ISDE & Digital Silk Road Alliance

WANG Changlin
Executive Director, ISDE

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Digital Earth is a virtual representation of our planet constructed with massive, multi-resolution, multi-temporal Earth observation and socioeconomic data of different types, as well as a system of analysis algorithms and models, encompassing all natural and social systems in a geographical framework for research and applications.

Theoretical Basis: Earth system science, geo-information science, cognitive science and other scientific research.

Key Technologies: remote sensing technology, geographic information technology, navigation technology, computer technology, mass storage technology, networking techniques, multimedia technology, and virtual reality technology.

Digital Earth

• Digital Earth is a global initiative aimed at harnessing the world’s data and information resources to quantitatively describe and represent our planet, and to monitor, measure and forecast natural and human activities on the planet.

• Digital Earth makes use of digital technologies to model earth systems, including its cultural and social aspects represented by human societies living on the planet. Digital Earth is envisaged as a common platform to support national and international cooperation for global sustainable development, and a newly-developing point of economic growth and social well-being.

Concept defined by ISDE Council
The 1st International Symposium on Digital Earth

- Date: Nov. 1999
- Venue: Beijing, China
- Theme: Towards Digital Earth
- Outcomes:
  - Beijing Declaration on Digital Earth
  - In 2000, establishment of the International Steering Committee for ISDE
- Participants: 500 attendees from 27 countries

“...The urgent needs of social development in China will be the biggest impetus for creating "Digital Earth"...As the world's largest developing country, China must play an important role in global sustainable growth. The "Digital Earth" will help promote sustainable growth in China and in turn contribute to the world's sustainable development ...China will expand cooperation with the countries of the world to play an active role in introducing the concept of "Digital Earth," sharing information resources, and creating a digital world”.

Then vice premier, Li Lanqing, addressed on the symposium
The 2nd International Symposium on Digital Earth
- Date: June, 2001
- Venue: Canada
- Theme: Beyond Information Infrastructure
- Participants: more than 200 attendees from about 30 countries

The 3rd International Symposium on Digital Earth
- Date: Sept. 2003
- Venue: Czech Republic
- Theme: Information Resources for Global Sustainability
- Participants: more than 250 attendees from 34 countries

The 4th International Symposium on Digital Earth
- Date: March, 2005
- Venue: Japan
- Theme: Digital Earth as a Global Commons
- Participants: 345 attendees from 36 countries
International Society for Digital Earth

- ISDE, founded in Beijing in 2006, is an international scientific organization principally promoting academic exchange, science and technology innovation, education, and international collaboration towards Digital Earth.

- The Mission of the Society is to benefit society by promoting the development and realization of Digital Earth.
The purpose of ISDE is to promote international cooperation of the Digital Earth vision, and enable Digital Earth technologies to play key roles in, inter alia, economic and socially-sustainable development, to promote information technology and to reduce digital divide.
ISDE has organized 10 international symposia and 6 Digital Earth Summits in 10 countries: China, USA, Canada, Germany, Australia, Japan, New Zealand, Malaysia, Czech Republic, and Bulgaria, significantly promoted the Digital Earth Development. Digital Heritage is one of the topics discussed in the conferences.
Digital Earth Symposium (2nd to 9th)
Digital Earth Summits

First DE summit in New Zealand

Digital Earth Summit in Bulgaria, 2010

6th Digital Earth Summit, 2016
Now call for paper:
http://www.desummit2018.org/

11th ISDE Symposium in Florence, Italy in 2019
International Journal of Digital Earth

- Inaugurated in 2008
- Unique journal on Digital Earth
- One of the leading journals in remote sensing and geoinformatics in the world
- Indexed in 12 databases
- 2017 IF 2.292
- 2017 5-year Impact Factor: 2.978

Several papers related to remote sensing archaeology and digital heritage have been published in this journal.
In Nov 2009, ISDE was accepted as a member of the Group on Earth Observations (83 country members, and 58 participation organizations by then)
In January 2017, ISDE was admitted by ICSU (International Council for Science) as a member of International Scientific Associates, starting from 1 January, thus, being 1/24 members.
The scientific outputs of the workshop include:


Digital Silk Road Alliance

• Supported by China Association for Science and Technology, ISDE established a Digital Silk Road Alliance.

• The Alliance is composed by scientific research bodies of countries along the Belt and Road, to build up a think-tank to jointly promote the capacity buildings for earth observation and digital earth.

• The Alliance has got supports from International organisations, such as GEO, Codata, OGC, GSDI.

• ISDE welcome all interested parties to join the Alliance, especially from those developing countries to join.
Activities

• To realize the objective, the Alliance may take actions as below:

• To develop a cooperation scientific network on Digital Earth themes along the countries of the Silk Road.

• To organize special sessions on Digital Silk Road Alliance in collaboration with participating organizations and institutes of countries along the Silk Road in order to build up a platform for scientific exchange.

• To conduct activities related to capacity building and technology transfer, and encourage the institution partners to establish ISDE National Chapters and Special Working Groups.

• To work jointly with members of the Alliance in order to identify major priorities for workshops and international conferences on the thematic of Digital Earth.
Supports for Digital Silk Road Alliance
Our Ref. 2016/98/GEO/Digital Earth

Prof. GUO Hudong
President
International Society for Digital Earth
No.8 Denglouhuang Southroad, Haidian District,
Beijing 10094
China

Geneva, 21 July 2016

Subject: Letter of Support for Establishment of the Digital Belt and Road Alliance

Dear Prof. Guo,

The Group on Earth Observations (GEO) is pleased to support the establishment of the Digital Belt and Road Alliance, initiated by the International Society for Digital Earth (ISDE), one of GEO’s Participating Organizations.

The proposed Digital Belt and Road Alliance would be an international scientific network to coordinate the optimal use of Earth observation data for development planning along the Belt and Road region and to share scientific findings and applications on Earth observation to address sustainable development challenges. In light of GEO’s objective of using Earth observation data, information and services to address international and regional environmental challenges, we cordially welcome the proposed alliance and its activities.

Should the alliance be established, we shall be pleased to discuss with you appropriate mechanisms for GEO to work collaboratively with the alliance and share our relevant experiences, to the best of our ability.

Yours sincerely,

Barbara J. Ryan
Secretariat Director

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To:
Academician GUO Huadong
President of ISDE
CAS-RADI, Beijing, China

LETTER OF SUPPORT
FOR
ESTABLISHMENT OF THE DIGITAL SILK ROAD ALLIANCE

Dear Academician Guo Huadong,

With great pleasure I accept information about your effort to establish the Digital Silk Road Alliance in the ISDE conference in Sydney next days. I would like to ensure you that Faculty of Science, Masaryk University, Brno, Czech Republic fully supports this idea about further widening of international cooperation in such grandiose way.

In our Faculty the first book about GIS in Europe was written in 1983, the Laboratory on Geoinformatics and Cartography was established in 1992 and the 7th ISDE conference was held in 2005. Representative of our Faculty and of Masaryk University and Czech Republic, prof. Milan Konečný, was included as a founding member of ISDE from very beginning (1999) and later serve 12 years as a vice-president and shorter time as its Acting president.

In the near future our Faculty expects from the Digital Silk Road Alliance intensifying of scientific exchange and opening new capabilities between countries located along the Silk Road. I hope that such a new platform will stimulate formulation of vital research ideas and starting of new projects between Europe and Asia and many other countries in the World.

Our Faculty of Science would like to be a stimulator of the development of Digital Silk Road Alliance and as well as in all Czech Republic and to European region. This effort will be coordinated by Laboratory on Geoinformatics and Cartography in Department of Geography. Laboratory is developing long time of open data and technology transfer, context-based and adaptive cartography, map reasoning, early warning and crisis management and such an area of research like Volunteer Geographic Information (VGI) and analysis of information and knowledge from Social Networks, and other means coming with Big Data etc. Of course, the Digital Earth idea and newly established Digital Silk Road Alliance are very important international platforms for integration of various related researches.

On behalf of Faculty of Science I wish successful beginning of your new Alliance activities.

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To: ISDE Secretariat

About: Establishment of the Digital Silk Road Alliance

LETTER OF SUPPORT

Bulgarian Cartographic Association (BCA) supports the Digital Silk Road Alliance establishment and Belt and Road initiative which will enhance scientific research by Digital Earth technologies. The establishment of the network of researchers, working in different topics connected to Digital Earth, is very important for cartographic society and in benefits to all users of geo-data production and visualization.

BCA will promote the activities of the established scientific Alliance and give the opportunities for presenting the scientific results during the International conferences on cartography and GIS and all international geo-events in Bulgaria.

Principal Contact: Prof. Dr. Temenoujka Bandrova, President, Bulgarian Cartographic Association, tbandrova@abv.bg

Alternative Contact: Assistant Prof. Dr. Silvia Marinova, Secretary General, Bulgarian Cartographic Association, bgcartography@gmail.com

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SUPPORT LETTER

for Establishment of the Digital Silk Road Alliance

The University of Architecture, Civil Engineering and Geodesy (Sofia, Bulgaria) supports the establishment of the Digital Silk Road Alliance. The scientific exchange and the reinforcement of the current scientific capabilities between countries along the Silk Road will be in benefits to scientific society and development of the international research.

The University of Architecture, Civil Engineering and Geodesy has interest of development of Digital Earth ideas and will focus activities in open data and technology transfer as well as will promote the researches in the context of Digital Silk Road by conferences and international projects.

Principal Contact: Prof. Dr. Slavejko Gospodinov, Vice-rector of UACEG, sgospodinov@mail.bg

Alternative Contact: Prof. Dr. Temenoujka Bandrova, Head of Laboratory on Cartography, UACEG, tbandrova@abv.bg

Prof. Dr. Slavejko Gospodinov,
Vice-rector of UACEG

Prof. Dr. Temenoujka Bandrova
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Establishment of Digital Silk Road Alliance
The scientific outputs of the workshop include:


“It has become clear that the next generation of Digital Earth will not be a single system but, rather, multiple connected infrastructures based on open access and participation across multiple technological platforms that will address the needs of different audiences.”

Digital Earth Implementations for commercial

- Google Earth
- Microsoft Virtual Earth 3D
- ESRI ArcGIS Explorer
- Skyline Global
DIGITAL EARTH SCIENCE PLATFORM (DESP/CAS)

Digital earth science platform (DESP/CAS) consists of 5 technical sub-systems and several application systems.
Key technology: Earth simulation and visualization

Digital earth visualization environment has been constructed.

13 Digital Earth application subsystems have been integrated.

World’s cutting-edge hardware systems, has developed the core software system. System is an interactive operation, teamwork, data services, scientific computing immersive simulation environment with Geomatics expression ability, which supported by computer graphics, computer vision, photogrammetry, artificial intelligence technology.
Digital Earth Australia: Big Data for a Big Country.

The Australian government recently announced funding of AUD $15.3m over the next 2 years to transform the prototype Australian Geoscience Data Cube (AGDC) into an operational Earth observation service called Digital Earth Australia.

Digital Earth Australia Video

For those who have not heard of the Data Cube (I could ask where have you been?), it is an analytical engine that has been developed in Australia to routinely transform Earth observations into actionable information for users. The AGDC has a wide range of formal and informal data sources that are critical to Australia's national security.

Geoscience Australia got funds of AUD $15.3m over the next 2 year to transform the prototype Australian Geoscience Data Cube into an operational Earth observation service called Digital Earth Australia.
Introducing our Newest Journal- **Big Earth Data**

*Big Earth Data* is a new fully open access international journal that publishes ‘big data’ studies across the entire spectrum of the Earth sciences.

*Big Earth Data* is established in 2017 as a sister journal of *IJDE*.

- Sponsored by International Society for Digital Earth
- Supported by Institute of Remote Sensing and Digital Earth, CAS
- Co-published by Taylor & Francis and Science Press
Introducing our Newest Journal-
Big Earth Data

**Aims and scope**

Big Earth data comprises a massive amount of data detailing the processes of Earth’s environment and change, and the interaction between humans and the Earth. Big Earth data have gradually become the new engine of the scientific discovery and knowledge innovation for Earth system science.

*Big Earth Data* is an interdisciplinary Open-Access journal aimed at providing a fast and high-quality platform to promote big data sharing, processing and analyses for revolutionizing the cognition of Earth system. To achieve our goals, the journal publishes top-quality research, valuable datasets from ‘big data’ studies across the entire spectrum of the Earth sciences. Topics covered in the journal include (but are not necessarily restricted to):

- Earth Observation
- Geography
- Geology
- Atmospheric Science
- Marine Science
- Geophysics
- Geochemistry
Introducing our Newest Journal - Big Earth Data

**Article types**

- **Full papers**
  
  Full papers contain significant, insightful and original scientific work that has not been published previously. Full papers normally comprise 4,000 to 8,000 words of text, together with supporting figures and tables.

- **Review articles**
  
  Reviews should be timely and add to the existing literature, rather than duplicate existing articles, and should be of general interest to the journal's wide readership. Review articles normally comprise 10,000 or more words of text, together with supporting figures and tables.

- **Technical notes**
  
  Technical Notes should present an open-source software tool or computation method, procedure for the analysis or handling of big Earth data. Technical notes are typically up to 4,000 words long.
Introducing our Newest Journal-
Big Earth Data

Editor-in-Chief

Huadong Guo
President, International Society for Digital Earth
Professor, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences
Past President, Committee on Data for Science and Technology (CODATA), ICSU
Thank You

www.digitalearth-isde.org