



Practices on Using Space-based Information for Disaster Risk Management of China

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- ❖ **Natural Disasters and Risk Management**
- ❖ **Space-based Information for Disaster Risk Management**
- ❖ **Way Forward**





Natural Disasters in China

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

- ❖ Various kinds
- ❖ Wide area distribution
- ❖ High frequency
- ❖ Enormous losses



310 million affected **1,500** dead or missing, **9** million relocated



700 thousand collapsed



27 million hectares damaged



380 billion RMB

Annual average disaster impact during
2011—2015 (the 12th Five-year)





Disaster Management System in China



China National Commission for Disaster Reduction is responsible for disaster prevention, reduction and relief coordination and plan at national level.

Comprehensive National Disaster Prevention and Reduction Plan was formulated with the aim to better implement the policy decisions of the CPC Central Committee and the State council regarding disaster prevention, reduction and relief work.



国务院办公厅文件

国办发〔2011〕55号

国务院办公厅关于印发国家综合防灾减灾规划（2011—2015年）的通知

各省、自治区、直辖市人民政府，国务院各部委、各直属机构：

《国家综合防灾减灾规划（2011—2015年）》（以下简称《规划》）已经国务院同意，现印发给你们，请认真贯彻执行。

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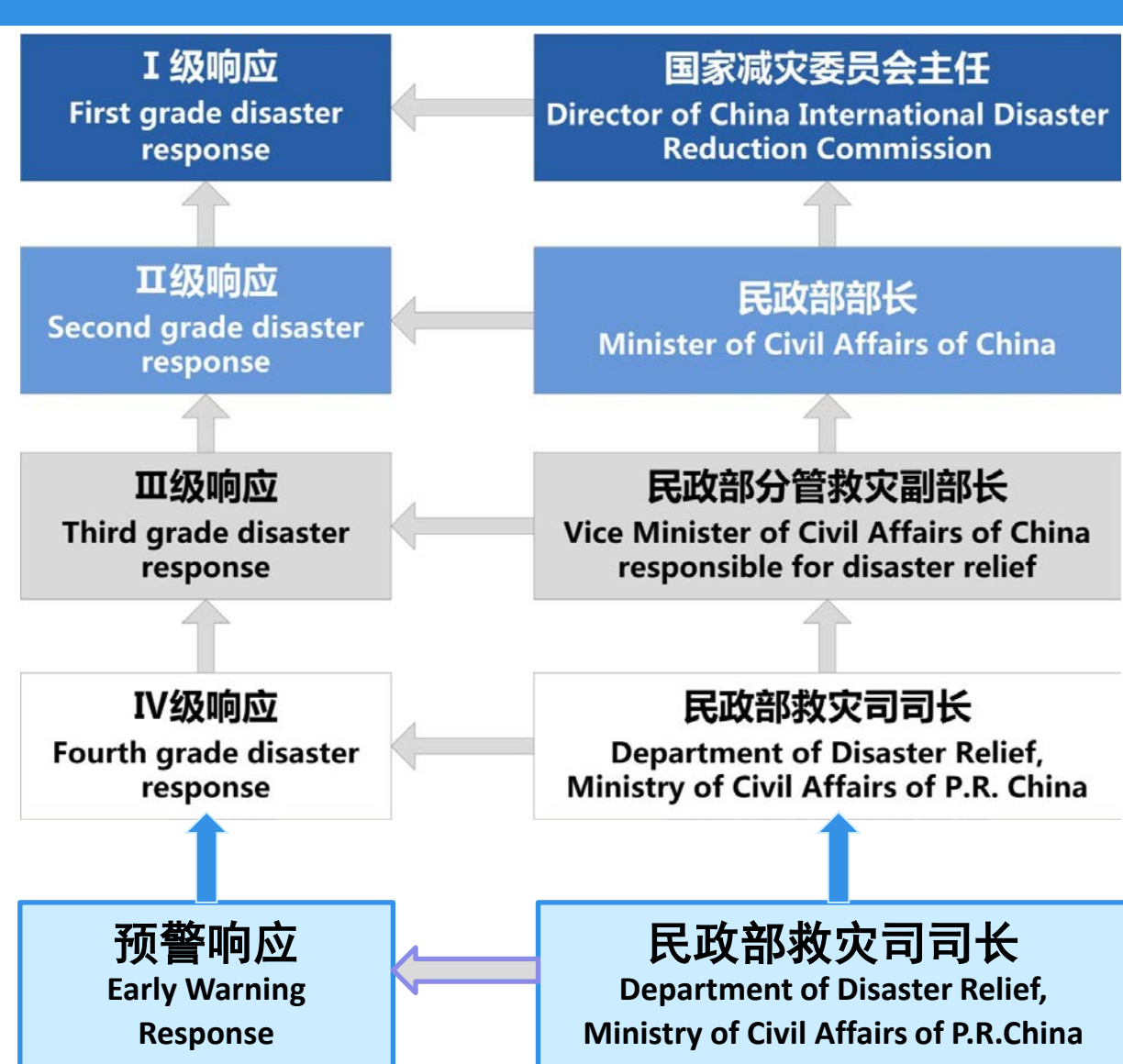
（此件公开发布）

国家综合防灾减灾规划（2016—2020年）

防灾减灾救灾工作事关人民群众生命财产安全，事关社会和谐稳定，是衡量执政党领导力、检验政府执行力、评判国家动员力、彰显民族凝聚力、影响国际影响力的一个重要方面。为深入贯彻落实中



Disaster Management System in China



The State Council issued *Regulations on Natural Disaster Relief and the National Emergency Plan for Natural Disaster Relief*.

1 Early warning response and **4** Emergency Response levels.

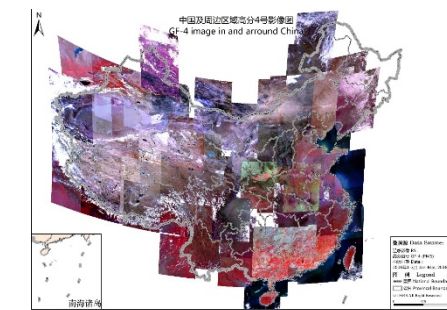
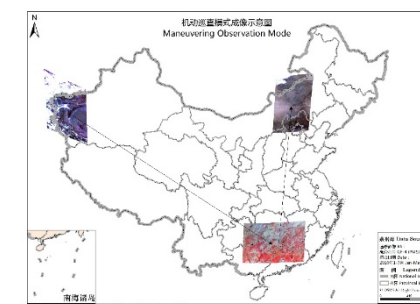
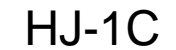
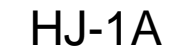
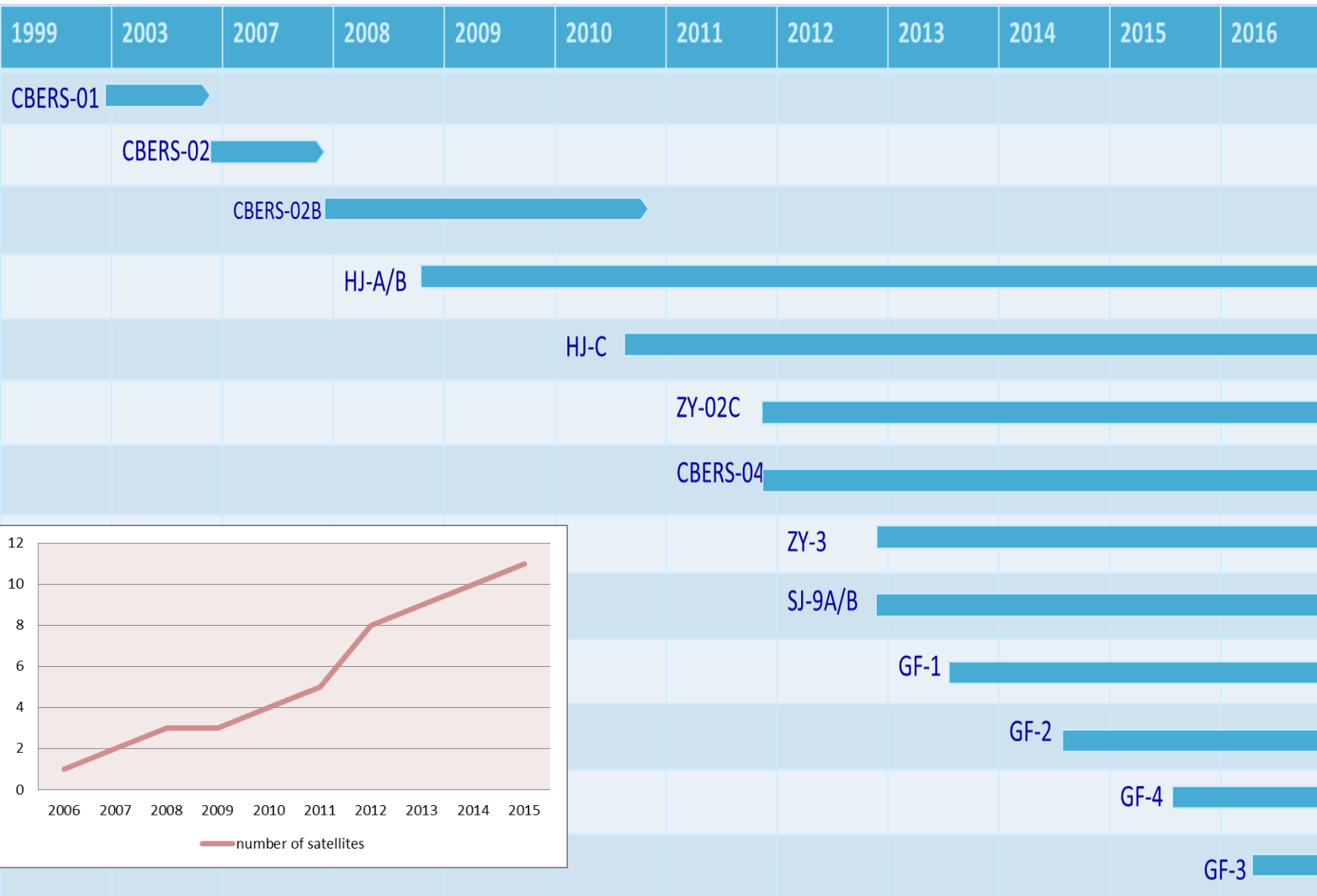
Work Procedures and mechanisms have been formed as working guidelines.

Space technology has been involved into national management system.



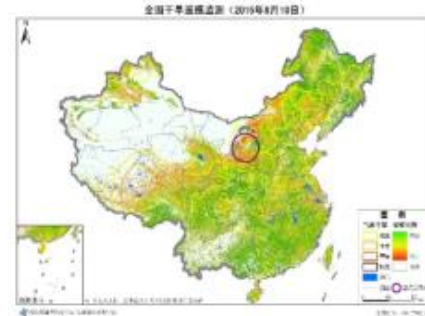
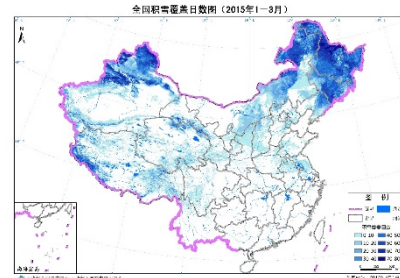
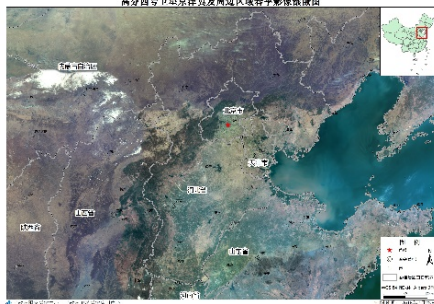
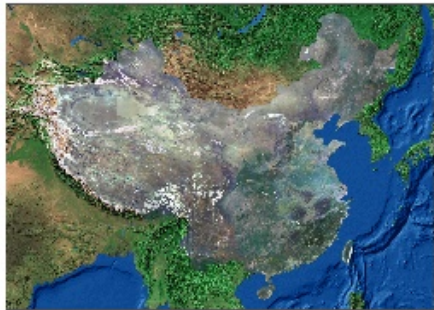
- ❖ **Natural Disasters and Disaster Risk Management in China**
- ❖ **Space-based Information for Disaster Risk Management**
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Satellite Imagery

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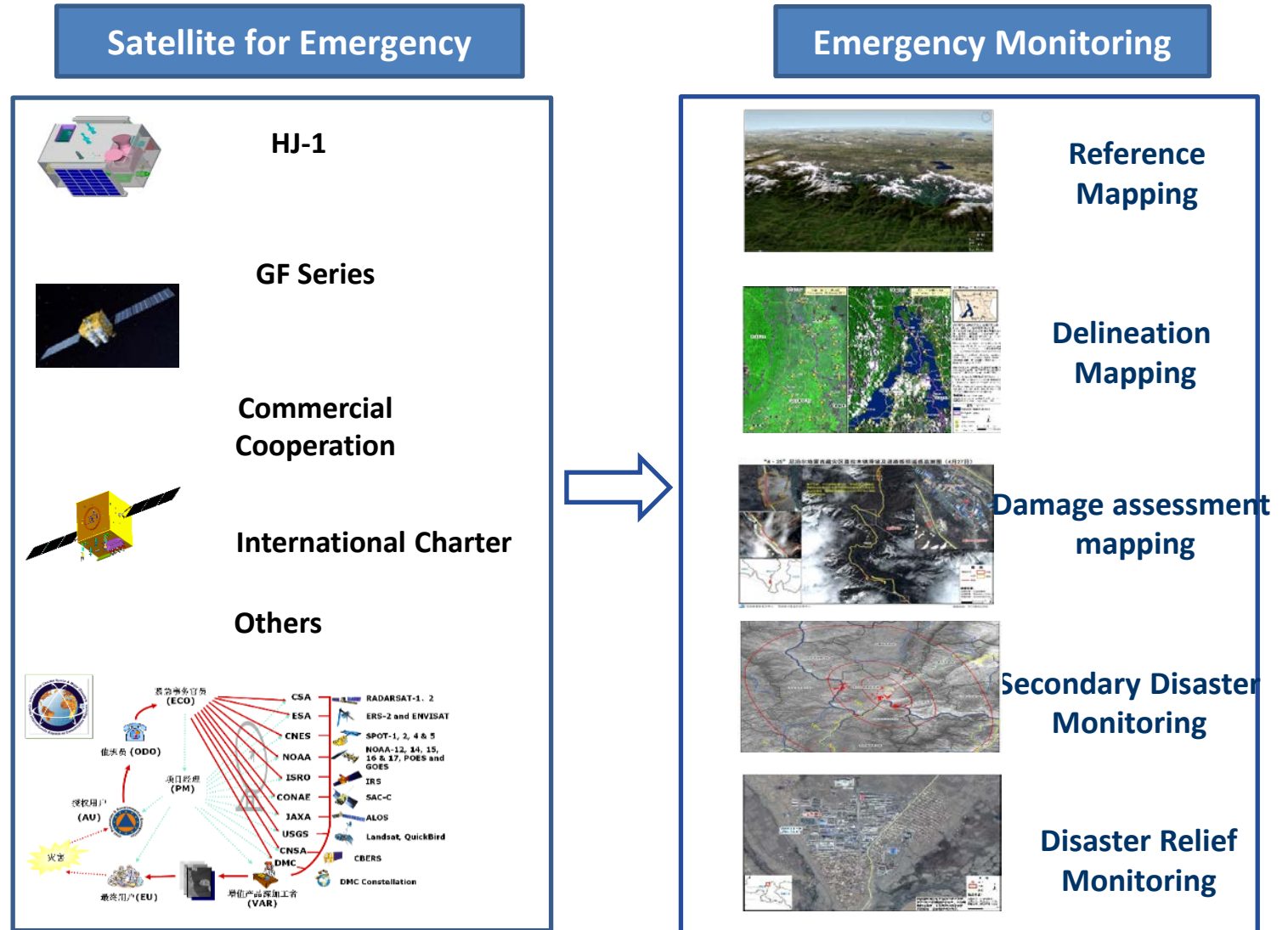
四川乐山老县城地震遗址高分二号遥感影像图



Emergency Monitoring

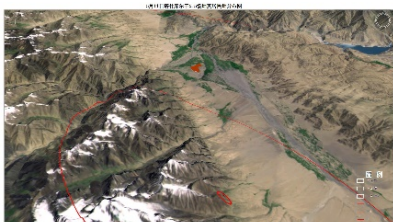


- Within **24** hours the **1st** post disaster EO imagery could be accessed;
- **5** kinds of mapping products will be developed for emergency response.

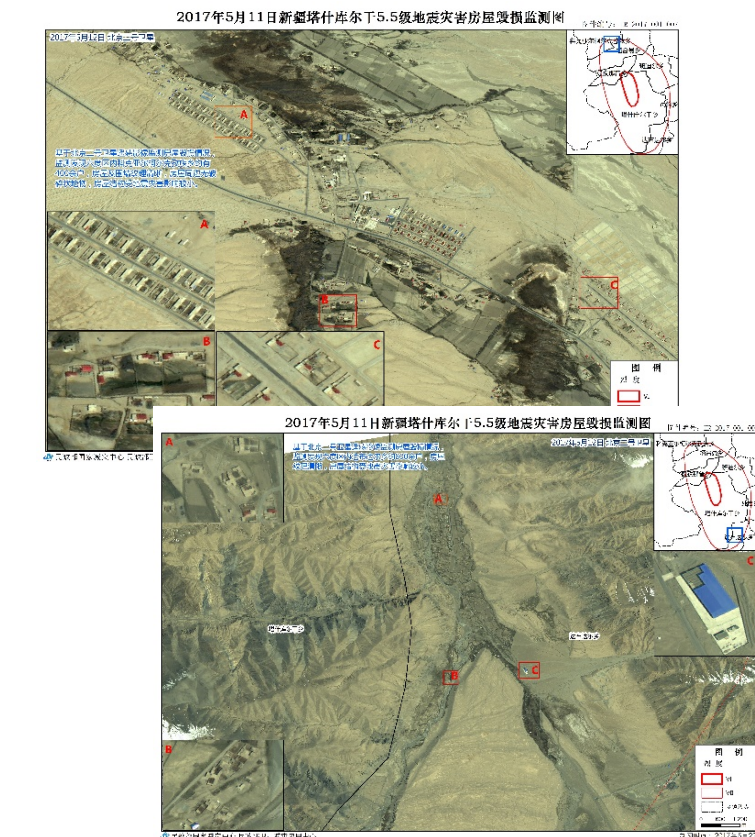




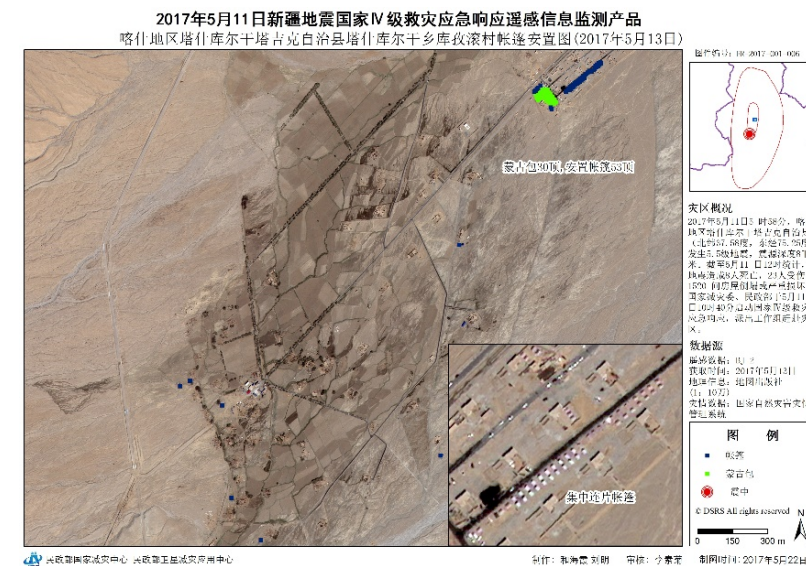
The 5.5-magnitude earthquake in Xinjiang, China on 11 May 2017



Residential and cropland distribution



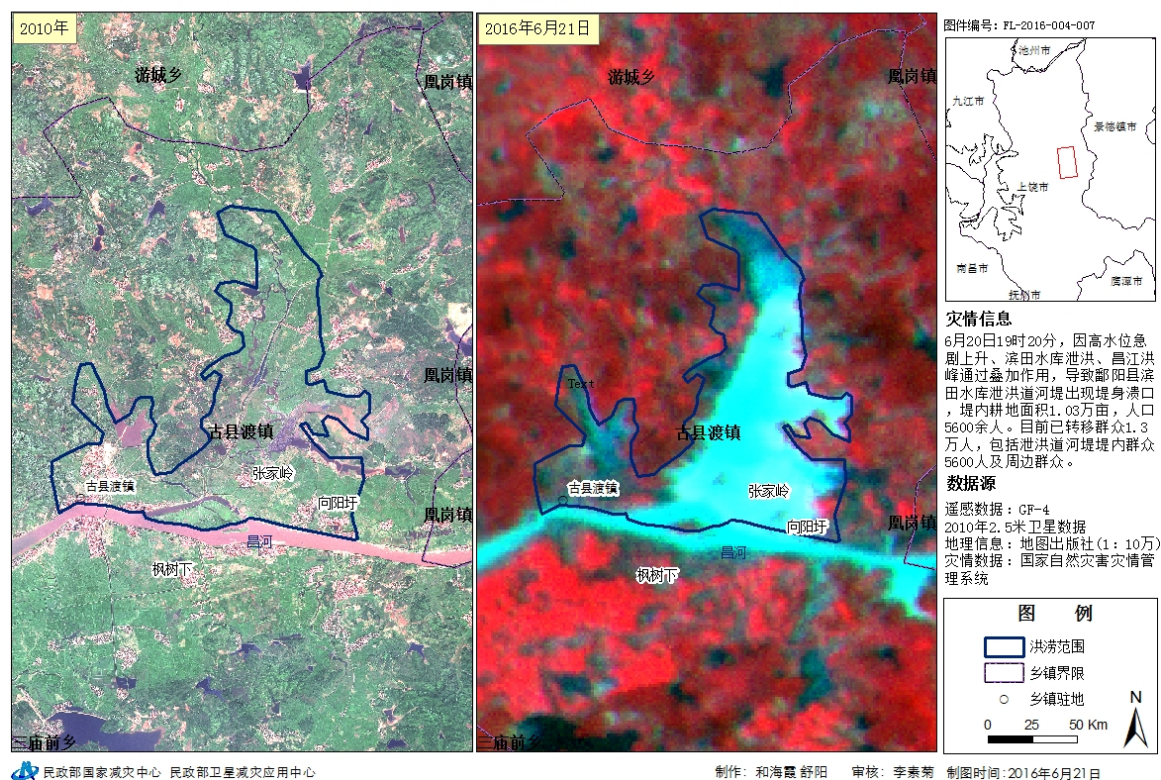
House damaged monitoring



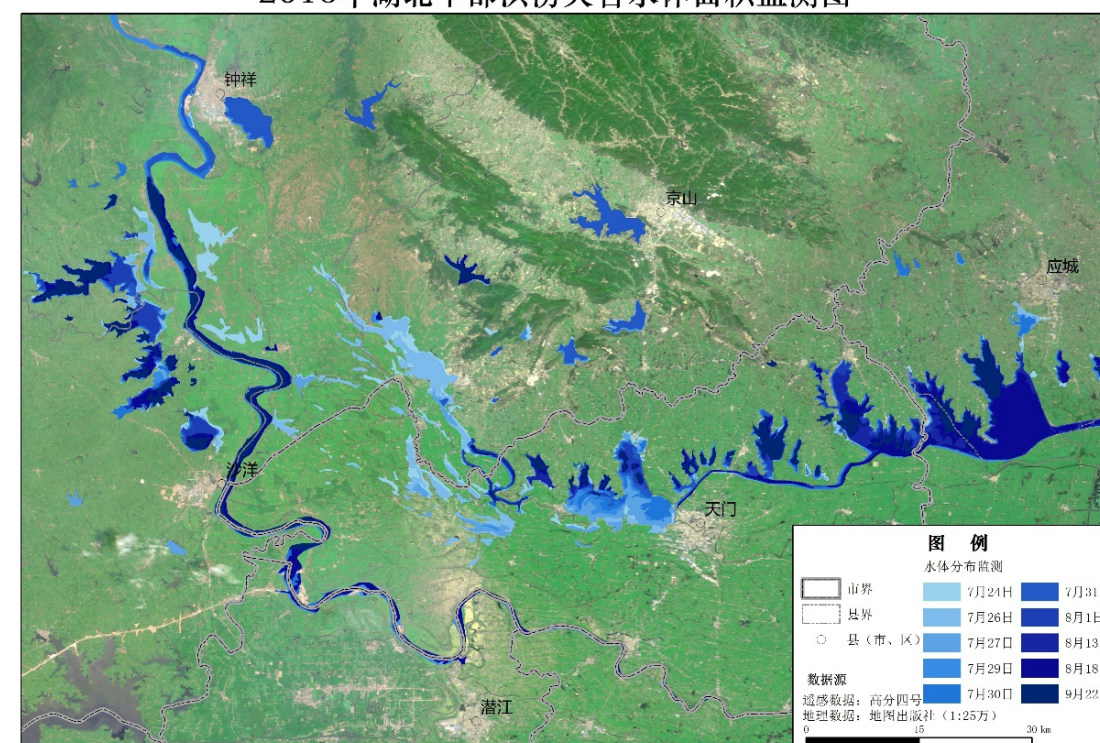
Emergency Relief Monitoring



2016年6月21日江西省上饶市鄱阳县古县渡镇高分四号洪涝范围图



2016年湖北中部洪涝灾害水体面积监测图

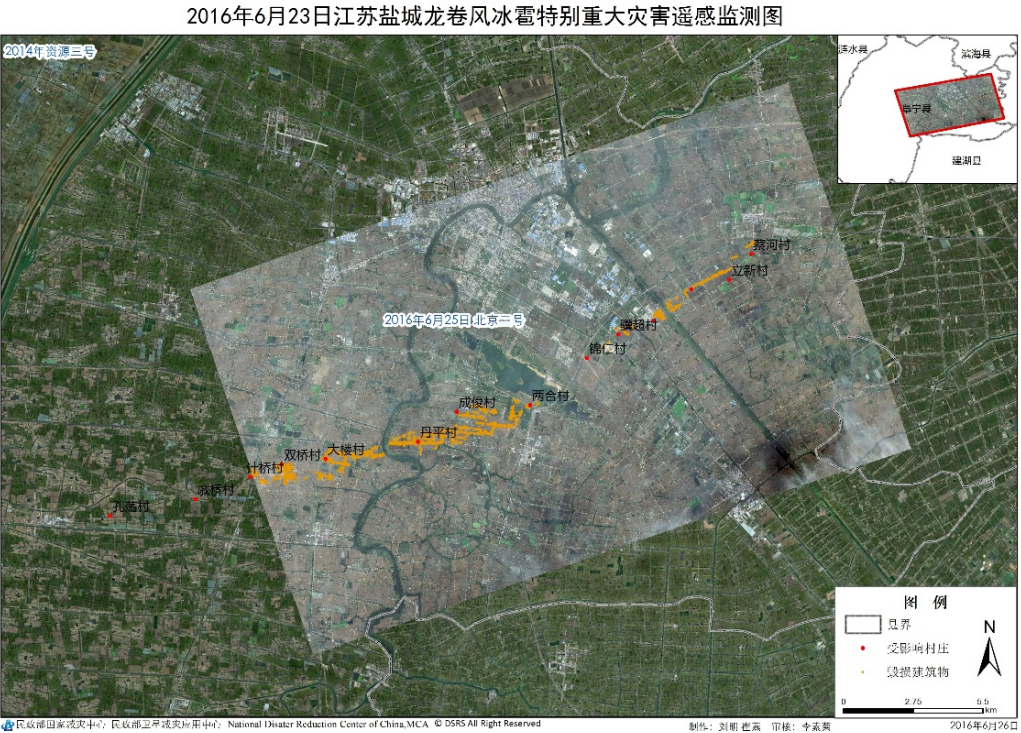


Rapid Flooding Mapping Product Based on GF-4

Flooding in Southern China in the Summer of 2016



The Tornado Mapping in Jiangsu (23 June 2016)

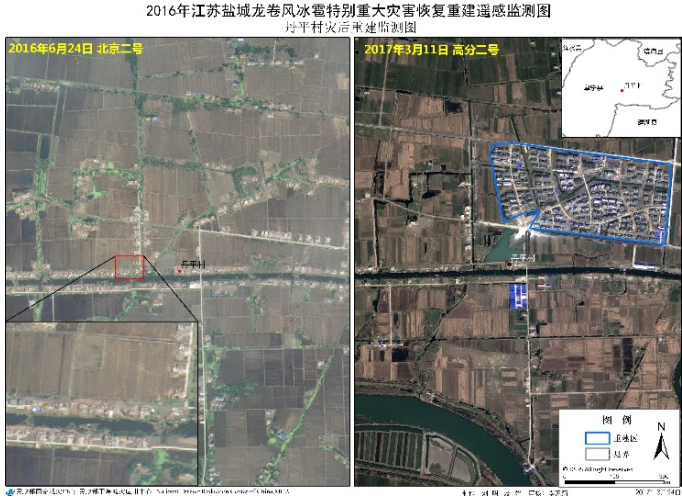


Damage Route

Damage Monitoring



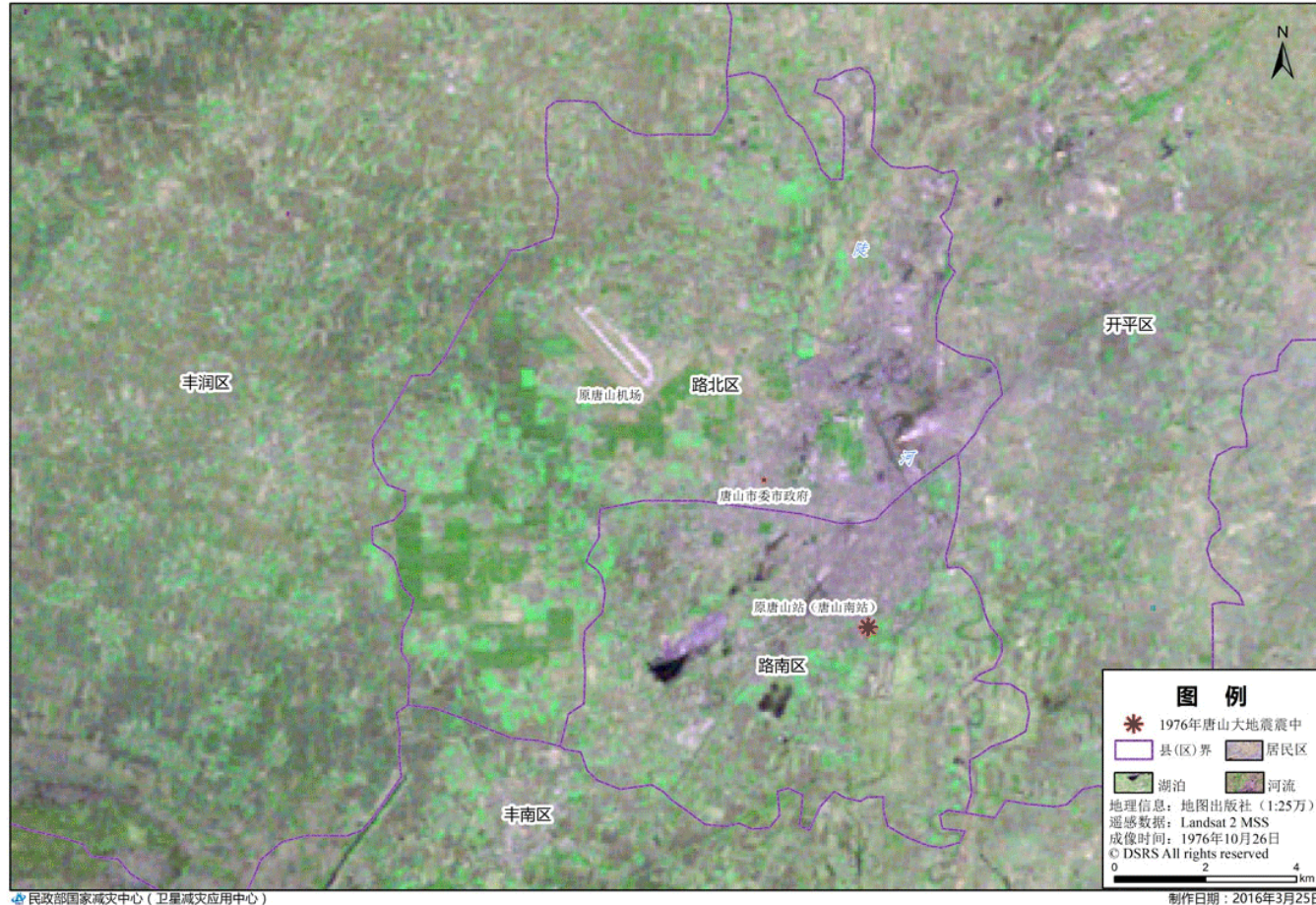
Reconstruction Monitoring





Earthquake Recovery & Reconstruction

唐山市区遥感影像图（1976年）



Recovery monitoring of 1976 Tangshan Earthquake

四川北川老县城地震遗址高分二号遥感影像图



Recovery monitoring of 2008 Wenchuan Earthquake

四川北川羌族自治县新城高分二号遥感影像图

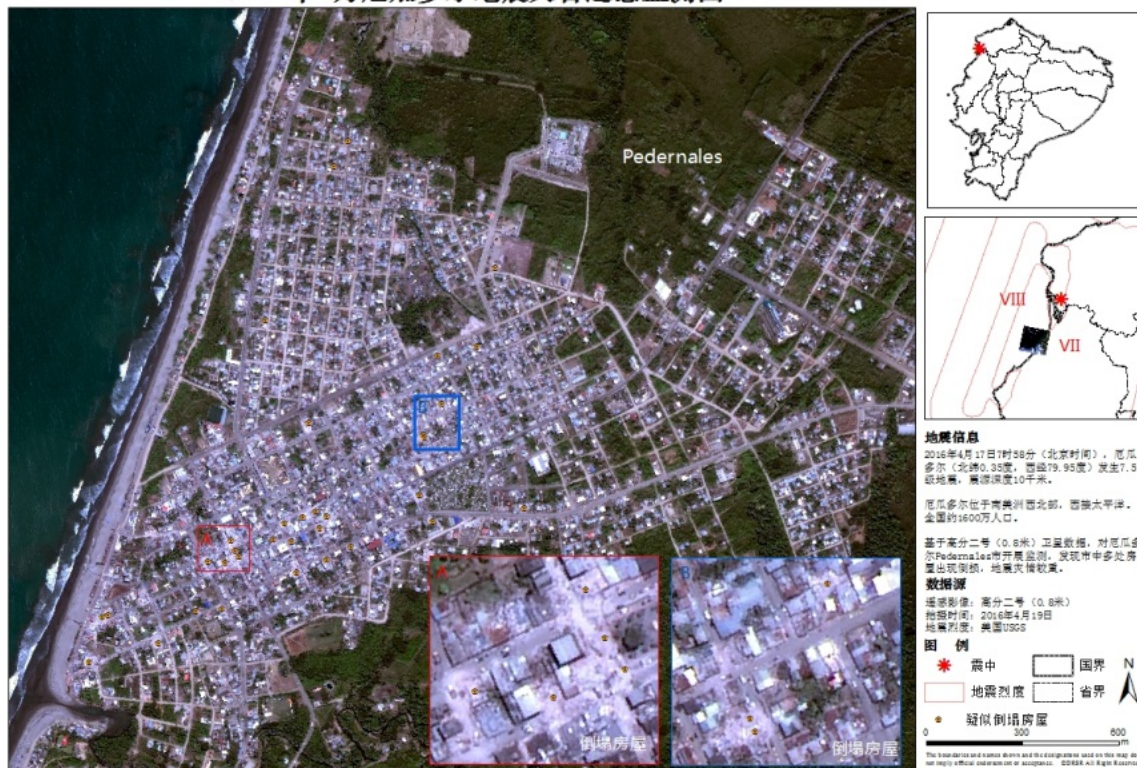






Earthquake in Ecuador (April, 2016)

2016年4月厄瓜多尔地震灾害遥感监测图



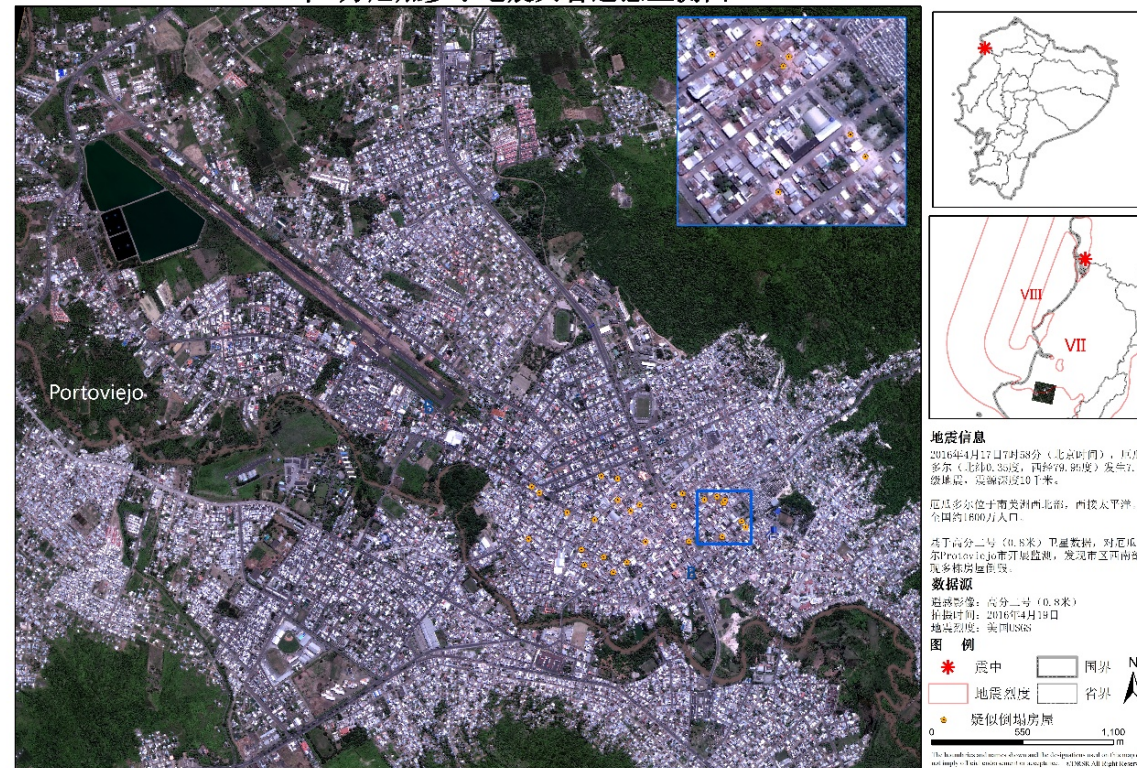
民政部国家减灾中心 民政部卫星减灾应用中心 National Disaster Reduction Center of China, MCA

制图人: 刘明 舒阳 徐丰 审核人: 李富荣

签发人: 范一大

制图时间: 2016年4月20日

2016年4月厄瓜多尔地震灾害遥感监测图



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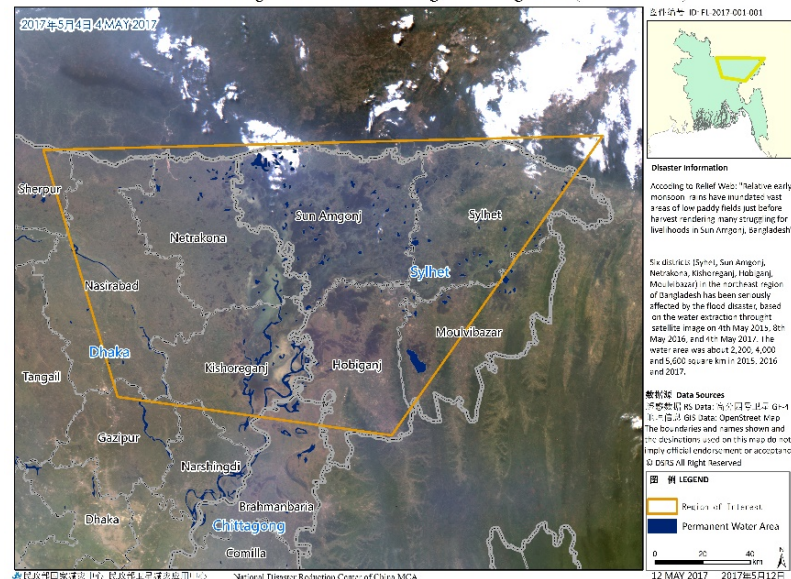
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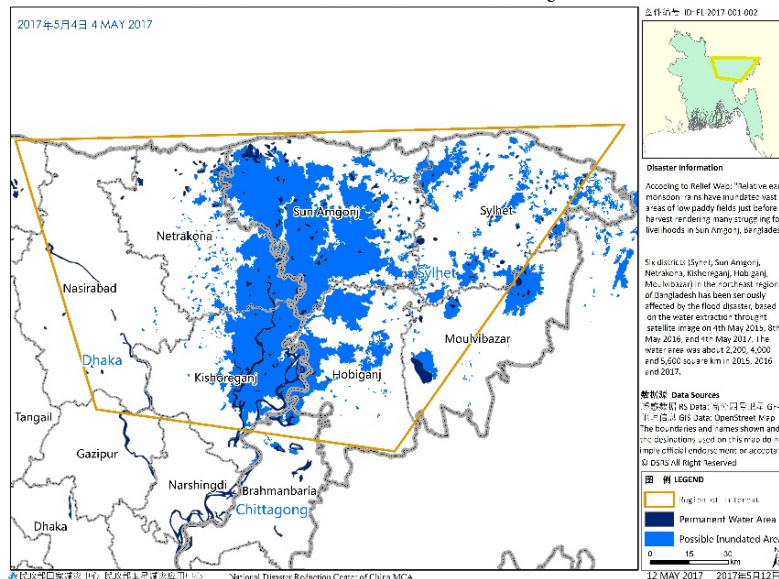


Flooding Monitoring in Early May from 2015 to 2017

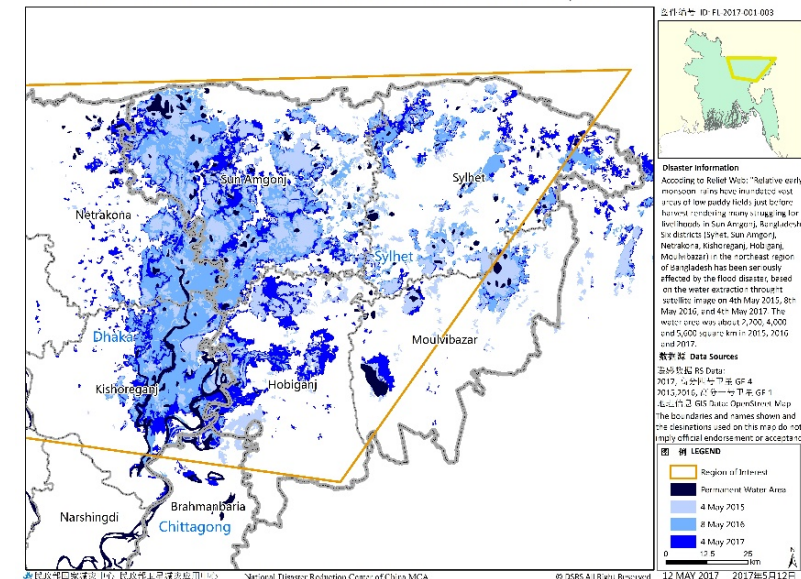
2017年5月4日孟加拉东北部高分四号卫星遥感影像图
GF-4 Satellite image of the northeastern region of Bangladesh (04 MAY 2017)



2017年5月4日孟加拉东北部洪涝遥感监测图
Possible Inundated Extent Extracted from GF-4 Satellite Image on 04 MAY 2017



孟加拉东北部2015 - 2017年5月上旬水体范围遥感监测图
Possible Inundated Extent Extracted from GF-4 Satellites on 04/05/2015, 08/05/2016 and 04/05/2017



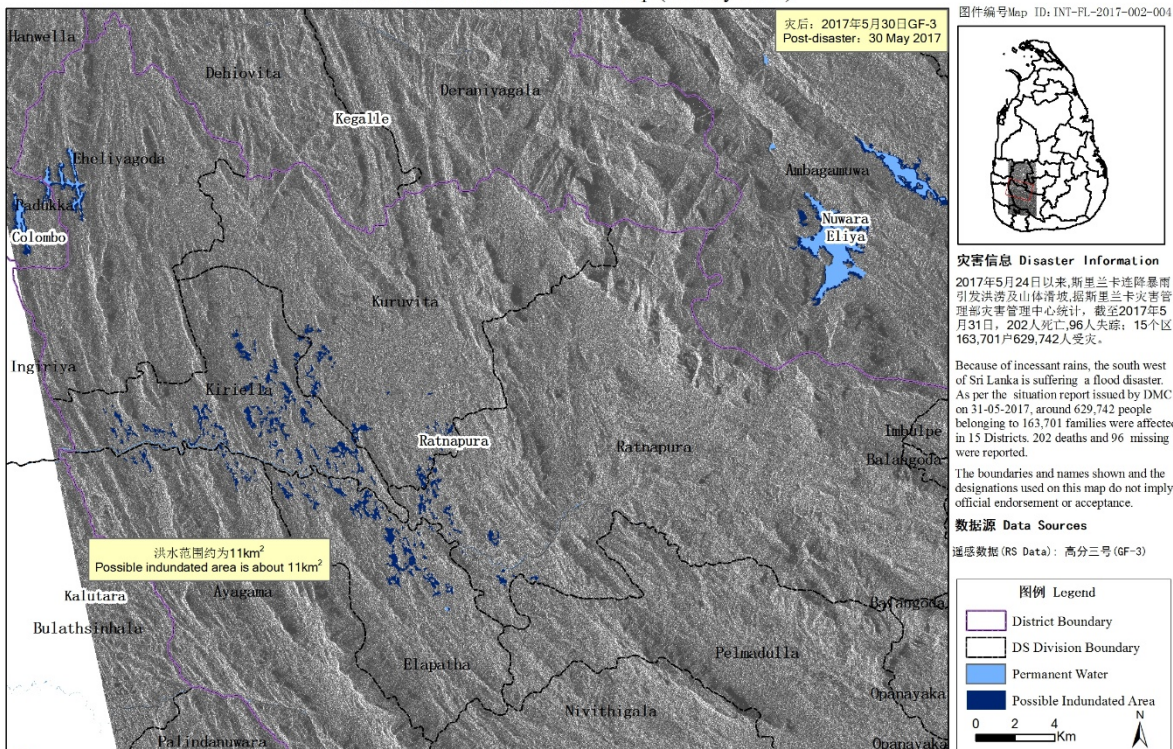
Imagery Product

Possible Inundated Extent
Extraction by GF-4

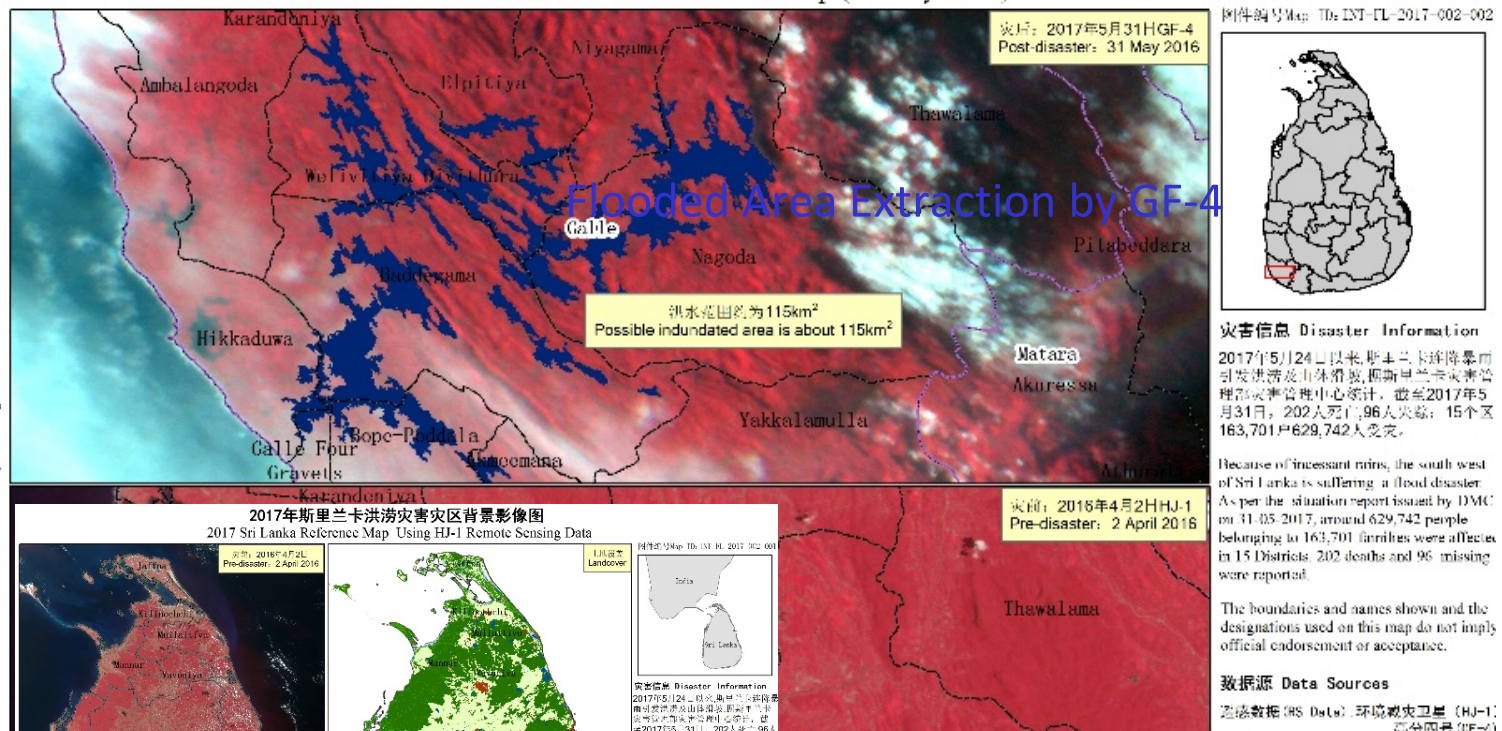
Water Area Extraction during the
some period from 2015 to 2017



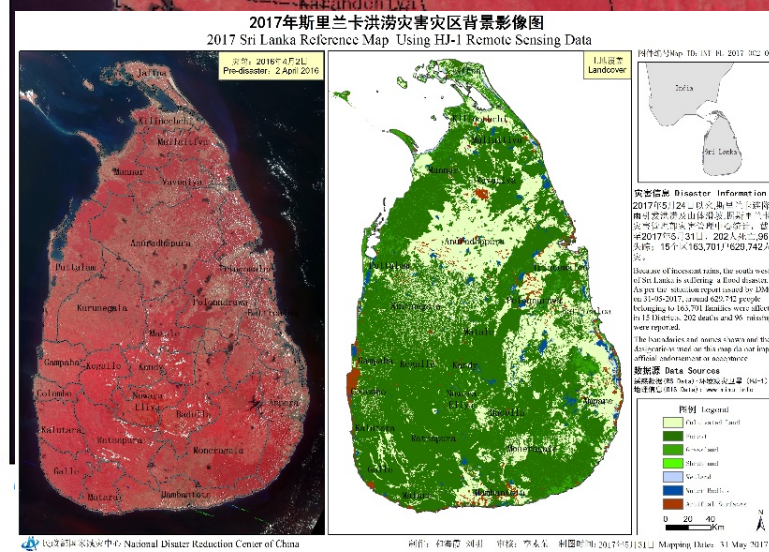
2017年斯里兰卡洪涝灾害遥感监测图(2017年5月30日)
2017 Sri Lanka Flood Extent Map (30 May 2017)



2017年斯里兰卡洪涝灾害遥感监测图(2017年5月31日)
2017 Sri Lanka Flood Extent Map (31 May 2017)



Flooded Area Extraction by GF-3 (SAR)



Content



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Comprehensive National Plan on Disaster Prevention and Reduction (2016-2020)



- ❖ Firmly set up and carry out the *new development concept*, focusing on **people-centered** development, accurately deal with the relation between disaster prevention, reduction and relief and social-economic development. Take the **prevention as major priority** combining the rescue work with relief together. Normal disaster reduction and abnormal disaster rescue work should be linked to **transfer the priority** from post- disaster rescue **to pre-disaster prevention**, from single-type disaster **to comprehensive disaster reduction**, from disaster losses reduction **to disaster risk reduction**.
- ❖ 5 Basic Rules; 9 Projected Objectives; 10 Major Tasks; **5 Major Projects**; 4 Implementation Measures.



Major Project 2: Disaster Reduction Application System of Civil Space Infrastructure



Observation

- ❖ Build the satellites constellation disaster reduction application system. Develop the capacity of comprehensive monitoring and analyses covering total factors of disasters and whole process.

Application

- ❖ To undertake the “sky-space-ground” integrated comprehensive application demonstration work in key areas to drive the satellite application for disaster reduction at the provincial and regional levels.

Service

- ❖ Set up satellite application for disaster reduction comprehensive information service platform providing space-based information service for neighboring countries and countries covered by the “One Belt and One Road Initiative”.

International Cooperation





Thanks