

International Society for Digital Earth

Manual of Digital Earth

(Tentative Title)

OUTLINE

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Chapter 1 Understanding Digital Earth

- 1.1 Origins and Precursors of Digital Earth**
- 1.2 Digital Earth Initiative**
- 1.3 Digital Earth Evolution**
- 1.4 Global Response Activities**
- 1.5 Relationship to other initiatives**

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Part 1 Digital Earth Technologies

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- 2.2 Scientific Digital Earth Platforms**
- 2.3 Public Digital Earth Platforms**
- 2.4 Commercial Digital Earth Platforms**

Chapter 3 Earth Observation for Digital Earth

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- 3.2 Airborne Earth Observation**
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- 3.4 In-situ (or ground-based) observations**
- 3.5 Processing and Analyzing Technology**

Chapter 4 Global Positioning Systems and Location-based Services

- 4.1 Global Positioning Systems Development**
- 4.2 Satellite Navigation Theory and Technology**
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Chapter 5 Geospatial Information Infrastructure

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- 9.1 Theories for the Continuous Zooming**
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- 9.4 Data Structure for Continuous Zooming**

Chapter 10 Big Data and Cloud Computing

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- 10.2 Big Data Analytic Methods**
- 10.3 Architecture for Big Data Analysis**
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- 10.5 Case Study: Earth Cube/ Data Cube**

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 - 11.2 Connectionism, Deep Learning, Reinforcement Learning and Generative Adversarial Networks**
 - 11.3 Evolutionism, Genetic Algorithm and Swarm Intelligence**
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Part 2 Digital Earth for Sustainable Development

Chapter 12 Digital Earth for UN SDGs

- 12.1 Fundamentals of Digital Earth for SDGs**
- 12.2 Integration of Geospatial Information and Earth Observation Data with Statistical Information**
- 12.3 National Level Case of Engagement of Stakeholders (GI/EO Service Providers) to Support SDGs Indicator Monitoring and Reporting**

Chapter 13 Digital Earth for Climate Change

- 13.1 Digital Earth for Monitoring Impact Factors of Climate Change (e.g. Anthropogenic and Physical Factors)**
- 13.2 Detecting Interactions among the Climate and the Society through Spatial and Time**
- 13.3 Modeling the Future Changing Probabilities**
- 13.4 Digital Earth for the Implementation of the Paris Agreement**

Chapter 14 Digital Earth for Disaster Mitigation

- 14.1 Digital Earth and Disaster Risk Mapping Technology**
 - 14.2 Digital Earth for Disaster Early Warning and Response**
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Part 3 Digital Earth Application: Earth-Human Interaction

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Chapter 17 Digital Earth and Citizen Science

Chapter 18 The Economic Value of Digital Earth

Chapter 19 Social Media and Social Awareness

Chapter 20 Internet of Things

Chapter 21 Digital Earth and Neogeography

Chapter 22 Digital Earth and Situation[al] Awareness

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Part 4 National & Regional Development of Digital Earth

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Chapter 24 Digital China

Chapter 25 Digital Europe

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Part 5 Digital Earth: Data Policies, Ethical Consideration, and Education

Chapter 28 Digital Earth Data Policies

- 28.1 Data Openness**
- 28.2 Data Access**
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Chapter 29 Ethical Considerations

Chapter 30 Digital Earth: Education and Outreach

- 30.1 Digital Earth in Classrooms**
 - 30.2 Digital Earth Community Connections**
 - 30.3 Digital Earth Education to Career Curriculum**
 - 30.4 The Future of Digital Earth Education**
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Chapter 31 Digital Earth: Challenges and Forecasts

Appendixes:

- International Society for Digital Earth**
- International Symposia on Digital Earth**
- Digital Earth Summits**
- Workshop on Digital Earth Vision to 2020**
- 1999 Beijing Declaration on Digital Earth**
- 2009 Beijing Declaration on Digital Earth**
- International Journal of Digital Earth**
- Journal of Big Earth Data**