Integrating "Space" for Disaster Risk Reduction in China: from Policy to Practice

Suju Li

lisuju@ndrcc.gov.cn

National Disaster Reduction Center of China

February 7, 2018 Vienna

Content

- **Disaster and Disaster Management**
- **Space for DRR: from Policy to Practice**
- **International Cooperation**

Natural Disasters in China

China is one of the countries suffering most by natural disasters in the world with the characteristics of **Diverse Types, Wide Scope Distribution, High Frequency and Huge Losses.**

Land slide in Sichuan on June 24 2017 caused 10 people dead and 73 people missing.

140 million affected , 881 dead, 98 missing,
5.25 million relocated

153 thousand collapsed, 1.57million destroyed

18.5 million hectares damaged

314.7 billion RMB

Number of Natural Disasters in 2017

National Disaster Management System

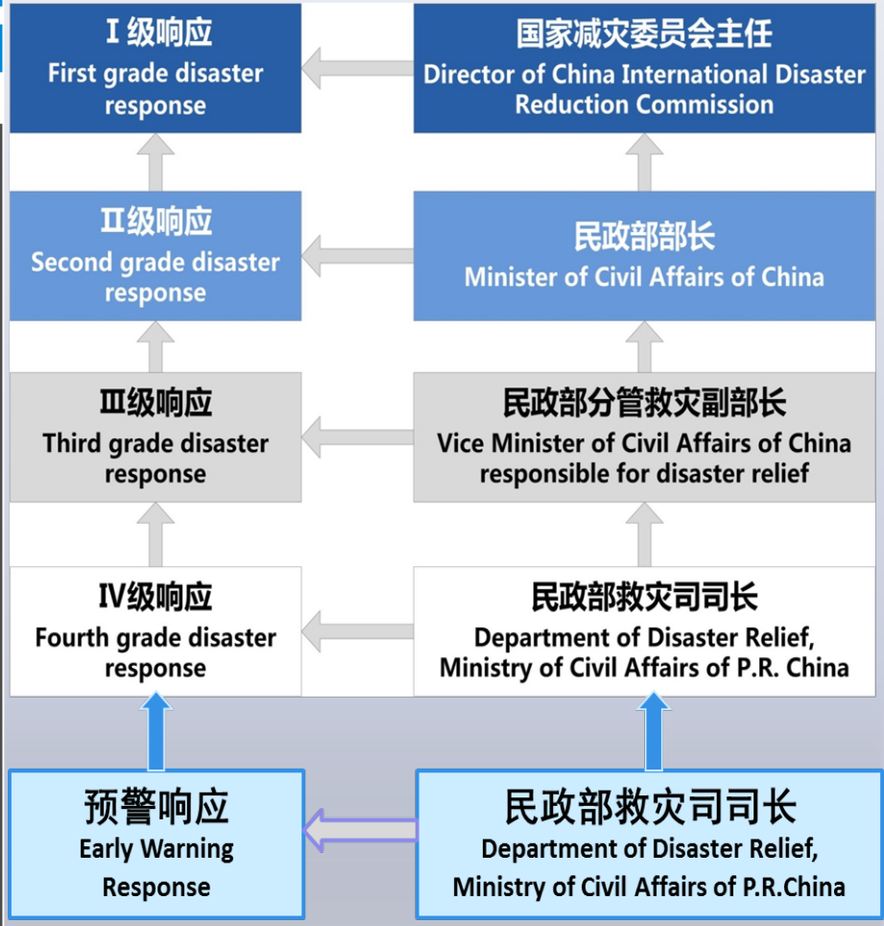
Organization: China National Commission for Disaster Reduction

Legislations: Natural disaster Relief Regulation and other legislations.

Policies: Issued by CPC, State Council and CNMDR.

Plans: Comprehensive National Disaster Prevention and Reduction Plan; National Emergency Plan on Natural disaster Relief and others.

Working mechanisms, procedures and standards at different levels.



Disaster Emergency Response System

National Polices on Disaster Prevention, Reduction and Relief

- The 19th National Congress Report of CPC :“to building up the capacity for disaster prevention, mitigation and relief “

- Opinions of the CPC Central Committee and the State Council on Promoting the Institutions and Mechanisms Reform of Disaster Prevention, Reduction and Relief issued on December 19, 2016.

- Comprehensive National Plan on Disaster Prevention and Reduction (2016-2020) issued by the State Council on December 29, 2016

Guiding Principles of National Disaster Prevention, Reduction and Relief

- 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. Increase comprehensive nature disaster prevention capacity in all-round manner for the whole society, finally to safeguard people's life and property security to be the firm foundation for building well-being society.

Content

- Disaster and Disaster Management
- Space for DRR: from Policy to Practice
- International Cooperation

Integrating “Space” for DRR Policy

Observation

- To build the satellites constellation application system and realize data integration for utilization from different satellites. Develop the capacity of comprehensive monitoring and analyses covering total factors of disasters and whole process.

Application

- To undertake the “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

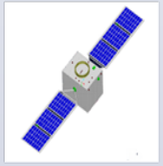
- Set up satellite application for disaster reduction comprehensive information service platform providing space-based information service for neighboring countries and countries covered by the “One Belt and One Road Initiative”.

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

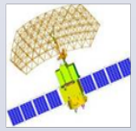
“Space” for DRR Practices - Data Accessing

HJ-1 constellation

HJ-1A



HJ-1B

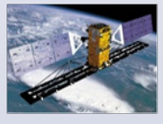


HJ-1C

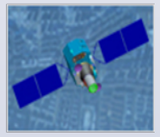
CHEOS satellites

GF-1

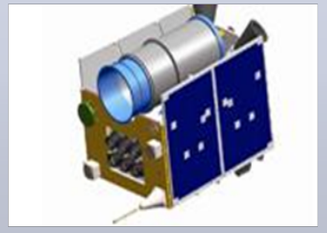
GF-2



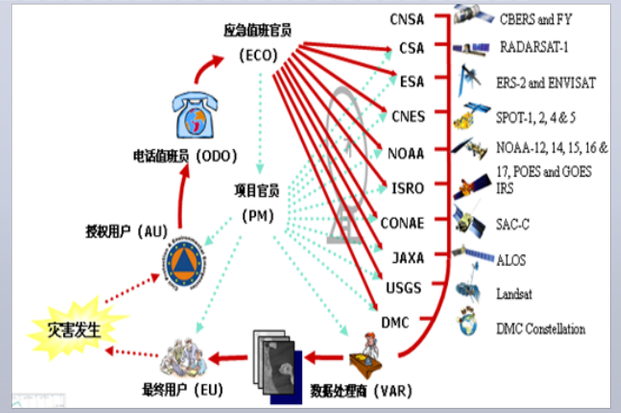
GF-3



GF-4

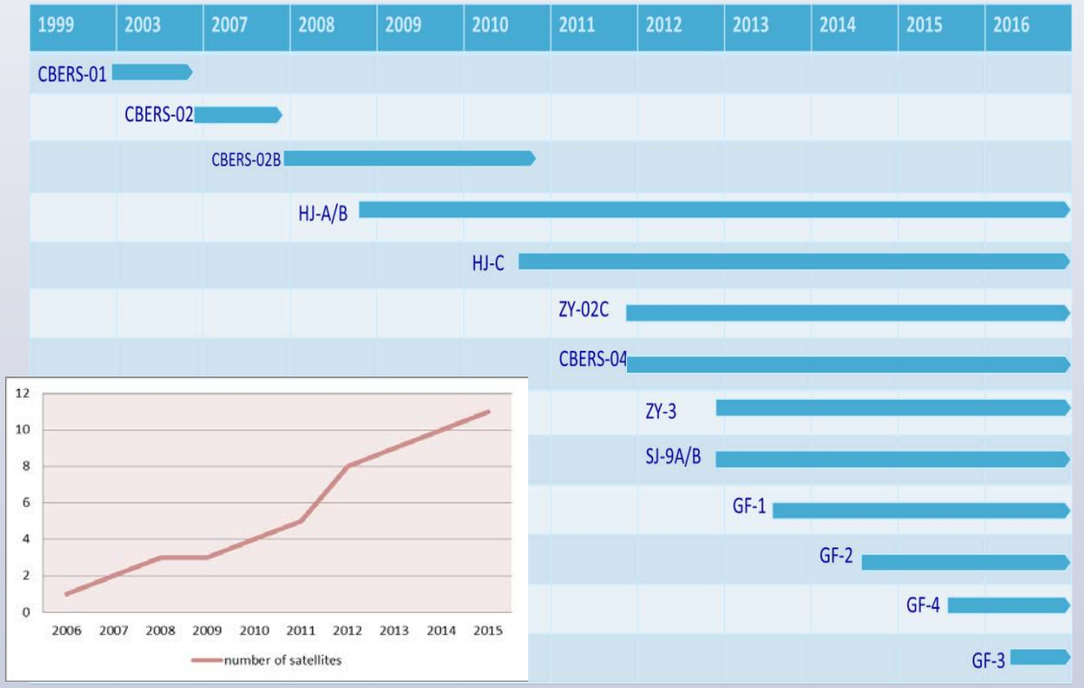


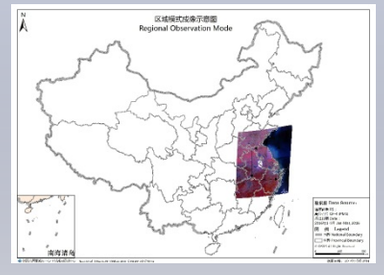
BJ-2

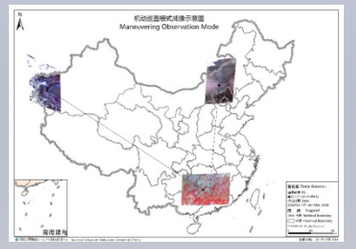


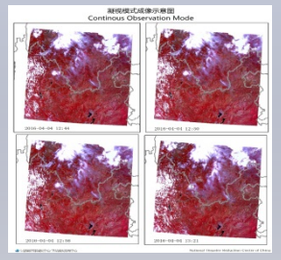
Domestic Sharing Mechanism

CHARTER





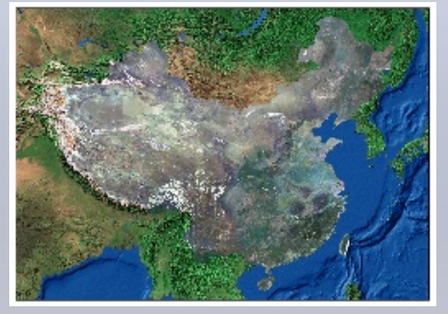


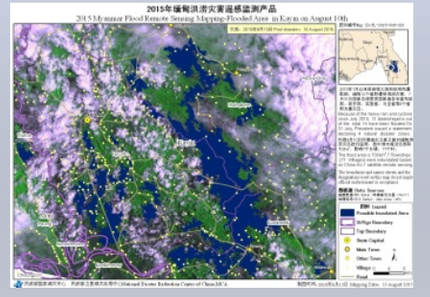


“Space” for DRR Practices –Products

Dynamic Disaster Monitoring

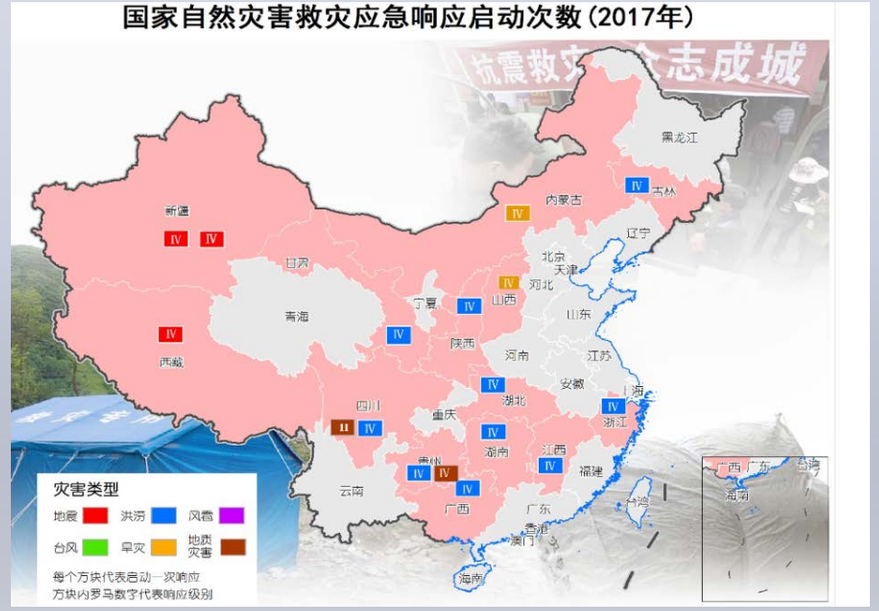
- RS Imagery Products
- Element Monitoring
- Risk Assessment
- **Emergency Monitoring**
- Recovery & Reconstruction



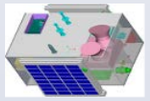


“Space” for DRR Practices –Emergency Monitoring

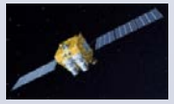
- Within **24** hrs --Get the 1st post disaster RS data.
- **5** kinds of disaster monitoring and loss assessment products



Satellite for Emergency



HJ-1

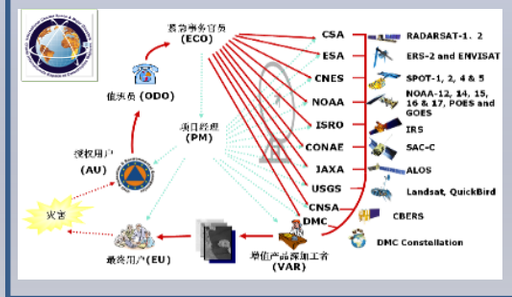


GF Serious

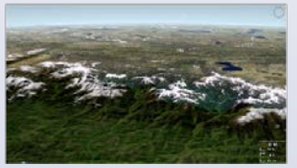
Commercial Cooperation

International Charter

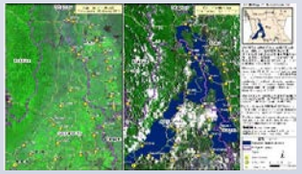
Others



Emergency Monitoring

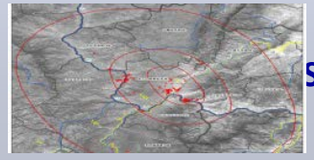


Reference Mapping



Delineation Mapping

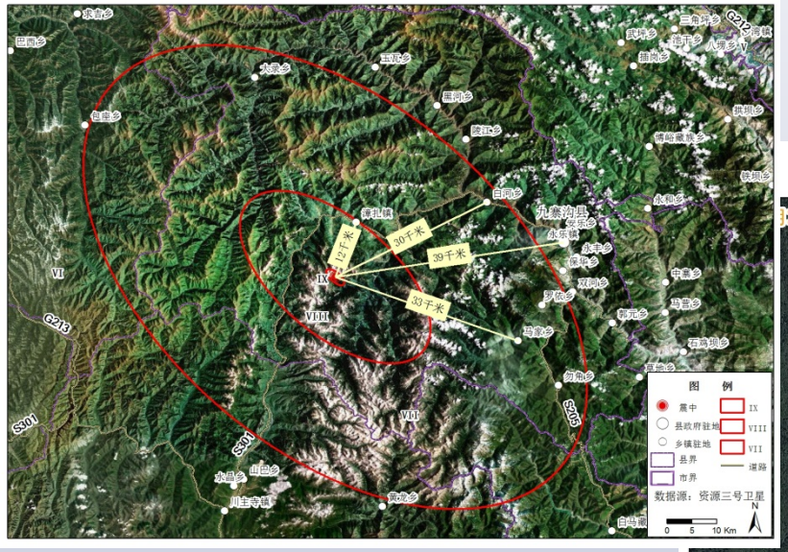
Damage assessment mapping



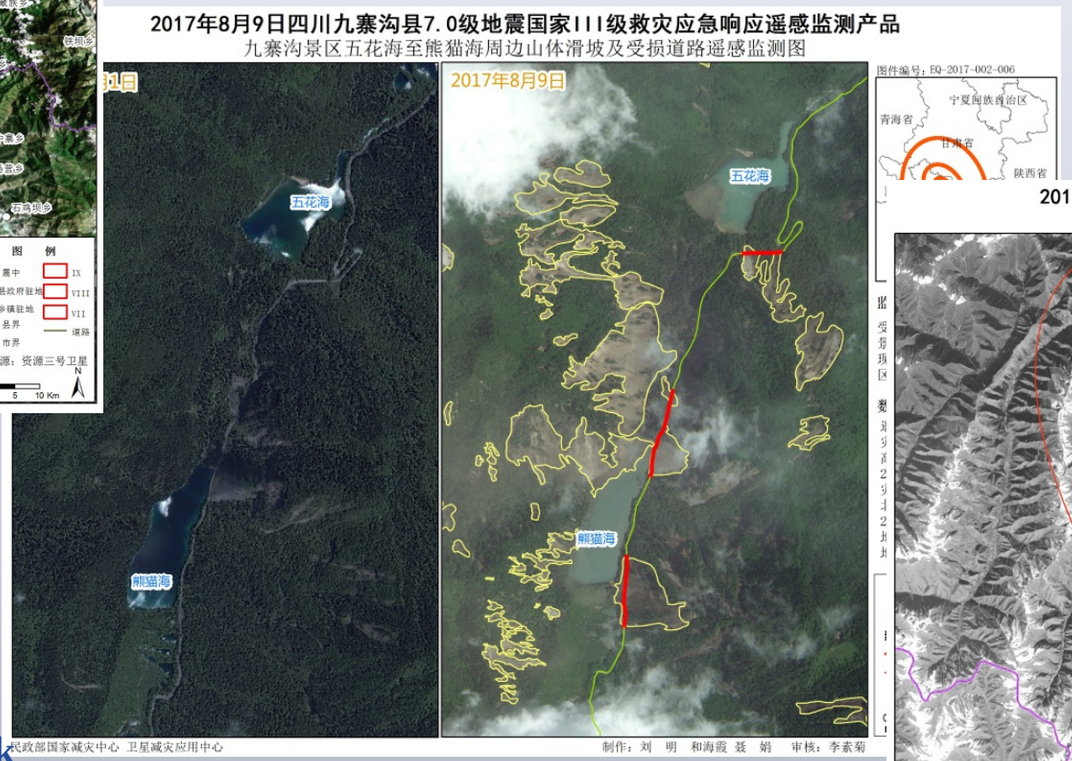
Secondary Disaster Monitoring

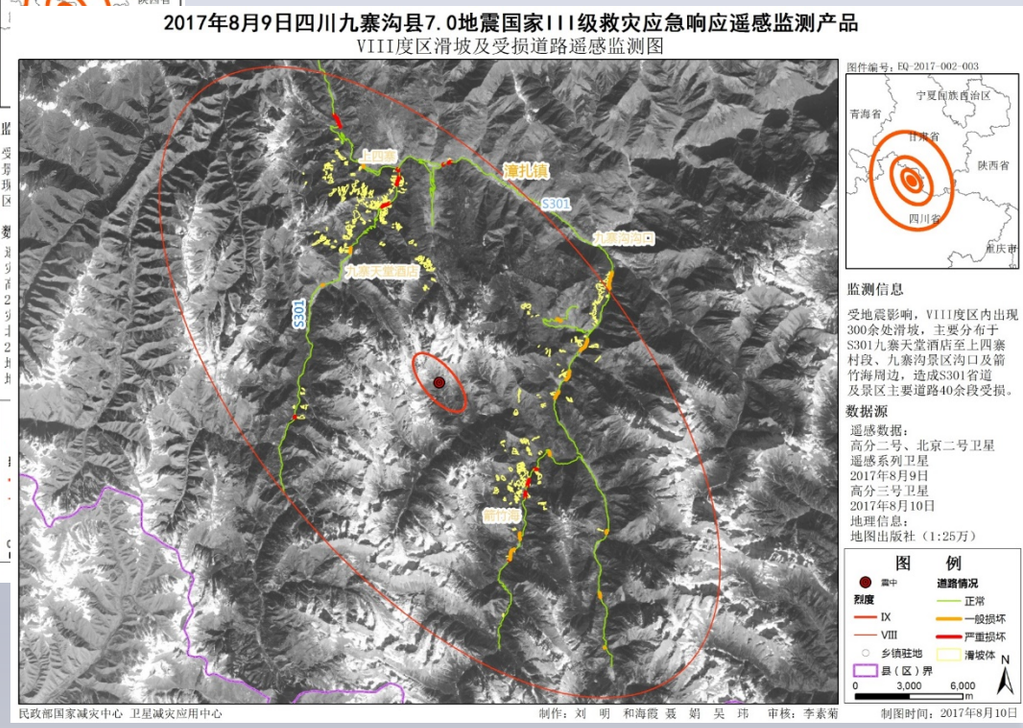
Disaster Relief Monitoring

Earthquake



mins





hours to days

1 week

A 7.0-magnitude earthquake struck Jiuzhaigou County, Sichuan province on August 8 2017, which resulted in the direct economic loss of 8.043 billion CNY.

Landslide

四川省茂县叠溪镇新磨村遥感影像图(一)

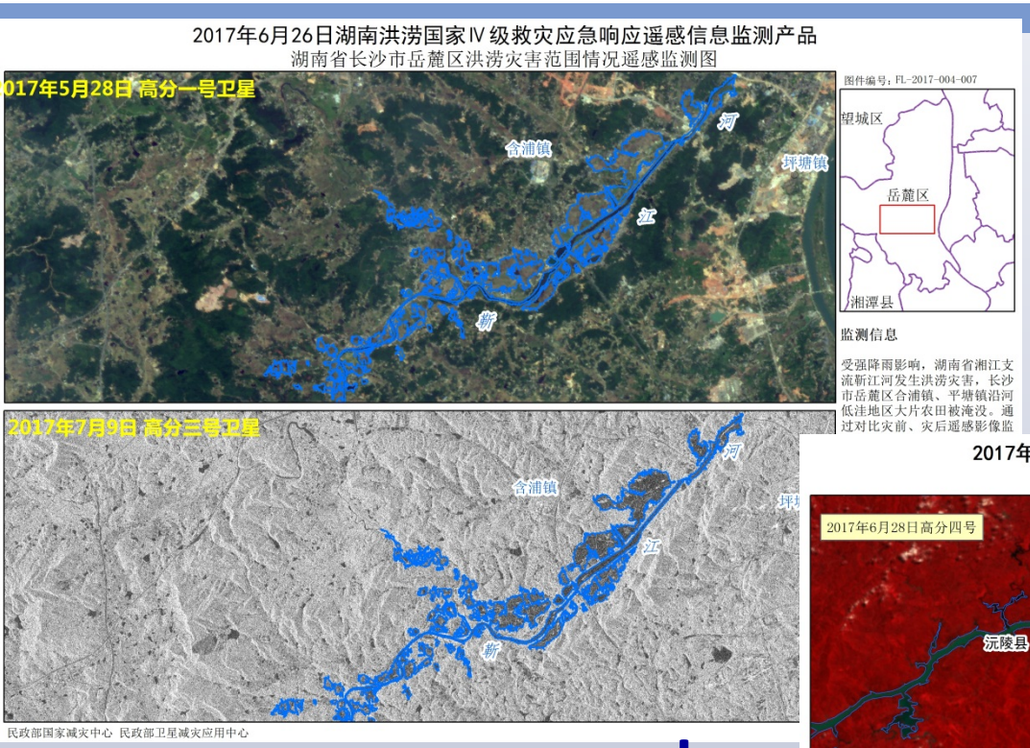
四川省茂县叠溪镇新磨村遥感影像图(二)

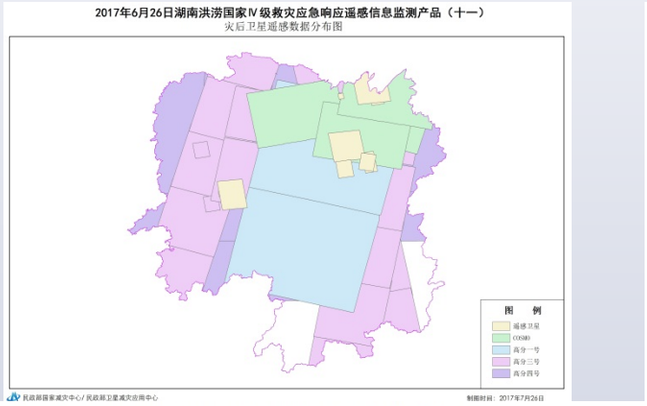
四川茂县山体垮塌灾害遥感监测图

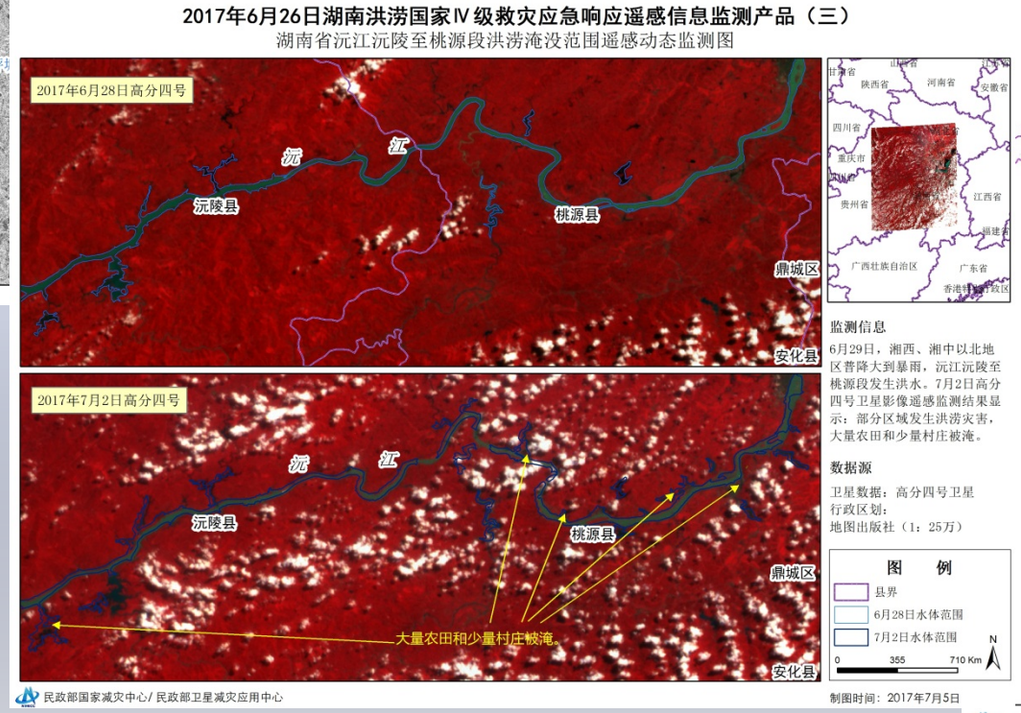
民政部国家减灾中心 卫星减灾应用中心

制图日期：2017年6月27日

Flood







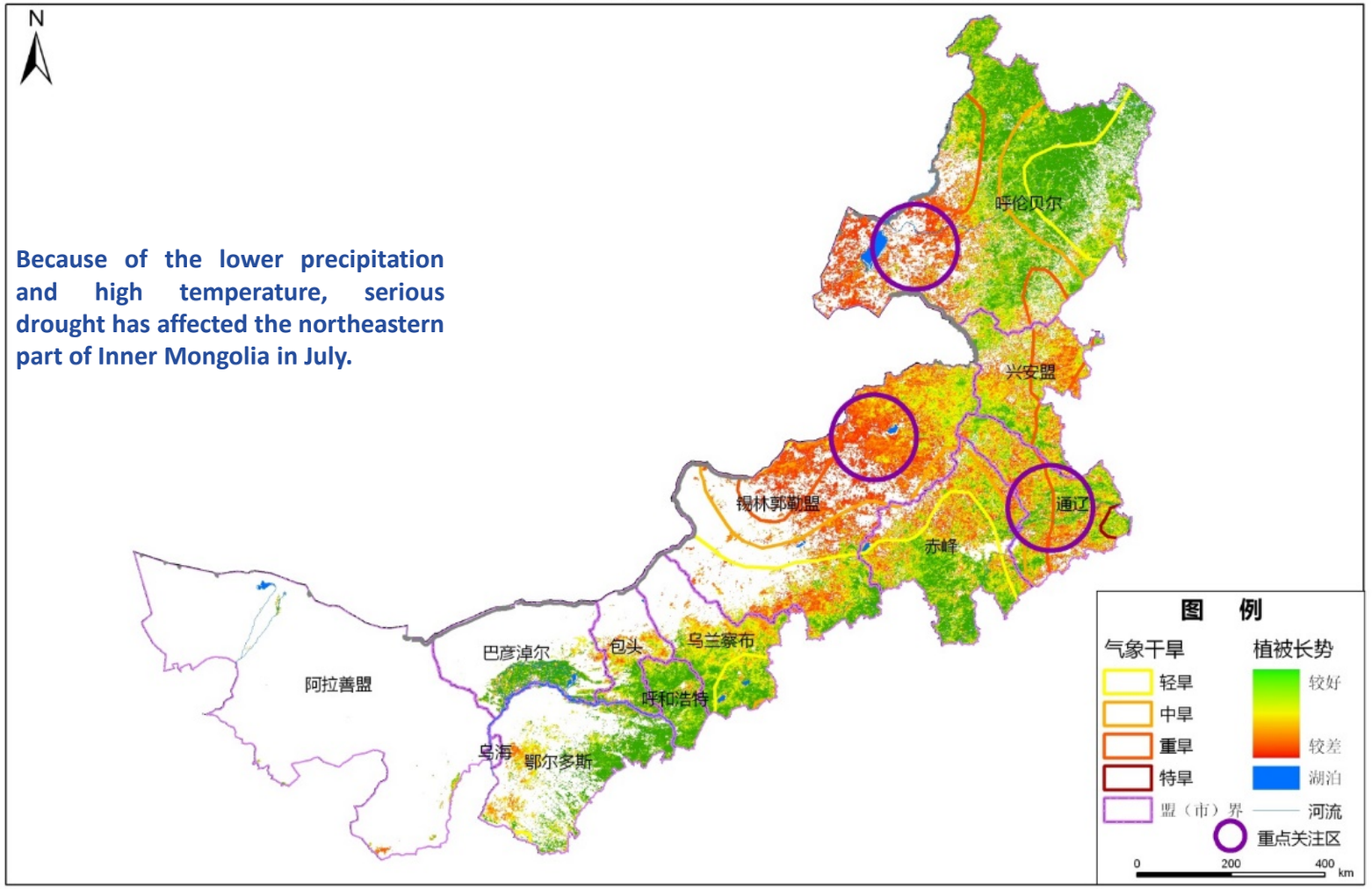
During late June to early July in 2017, northeastern part of Hunan province had suffered from serious flood by heavy rains

days

1 week

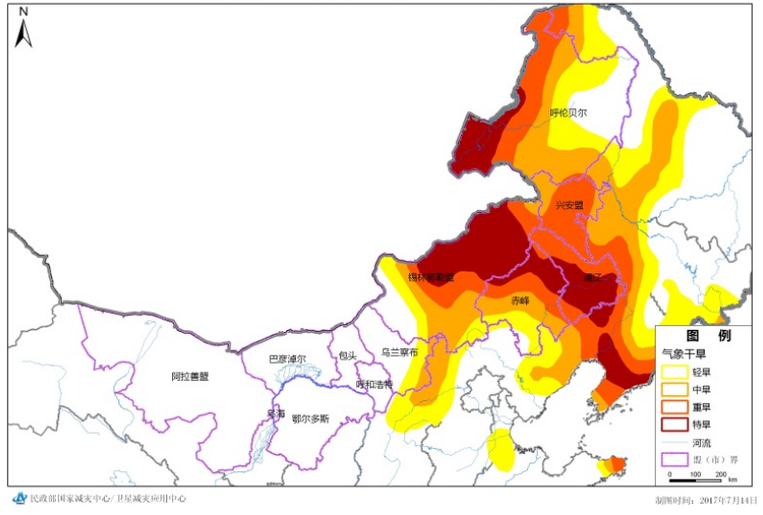
Drought

内蒙古自治区干旱遥感监测（2017年7月13日）

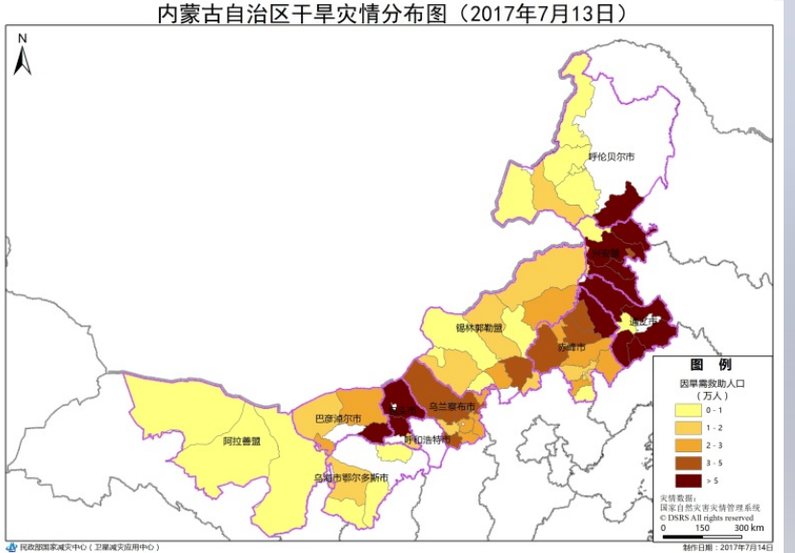


Because of the lower precipitation and high temperature, serious drought has affected the northeastern part of Inner Mongolia in July.

内蒙古自治区气象干旱监测图（2017年6月26日）



内蒙古自治区干旱灾情分布图（2017年7月13日）



Cyclone Recovery Monitoring

图2

江苏盐城6• 23龙卷风冰雹特别重大灾害房屋倒损遥感监测评估图

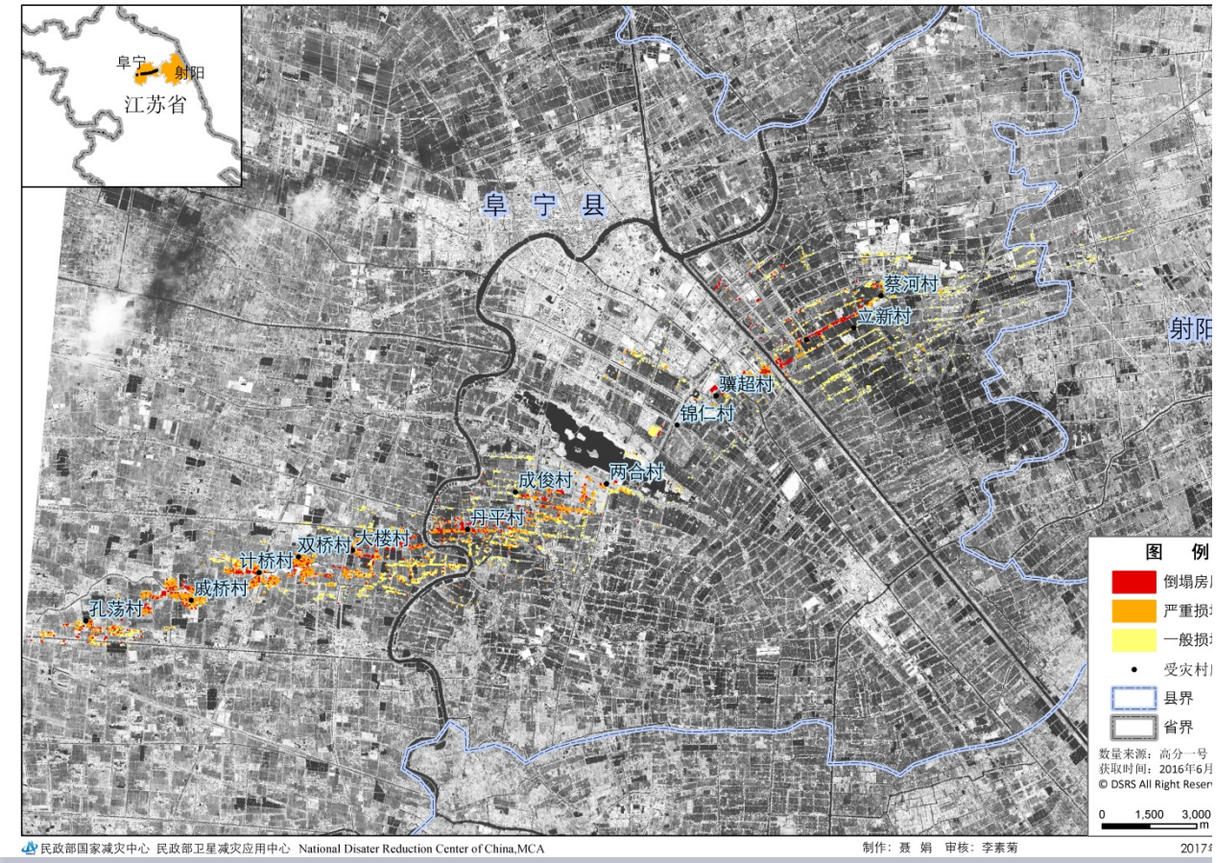
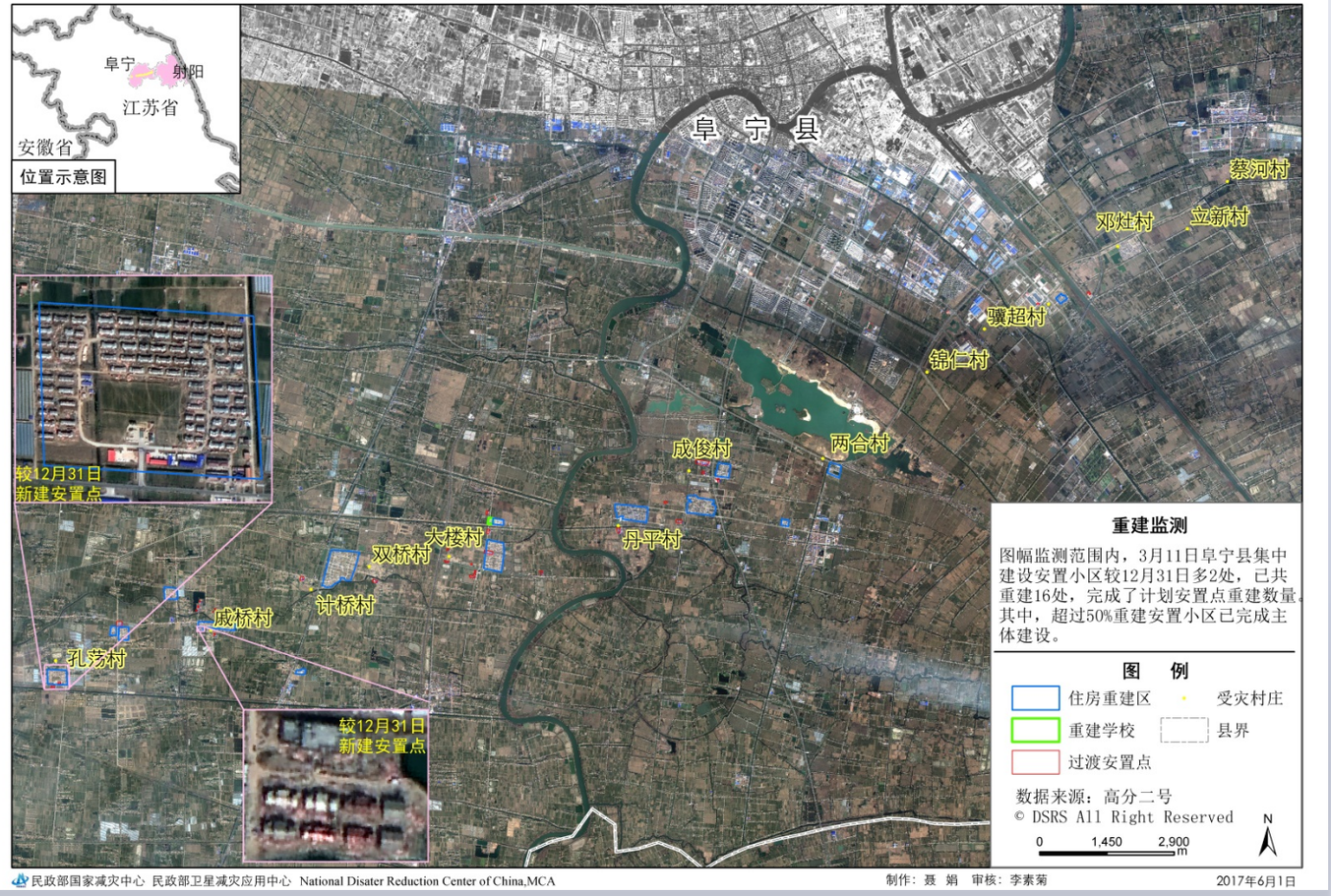


图4

江苏盐城6• 23龙卷风冰雹特别重大灾害恢复重建监测图-阜宁县（2017年3月11日）



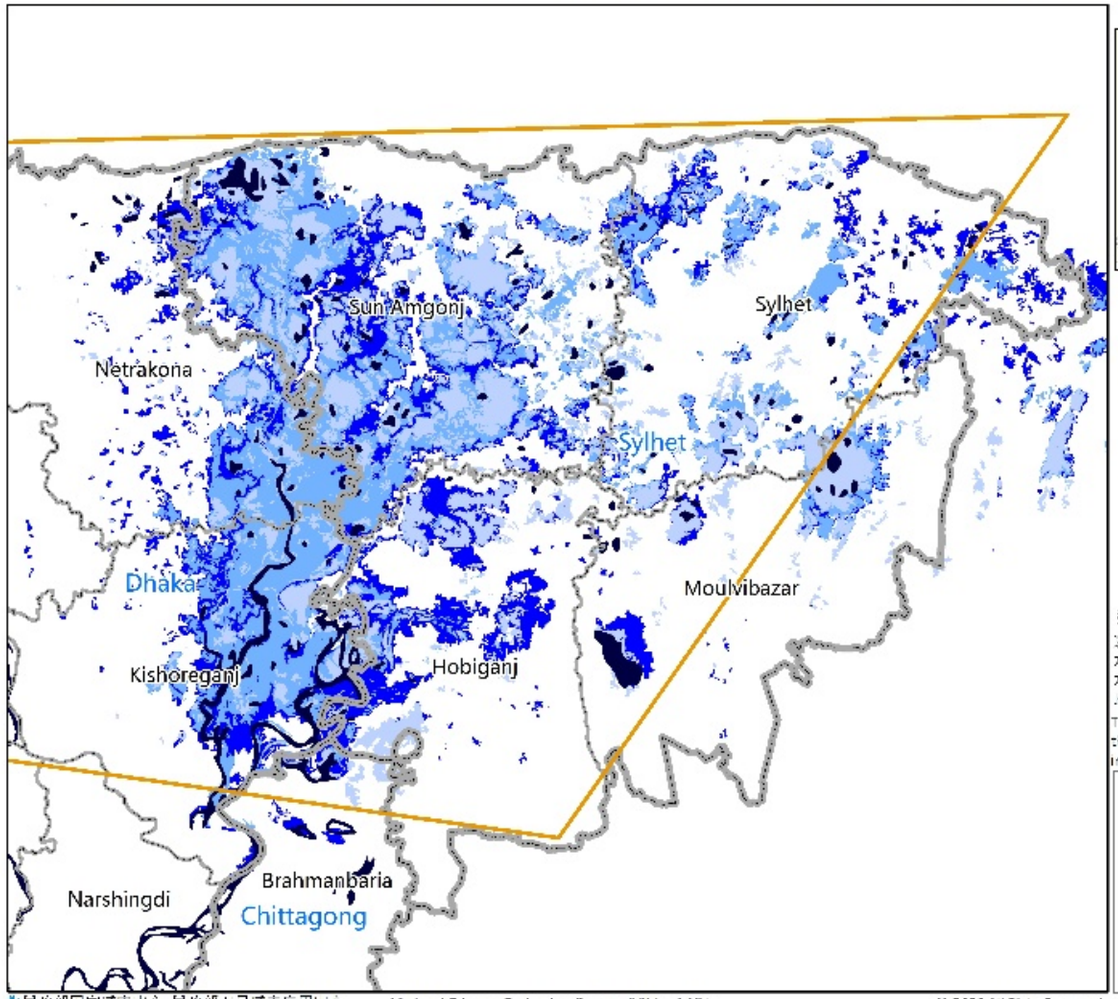
Content

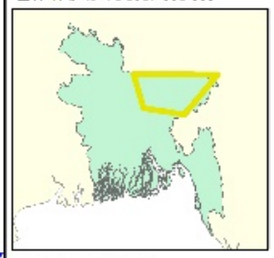
- Disaster and Disaster Management
- Space for DRR: from Policy to Practice
- International Cooperation

International Products Service – Flood in Bangladesh

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 Satellites on 04/05/2015, 08/05/2016 and 04/05/2017





Disaster Information

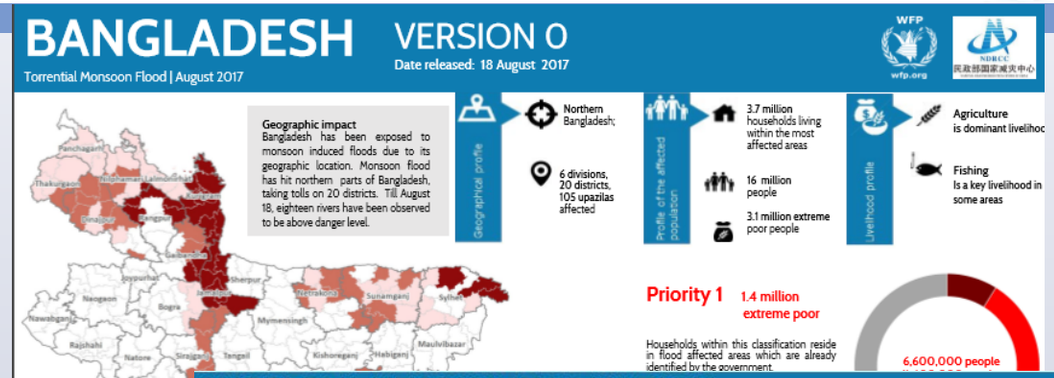
According to Relief Web: "Relative early monsoon rains have inundated vast areas of low paddy fields just before harvest rendering many struggling for livelihoods in Sun Amgonj, Bangladesh" Six districts (Sylhet, Sun Amgonj, Netrakona, Kishoreganj, Hobiganj, Moulvibazar) in the northeast region of Bangladesh has been seriously affected by the flood disaster, based on the water extraction throught satellite image on 4th May 2015, 8th May 2016, and 4th May 2017. The water area was about 2,700, 4,000 and 5,600 square km in 2015, 2016 and 2017.

数据源 Data Sources

遥感数据 RS Data:
2017, 高分1号卫星 GF-4
2015,2016, 高分一号卫星 GF-1
基础信息 GIS Data: OpenStreet Map

The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance.

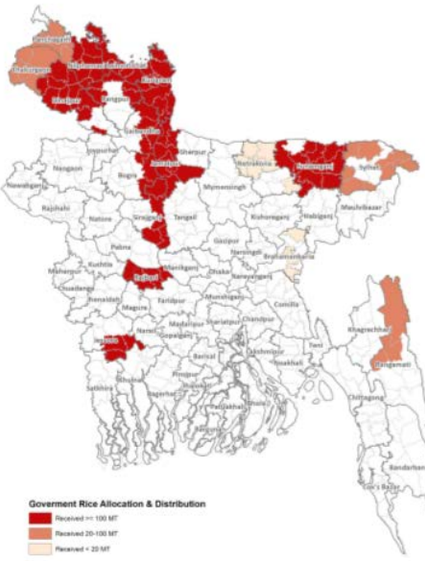
National Disaster Reduction Center of China,MCA © DSRS All Right Reserved 12 MAY 2017 2017年5月12日



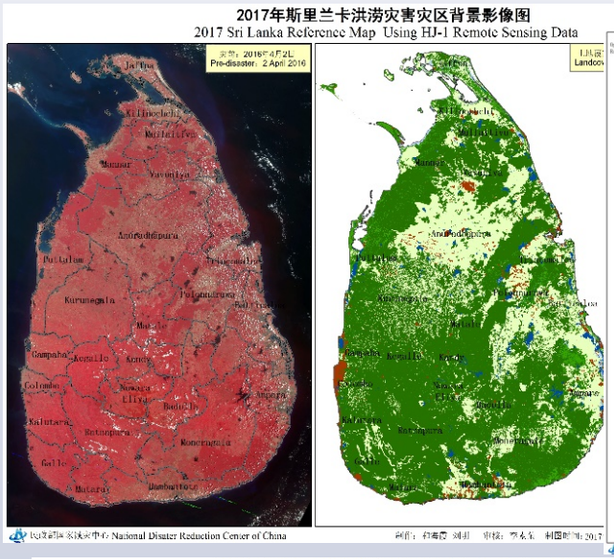
SUPPLEMENTARY INFORMATION

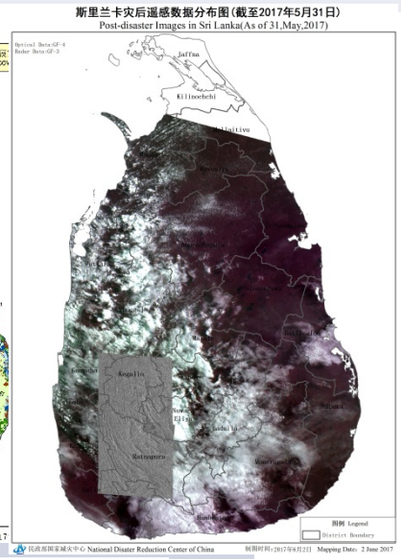
Flood affected area by satellite image as of August 17, 2017 from National Disaster Reduction Center of China (NDRC)

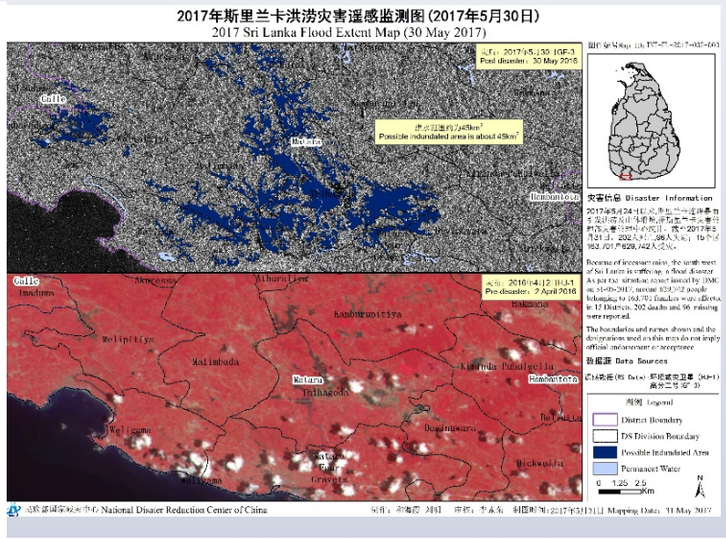
Rice Allocation and Distribution in flood affected areas til August 17, 2017 by MoDMR, Government of Bangladesh

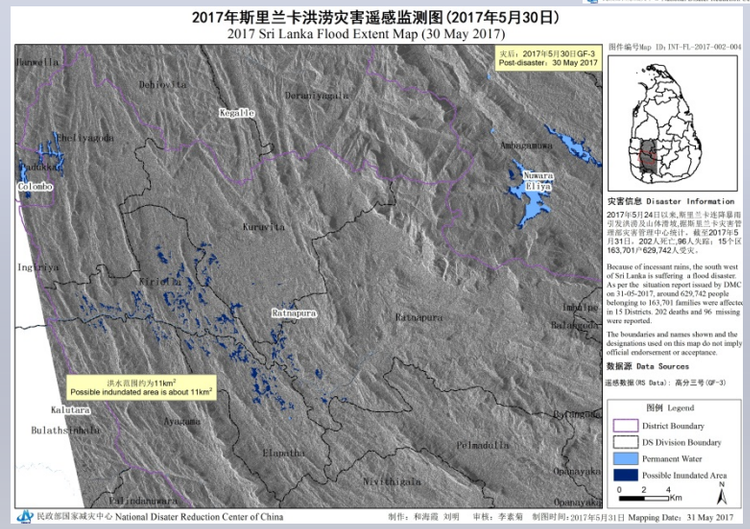


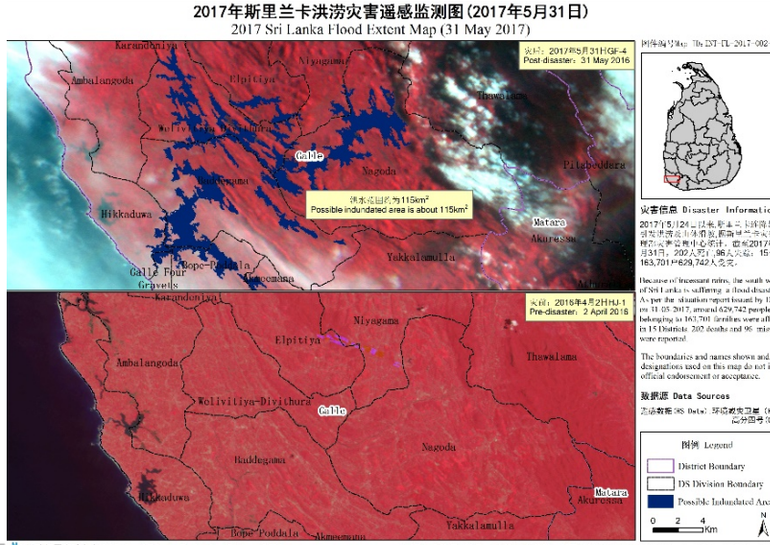
International Products Service- Flood in Sri Lanka











International Cooperation

- The 7th United Nations International Conference on Space-based Technologies for Disaster Risk Reduction - "Building Resilience through Integrated Applications“ organized by United Nations Office for Outer Space Affairs / UN-SPIDER and Ministry of Civil Affairs of the People's Republic of China was held in October 23 to 25 in 2017---**networking**.
- The funding agreement for supporting UN-SPIDER Beijing Office from 2017 to 2020 was signed for its operation and activities implementation--- **initiative**
- The 6th Training on space-based technology for disaster management collaborated by UN-SPIDER, APSCO, Beihang Univerisity and NDRCC--- **capacity building**
- Three major disasters were supported for the emergency responses by the activations of International Charter Space and Major Disasters--- **data delivery and mapping service**.

Thanks