



Institute of Remote Sensing and Digital Earth
Chinese Academy of Sciences

RADI, Host Institution, Update

Report on Activities: May 2016 – Nov 2017

RADI International Cooperation Office

November 2017 | Tokyo, Japan



About RADI



The RADI is an independent research institute affiliated to CAS for remote sensing and digital Earth.

Mission

- Reception, processing, archiving and dissemination of remotely sensed data.
- Research and development on supporting new earth observation system, improving remote sensing data processing and analytical methodologies, and promoting multidisciplinary applications based on earth observation technology.
- Theoretical and technological research into key issues concerning Geo-spatial Information science and Digital Earth Platform.



Outline

- New Satellite Receiving Station established
- Earth Observation Data sharing for Disaster Emergency response
- Digital Belt and Road Program (DBAR)
- Update on RADI governance

New Satellite Receiving Station Established



Ground stations located in Beijing, Sanya, Kashgar, Kunming, and Kiruna.





China Remote Sensing Satellite North Polar Ground Station

In Dec, 2016, RADI opened the China Remote Sensing Satellite North Polar Ground Station (CNPGS), near Kiruna, Sweden. CNPGS is located at the Esrange Space Center, 200 kilometers north of the Arctic Circle.

CNPGS, China's first land satellite receiving station constructed overseas.

It has a special geographical advantage, and can greatly increase the transmission efficiency of satellite data, and can effectively improve China's capability to rapidly access global remote sensing data, *which is of great significance for applications requiring rapid response to natural disasters.*

SatSee-Live (Virtual Ground Station)

No ground station infrastructure needed (e.g., antenna).

Users get full path satellite data (Jpeg) in near real time through internet.

Benefits:

- To demonstrate remote sensing imaging process to the public
- To help users quickly access remote sensing image (full resolution, in near real-time)
- To distribute satellite data to a larger user community
- To lower the cost by providing bulk data

Specially useful for daily monitoring and detection of disaster emergency (fire spot, flood, etc.)

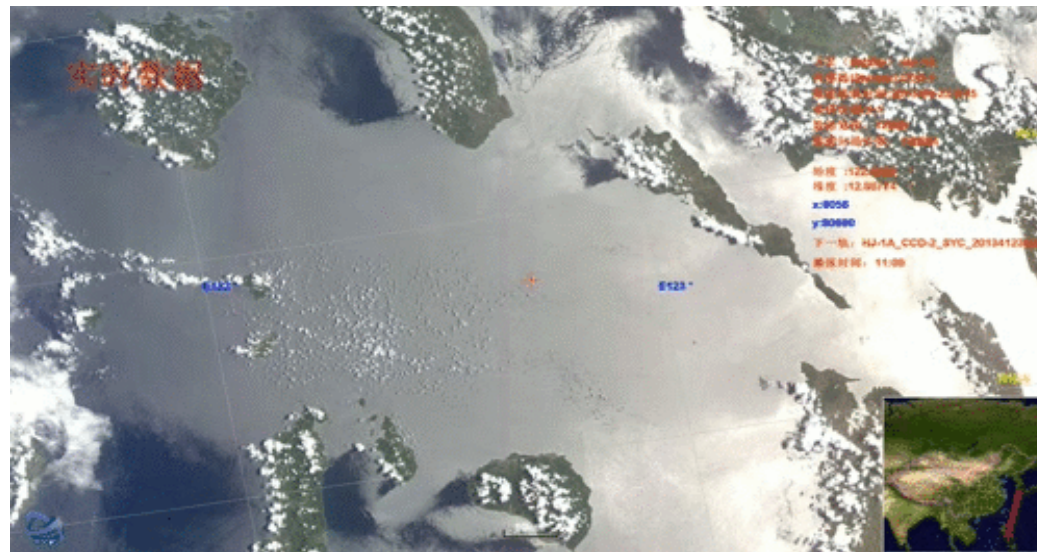


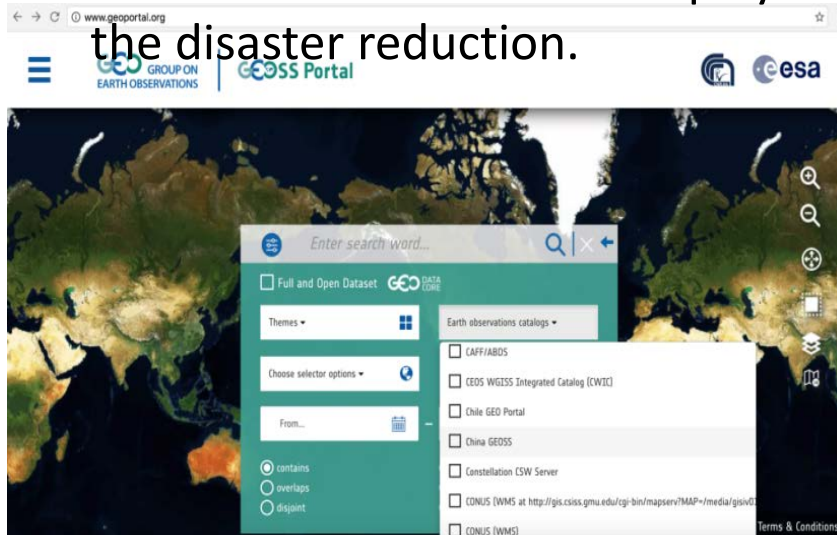
Image provided and displayed in client monitor



Contribution to GEO Data Infrastructure

RADI is leading the work of China Global Earth Observation System of Systems (ChinaGEOSS) to encourage member countries to contribute to GEO Data Portal.

- ✓ RADI, as a coordinator of ChinaGEOSS, has contributed 120k images to GEO Portal in 2016, and will contribute 1 million images in 2017.
- ✓ The emergency data response mechanism, developed by RADI, has been successfully launched for huge natural disaster events and played important role for the disaster reduction.



Data Resources in Data Portal



International service Portal



Chinese Emergency Data Response Mechanism



Also during the 2017 earthquake in Mexico, 146 scene images from 8 satellites (126.37 GB in total) were collected.

During the New Zealand earthquake in 2016, seven satellites with 219 view images (120GB in total) were organized to provide timely service for New Zealand, Australia and other countries.



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 devastating Kaikoura Earthquake.

The Chinese satellite imagery, downloaded from the data integrated in the China-GEOSS portal, was then placed on the internet based ProjectOrbit portal named the Kaikoura GIS Viewer for use by all response and recovery organisations in New Zealand. The Kaikoura GIS Viewer was also accessed internationally by interested parties.

In the immediate aftermath of natural disasters, accurate information on the nature and the 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 organisation provided in our time of need.

Yours sincerely

Hon Gerry Brownlee
Minister of Civil Defence

The screenshot shows the CODATA website with two news articles. The top article is titled "CODATA TG, China-GEOSS, Tonkin+Taylor and the Recent NZ Earthquake" dated Nov 29, 2016. The bottom article is titled "New Zealand Government thanks IRDR and CODATA Groups and China GEOSS for their help following 2016 Kaikoura Earthquake" dated Feb 23, 2017. A satellite map of the Kaikoura region is overlaid on the page, showing a red star indicating the earthquake epicenter. The map also shows a blue river and yellow roads. At the bottom of the screenshot, there is a logo for "GEO GROUP ON EARTH OBSERVATIONS" and a navigation bar with links like "Who we are", "What we do", "News", "Get Involved", and "Get Data Now".

On behalf of the New Zealand Government I would like to thank you for providing prompt and free access to the TripleSat satellite images immediately following the devastating Earthquake. **Accurate information on the nature and extent of damage is critically important for the efficient use of scarce resource.** The New Zealand Government is very appreciative of the assistance that you and your organization provided in our time of need



Data portal released for emergency response to Iraq-Iran Earthquake

Hours after Iraq-Iran Earthquake of Nov 12, 2017, Developed by RADi, ChinaGEOSS, launched the Disaster Data Response mechanism. An data portal for this event was released at 7:00 am of Nov 14.

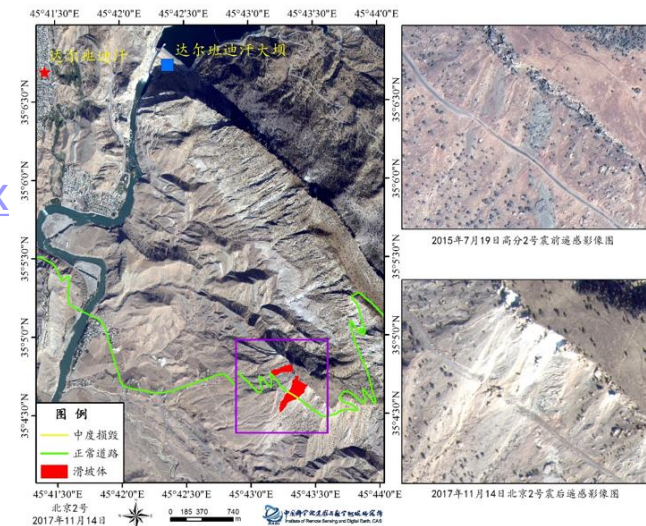
It published the first bundle of data, with 249 scenes image from 5 satellites. Chinese high resolution satellites have made special observing plan to get post-disaster damage images as soon as possible.

International user can access free data and related information via the link <http://www.chinageoss.org/IraqEarthquake2017/en/index.html>.

It has been regarded as a best practice of GEO-based emergency response for Sendai Framework, paralleling with the government level mechanisms.

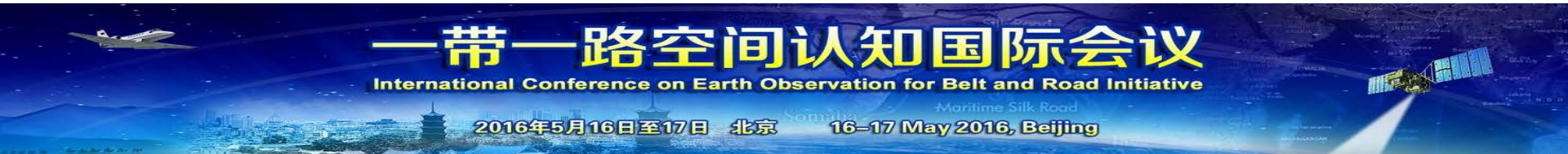


Data Portal



Data Analysis

“Digital Belt And Road (DBAR)” Initiative



Initiated at EOBAR, to be given full support by more than 20 countries

Beijing Declaration on Earth Observation for Belt and Road

May 17, 2016

We, scientists, researchers, academics, engineers, educators and administrators from more than 20 countries, and representatives of international organizations, met in Beijing, China, at the International Symposium on Earth Observation (EO) for Belt and Road (EOBAR), co-hosted by the Division of Earth Sciences of the Chinese Academy of Sciences (CAS) and related ministries, commissions, and international organizations, on 16 and 17 May 2016.

Background



WHY DBAR & YOU





Social-economic



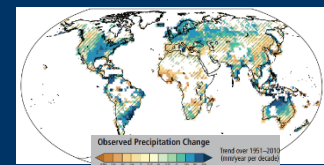
Satellite



Navigation



In-situ



Environmental Change



Disaster



Unbalanced Development

A COMMON VISION

TO ADVOCATE FOR THE INTEGRATION OF EARTH OBSERVATION AND BIG EARTH DATA

IN

DESIGN AND PLANNING OF ALL DEVELOPMENT, ENVIRONMENTAL PROTECTION AND RESOURCE MANAGEMENT ACTIVITIES

AT

LOCAL, NATIONAL, REGIONAL AND INTERNATIONAL SCALES UNDERTAKEN WITHIN THE B&R INITIATIVE.

DBAR Core Objectives

Knowledge gaps

To address knowledge gaps in earth system processes that constrain the attainment of the SDGs in B&R countries

Capacity building

To enhance capacity building and technology transfer within a system of partnerships and research networks.

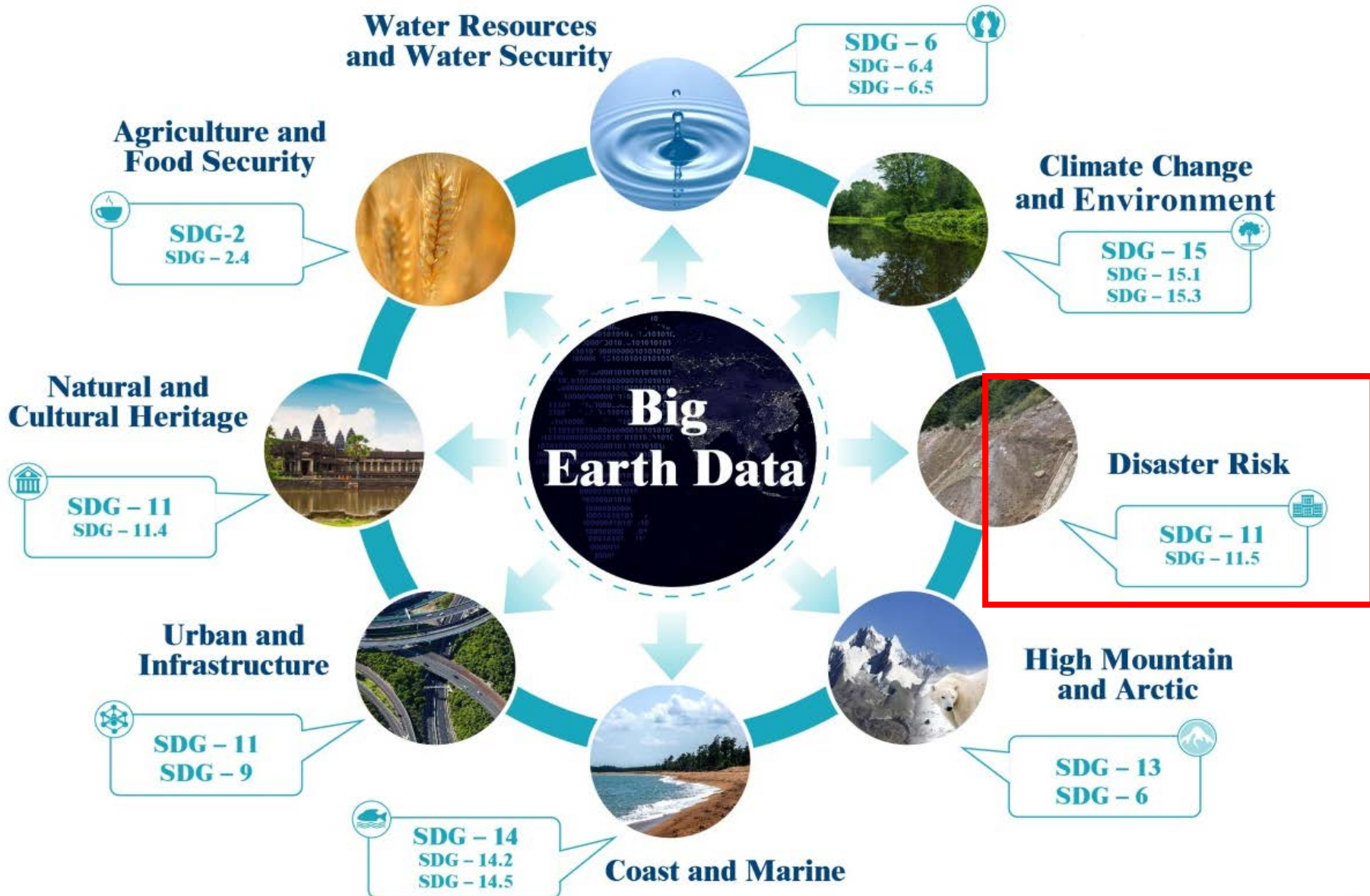
Big Earth Data Services

To promote advanced science and decision support services to extract effective information from massive, diverse and ever-growing volumes of Big Earth Data.

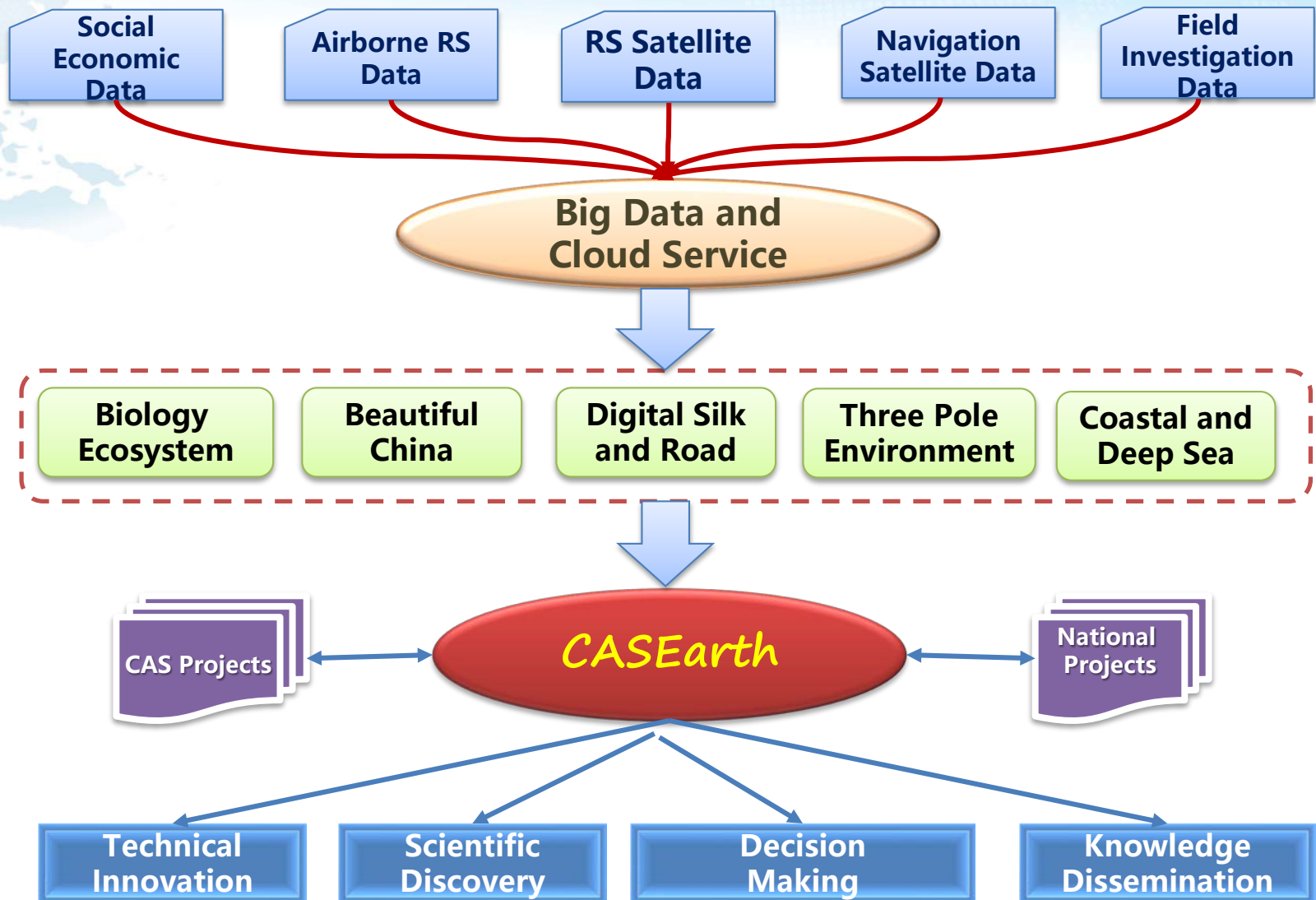
Framework of DBAR



DBAR Foci and linkage with UN SDGs



CASEarth Research Infrastructure



DBAR Working Groups



Big Earth Data (DBAR-DATA)

Co-Chairs:

LI Guoqing

Silap Boupcha



Agriculture and Food Security (DBAR-AGRI)

Co-Chairs:

WU Bingfang

Shukri Ahamd



Coastal Zone (DBAR-COAST)

Co-Chairs:

LI Zhang LIN Hui Mazlan bin Hashim



Environment Change (DBAR-ENVI)

Co-Chairs:

LI Xinwu JIA Gensuo Howard E. Epstein



Natural and Cultural Heritage (DBAR-HERITAGE)

Co-Chairs:

*WANG Xinyuan Shahina Tariq
Rosa Lasaponara Houcine Khatteli*



Disaster Risk Reduction (DBAR-DISASTER)

Co-Chairs:

CHEN Fang Rajib Shaw



Water (DBAR-WATER)

Co-Chairs:

JIA Li Marco Mancini Bob Su

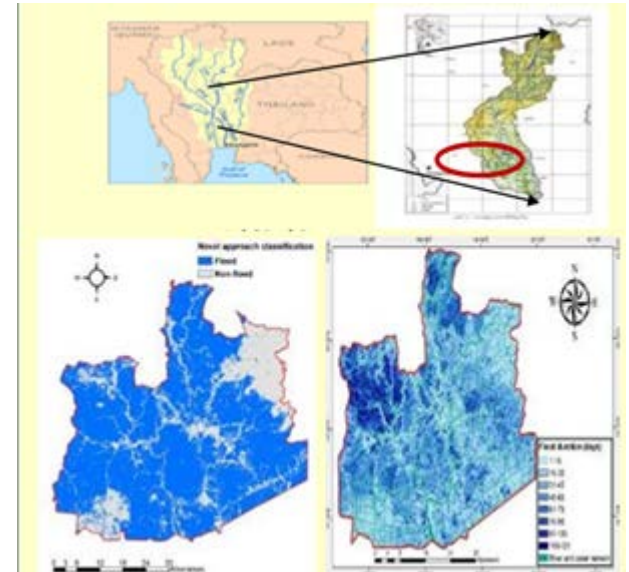
Kick off Meeting of DBAR WGs/TFs



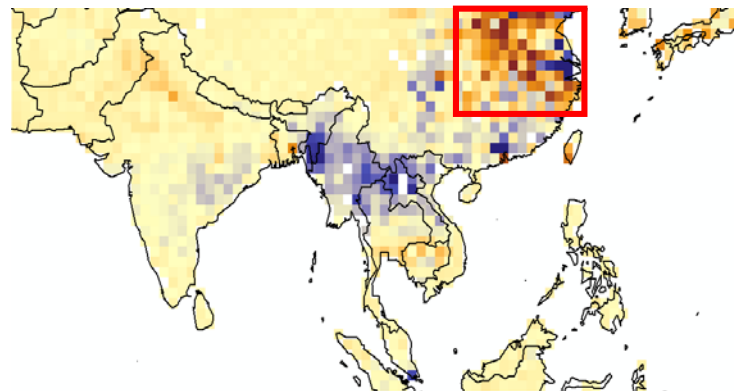
Kick off Meeting of DBAR-DISASTER
November, 2016



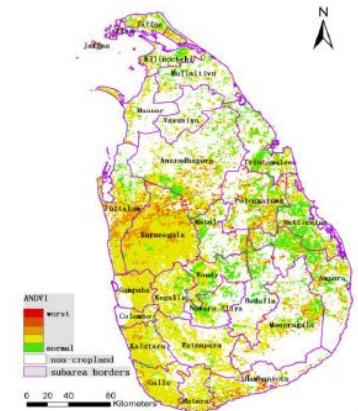
DBAR DRR WG



Monitoring Platform



Regional Level- fire emission



Country Level- Sri Lanka drought

Activities of DBAR Disaster WG

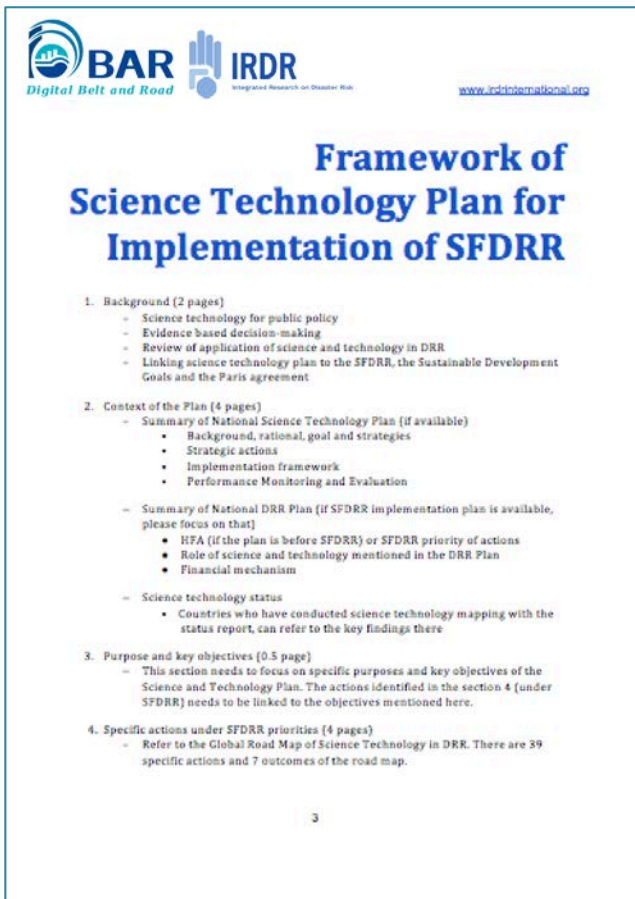
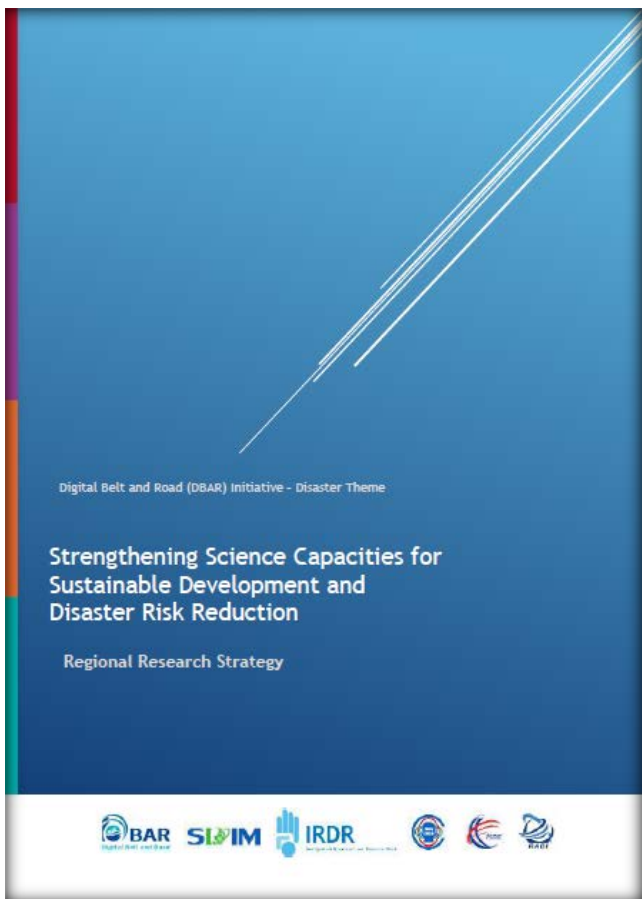
In close collaboration with IRDR



Regional Research Strategy Report

Capacity Building: National Science and Technology Plan

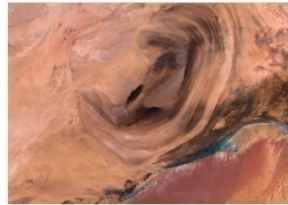
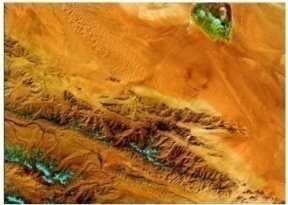
International Training Workshop Organized with **20 Participants** from **15 Countries**



Updates on RADI Governance Issues

- New merging with another two CAS Institutes to establish the Spatial Information Academy, CAS
- New Leadership of RADI
- RADI will continuously make our due contribution and dedication to IRDR IPO as promised
- Warm welcome Qunli HAN, a new IRDR/IPO ED

Thanks!



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Chinese Academy of Sciences**

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