中国科学院
CHINESE ACADEMY OF SCIENCES

World Federation of Engineering Organizations
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地球大数据科学工程
CASEarth

Big Earth Data for Urban and Peri-urban Sustainable Development

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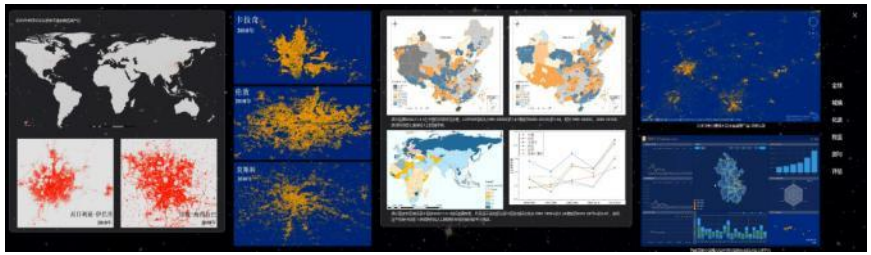
United Nations HLPF 2020
Side Event - Webinar

HIGH-LEVEL POLITICAL FORUM
ON SUSTAINABLE DEVELOPMENT

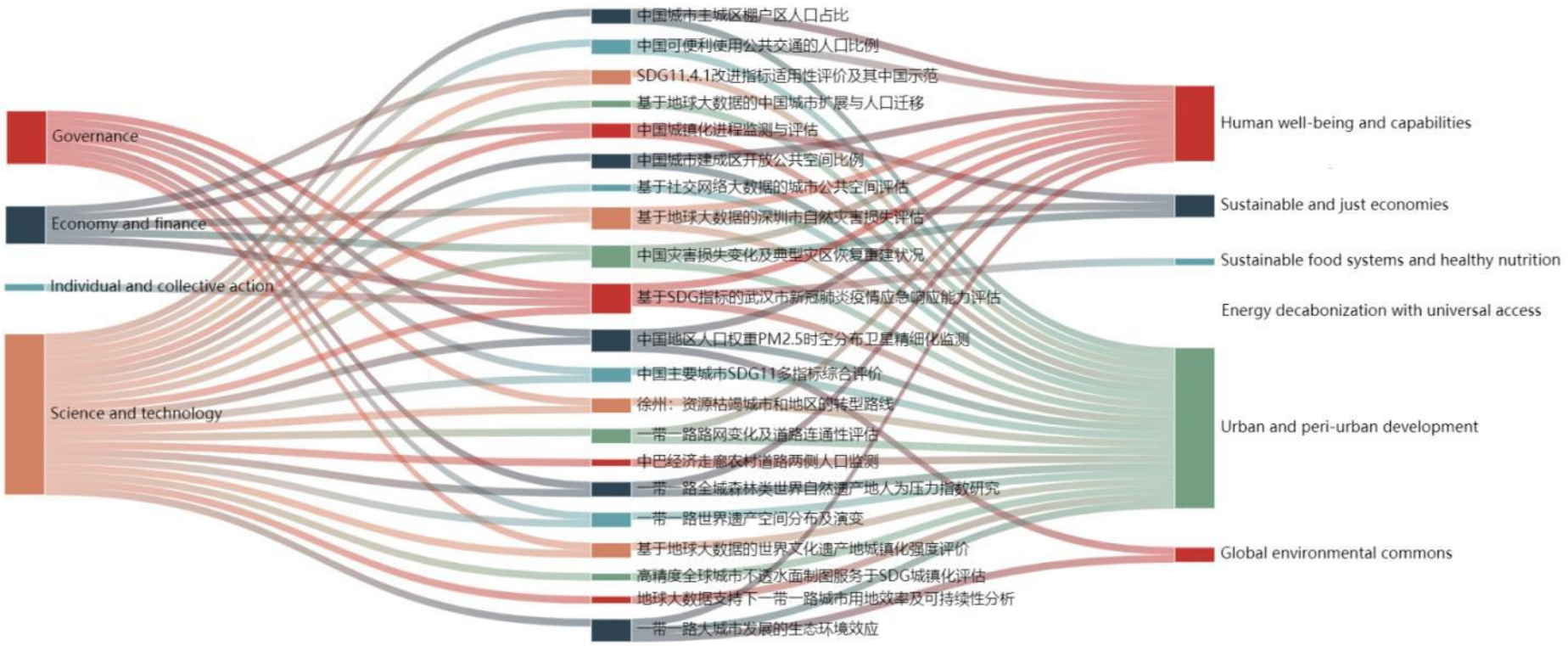
CASEarth Program

Goal : International Science Center for Big Earth Data

- Building a high-level Big Earth Data infrastructure;
- Developing a Big Earth Data system to drive the discipline research;
- Constructing an advanced platform for decision-making support.



Big Earth Data for Urban Sustainability

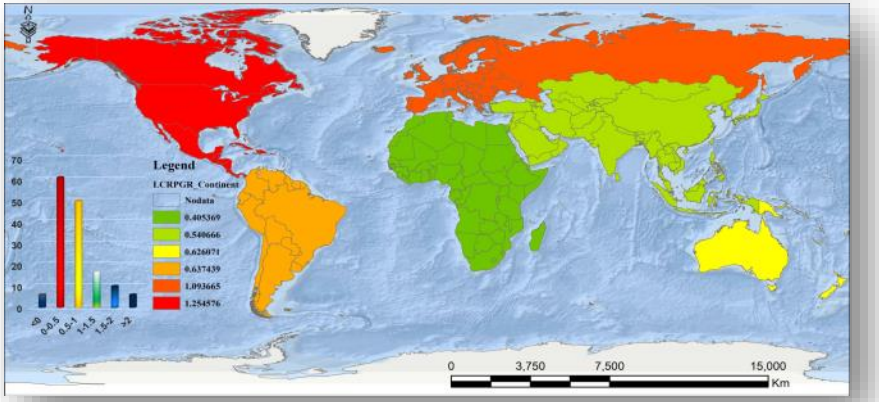


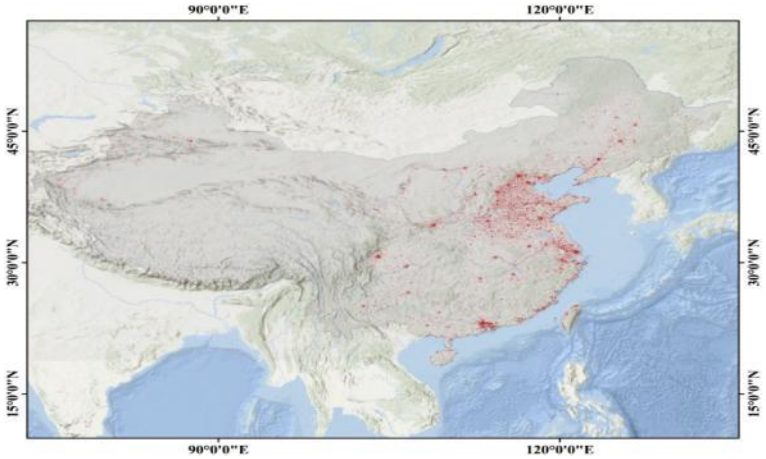
CASEarth conducts 21 practice cases centered on urban & peri-urban development, and focuses on 8 main themes including urban public transportation, road network, open public space, heritage protection, urbanization, pollution, public health, and disaster prevention & mitigation.

Urban Sprawl and Urbanization

Global urban impervious surface mapping in serve of SDGs

Developed online computing and processing toolkit for SDG11.3.1 based on CASEarth cloud platform.





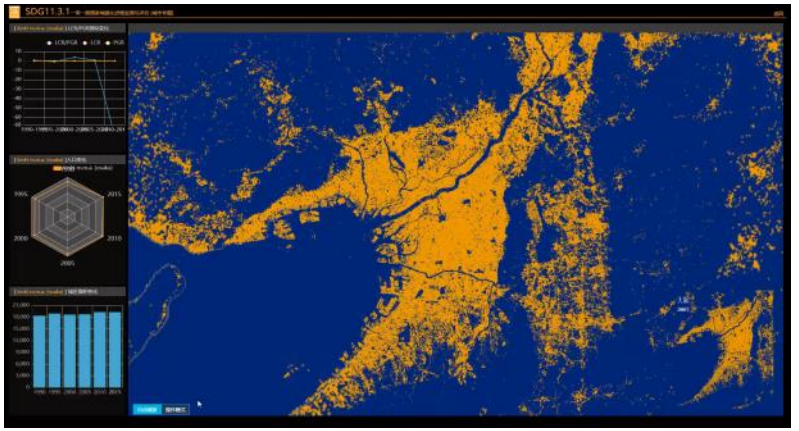
Assessing global urbanization progress at continental and national scale from 2015 to 2018, results reveal that Africa as well as nearly 50% nations face major challenges ahead for urban sustainable development.

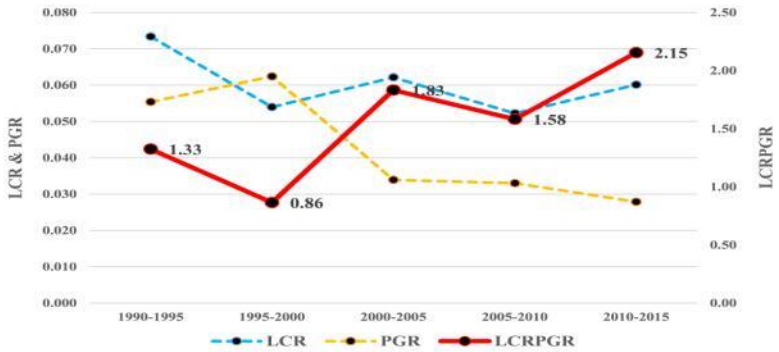
Global 10-meter resolution urban impervious surface products acquired in 2015 and 2018 were generated from multi-source Big Earth Data.

Urban Sprawl and Urbanization

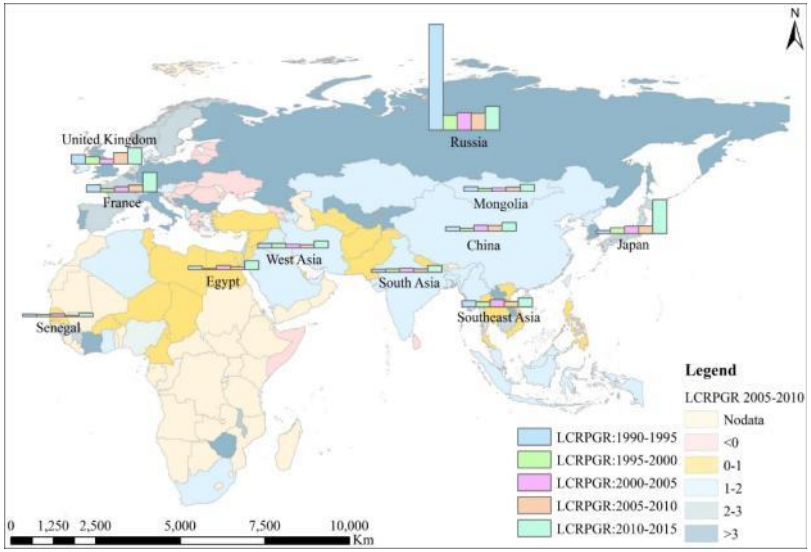
Monitoring and assessing urbanization progress in B&R region

- Monitoring and measuring the SDG 11.3.1 indicator for 1,500 cities with populations greater than 300,000 from 1990 to 2015 at 5-year intervals in the B&R region
- In the B&R region, the results reveal that LCRPGR increased from 1.24 in 1990-1995 to 2.67 in 2010-2015.
- Urban sustainability in B&R still faces major challenges.



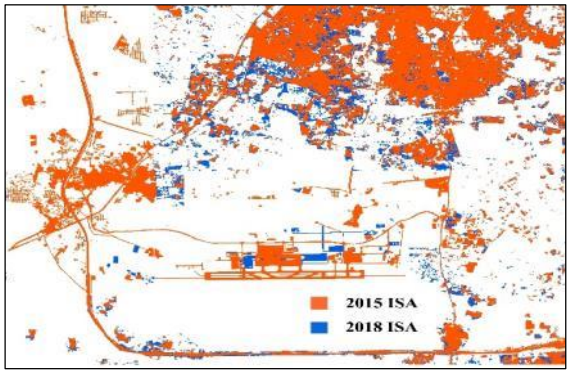


Changes of LCR, PGR and LCRPGR in China

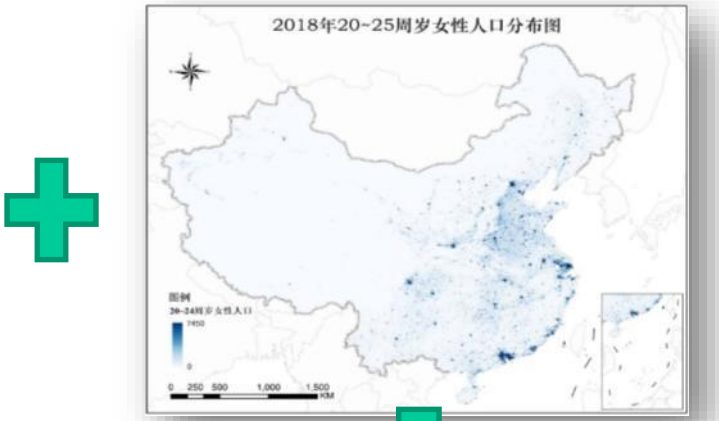


Urban Public Transportation

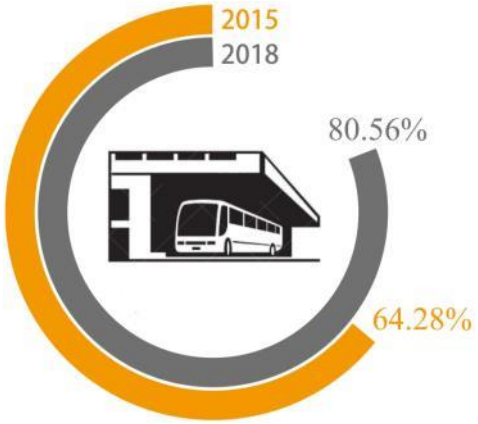
- Producing Chinese fine population grid data with 1km resolution by sex and age for 2015 and 2018.
- The proportions of the population with convenient access to public transportation were 64.28% and 80.56 in 2015 and 2018, respectively.

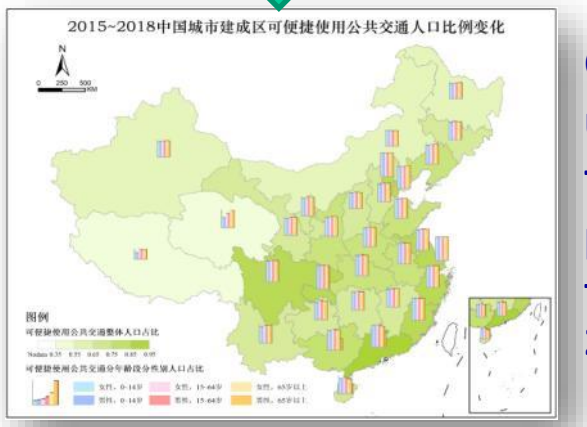


Urban public transportation system



Urban population distribution by sex and age in China

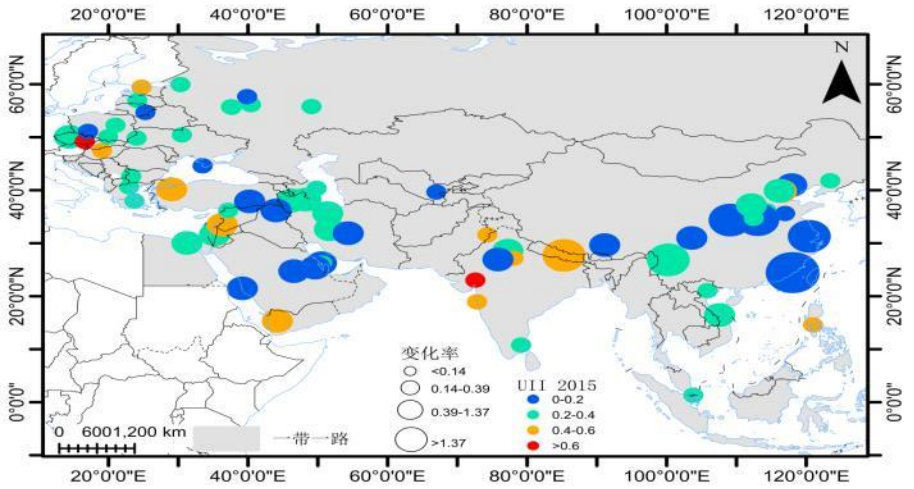




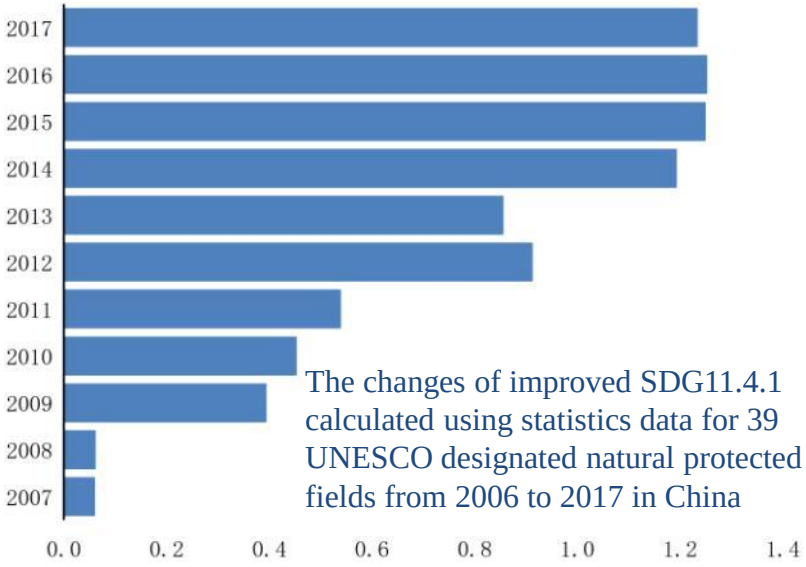
Change of urban public transportation proportions from 2015 to 2018

Natural and Cultural Heritage Protection

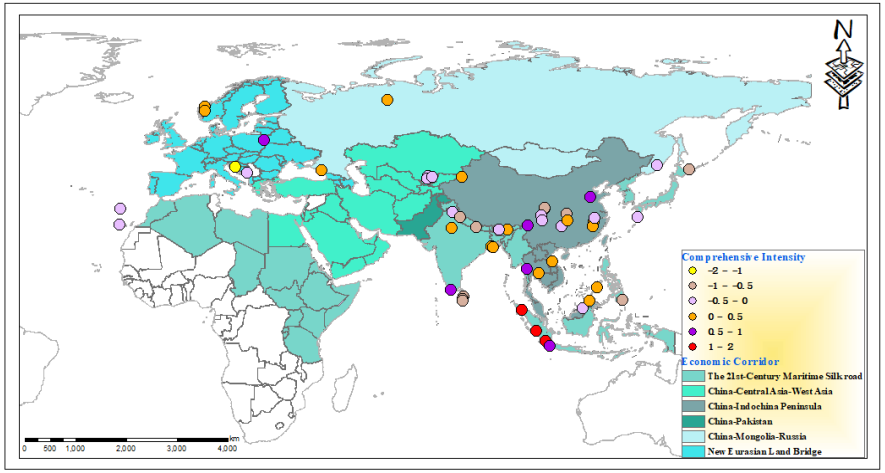
- Improved SDG11.4.1 indicator - “increase in capital investment per unit area to protect and safeguard the world’s cultural and natural heritage”.
- Proposed human comprehensive intensity indicator. About 78% of the natural heritage sites is affected by human disturbance gradually during 1993 to 2016.



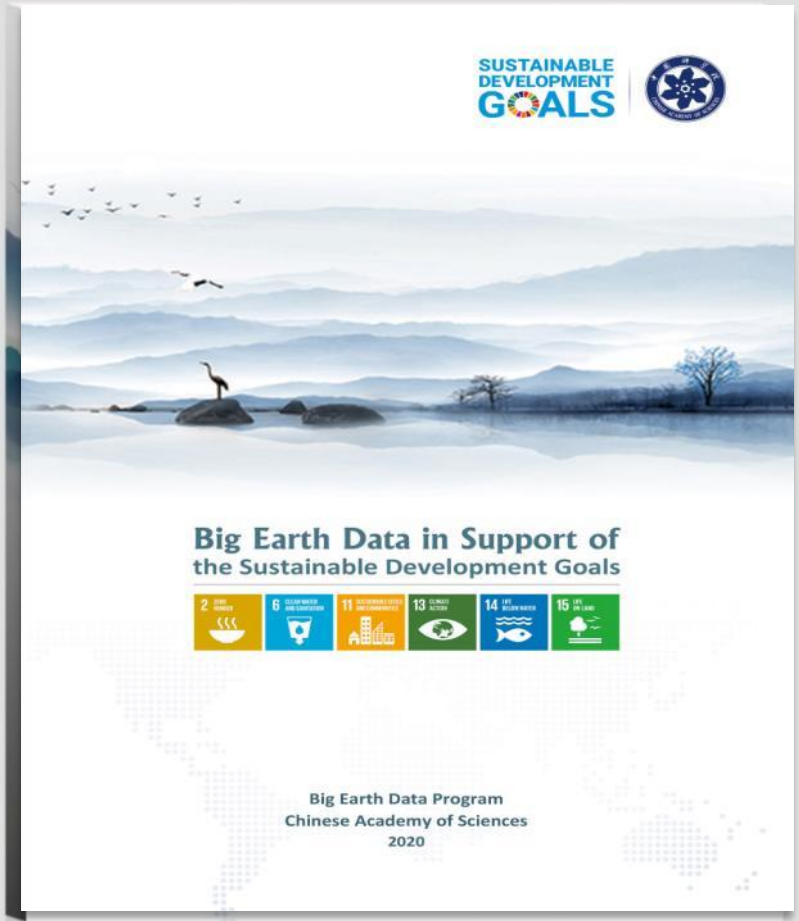
The changes of UII for cultural heritage sites along the Belt and Road from 2000 to 2015

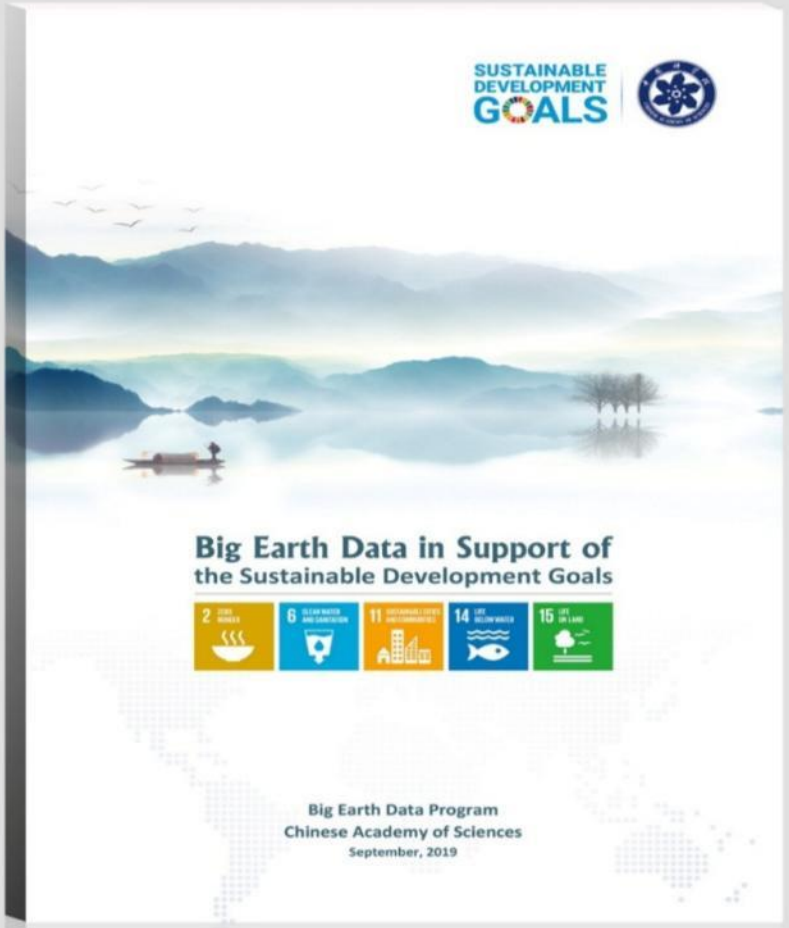


The changes of improved SDG11.4.1 calculated using statistics data for 39 UNESCO designated natural protected fields from 2006 to 2017 in China



Distribution map of comprehensive intensity of human disturbance in the natural heritage sites


SUSTAINABLE DEVELOPMENT GOALS
Big Earth Data in Support of the Sustainable Development Goals
Big Earth Data Program
Chinese Academy of Sciences
2020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Thank You ！