Human Planet Forum
Enschede, Netherlands
12-15 September 2017

DBAR
Digital Belt and Road

Urbanization dynamics along the Belt and Road

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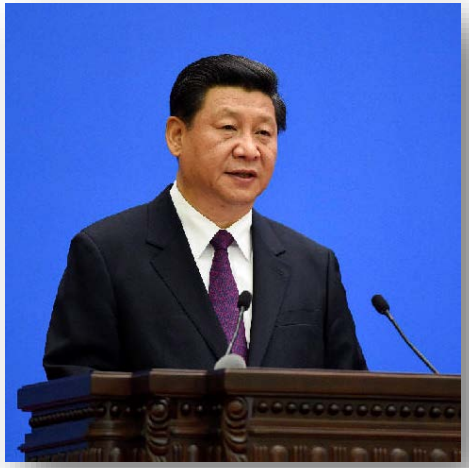
The Belt and Road Initiative



- When Chinese President Xi Jinping visited Kazakhstan in September 2013, he proposed the initiative of jointly building the **Silk Road Economic Belt**. In the same year in October, he proposed the initiative of jointly building the **21st-Century Maritime Silk Road** when he visited Indonesia.
- In March 2015, the National Development and Reform Commission, Ministry of Foreign Affairs and Ministry of Commerce jointly released the "Vision and Actions on Jointly Building Silk Road Economic Belt and 21st-Century Maritime Silk Road"(the Belt and Road Initiative).

The Belt and Road region includes more than 60 countries, which are located in Asia, Europe, and North Africa.

Digital “Belt and Road” Initiative (DBAR)

An International Research Program for the Sustainable Development of the Belt and Road Region Using Big Earth Data

Vision of DBAR

- **Advance scientific knowledge on the Earth System processes determining the state and the evolution of hot–spots in the B&R countries, particularly the areas impacted by the construction of the Belt and Road.**

- **Develop and implement an effective mechanism for multi-lateral cooperation involving many countries in the B&R region.**

- **Identify and address "show–stoppers" in current human and technological resources that may hinder the progress of the initiative.**

DBAR Objectives

- **Scientific contributions**

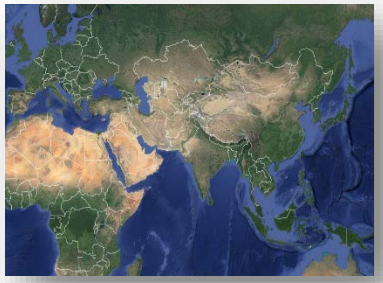
To address **knowledge gaps** in Earth System processes, which are impeding the attainment of **the SDG targets in the Belt and Road countries**.

- **Facilitating platforms**

To promote **advanced science and decision support services** to extract information from massive and diverse data in the light of Big Earth Data.

- **Stakeholders**

To enhance capacity building and technology transfer towards **partnerships and research networks**.

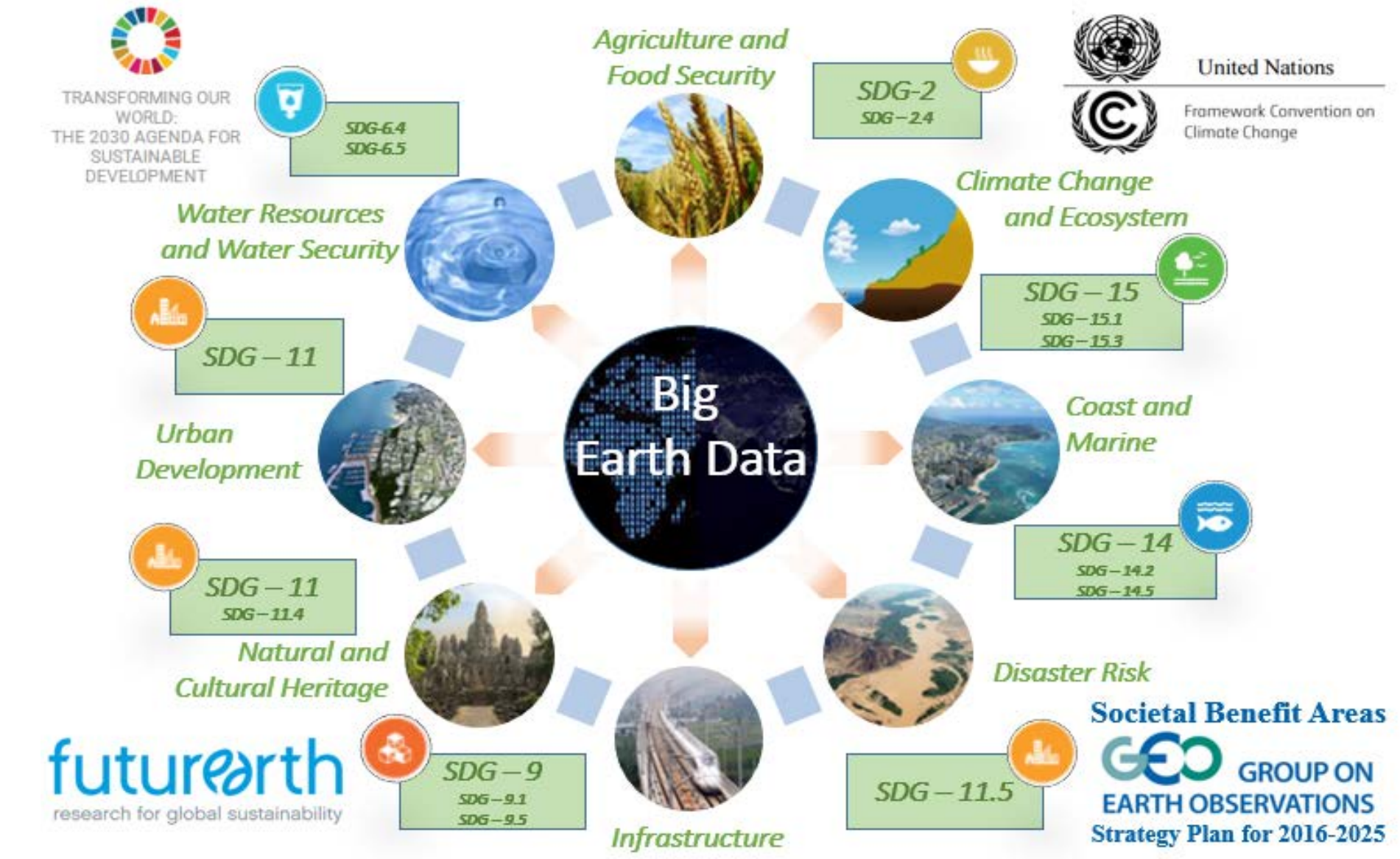


Research Design

- Design and develop an ICT infrastructure to support remote discovery, access, processing and analysis of EO data in a virtual (cloud) environment.
- Research on Earth System Science primarily based on EO data.
- Interaction within communities of scientific and professional stakeholders.
- Dissemination of SDG–relevant outcomes.

DBAR Foci and linkage with UN SDGs

DBAR
Digital Belt and Road



Framework of DBAR

DBAR
Digital Belt and Road

Data Streams

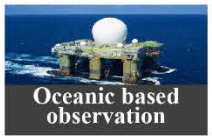
From Data to Information

Working Groups and Task Forces

DBAR Foci

Synthesis

International Conventions



Infrastructure Agriculture Coast & Marine Environment Heritage Disaster Urban Water

SDG Highlights Report

International Programs

International Organizations

Science and Policy, International to National Programs

DBAR: Hand in Hand Program

DBAR Digital Belt and Road

Countries along the Belt and Road

International programs

Pan-Eurasian Experiment PEEX

International organizations

United Nations Educational, Scientific and Cultural Organization

International Centre on Space Technologies for Natural and Cultural Heritage under the auspices of UNESCO

IRDR Integrated Research on Disaster Risk

Let countries along the Belt and Road benefit from DBAR

www.dbeltroad.org

1st DBAR Meeting in December, 2016

DBAR
Digital Belt and Road

- *DBAR Science Plan*
- *DBAR Science Committee*
- *Working groups*
- *Explore better scientific approaches to serve sustainable development along the Belt and Road.*

The first group members of the Science Committee are awarded letters of appointment

Forthcoming 2nd DBAR Meeting

DBAR Digital Belt and Road

DBAR RSATSA

The 2nd international conference of Digital Belt and Road (DBAR 2017)

Important Dates:

31 May 2017	Abstract submission deadline
03 July 2017	Notification of acceptance
30 Sept 2017	Full paper submission deadline

Enquiry:

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香港中文大學太空與地球信息科學研究所
INSTITUTE OF SPACE & EARTH INFORMATION SCIENCE CUHK

Organizers:

RADI NCRS NASCC

The DBAR Urban Working Group

DBAR-UrBAN

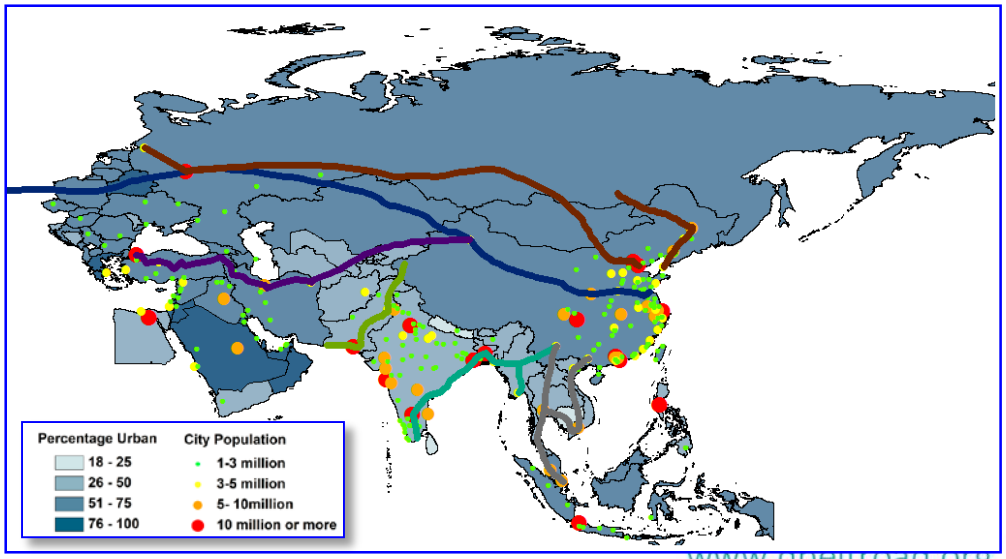
The DBAR Urban Working Group

Background and context

- Urban development across the world has **profound effects** on environment, biodiversity, ecological processes and regional sustainability.
- The cities along the Silk Road and Maritime Silk Road are **transport, industrial, and economic hub** between countries in the Belt and Road region, as well as drivers of national and regional economic development.
- However, the lack of a comprehensive **urbanization policy** can lead to social and environmental challenges.

The Belt and Road Initiative

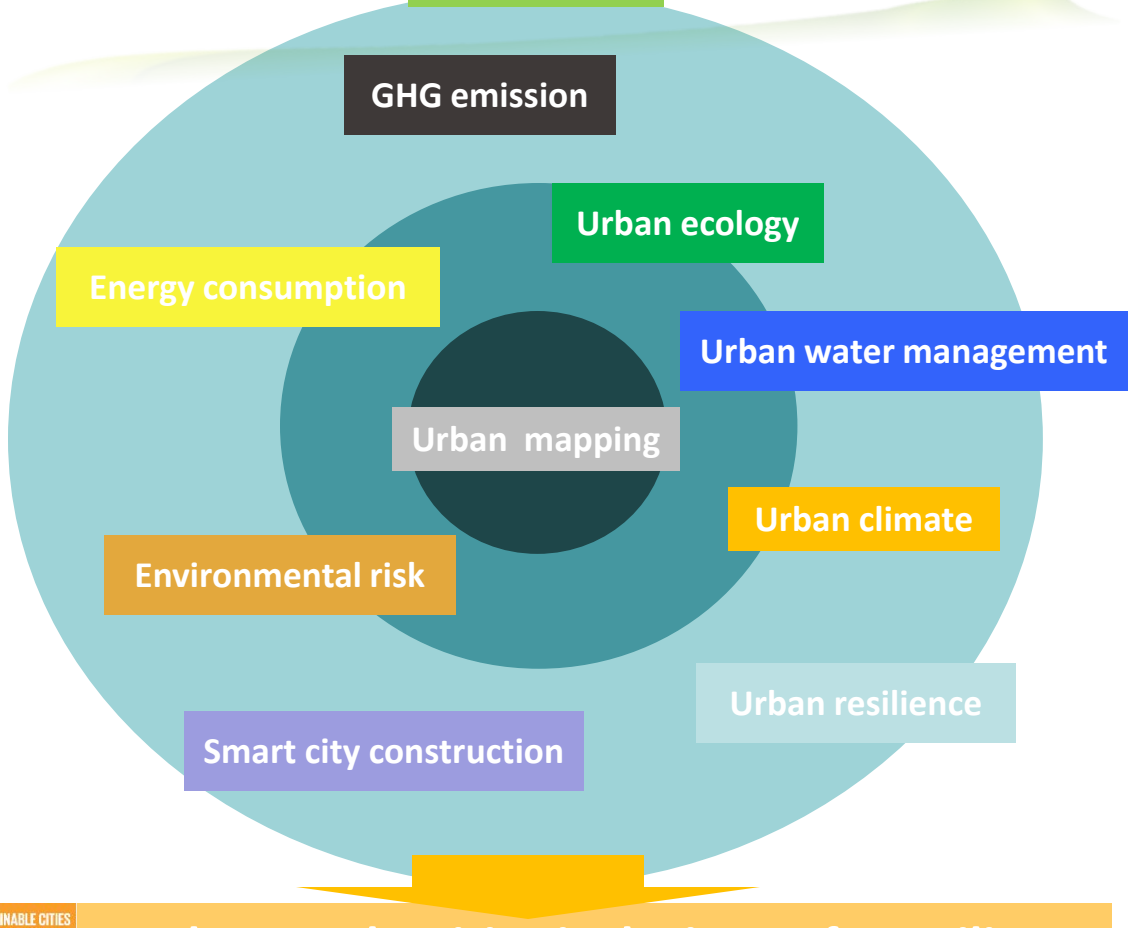
- jointly building economic corridors, relying on core cities along the Belt and Road
- jointly building smooth, secure and efficient transport routes connecting major sea ports along the Belt and Road



DBAR-UrBAN Framework

DBAR Digital Belt and Road

A Green Belt and Road



11 SUSTAINABLE CITIES AND COMMUNITIES

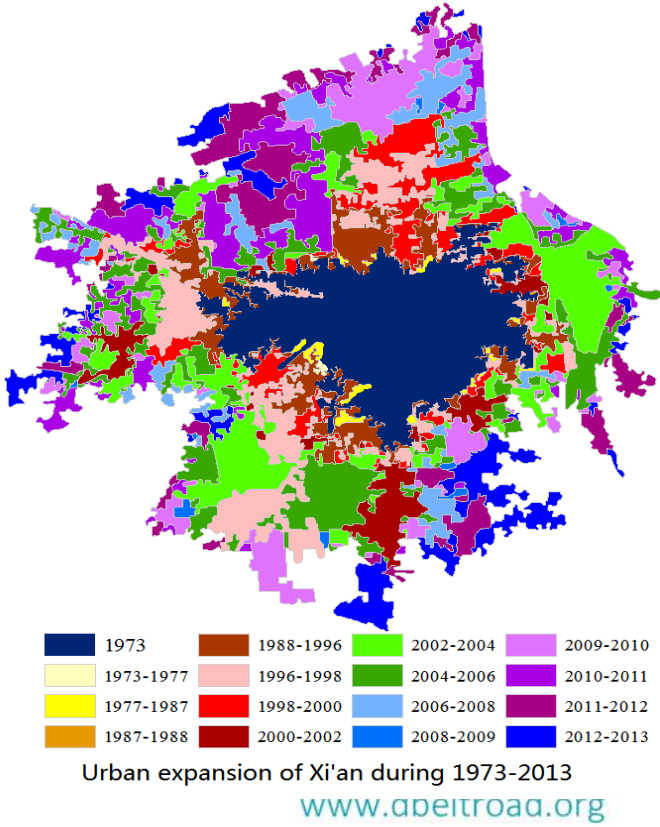
Goal 11: Make cities inclusive, safe, resilient and sustainable

DBAR-UrBAN

Urban expansion mapping of core cities based on multi-source remotely sensing images including high resolution images from Chinese satellites during the period of 1970s–2020s for implementation of the Belt and Road Initiative

This task will detect the urban expansion and its impacts on local land use of core cities along the Belt and Road based on multi-source remotely sensed images with high temporal frequency and accuracy.

Bishkek, Kyrgyzstan

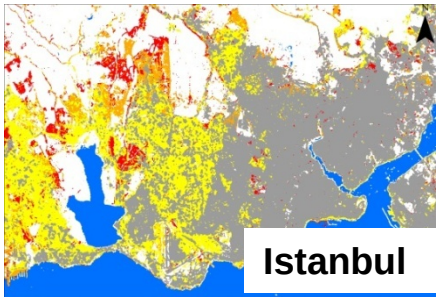


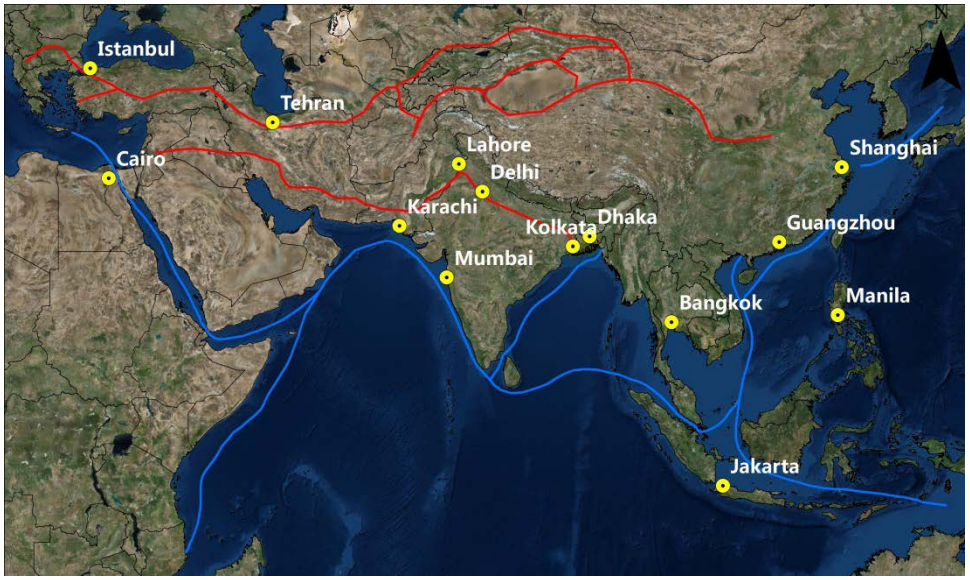
Urban expansion of Xi'an during 1973-2013

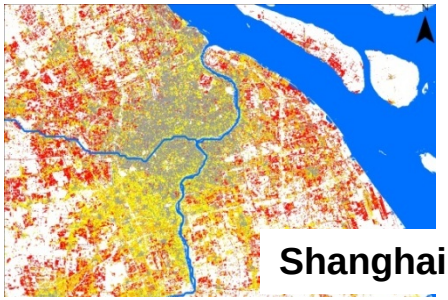
www.dbeltroad.org

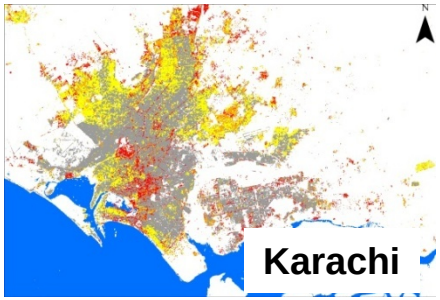
DBAR-UrBAN

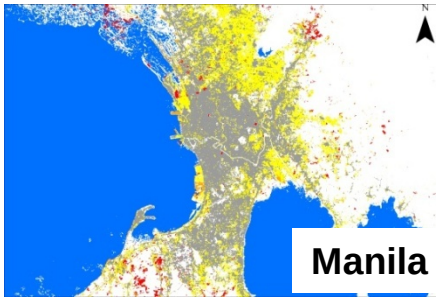
Urban expansion and environmental change assessment from remote sensing data in megacities(pop.>10million) along the Belt and Road region from 1970s to 2020s with GHSL as baseline data

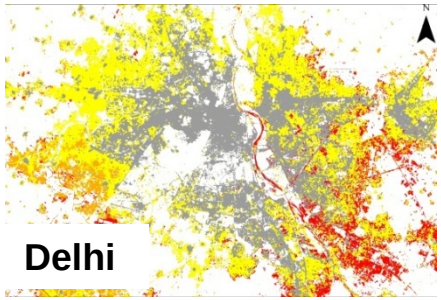


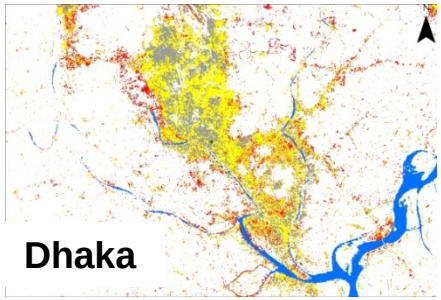












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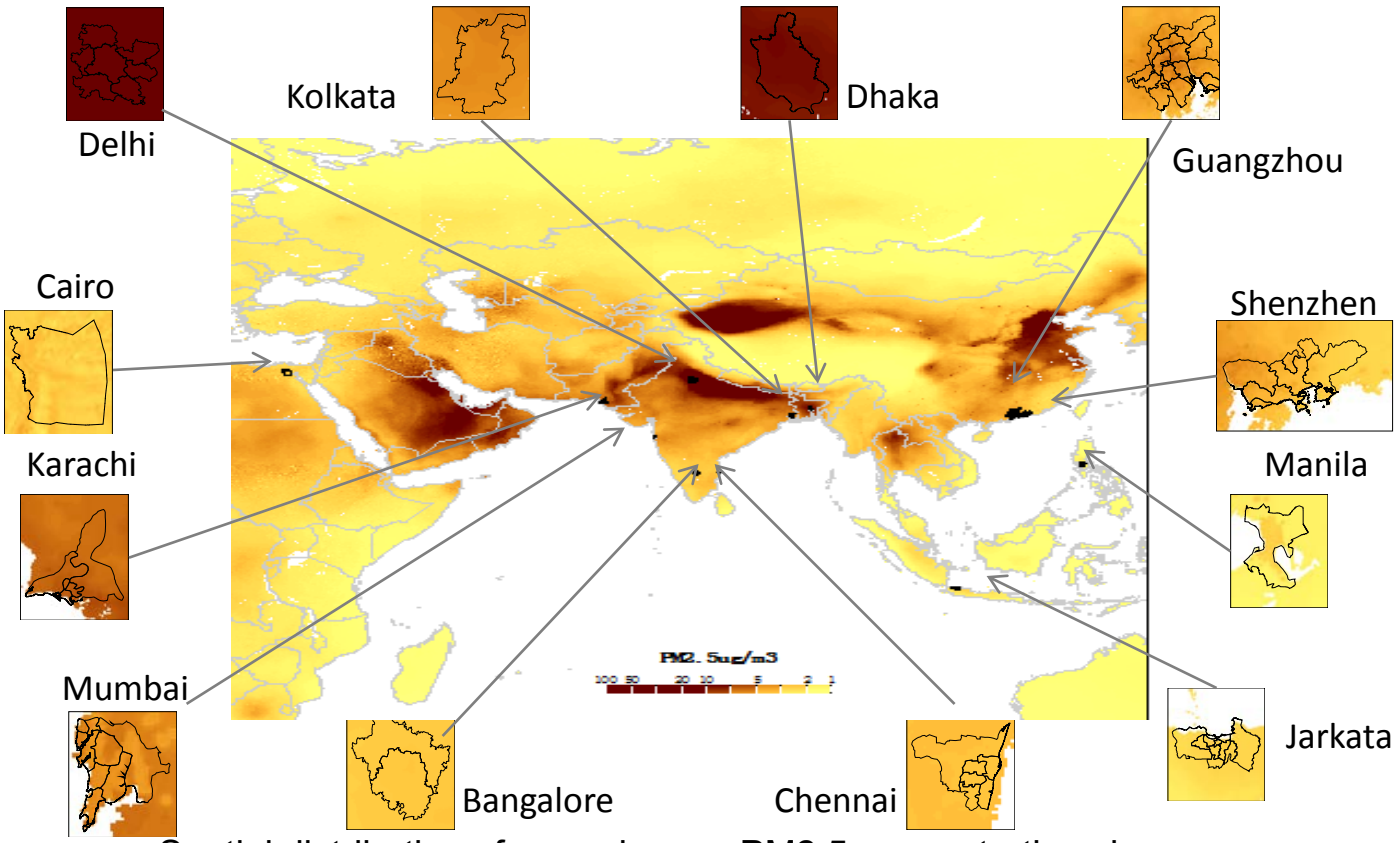
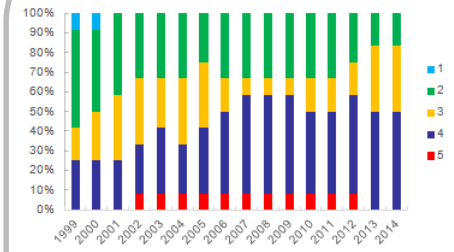


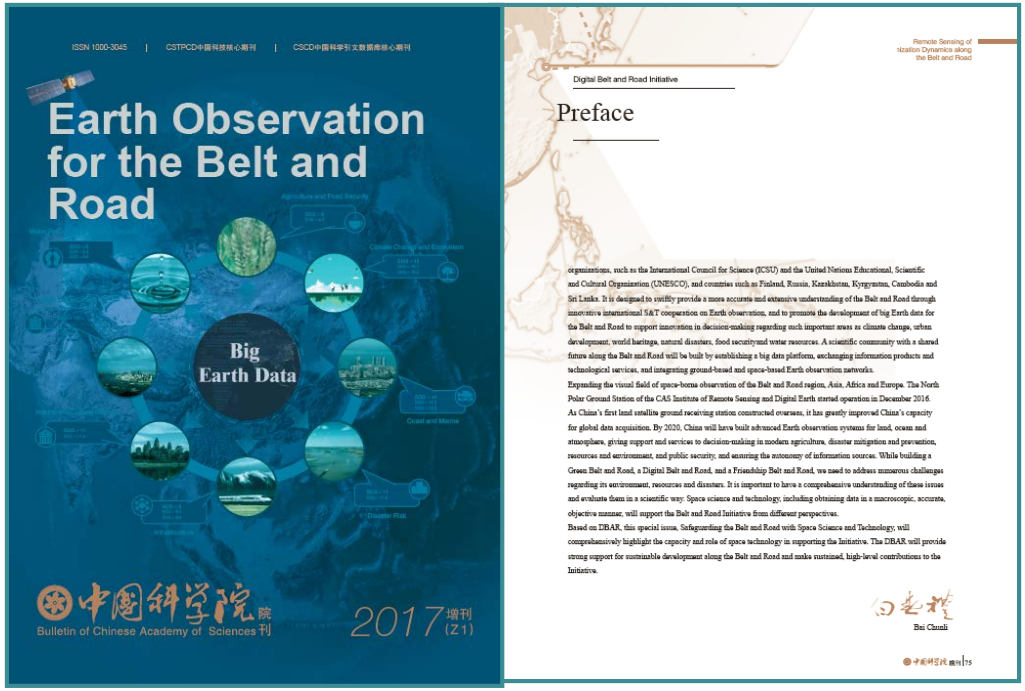
Spatial distribution of annual mean PM2.5 concentrations in megacities along the Maritime Silk Road in 2014



Area proportion of 12 megacities under different PM2.5 concentration grades from 1999 to 2014. Grades 1, 2,3 ,4 and 5 correspond to less than 15ug/m^3,15-25ug/m^3,25-35ug/m^3,35-100ug/m^3 and greater than 100ug/m^3, respectively.

DBAR-UrBAN

Officially launched by Prof. BAI Chunli, the President of Chinese Academy of Sciences in May, 2017



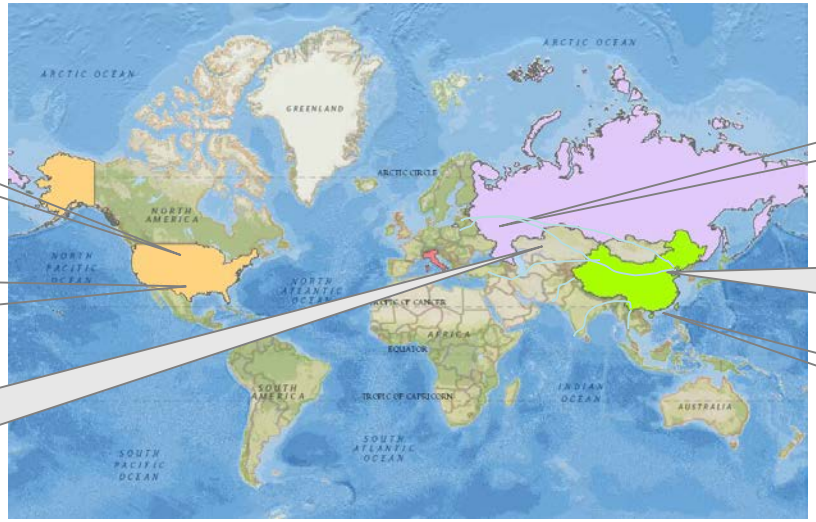
DBAR-UrBAN

DBAR-UrBAN members: 6 organizations, 4 countries

Indiana State University ,USA

University of North Texas (UNT) ,USA

European Commission, Joint Research Center (JRC), Italy



Institute for Scientific Research of Aerospace Monitoring (AEROCOSMOS)，Russia

Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences(RADI), China

Chinese University of Hong Kong , China

Co-Chairs :

- LU Linlin, *Institute of Remote Sensing and Digital Earth,Chinese Academy of Sciences(RADI), China;* ***lull@radi.ac.cn***
- Martino PESARESI, *European Commission, Joint Research Center (JRC), Italy*

Call for Members and Participants!

Thanks

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