



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

Suju Li

lisuju@ndrcc.gov.cn

National Disaster Reduction Center of China(NDRCC)

June 14 2017, Vienna



Content



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





Natural Disasters in China



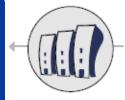
China is one of the countries most affected by natural disasters in the world.

- 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-vear)







Disaster Management System in China



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

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

and raliationaria



China National Commission for Disaster Reduction

中央宣传部

The publicity department of

the centeral committe of

the CPC

教育部

The ministry of education o the People's Republic

民政部

The ministry of civil affairs

of the People's

住房城乡建设部

Housing and urban-rural development of the People's Republic of China

商务部

The ministry of commerce

of the People's

Republic of China

安全监管总局

China seismological bureau

海洋局

中国科协

Republic of China

办公室

General Office

专家委员会

Board of Experts

国务院办公厅 外交部

General office of the state The ministry of foreign affairs council of the People's of the People's Republic of China

发展改革委

The national development and reform commission of the People's Republic of China

公安部

The ministry of public securit of the People's Republic

环境保护部

Environmental protection department of the People's Republic of China

农业部

The ministry of agriculture of the People's Republic of China

国资委

工业和信息化部

The People's Republic of China ministry of industry and information technology

国土资源部

The ministry of land and

resources of the People's

Republic of China

水利部

The ministry of water resources of the People's

Republic of China

The national health and family The state-owned assets planning commission of supervision and administration the People's Republic of China commission of the state council

新闻出版广电总局

The state general administration of press and publication, radio and television of the People's Republic of China

中科院

The Chinese academy of sciences

统计局

The national bureau of statistics of the People's Republic of China

气象局

The China meteorological

Republic of China

科技部

The People's Republic of

hina ministry of science ar

technology

财政部

The ministry of finance of

the People's Republic

of China

交通运输部

The ministry of transport of the People's

Republic of China

卫生计生委

林业局

The state forestry administration of the People's Republic of China

保监会

The China insurance

regulatory commission

总参谋部

自然科学基金会

The national natural science fund committee

The Chinese people's iberation army general staff

Headquarters of Chinese People's Armed Police Force

中国红十字总会

National geographic information bureau of

surveying and mapping

China association for Red Cross Society Of China

中国铁路总公司 China railway corporation

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》)日征图生贮图套 即印物从1419 1年日申申4011 仁

中华人民共和国中央人民政府

首页 > 信息公开 > 国务院文件 > 民政、扶贫、救灾 > 减灾救灾

축 引 号: 000014349/2016-00276 发文机关: 国务院办公厅

成文日期: 2016年12月29日 标 题: 国务院办公厅关于印发国家综合防灾减灾规划(2016-2020年)的通知

发布日期: 2017年01月13日 发文字号: 国办发(2016)104号

国务院办公厅关于印发国家综合防灾减灾 规划(2016-2020年)的通知

国办发〔2016〕104号

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(2016-2020年)》已经国务院同意,现印发给你们,请认真

贯彻执行。

国务院办公厅 2016年12月29日

互动

主肠分类: 民政、井贫、救灾\减灾救灾

(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、彰显民族凝聚力的一个重要方面。为贯彻落实党中



Disaster Management System in China



I 级响应

First grade disaster response

工级响应

Second grade disaster response

皿级响应

Third grade disaster response

IV级响应

Fourth grade disaster response

预警响应 Farly Warning

Early Warning Response

国家减灾委员会主任

Director of China International Disaster
Reduction Commission

民政部部长

Minister of Civil Affairs of China

民政部分管救灾副部长

Vice Minister of Civil Affairs of China responsible for disaster relief

民政部救灾司司长

Department of Disaster Relief, Ministry of Civil Affairs of P.R. China

民政部救灾司司长

Department of Disaster Relief,
Ministry of Civil Affairs of P.R.China

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

1 Early warning response and Emergency Response levels.

Work Procedures and mechanisms have been formed as working guidelines.

Space technology has been involved into national management system.



Content



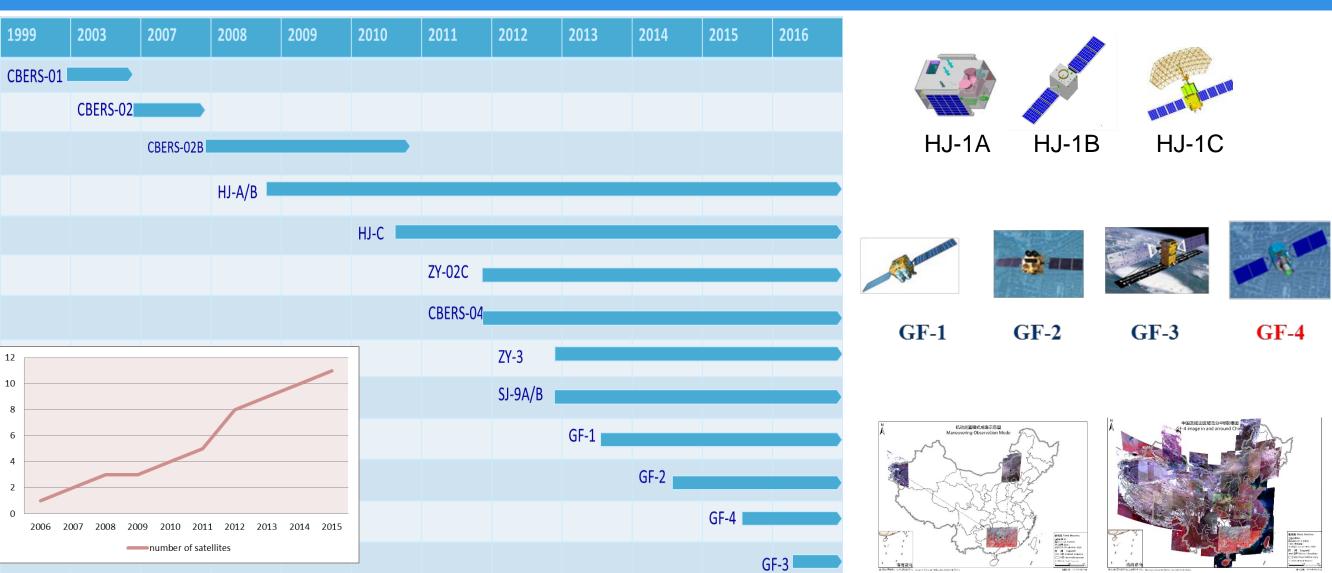
- Natural Disasters and Disaster Risk Management in China
- Space-based Information for Disaster Risk Management
- Way Forward





Earth Observation Satellites in China







Space-based Information Products System for Disaster Risk Reduction



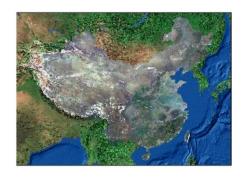
Satellite Imagery

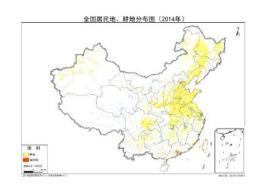
Risk Element Monitoring

Risk Assessment

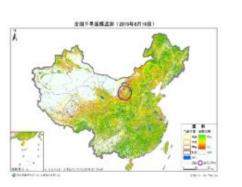
Emergency Monitoring

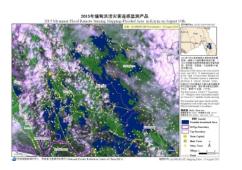
Recovery & Reconstruction

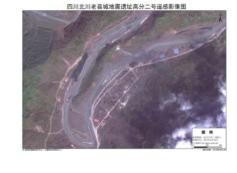


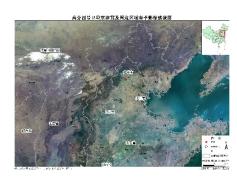


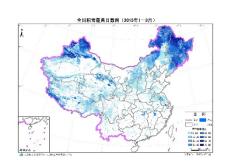
















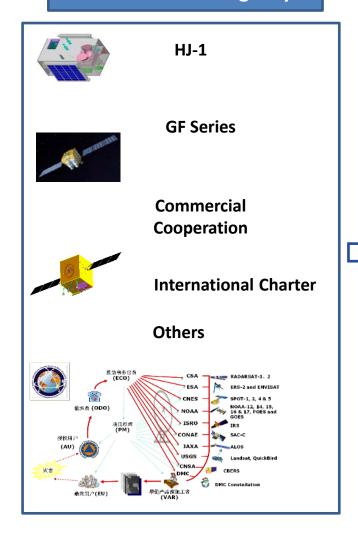


Emergency Monitoring



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

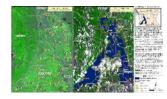
Satellite for Emergency



Emergency Monitoring



Reference Mapping



Delineation Mapping



Damage assessment mapping



Secondary Disaster Monitoring



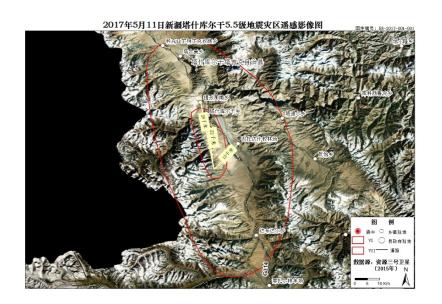
Disaster Relief Monitoring



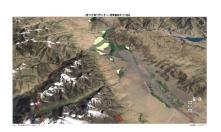
Earthquake



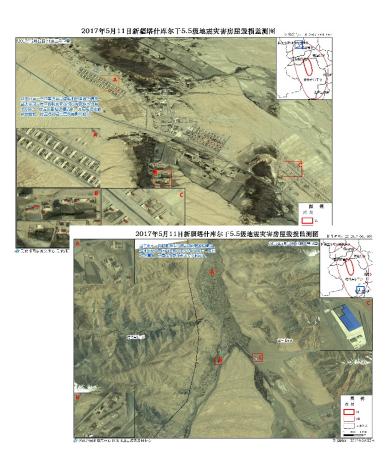
The 5.5-magnitude earthquake in Xinjiang, China on 11 May 2017







Residential and cropland distribution



House damaged monitoring



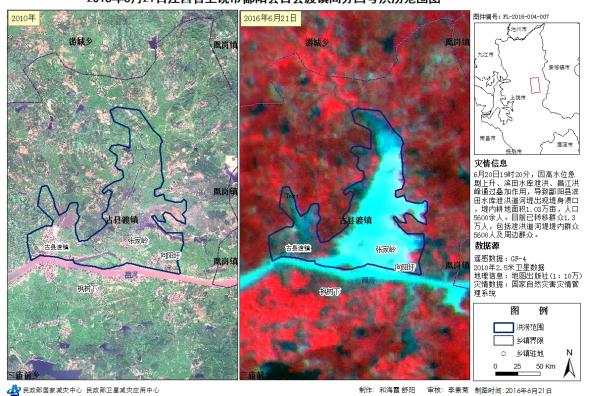
Emergency Relief Monitoring



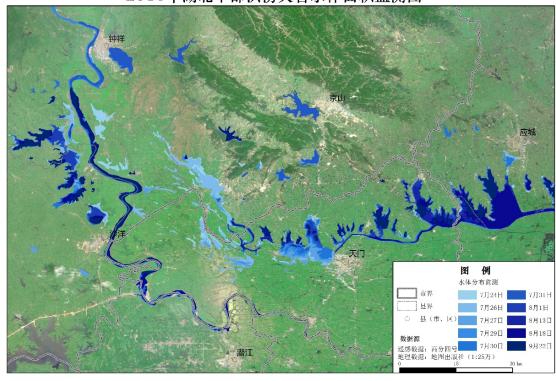
Flood



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

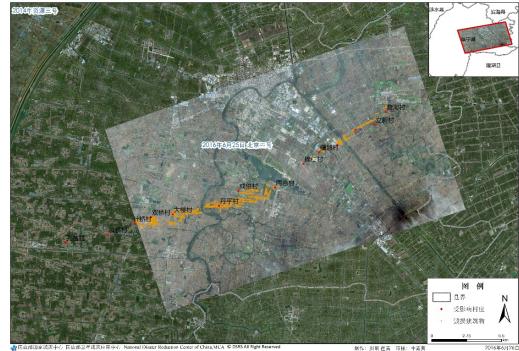


Tornado



The Tornado Mapping in Jiangsu (23 June 2016)

2016年6月23日江苏盐城龙卷风冰雹特别重大灾害遥感监测图



Damage Route

2016年6月23日江苏盐城龙卷风冰雹特别重大灾害遥感监测图



Damage Monitoring

2016年江苏盐城龙卷风冰雹特别重大灾害恢复重建遥感监测图



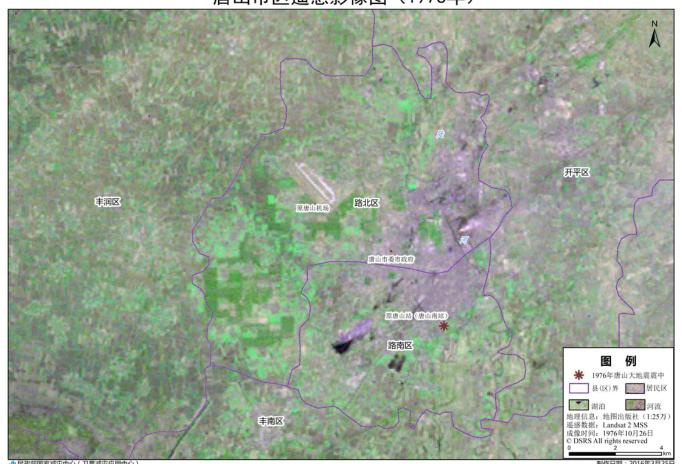
Reconstruction Monitoring



Earthquake Recovery & Reconstruction



唐山市区遥感影像图(1976年)



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



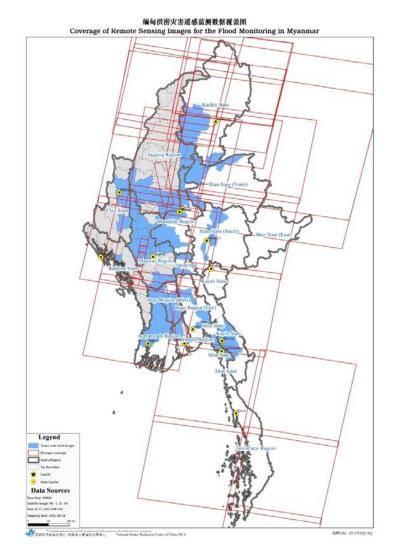
Recovery monitoring of 1976 Tangshan Earthquake

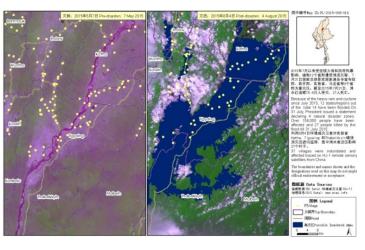


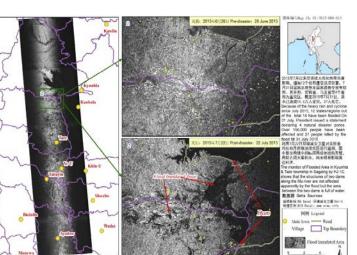
International Products Service-Myanmar

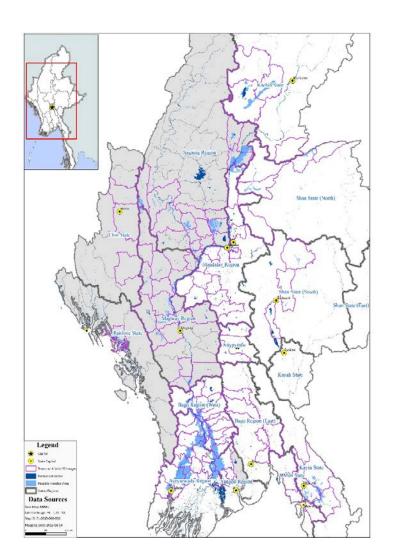


Flood Monitoring during July to August in 2015 and April to May in 2016







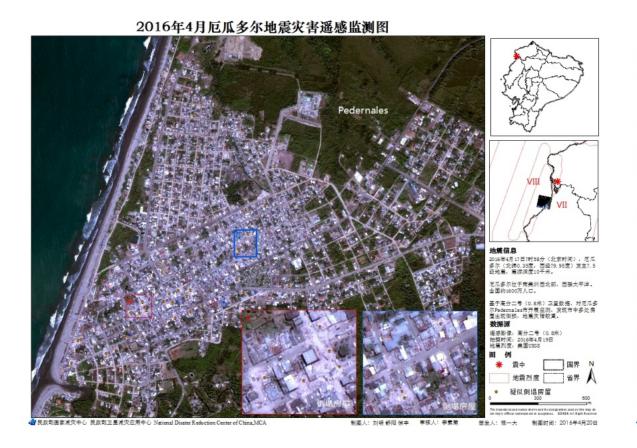




International Products Service-Ecuador



Earthquake in Ecuador (April, 2016)



2016年4月厄瓜多尔地震灾害遥感监测图 2016年4月17日7时58分(北京时间),巨瓜 多尔(北部0.35度,四种78.86度)发生7.5 级地震、災線深度10千米。 厄瓜多尔位于南美洲西北部。西接太平洋。 全国约1800万人口。 适于高分二号(0.8米)卫星发掘,对厄瓜多尔Protovicjo市开展整规,发现市区两南部出现多株房屋便毁。 避惑影像: 高分二号 (0.8米) 拍摄时间: 2016年4月19日 地震烈度: 美国USGS



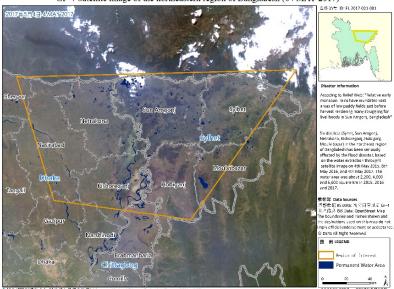
International Products Service - Bangladesh



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

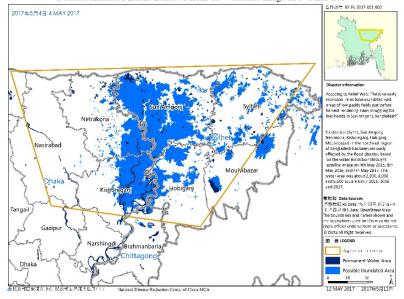
GF-4 Satellite image of the northeastern region of Bangladesh (04 MAY 2017)



Imagery Product

2017年5月4日孟加拉东北部洪涝遥感监测图

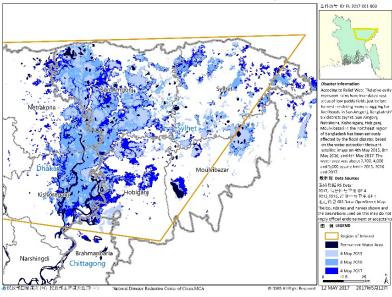
Possible Inundated Extent Extracted from GF-4 Satellite Image on 04 MAY 2017



Possible Inundated Extent Extraction by GF-4

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



Water Area Extraction during the some period from 2015 to 2017

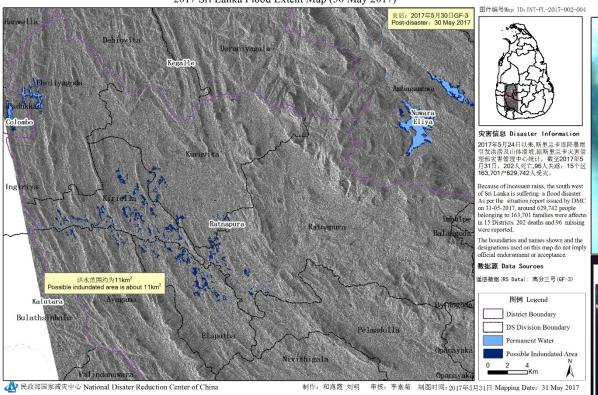


International Products Service-Sri Lanka Flood



2017年斯里兰卡洪涝灾害遥感监测图(2017年5月30日)

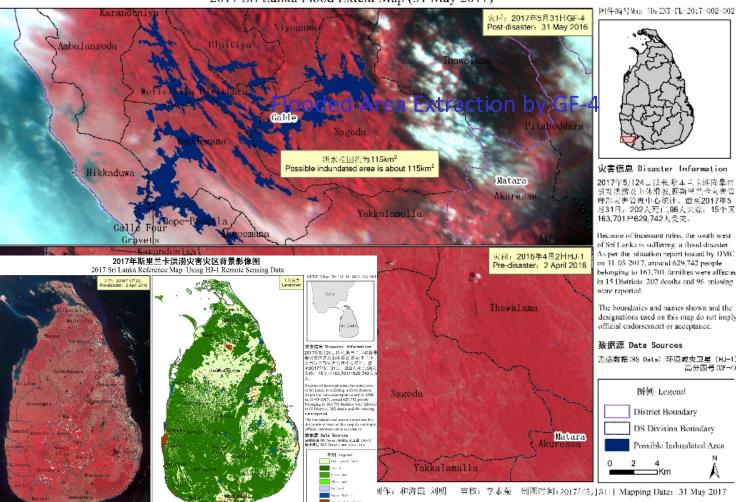
2017 Sri Lanka Flood Extent Map (30 May 2017)



Flooded Area Extraction by GF-3 (SAR)

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)





Content



- Natural Disasters and Disaster Risk Management in China
- Space-based Information for Disaster Risk Management
- Way Forward





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







