



isoe11 11th INTERNATIONAL
SYMPOSIUM ON
DIGITAL EARTH
Florence (Italy), September 24 – 27, 2019

Digital Earth in a transformed Society

Digital Earth in a Transformed Society

Report on the 11th International Symposium on Digital Earth

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The International Society for Digital Earth

- ◎ The International Society for Digital Earth (ISDE), founded in Beijing in 2006, is a non-political, non-governmental and not-for-profit international organization
- ◎ The ISDE Secretariat is hosted by the Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences. ISDE is registered in the People's Republic of China as an NGO.



ISDE Official Inauguration Ceremony, 2006

The International Society for Digital Earth

- ◎ The International Society for Digital Earth (ISDE) explores Digital Earth as an enabling technology to play key roles in economic and social sustainable development, environmental protection, disaster mitigation, natural resources conservation and improvement of living standards.
- ◎ ISDE promotes academic exchange, science and technology innovation, education, and international collaboration towards Digital Earth.



**International Society for
Digital Earth**

*To benefit society by promoting the development
and realisation of Digital Earth*

The International Society for Digital Earth

- ◎ President: Dr. ANNONI Alessandro
 - Honorary president: Prof. GUO Huadong
- ◎ ISDE Bureau
- ◎ ISDE Council



The ISDE Society Events

- ◎ International Symposium on Digital Earth
 - on odd-numbered years since 1999
- ◎ Digital Earth Summit
 - on even-numbered years since 2006

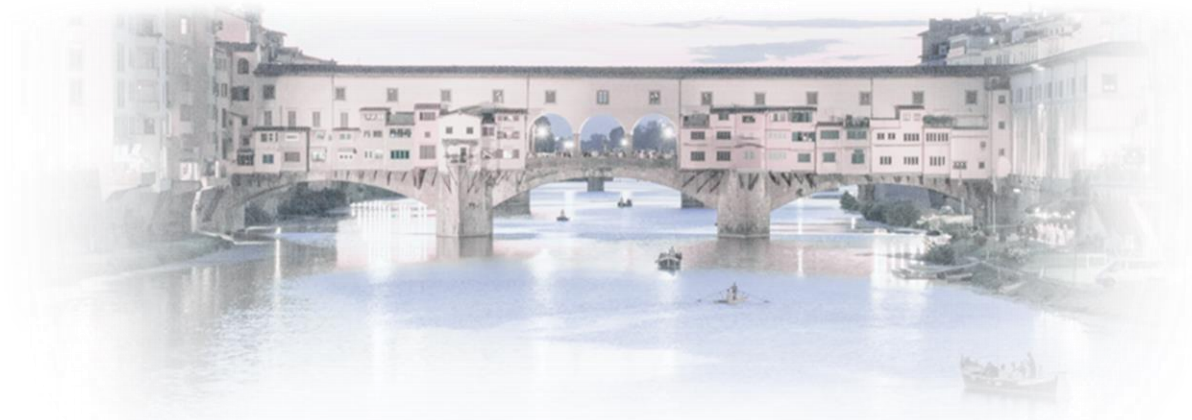


The 11th International Symposium on Digital Earth



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The ISDE11 Scientific Programme

① Opening Plenary on:

- Past and future of ISDE
- Science and Digital Earth for Sustainability

② Plenary Sessions on:

- A Transformed Society: Challenges and Opportunities
- New Knowledge Ecosystems: Challenges and Opportunities

③ Grand Debates on:

- Trust and Ethics in Digital Earth
- Digital Earth for UN SDGs
- ISDE in a Transformed Society

④ 20 Sessions on 5 parallel strands

- Digital Transformation in Society
- Communities and International Programmes
- Remote Sensing and GIS
- Enabling Technologies and Processes for the Digital Earth
- Digital Earth Applications

⑤ Poster sessions

Contributions received

- ◎ 260 abstract submitted
- 151 oral presentations (including invited speeches)
- 78 poster presentations



Attendance

◎ About 400 registrations

- Europe 54%
- Asia 39%
- Oceania 3%
- Americas 3%
- Africa 1%



Opening Ceremony

- © 220 delegates attending the Opening Ceremony in Palazzo Vecchio



ISDE 11 SCIENTIFIC Outcomes and Publications

- ◎ Florence Declaration
- ◎ Key Messages from participants
- ◎ Presentations
 - available from <https://digitalearth2019.eu/outcomes/>
- ◎ Extended abstracts
 - 61 extended abstract published on IOP Conference Series

Key Messages from Sessions (1/4)

© Social and Governance aspects

- The digital transformation of our society offers many opportunities but also new challenges for democracy (e.g. personalized targeting, information bubbles reinforcing prejudice, more aggressive style of delivery)
- We need to (re)create more reflective spaces for deliberation, greater accountability and taking of responsibility at both corporate and individual level, and greater ability to listen to other opinions
- AI bias must be carefully considered and managed, although biases are natural in human thinking and learning process

Key Messages from Sessions (2/4)

© Social and Governance aspects (continue)

- The current transformed Society requires "trust". Data and algorithms are increasingly being available, but the need for validation is important as well: open access to codes and data is necessary
- Commercial platform services are increasingly becoming an important asset for research. However, administrative barriers should be taken into account
- We saw some excellent business cases of how Digital Twins (and by extension Digital Earth) can support environmental sustainability. However, we need to develop the applications together with the user community

Key Messages from Sessions (3/4)

© Multi-disciplinary aspects:

- **Microbiomics discipline** (data, analyses and methodologies) can provide a valuable contribution to building the “nervous system” that DE envisions **to sense our Planet and human Society**
- **Cultural Heritage discipline, High resolution digital 3D modelling (reconstruction) and AR** play an important role to **convert Big Data to knowledge** and contribute significantly to DE

Key Messages from Sessions (4/4)

© Innovative Technology aspects:

- Digital—physical interaction paradigm is an essential paradigm for DE
- Learning-driven AI is the “new” microscope to see the hidden data patterns —we must use it to generate information from Big Data.
- Platforms need to develop an ecosystem where data providers have a return to their core business and which allow to engage with a large community
- Earth Observation Data Cube can significantly contribute to the Digital Earth vision and objectives lowering barriers and offering new possibilities to harness the information power of satellite EO data
- National Space Agency are requested to provide free and open access to the new space-borne multi-spectral data



... and more other valuable ones



The ISDE Florence Declaration (1/3)

© ISDE recommends:

- a) That Digital Earth expand its role in **accelerating information transfer from science to applications in support to the implementation of UN Sustainable Development Goals and in support of a sustainable management of global environmental commons.**
- b) Further, that every effort be undertaken to develop an **understanding on ethics in Digital Earth** underpinning, location privacy, and accurate information dissemination of data to information to gain trust of the wider community.
- c) Also, that in developing Digital Earth concept, efforts must be made to **take full advantage of existing and novel technologies and explore new avenues to facilitate data access and re-use.**

The ISDE Florence Declaration (2/3)

© ISDE recommends:

- d) Further, that the International Society for Digital Earth take **proactive role in developing an understanding on digital transformation, digital twins, digital ethics; datafication; digital governance.**
- e) Further, that the International Society for Digital Earth should **continue promotion of scientific research in Digital Earth and its utilization to commercial sector and civic society;**
- f) **Expanding cooperation and collaboration between the International Society for Digital Earth and the international societies,** United Nations, World Bank, World Health Organisation, Food and Agriculture Organization, Group on Earth Observations, in particular with inter-governmental organizations, and international non-governmental organizations;

The ISDE Florence Declaration (3/3)

© ISDE calls for

- **Support from scientists, citizens, government and private sector at all levels** in developing science, projects, policies and standards to Digital Earth, and call for appropriate investments in scientific research, technology development, education, and promotion of the benefits of Digital Earth.

References

- © ISDE 11 Website: <https://digitalearth2019.eu/>
- © ISDE Society Website: <http://www.digitalearth-isde.org/>

Acknowledgments

◎ Main partners



◎ Associate Partners



◎ Sponsors and Exhibitors



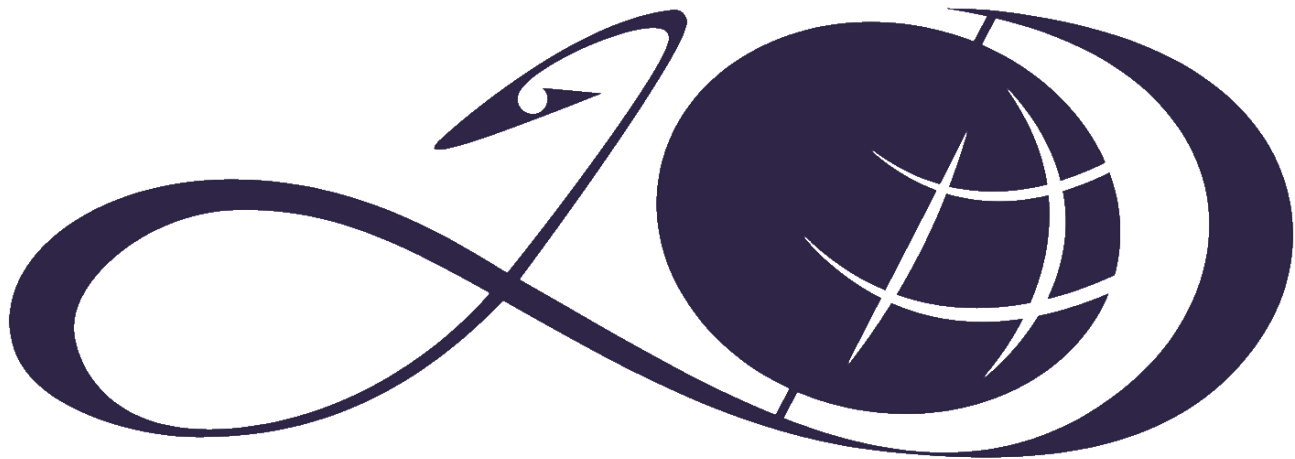
◎ Media partners



Next Events

DES2020: 8th Digital Earth Summit

ISDE12: 12th International Symposium on Digital Earth



8th DIGITAL EARTH SUMMIT 2020

Digital Earth in changed World: Challenges and Opportunities

8-10 September 2020, Moscow (Russian Federation)

Contact: Evgeny (Eugene) N. Eremchenko - <http://www.neogeography.ru/>

*Summit planning may
change due to pandemic*





12th International Symposium on Digital Earth

Salzburg (Austria), July 2021

<http://digitalearth2021.org/>

Call for partners and sponsors open!



