

# **AOGEO and China GEO support disaster emergency for developing countries**

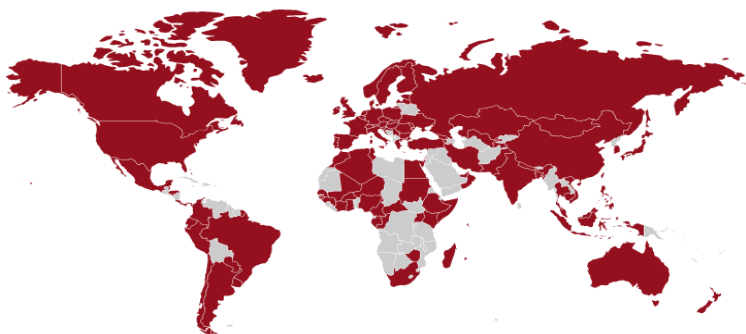
**Prof. Guoqing Li & Dr. Lianchong Zhang**

**Aerospace Information Research Institute(AIR), CAS**

**September 12th, 2019**

# Group on Earth Observations (GEO)

**GEO Member Map for the year 2017**  
(Use slider under the map to change the year)

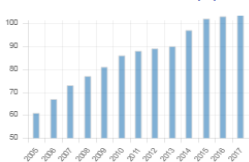


2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017

Number of Members (2017)

Africa:	27
Americas:	16
Asia/Oceania:	21
C.I.S.:	7
Europe:	34
Total:	105

Number of Members by year



## 105 Member states



### 3 Engagement Priorities



UN World Conference on  
Disaster Risk Reduction  
2015 Sendai Japan



PARIS2015  
CONFÉRENCE DES NATIONS UNIES  
SUR LES CHANGEMENTS CLIMATIQUES  
COP21·CMP11



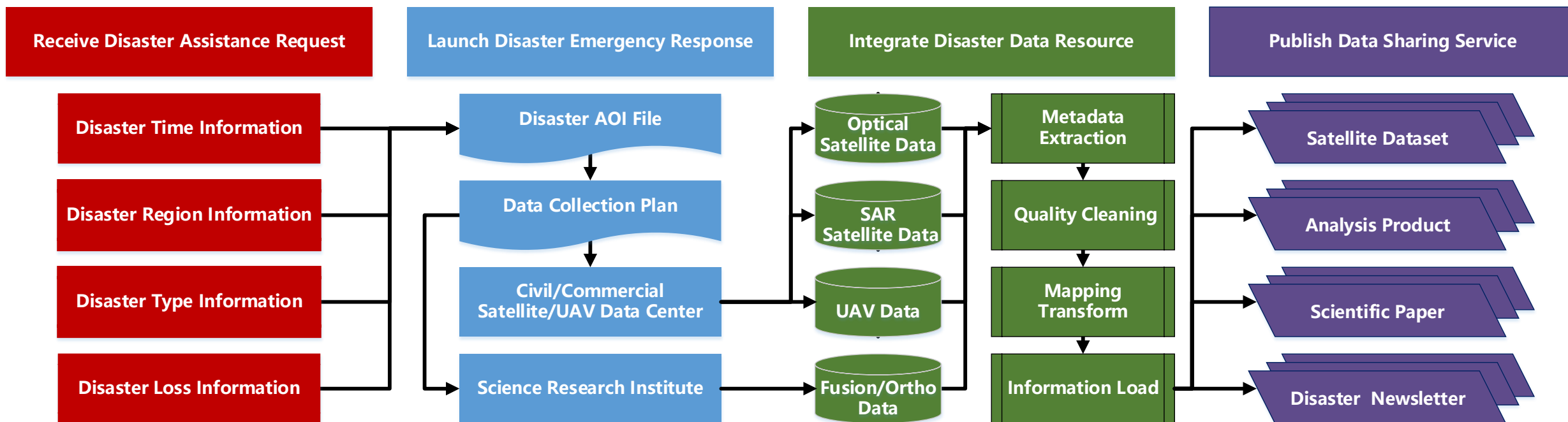
## 132 Participating Organizations



## 8 Societal Benefit Areas

# What is the CDDR ?

- Initiated by ChinaGEO in 2016, the **ChinaGEO Disaster Data Response Mechanism (CDDR)** is responsible for coordinating the provision of Chinese high-resolution satellite data and disaster analysis products to disaster-affected countries.



# National Cooperation Network



## Meteorological Satellites

*National Satellite Meteorological Center*

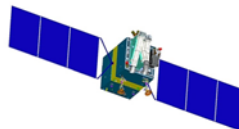
*FY-3B/3C/3D : polar orbit satellites; FY-2H/4A : stationary orbit satellites;*



## Gaofen Satellites

*China Center for Resources Satellite Data and Application*

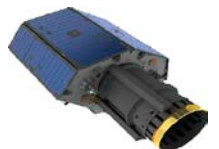
*GF-1/2: optical satellites; GF-3: SAR satellite, GF-4: geostationary satellite;*



## Ziyuan-3 Satellite

*Land Satellite Remote Sensing Application center*

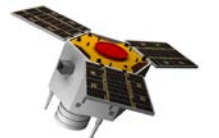
*MUX: 5.8m, NAD: 2.1m, DLC: 3.5m*



## TripleSat Satellites

*Twenty First Century Aerospace Technology Co.,Ltd.*

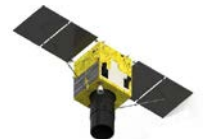
*<1m high-resolution imagery products;*



## JiLin-1 Optical/Video/Multispectral Satellites

*Chang Guang Satellite Technology Co. Ltd.*

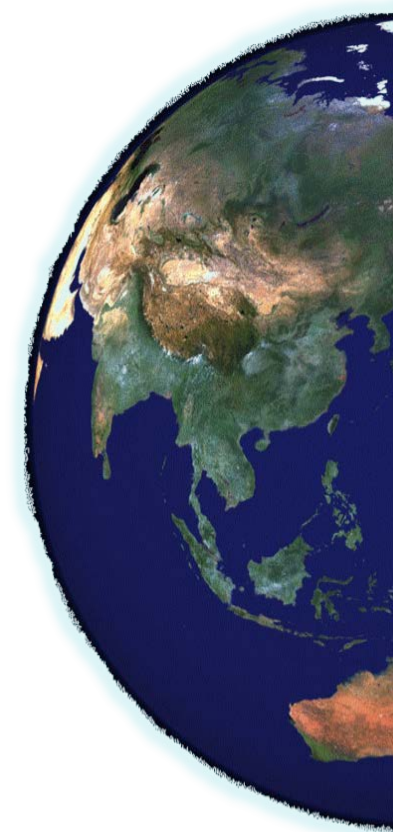
*<0.92m high-resolution imagery products;*



## SuperView-1 Optical Satellites

*SpaceWill Info. Co., Ltd.*

*four 0.5m optical satellites, 12km swath width and 2 days revisit time;*





# International Cooperation Network

## United Nations Office



## Disaster Analysis Team



Humanitarian  
OpenStreetMap  
Team



理化学研究所

## International Science Community



CODATA



IRDR

Integrated Research on Disaster Risk



WORLD DATA SYSTEM



BAR

Digital Belt and Road

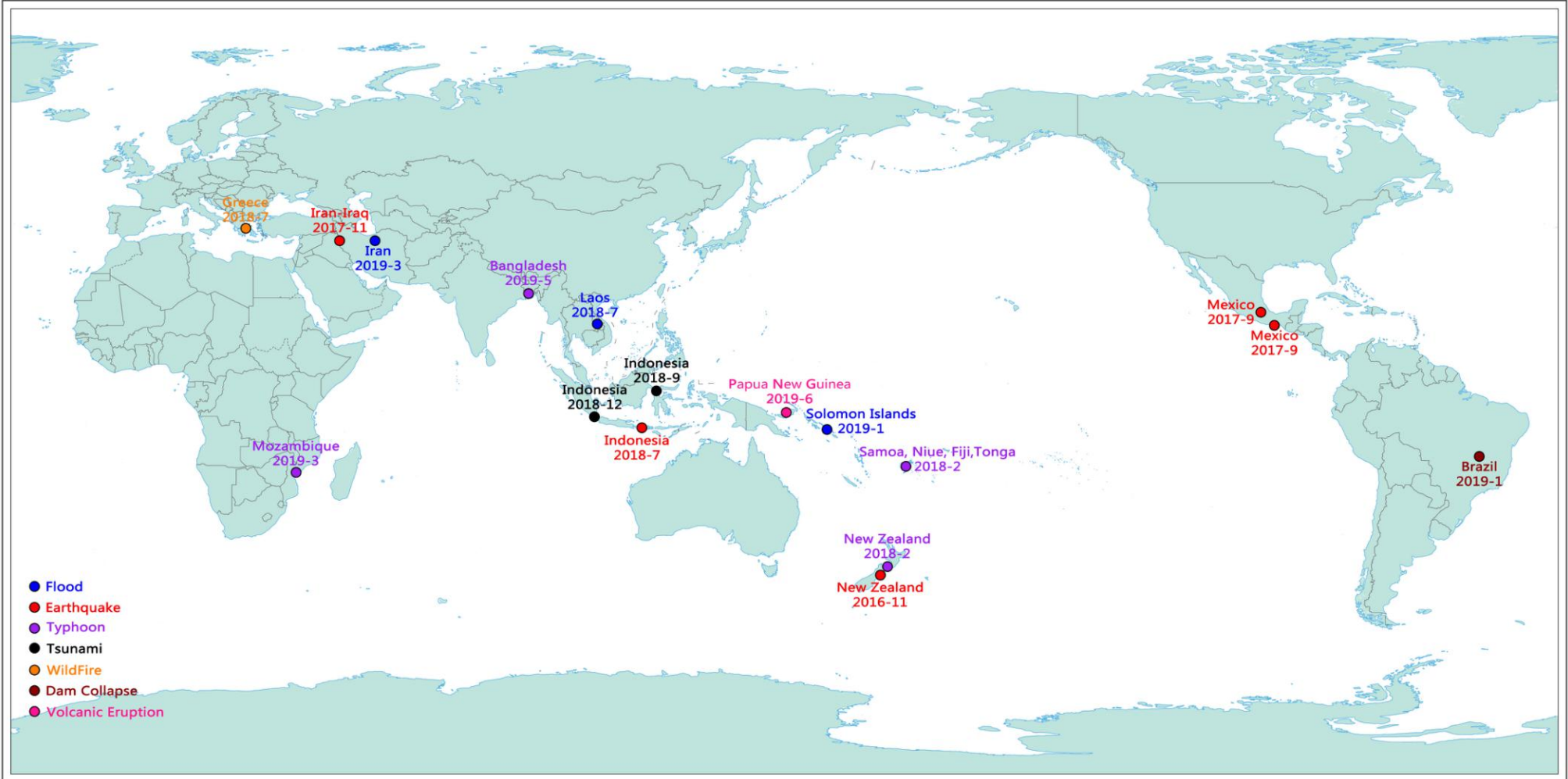
## Regional Organization



GROUP ON  
EARTH OBSERVATIONS

# Activities for disaster response

世界地图



审图号:GS(2016)1666号

国家测绘地理信息局 监制

# Iran-Iraq Earthquakes Emergency Response



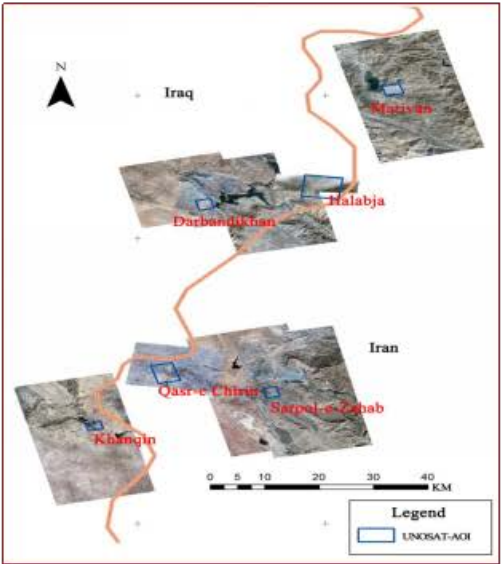
CDDR launched hours after Iran earthquake at Nov 12 of 2017, and 570 images from 10 satellites were observed and shared within one week



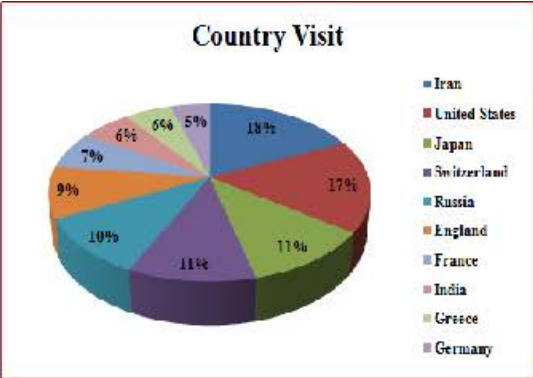
AOIs requested by UNOSAT at Nov 16, 2017

Data Provider	Satellite	Sensor	Spatial Resolution
National Satellite Meteorological Center	FY3B	MERSI	250m/1000m
	FY3C	VIRR	1000m
	GF-2	PMS	1m/4m
	GF-3	SAR	50m
China Center for Resources Satellite Data and Application	ZY02C	PMS	10m
	BJ-2	PMS	0.8m/3.2m
Twenty First Century Aerospace Technology Co. Ltd	JL101A	PMS	0.72m/2.88m
	JL103B	MSS	1.02m
Chang Guang Satellite Technology Co., Ltd	SuperView-1	PMS	0.5m/2m
Beijing Space View Technology Co., Ltd.	ZY3	MUX	5.8m
Satellite Surveying and Mapping Application Center			

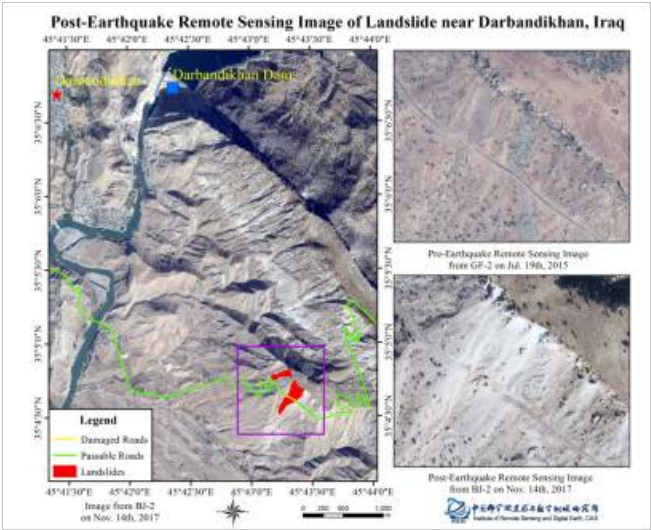
Data Providers



coverage observing for all AOIs after one day only



Data Users, includes UNOSAT, OpenStreetMap, Ministry of Iran Health and Iran disaster management, APSCO and lots of international partners







## Office of Hon Gerry Brownlee

MP for Ilam

Leader of the House

Minister of Defence

Minister of Civil Defence

Minister Responsible for the Earthquake Commission

Minister supporting Greater Christchurch Regeneration

1 FEB 2017

Professor Li Guoqing  
Co-Chair  
Linked Open Data for Global Disaster Risk Research (LODGD) of CODATA  
Head of Satellite Data Technology Division  
Institute of Remote Sensing and Digital Earth, CAS  
No.9 Dengzhuang South Road  
Haidian District  
Beijing, 100094  
CHINA

Dear Professor Li

Re: Kaikoura 7.8 Magnitude Earthquake, 14 November 2016

On behalf of the New Zealand Government I would like to thank you for providing prompt and free access to the TripleSat satellite images of the Hurunui District immediately following the devastation Kaikoura Earthquake.



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### New Zealand Government thanks IRDR and CODATA Groups and China GEOSS for their help following 2016 Kaikoura Earthquake

Date: Feb 23, 2017



New Zealand was hit by a 7.8 magnitude earthquake in Kaikoura in November 2016, and the government has expressed thanks to IRDR, CODATA and China GEOSS for their timely and free provision of satellite data that helped with damage and loss estimation following the disaster.

Damage and loss estimation is often difficult in the hours and days after a natural disaster as data and information are not available. During the Kaikoura earthquake, IRDR's Disaster Loss DATA project and the CODATA Task Group Linked Open Data for Global Disaster Risk Research (LODGD) worked together with environmental and engineering consultancy Tonkin + Taylor in New Zealand to provide TripleSat satellite images of the affected Hurunui District.



The New Zealand Minister of Civil Defence, Gerry Brownlee, wrote in February to Professor Li Guoqing of the CODATA Task Group, saying: "In the immediate aftermath of natural disasters, accurate information on the nature and extent of damage is critically important for the efficient use of scarce



LAO PEOPLE'S DEMOCRATIC REPUBLIC  
Peace Independence Democracy Unity Prosperity

Vientiane Capital, dated of 18<sup>th</sup> August 2018

Attention to: Professor Li Guoqing,  
Co-Chair of DBAR-WG,  
Head of Satellite Data Technology Division  
Institute of Remote Sensing and Digital Earth, CAS  
No. 9, Dengzhuang South Road,  
Haidian District, Beijing – 100094,  
CHINA.

RE: Xepian-Xe Nam Noy hydropower dam collapse in Attapeu province causing flash flood,

Dear Professor Li Guoqing,

I would like to express my sincere thanks to RAD, China GEOSS, ADOSS, NSMC, QRESA, GSSTL, Space View, ZIAT, CNIC, CAST, SPEL, TOPRS, you and your colleague – Dr. Zhang Jianchong, for providing prompt and free access to the GF-2 satellite data (China Center for Resources Satellite Data and Application), JiLin-1 satellite data (Chang Guang Satellite Technology Co., Ltd.), SuperView-1 satellite data (Beijing Space View Technology Co., Ltd.), I&V data (China TOPRS Technology Co., Ltd.).



## Global Partnership for Sustainable Development Data

### September 2017 Mexico Earthquake Response

*The purpose of this case study is to better understand the Global Partnership for Sustainable Development Data's (GPSDD) contribution to and the impact of the call for satellite data to respond to the September 19, 2017 earthquake in Mexico.*

*The contents for this case study include direct inputs via questionnaires and key informant interviews with representatives from Open Data Office of the President of Mexico, the European Space Agency, Humanitarian OpenStreetMap Team (HOTSM), ChinaGEOSS, and the GPSDD Secretariat, as well as secondary information gathered through reports and documents noted in the annex.*

UNITED NATIONS



NATIONS UNIES

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IDD/SAS/RESAP

5 September 2018

Dear Dr Wang,

Letter of thanks on provision of satellite imagery for disaster affected countries

I would like to express my sincere thanks to you and the National Remote Sensing Center of China for the continued support to our Regional Space Applications Programme for Sustainable Development (RESAP).

Since February 2018, we have received several urgent requests from RESAP national focal points in Pacific countries, Lao PDR and Indonesia on provision of satellite imagery for damage assessment for Cyclone Gita which hit Tonga, flash flooding in Sanamxay District of Lao PDR and earthquake in island of Lombok, Indonesia. The timely provision of the high-resolution satellite images and products of Chinese satellites, under the coordination of NRSCC, has greatly helped the disaster affected countries for accurate and rapid damage assessment.

Once again, I thank you for the generous support from NRSCC. I look forward to more guidance and contribution for effective utilization of space based information for disaster risk reduction and sustainable development for Asia and the Pacific.

GEO GROUP ON EARTH OBSERVATIONS

GEOSS

Some of the main Data Providers contributing to the Disaster SBA  
Brokered by the GCI

Humanitarian Data Exchange

Regional Centre for Mapping of Resources for Development



unitar  
United Nations Institute for Training and Research



Humanitarian OpenStreetMap Team

IRIS

中国·GEO

中国·GEO

国家综合地球观测数据共享平台

<http://www.chinageoss.org>



# What users feedback?



## New Zealand Government thanks ChinaGEOSS, CODATA and IRDR for their help following 2016 Kaikoura Earthquake.

28 February 2017

New Zealand was hit by a 7.8 magnitude earthquake in Kaikoura in November 2016, and the government has expressed thanks to ChinaGEOSS, CODATA and IRDR for their timely and free provision of satellite data that helped with damage and loss estimation following the disaster.



Damage and loss estimation is often difficult in the hours and days after a natural disaster as data and information are not available. During the Kaikoura earthquake, IRDR's Disaster Loss DATA project and the CODATA Task Group Linked Open Data for Global Disaster Risk Research (LODGD) worked together with environmental and engineering consultancy Tonkin +Taylor in New Zealand to provide TripleSat, Jilin-1A and FY satellite images of the affected Hurunui District.

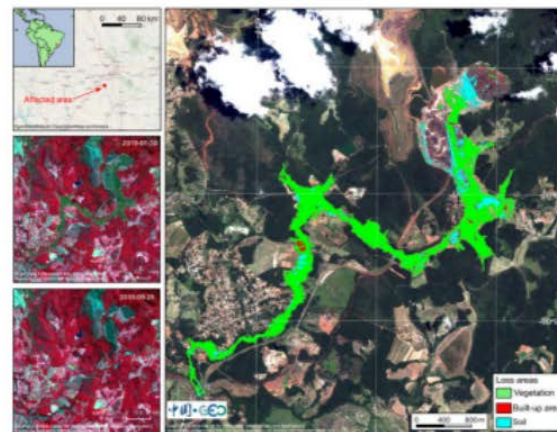
As both the technical manager of ChinaGEOSS Portal and a member of CODATA LODGD Task Group, Professor Li Guoqing organized the above emergency response data sharing activity under the leadership of China GEO Office.

The New Zealand Minister of Civil Defence, Gerry Brownlee, wrote in February to Professor Li Guoqing, saying: "In the immediate aftermath of natural disasters, accurate information on the nature and extent of damage is critically important for the efficient use of scarce resources. The New Zealand Government is very appreciative of the assistance that you and your organization provided in our time of need."

## China GEO supports Brazil dam collapse disaster response

News / 12 March 2019

Following the devastating January 2019 Brazilian dam collapse, Chinese satellite data products were provided to support Brazilian disaster response as part of the ChinaGEOSS Disaster Data Response Mechanism.



On 25 January 2019, the tailings dam to the Córrego do Feijão mine burst near Brumadinho, Minas Gerais, Brazil, resulting in hundreds of lives lost and extensive environmental and economic damage.

Two days after the dam burst, the ChinaGEO Secretariat - based in the



## → AOGEOSS facilitates global data sharing for disaster response

Under the coordination of AOGEOSS, GEO's regional Initiative in Asia-Oceania, a new mode of international disaster emergency cooperation is gradually being established. This data sharing for disasters is expected to become an important supplement for other international disaster cooperation mechanisms, and has already proven valuable in several cases over the last few years.

In 2017, over 126 Gigabytes (GB) of data collected

Some of the main Data Providers contributing to the Disaster SBA Brokered by the GCI

# Conclusion

- Based on the GEO Data Sharing Principles, the CDDR is establishing an international cooperation network on disaster data response;
- The obvious advantage of CDDR is the FAIR concepts (**F**ast, **A**ccessible, **I**nteroperable and **R**eusable);
- The CDDR has been regarded as a complement of the inter-governmental disaster reduction under the Sendai framework.
- The CDDR is successful in China, the next step will be implemented in AOGEOSS.

**Thank you for your attention**