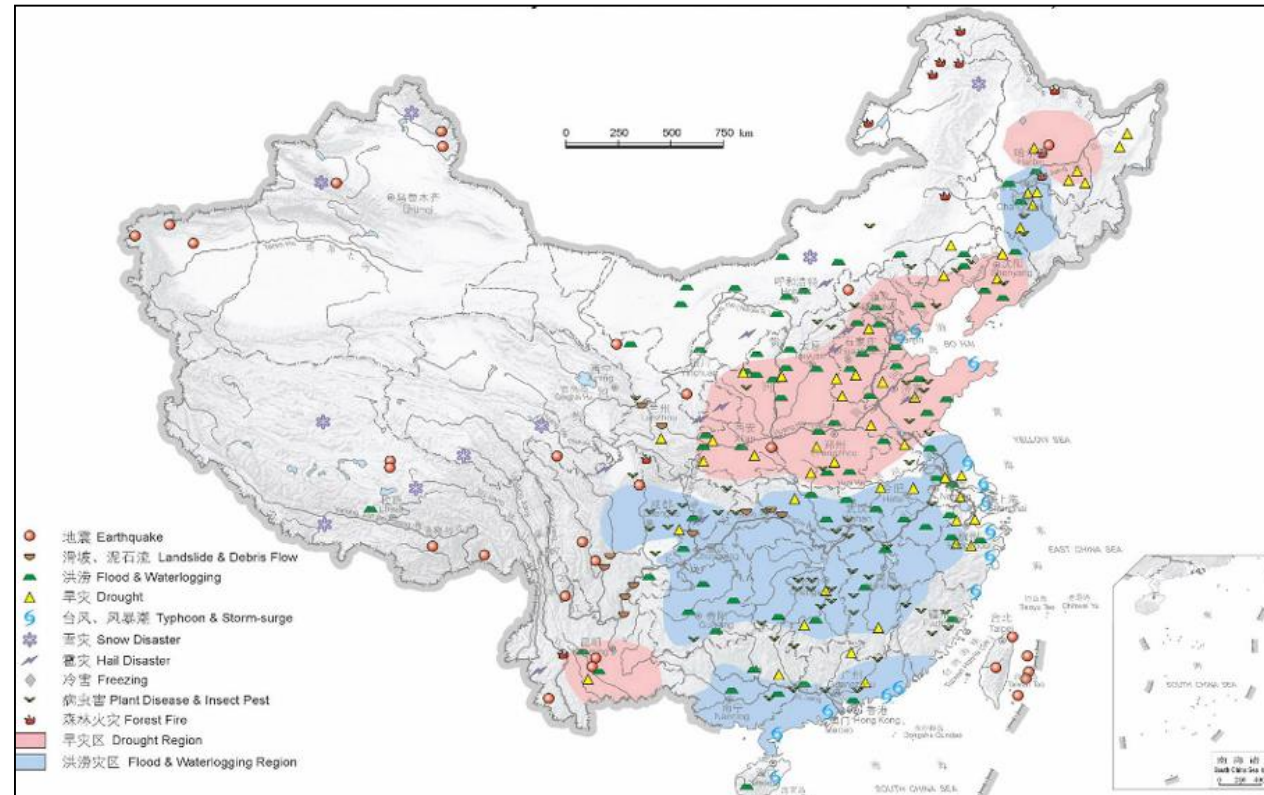
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**Disaster Situation**

# » Disaster situation

China is one of the countries affected by most of the natural disasters in the world

Spatial Distribution of Major Disaster in China







According to statistics, natural disasters affected 28 million people, **156** people are **missing or lost** life in the past half-year, 2021.

Recently, Henan province was hit by floods caused **torrential rains** on July 16 that caused **302 deaths** and **about 50 people remain missing**.





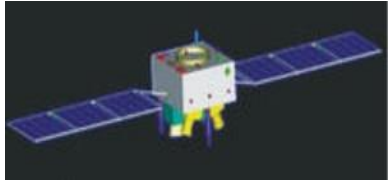
02

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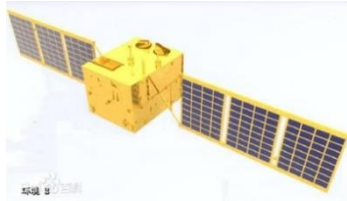
## **Satellites Resources**

# » Satellites Resources

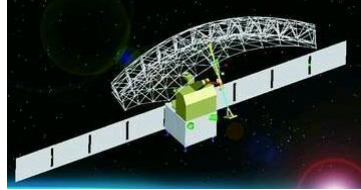
## Disaster Monitoring Satellite constellation



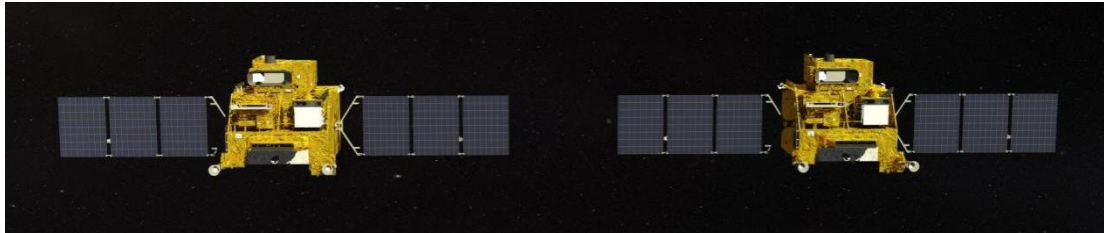
HJ-1A



HJ-1B



HJ-1C

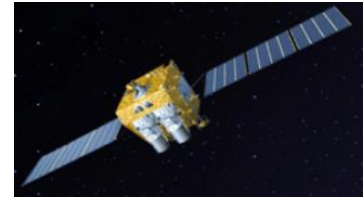


HJ-2A

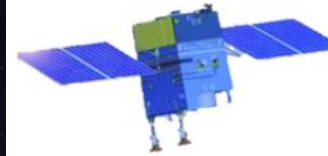
HJ-2B

Other Cooperation Mechanism  
( Commercial satellites/International cooperation  
mechanism )

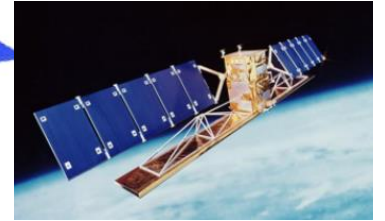
## GF Series Satellites



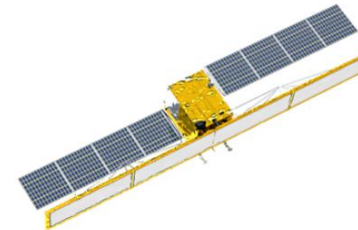
GF-1



GF-2



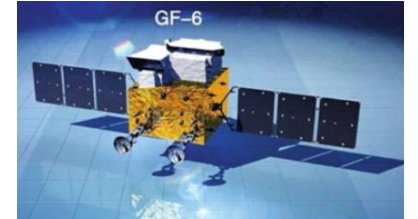
GF-3



GF-4



GF-5



GF-6



GF-7

# » Disaster Monitoring Satellite 2A and 2B



Launched: 27 Sept.2020

Payloads: 16m multi visible spectral CCD, hyper-spectral imager and infrared camera

Together with GF-1 and GF-6 satellites, the revisit frequency could be less than 24 hours.

Status: Completed in-orbit tests

Capacity: Provide images for monitoring disasters in China as well as the **rest of the world**





03

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# Applications

国家安全生产监督管理总局

State Administration of Work Safety

国务院办公厅

General Office of the State Council  
(emergency management responsibility)

公安部

The Ministry of Public Security  
(firefighting)

民政部

The Ministry of Civil Affairs (disaster relief)

国土资源部

Ministry of Land and Resources (geological disaster)

水利部

Ministry of Water Resources (flood and drought disaster)

农业部

Ministry of Agriculture (grassland fire)

国家林业局

State Forestry Administration (forest fire)

中国地震局

China Earthquake Administration

国家防汛抗旱总指挥部

State Flood Control and Drought Relief Headquarters

国家减灾委员会

National Committee for Disaster Reduction

国务院抗震救灾指挥部

State Earthquake Relief Headquarters

国家森林防火指挥部

State Forest Fire Prevention

# 应急管理部

管理中国地震局、  
国家煤矿安全监察局  
管理综合性常备应急骨干力量

Ministry of  
Emergency  
Management

Since its establishment in 2018, the **Ministry of Emergency Management** has attached great importance to the application of space-based information and strengthened the application of space technology in **disaster risk reduction, relief, and emergency response.**

# » Space-based Information for Emergency Management Framework

The framework includes **satellite resources, observation mechanism, data acquisition and processing technology, products and services, hardware and software infrastructure, etc.**

Capacity after the establishment of this framework:

- Dynamic forest fire monitoring, using GF-4 and other domestic on thermal anomaly areas, identifying fire spot, fire line and burnt area takes 2-3 hours after the event
- Major disasters like monitoring of flood affected areas and damages to critical infrastructures takes 24 hours after the event.

# » Products series

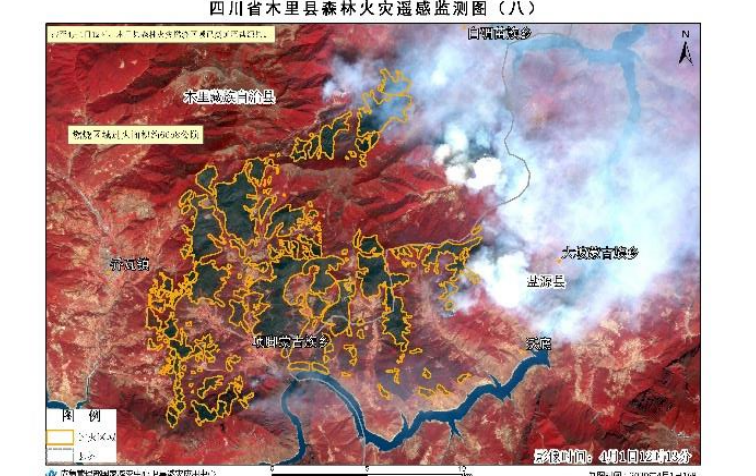
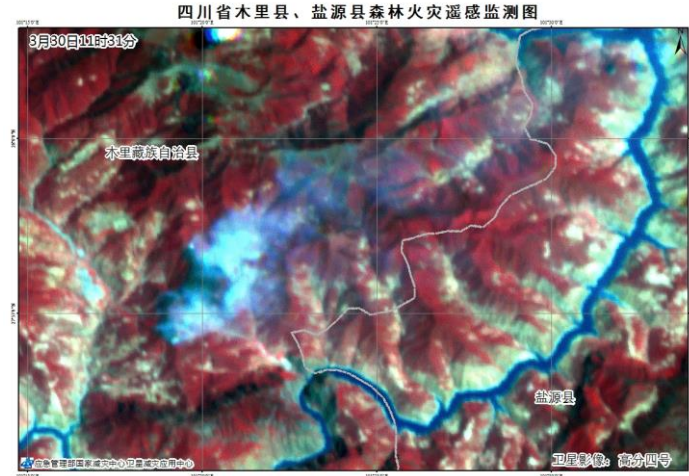
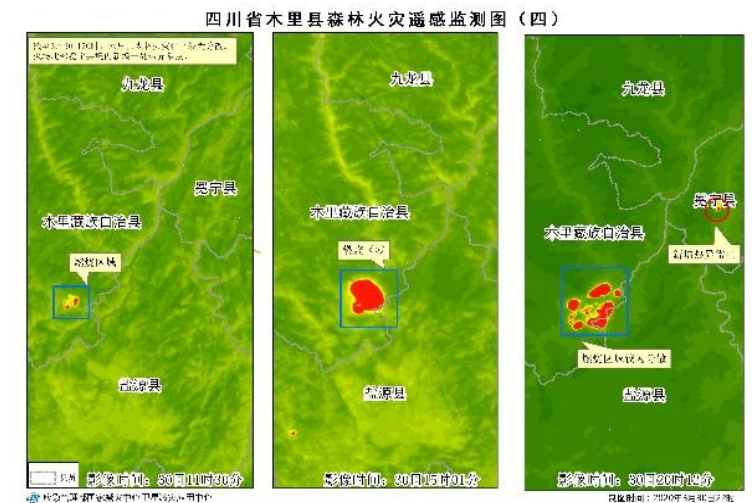
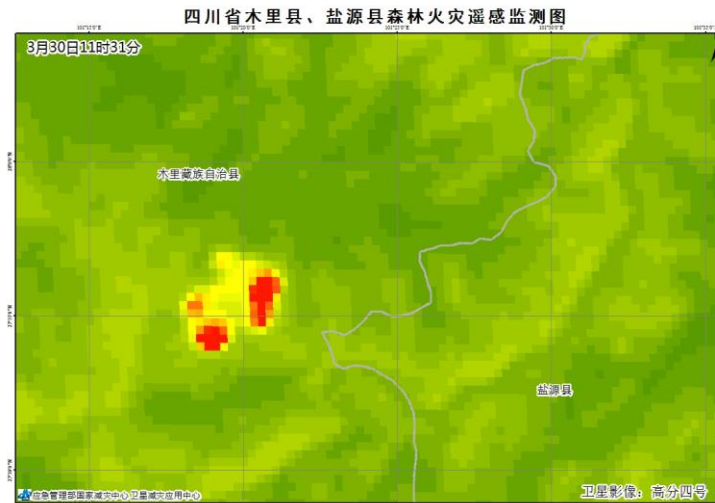
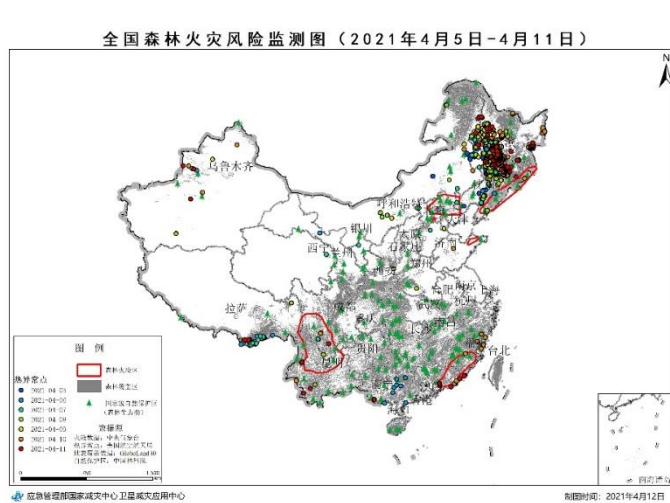
Background products, Disaster element monitoring, Risk monitoring, Emergency mapping, Recovery and reconstruction monitoring





# » Applications

## Dynamic forest fire monitoring

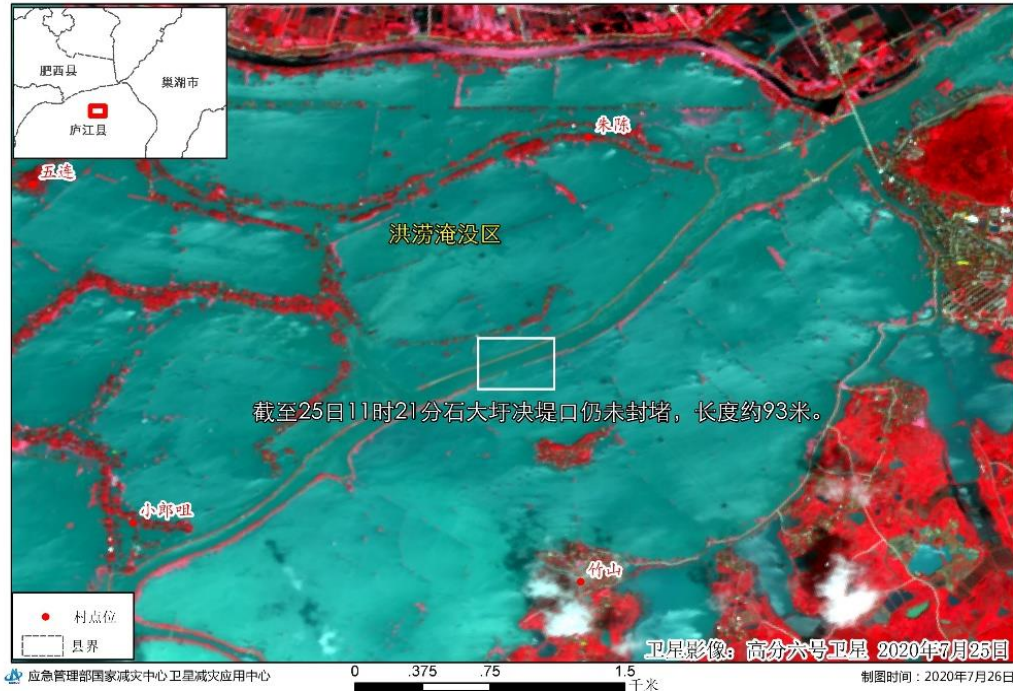




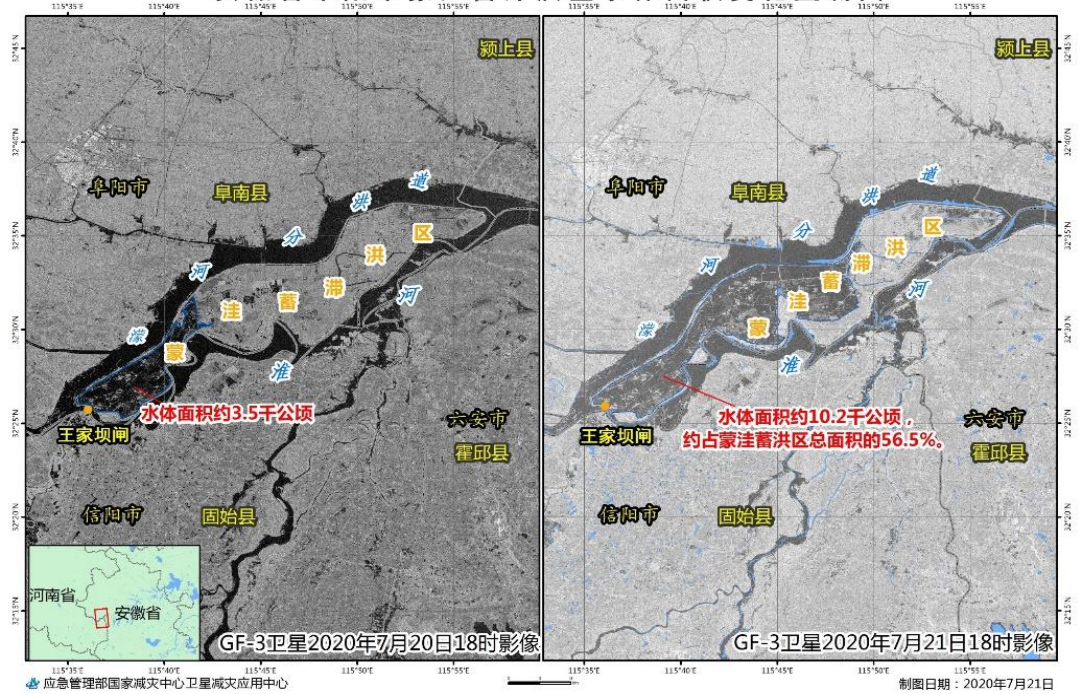
# » Applications

## Flood monitoring

安徽省庐江县石大圩洪涝灾害遥感监测图



安徽省阜阳市蒙洼蓄滞洪区水体面积变化监测图





04

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# **International Cooperation**

# » International Cooperation

UN-SPIDER

Continue to support annual conferences, technical advisory support and emergency response



Work as the project manager

**GEO** GROUP ON  
EARTH OBSERVATIONS

Actively participate in disaster reduction activities under GEO, AOGEO and other international initiatives



Earth Observations  
for Asia-Oceania

# » International Cooperation

## UN-SPIDER



NDRCC use Chinese EO data (granted by CNSA) to undertake disaster reduction and emergency services through relevant mechanisms

## Chinese EO satellites and the main parameters for Charter

Satellite	Sensor	Resolution
CBERS-02B	CCD	20m
	Wide field imager(WFI)	258m
SJ-9A	Multi-spectral camera	2.5m(Pan)
		10m(Multi-spectral)
GF-1	Multi-spectral camera(PMS)	2m(Pan)
		8m(Multi-spectral)
GF-2	Multi-spectral camera(WFV)	16m
		0.8m(Pan)
GF-3	Multi-spectral camera(PMS)	3.2m(Multi-spectral)
		1-500m
GF-4	SAR	50m(VNIR)
		400m(MWIR)

## Disaster Monitoring Satellite 2A and 2B

Multi-spectral CCD(16m), hyper-spectral imager and infrared camera



# » International Cooperation

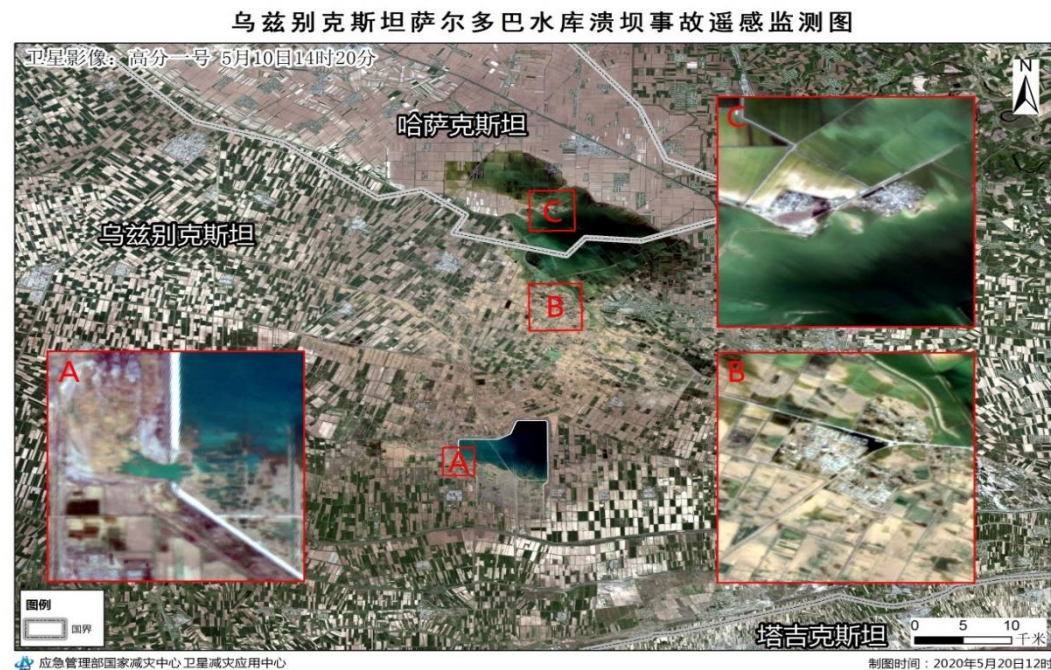
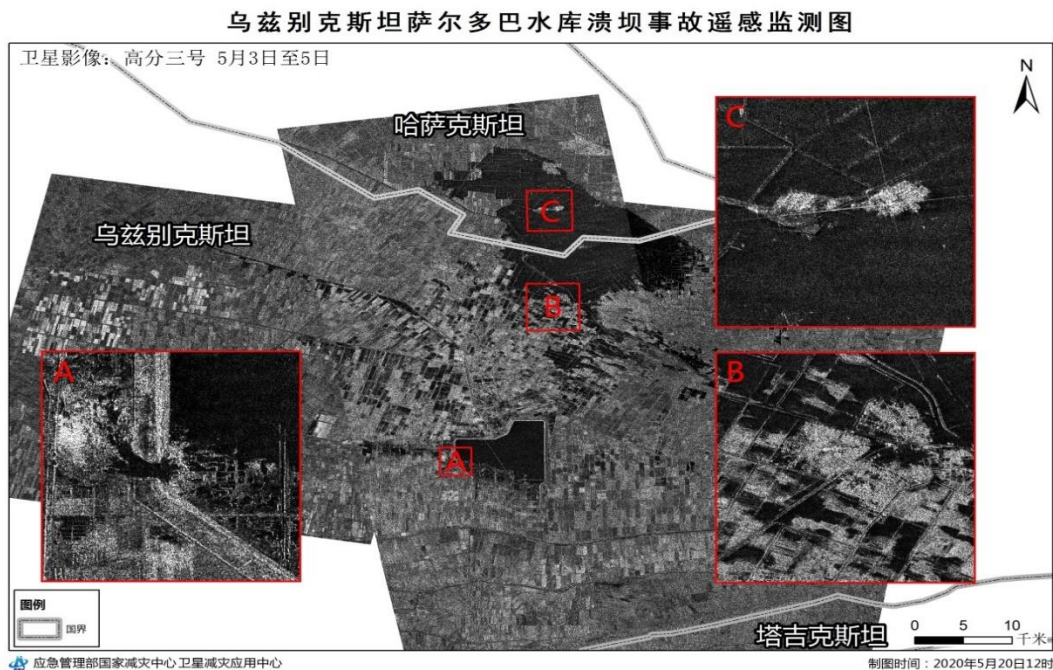
乌克兰森林火灾遥感监测图（一）



Utilize GF-1 Satellite data to monitor forest fire in Ukraine in April 2020



# » International Cooperation



Utilize GF-1 and GF-3 Satellites data to monitor Saldoba dam burst and flood in Uzbekistan in May 2020



# » International Cooperation

印度北部阿坎德邦洪涝灾害遥感监测图



应急管理部国家减灾中心卫星减灾应用中心

制图日期：2021年2月8日

印度北部阿坎德邦冰川断裂处监测图



应急管理部国家减灾中心卫星减灾应用中心

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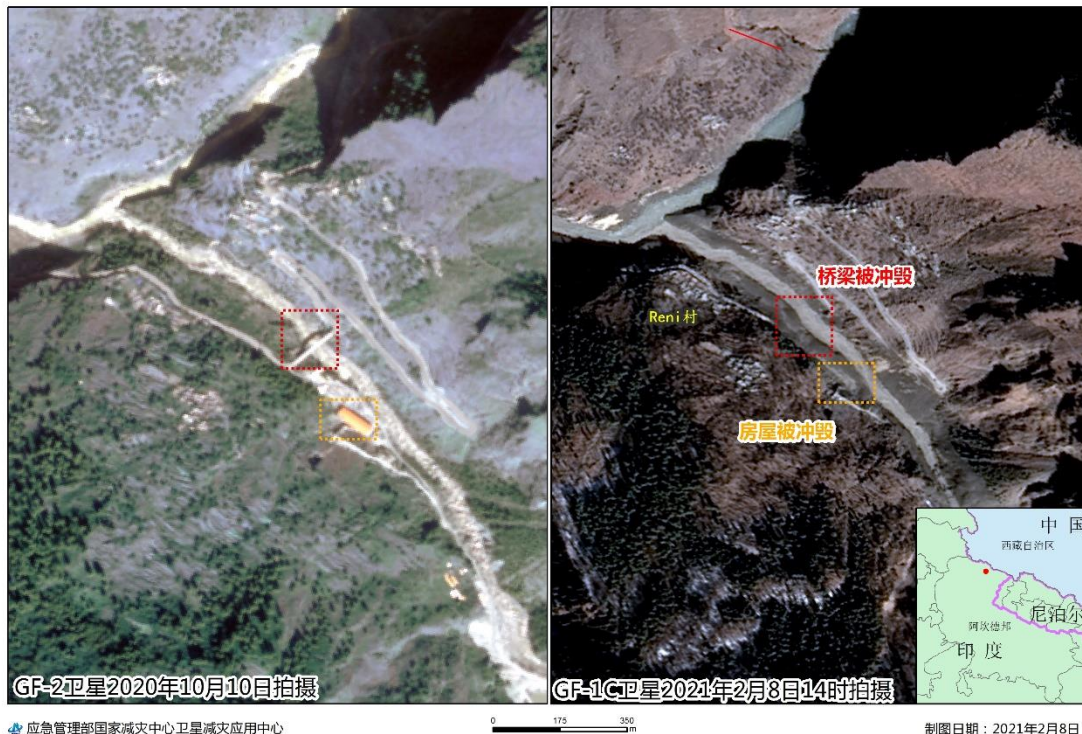
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Utilize GF-1 and GF-2 Satellites data to monitor glacier disaster and massive flooding it caused in Uttarakhand state, India. Feb. 7, 2021

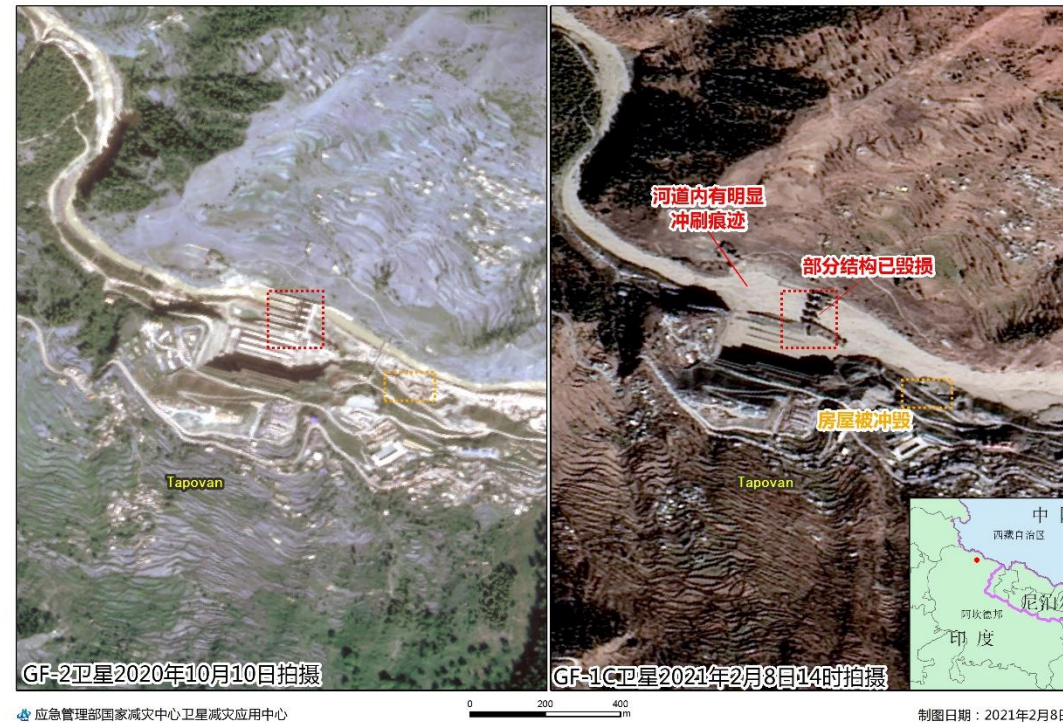


# » International Cooperation

印度北部阿坎德邦Reni村周边洪涝灾害监测图



印度北部阿坎德邦道里根加河水电站及周边监测图



Utilize GF-1 and GF-2 Satellites data to monitor glacier disaster and massive flooding it caused in Uttarakhand state, India. Feb. 7, 2021

# » International Cooperation



Supported by the Ministry of Science and Technology, NDRCC launched a project "Integrated Application research of Earth Observation under the Sendai Framework", which goes in line with GEO priority activities and AOGEO new cross-cutting project "Integrated Priority Study (IPS)".

# » International Cooperation

## Project : Integrated Application research of Earth Observation under the Sendai Framework ( 2020-2022 )

**Object:** Support the monitoring of indicators of the Sendai Framework through earth observation technology

**Collaboration:** Aerospace Information Research Institute of Chinese Academy of Sciences, Beijing Normal University

**Collaboration:** UN-SPDER, Regional Centre for Space Science and Technology Education in Asia and the Pacific (China) (Affiliated to the United Nations) , the Ministry of Science and Technology of Laos

**Pilot projects :** will carry out and demonstrate in Laos, Sri Lanka and Nepal





**Thank you for your attention!**

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