HJ-1 Small Satellites and Application for Disaster Reduction

National Disaster Reduction Center of China

Feb.11, 2010

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Content

Disaster Information in China in 2009

- China is one of the countries which suffers the most natural disasters in the world. In 2009, because of the natural disasters, there were

  - 480 million people affected；

  - 1528 people dead or missing；

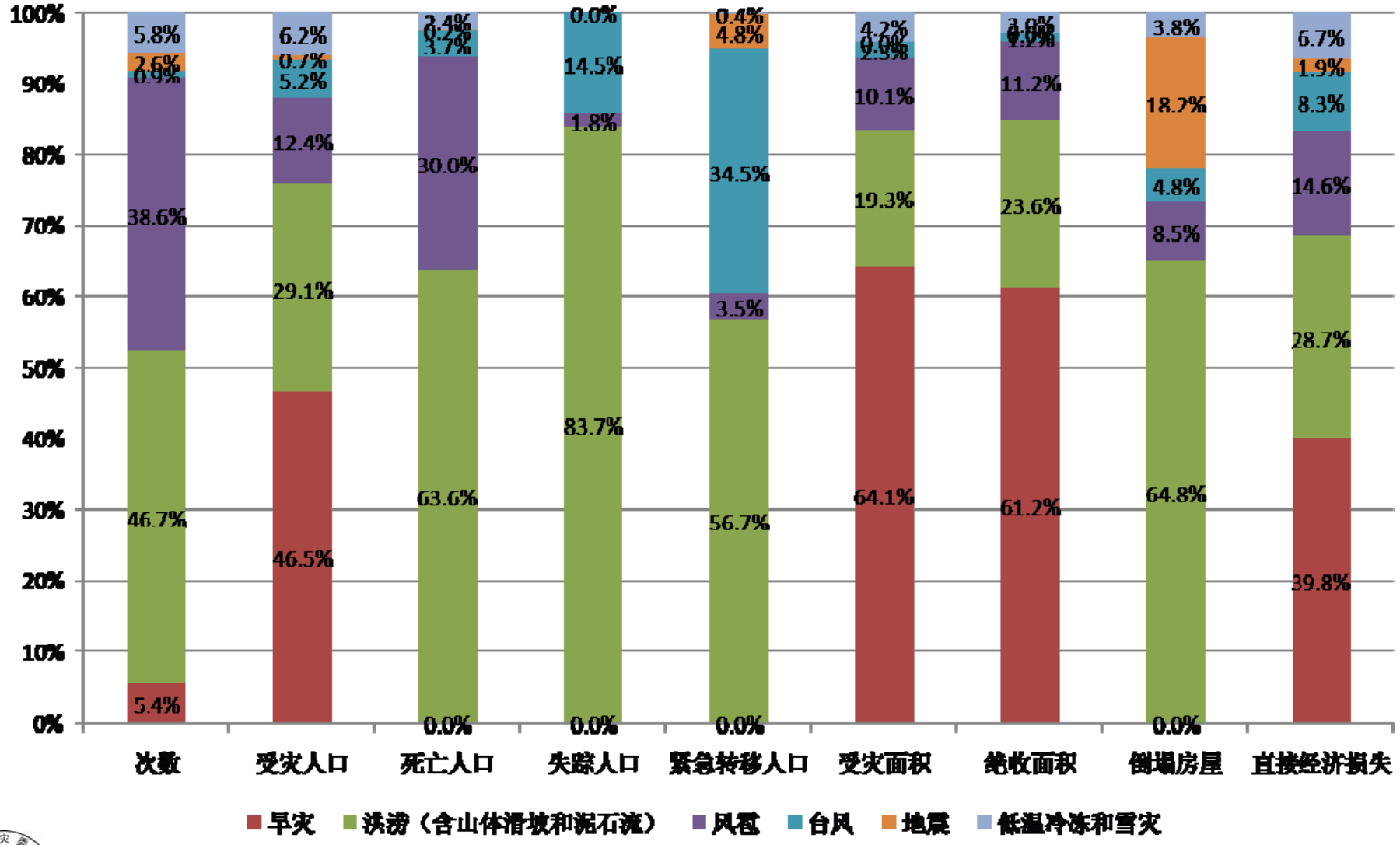
  - 7.1 million people evacuated and resettled；

  - 47.2 million ha crops affected；

  - 838 thousand houses collapsed.

  The direct economic loss is 252.3 billion RMB.

Figure of main natural disaster damage indexes

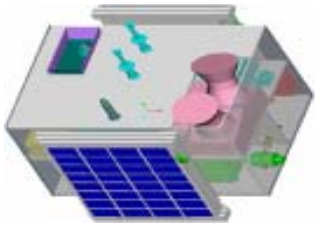


Drought Disaster Distribution Map in 2009

制作单位：国家减灾中心灾害信息部

制图时间：2009-11-20

Small Satellite Constellation for Environment and Disaster Monitoring



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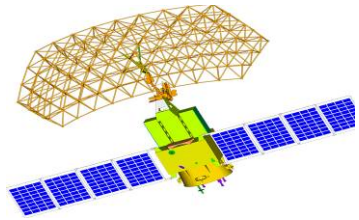
Constellation Construction Plan

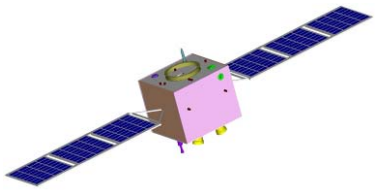
◆ On Sep.,6th 2008， China launched two optical **satellites named** HJ-1-A and HJ-1-B separately.

◆ A SAR small satellite named HJ-1-C will be launched in coming years.

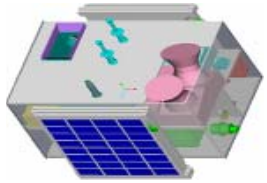
◆ The final object is to realize the plan of a constellation consisting of **four optical satellites and four SAR satellites**.



HJ-1-C



HJ-1-B



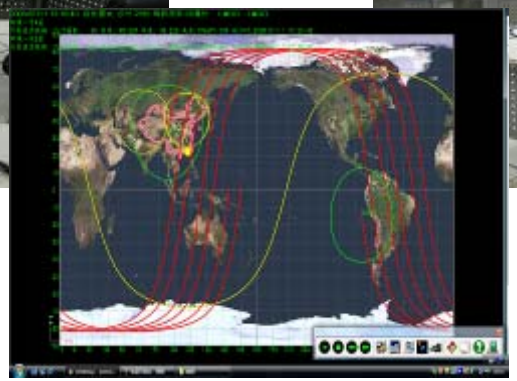
HJ-1-A

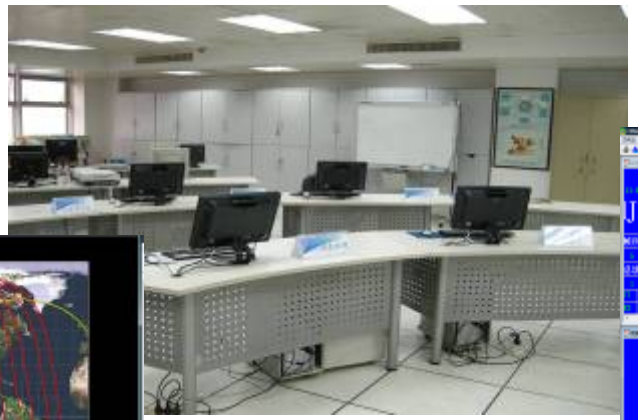
Satellites Parameters

Satellite	Payload	Spatial Resolution (m)	Swath（km）	Band Number	Revisit time (hour)
HJ-1-A	CCD	30	700	4	96
	HSI	100	50	115	96
HJ-1-B	CCD	30	700	4	96
	IRS	B1、B2、B3：150 B4：300	720	4	96

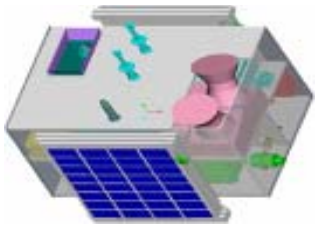
Operation Management

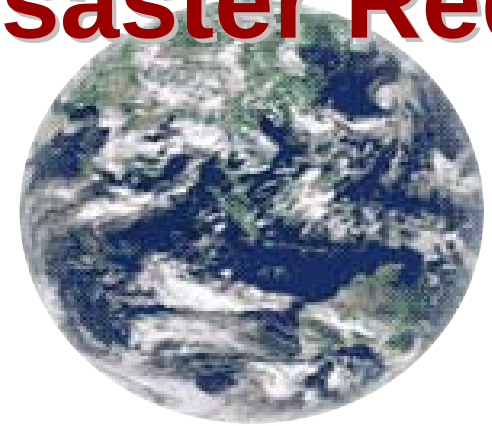
National Disaster Reduction Center of China (NDRCC) is in charge of the operation management of the HJ-1-A/B satellites. Till now, the satellites and payloads are in well operation conditions. There are totally more than 3,400 orbit of images have been acquired and the tasking time of the two satellites is more than 400 hours since being launched. Totally more than 170,000 scenes images were acquired.





Space Technology Application for Disaster Reduction





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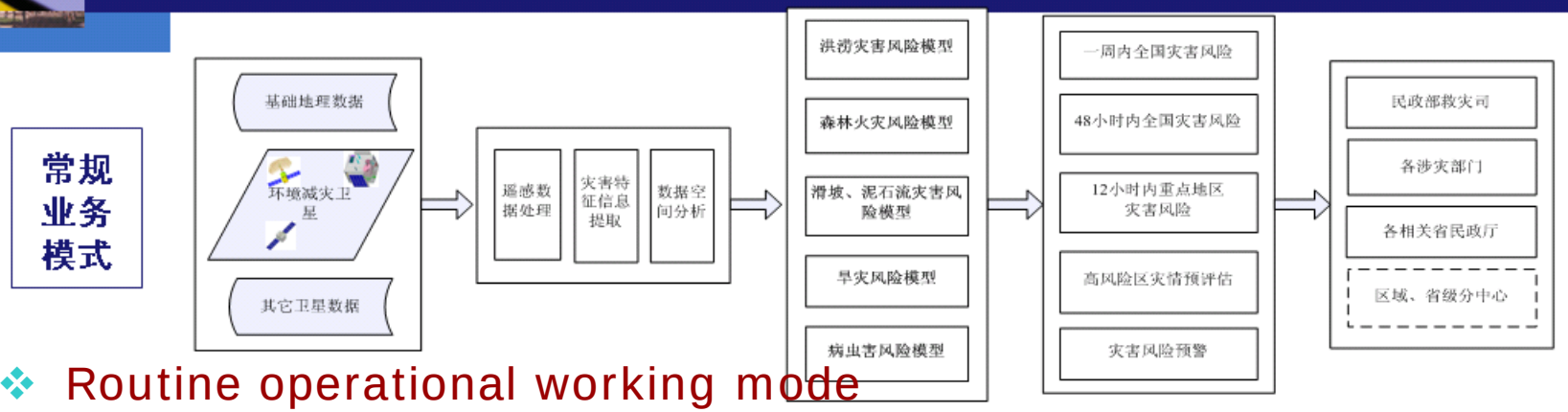
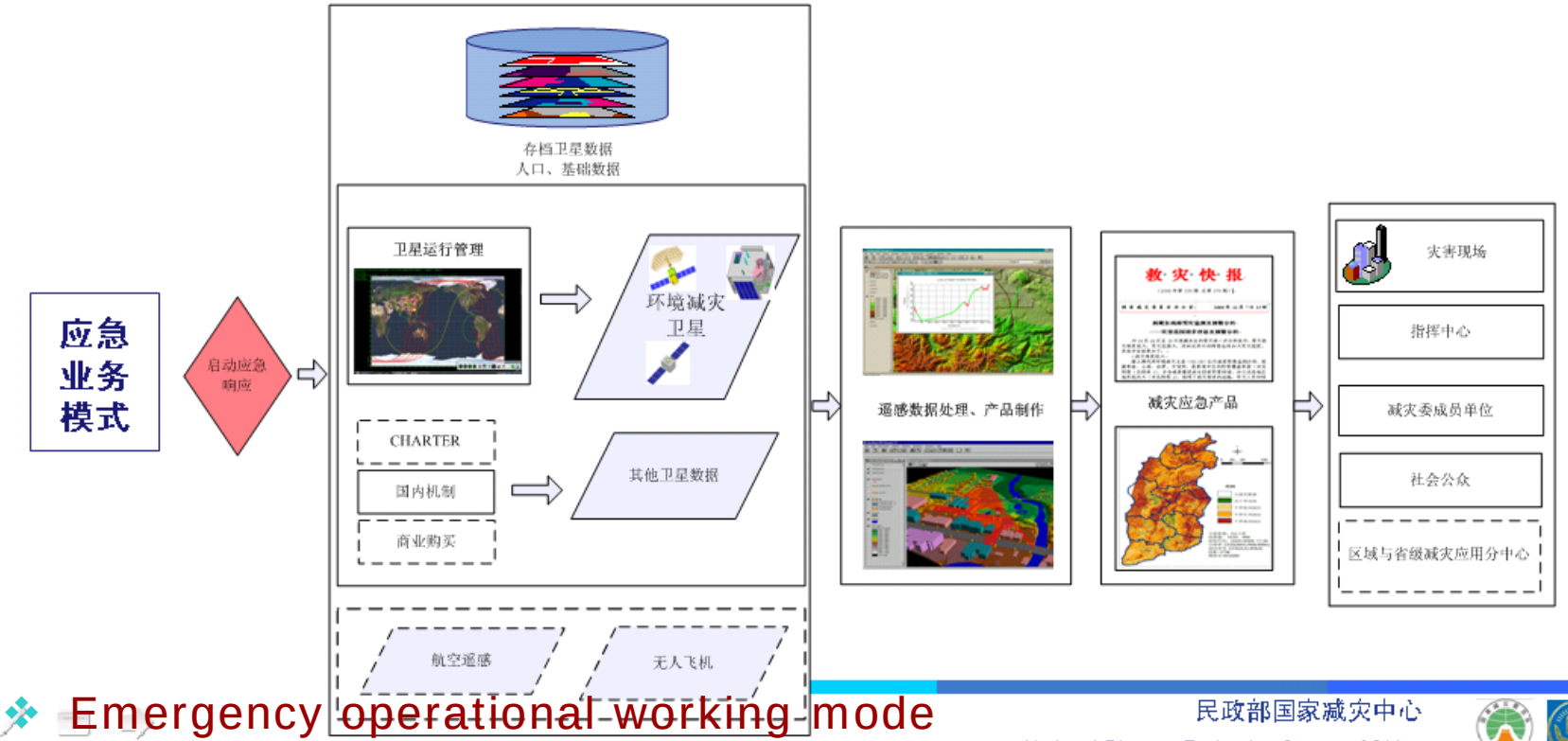
Operational Working Modes



❖ Routine operational working mode

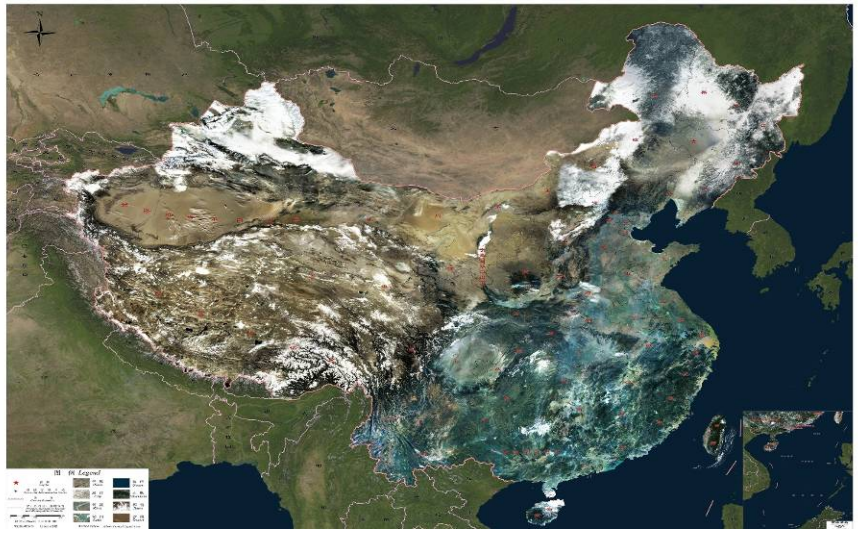


❖ Emergency operational working mode

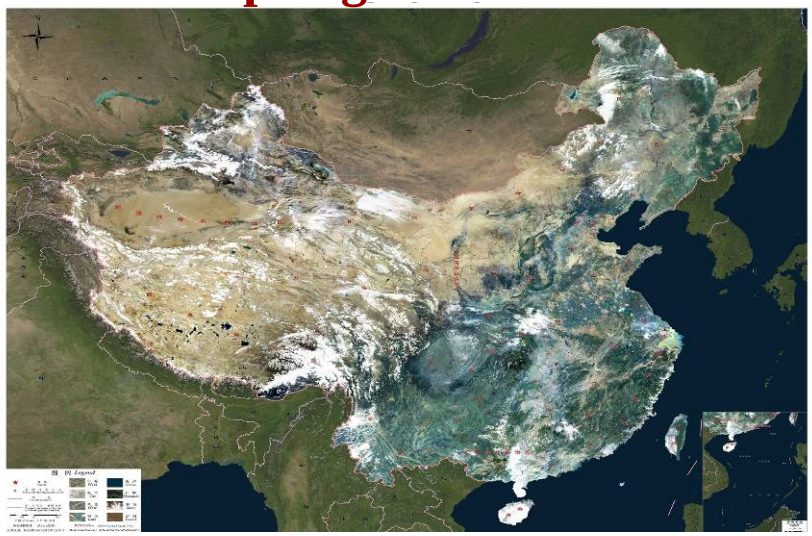
Products System

China Mosaic Maps for Different Seasons

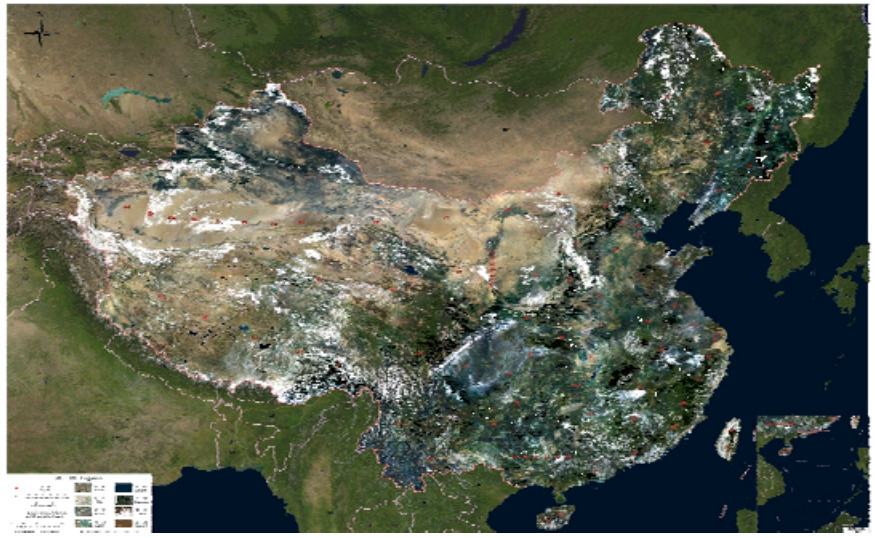
Winter in 2008



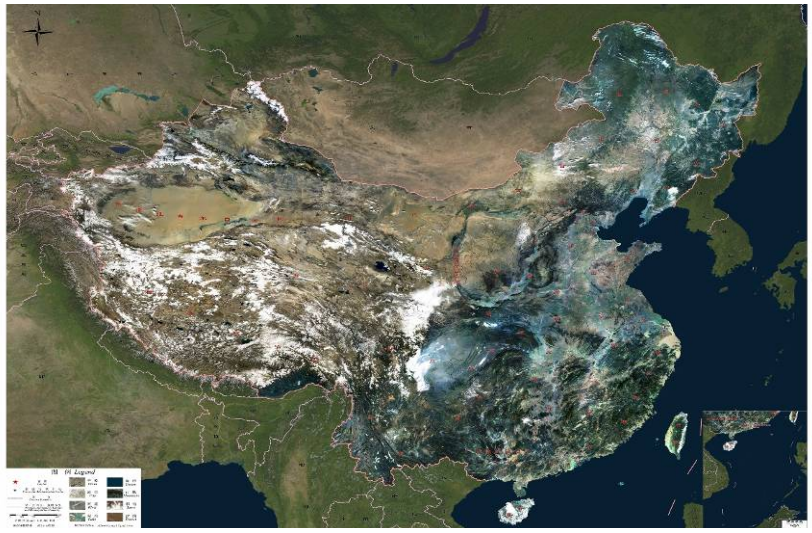
Spring in 2009



Summer in 2009

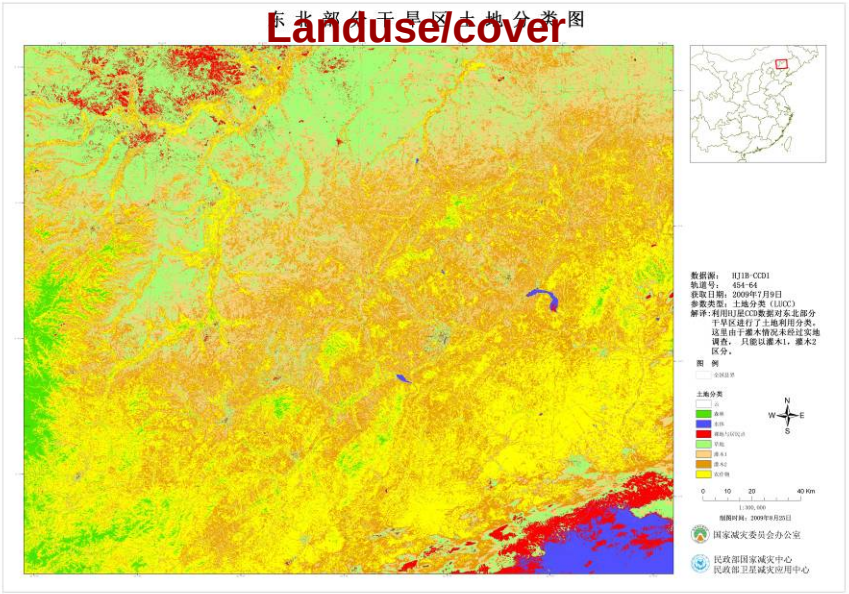


Autumn in 2009

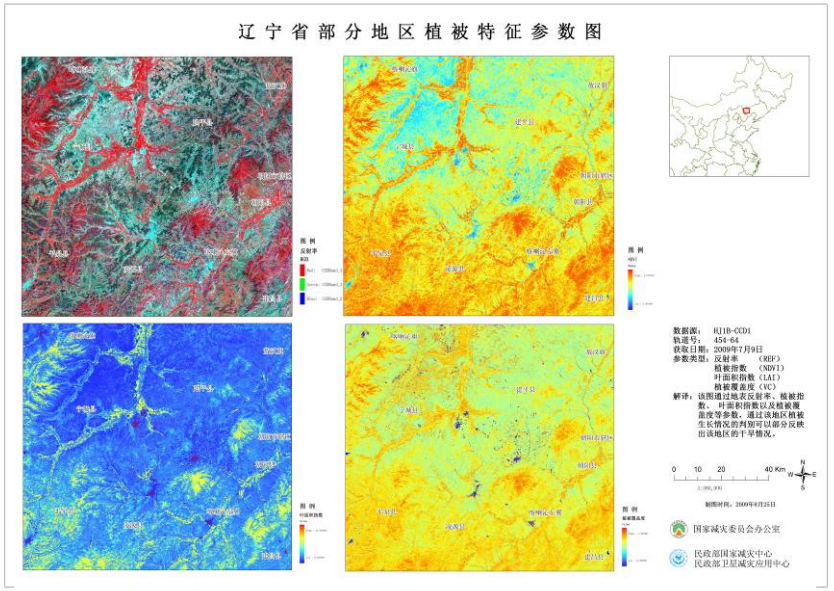


Background Parameters Extraction

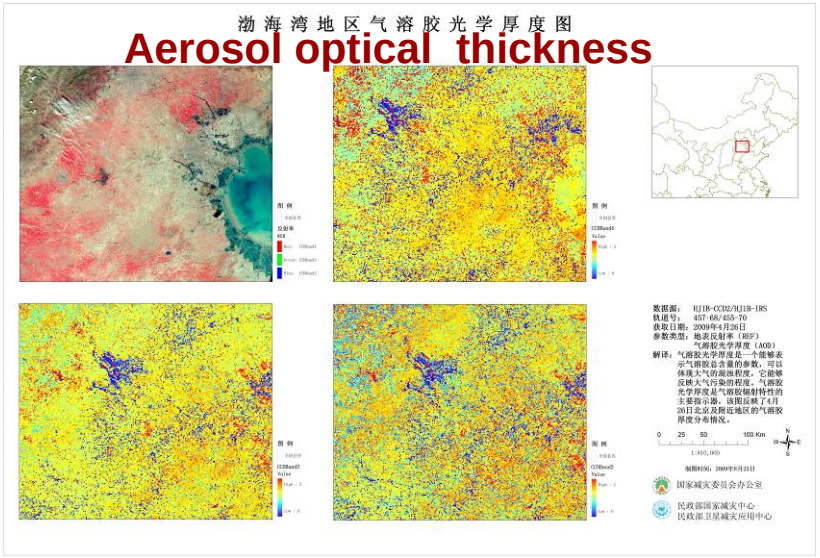
Landuse/cover



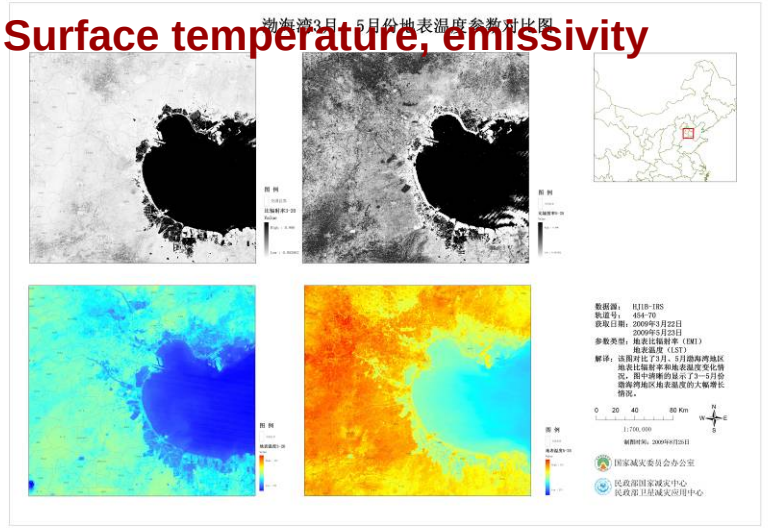
Vegetation characteristic parameters



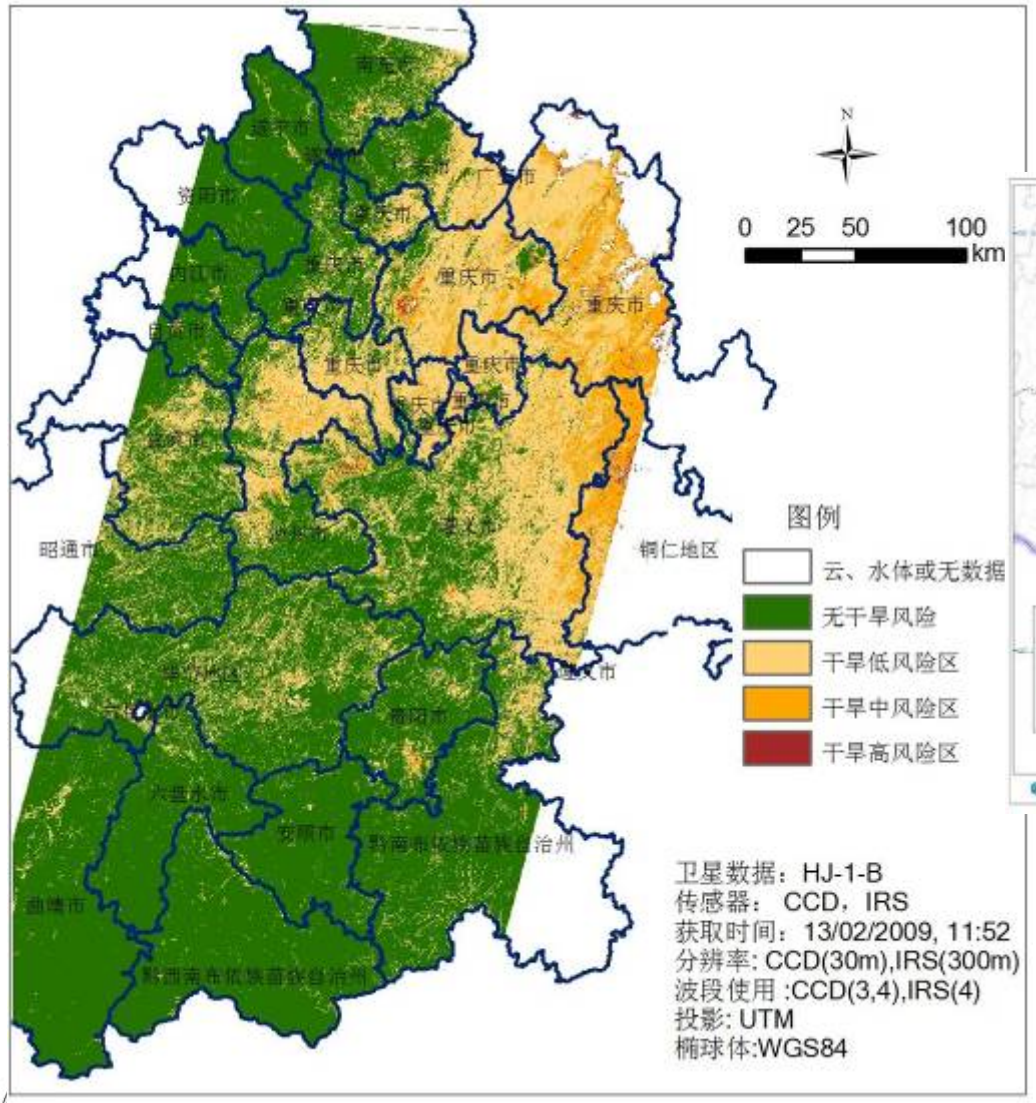
Aerosol optical thickness

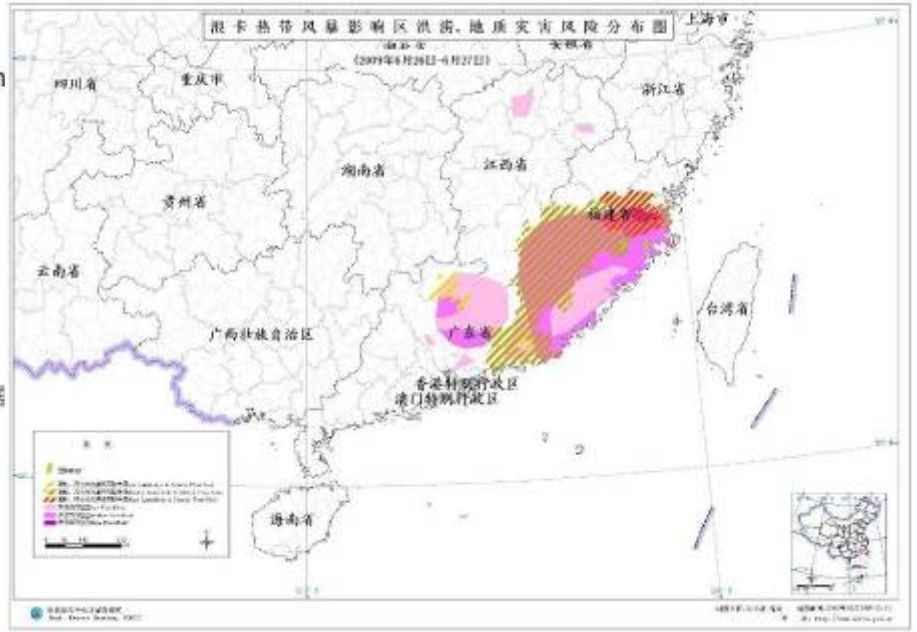


Surface temperature, emissivity

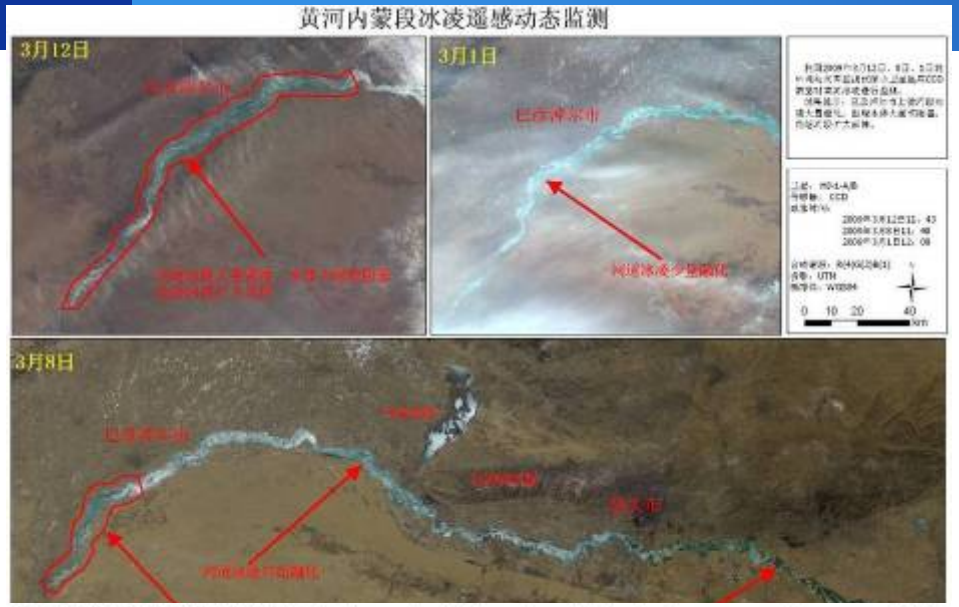


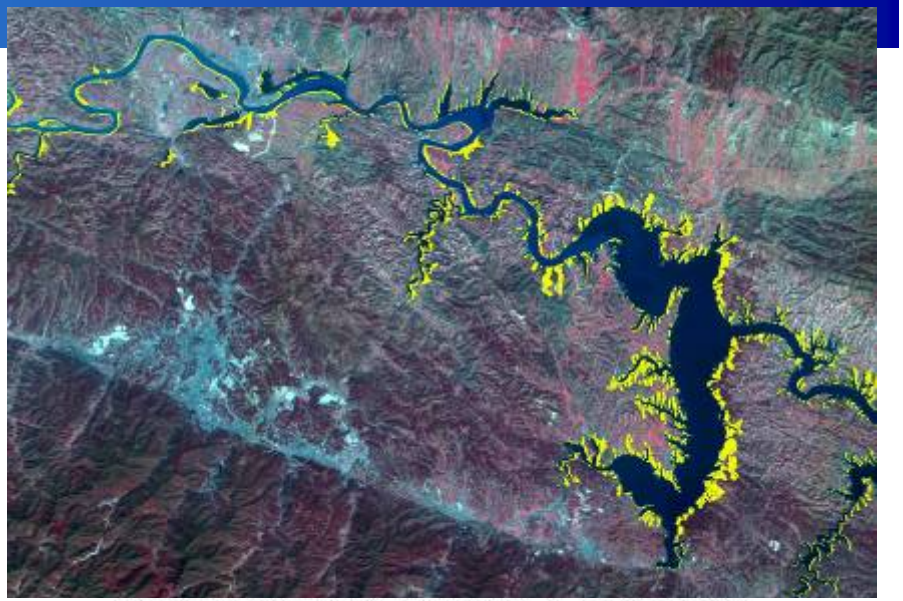
Disaster Risk Assessment



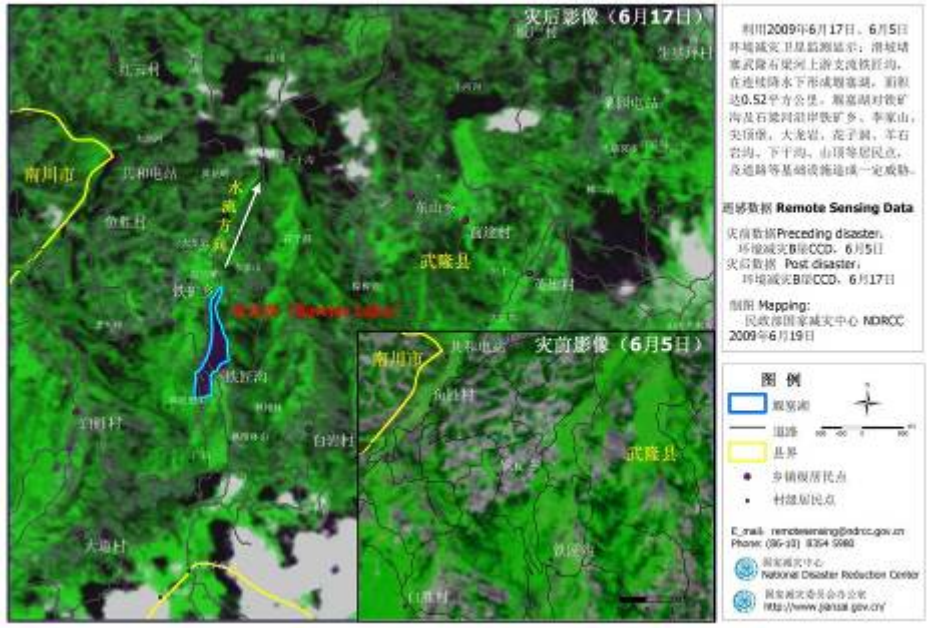


Disaster Monitoring Products

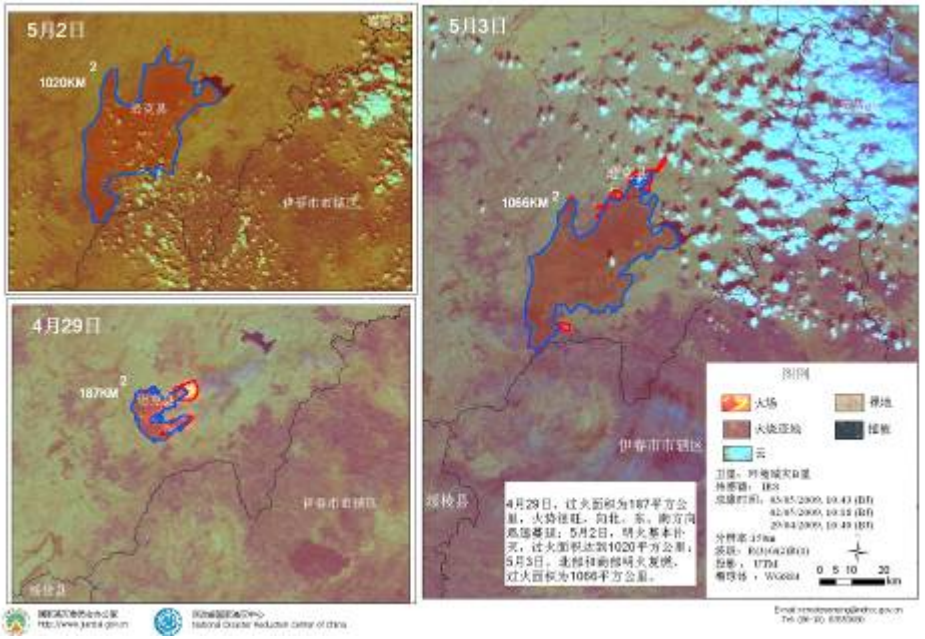




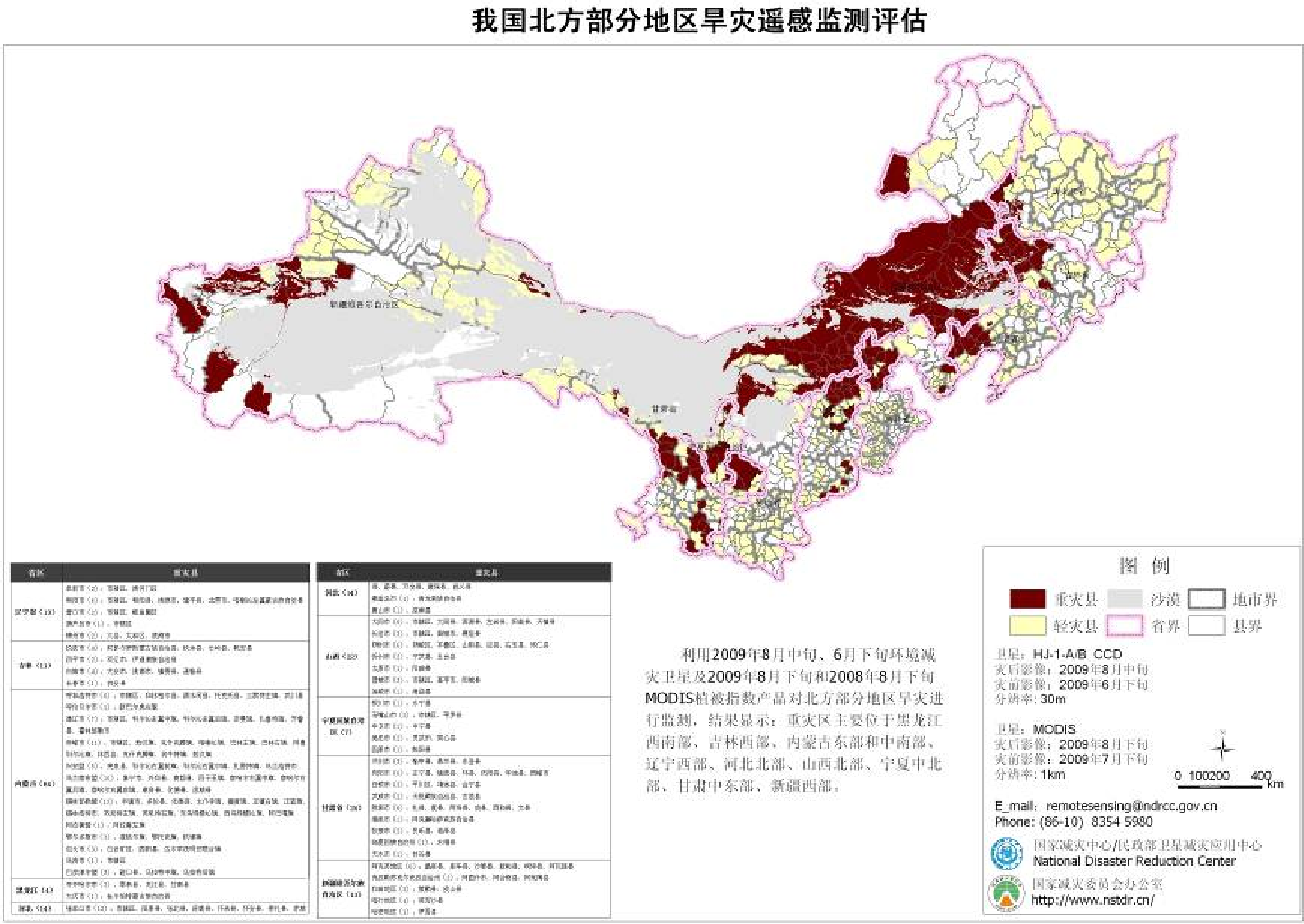
重庆武隆滑坡灾害遥感监测评估（二） Chongqing Wulong Landslide Monirorong and Assessment（2）



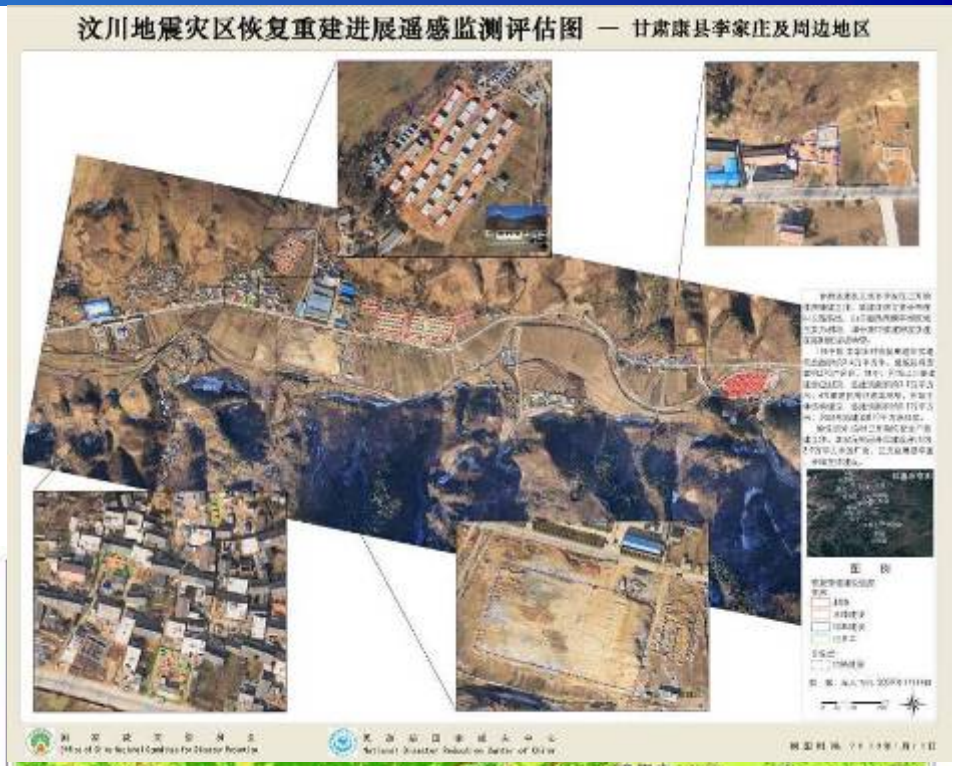
环境减灾星座黑龙江森林火灾遥感监测评估（一）（2009.5.3/5.2/4.29）

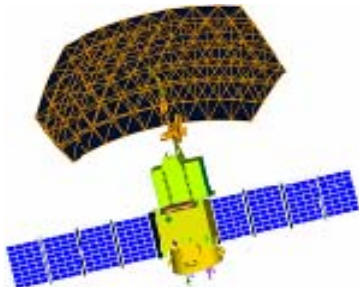


Disaster Damage Assessment

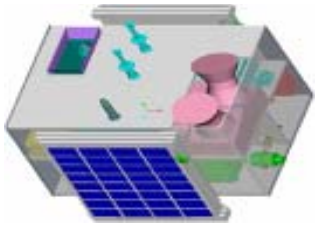


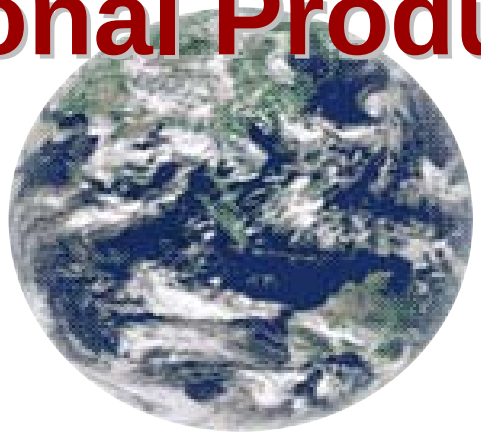
Recovery and Reconstruction Monitoring and Assessment





International Product Service





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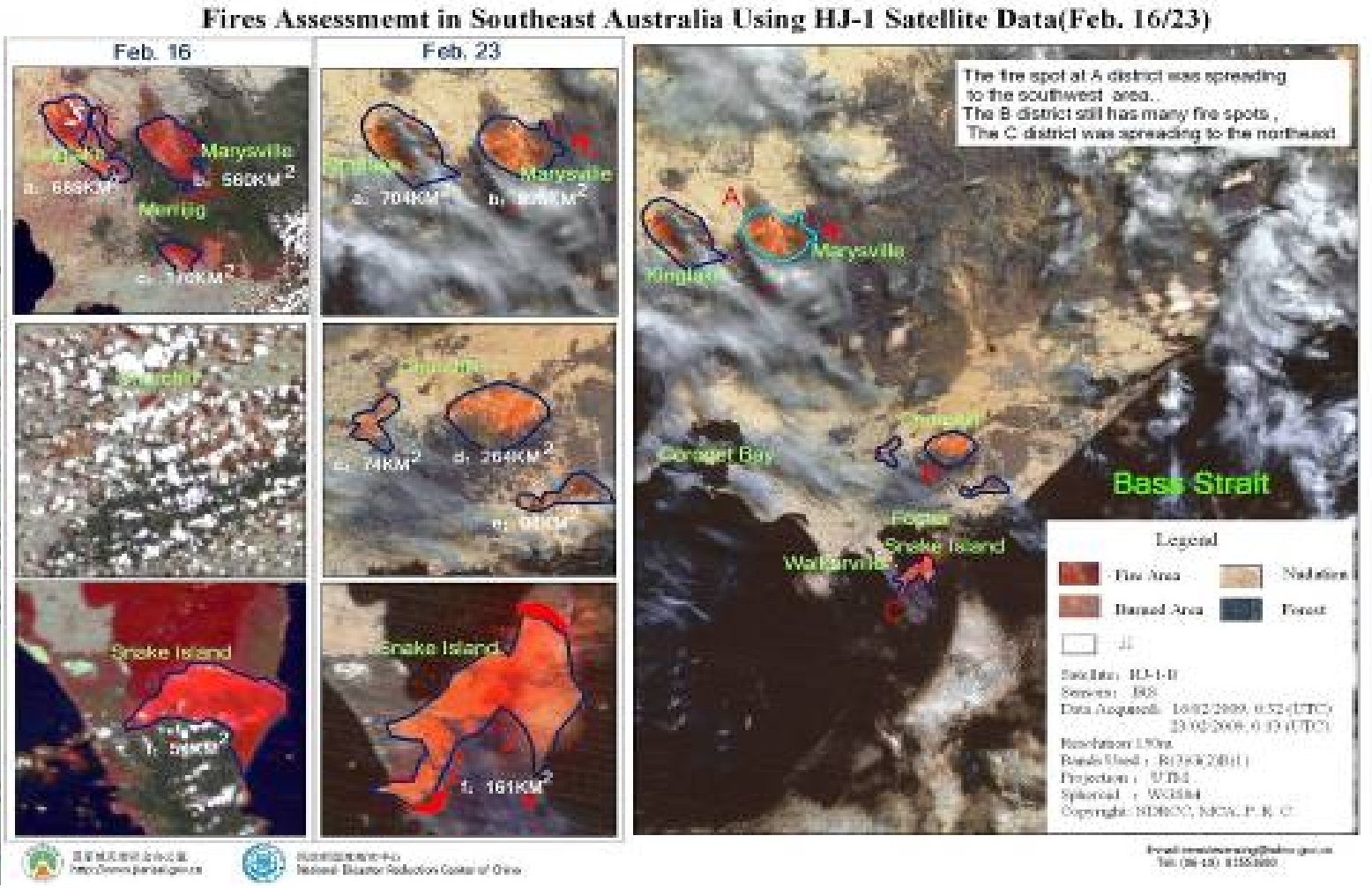
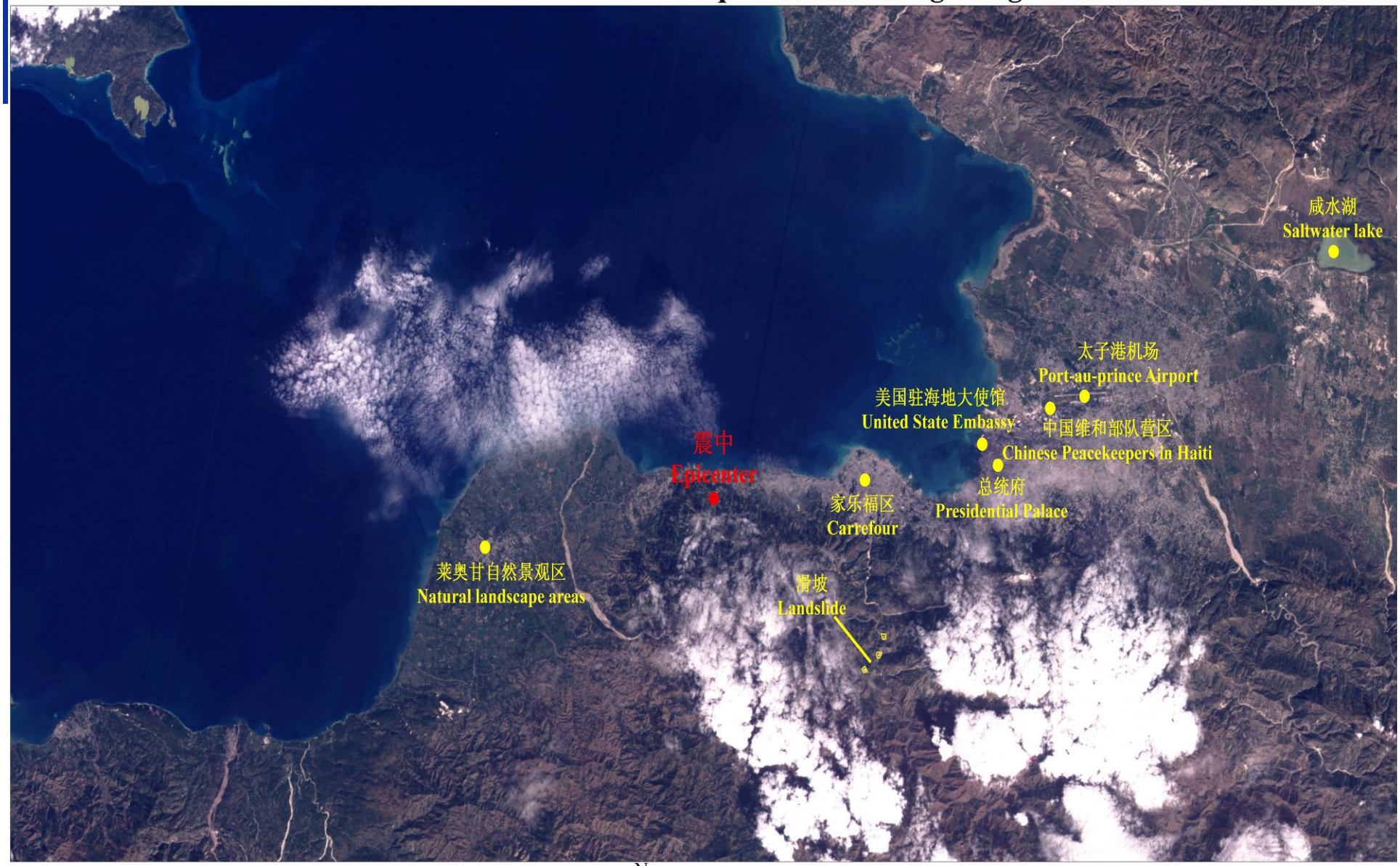
Fire monitoring and Assessment in Australia

From Feb. 9 to the mid of March in 2009, NDRCC provided more than 126 scenes of HJ satellite images and 24 products to Australia government to support their emergency relief. Australia government expressed great appreciation for the support effect.



海地地震灾区遥感监测（3）Haiti Earthquake monitoring using HJ-1 of China



卫星型号(Satellite)：HJ-1B
获取时间(Data Acquired)：14/01/2010
投影(Projection)：UTM

传感器类型(Sensor)： CCD
分辨率(Spatial resolution)：30m
椭球体(spheroid)：WGS84

N

0 3 6 12 Km

E_mail：remotesensing@ndrcc.gov.cn
Phone: (86-10) 8354 5980

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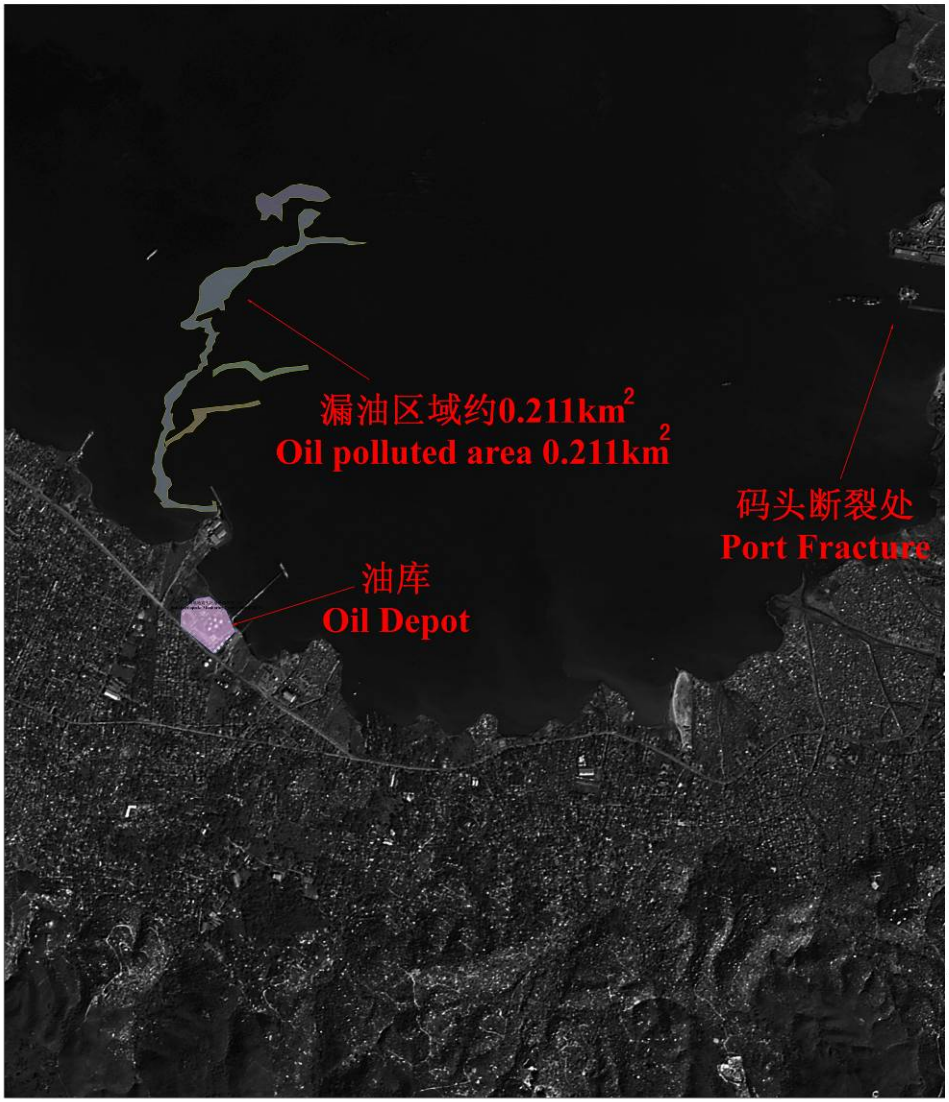
National Disaster Reduction Center of China

海地地震灾区遥感监测图（1）
Haiti Earthquake Monitoring Using China-DMC+



卫星型号(Satellite)：China - DMC+4
传感器类型(Sensor)： PAN
获取时间(Data Acquired)：13/01/2010
分辨率(Spatial resolution)：4m
投影(Projection)：UTM
椭球体(spheroid)：WGS84

N

0 .25 .5 1 km

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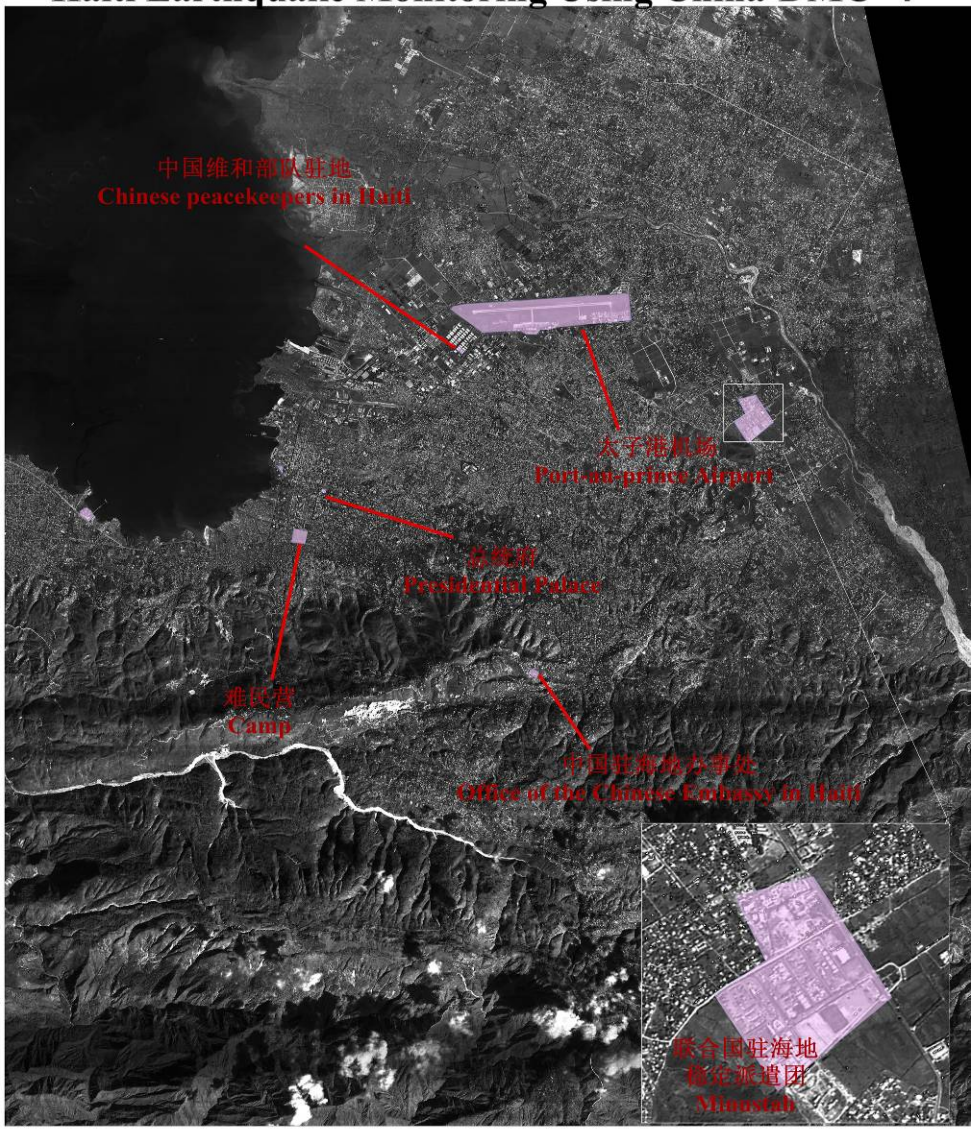
海地地震灾区遥感监测图（2）
Haiti Earthquake Monitoring Using China-DMC+4



卫星型号(Satellite)：China - DMC+4
传感器类型(Sensor)： PAN
获取时间(Data Acquired)：13/01/2010
分辨率(Spatial resolution)：4m
投影(Projection)：UTM
椭球体(spheroid)：WGS84

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0 1 2 4 Km

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谢谢
Thanks