



# Location – Essential Integrating Infrastructure for the Digital Single Market

Geospatial World Forum  
Lisbon Portugal  
25 May 2015

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**OGC**<sup>®</sup>  
Making location count.

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THEME **CONVERGENCE**  
POLICIES PRACTICES PROCESSES  
PUBLIC PRIVATE PARTNERSHIP

# Geography – the master framework for data integration



***Everything we do happens somewhere, and sometime!***

- Location is critical to improving decision support, situational awareness and quality of consumer and business services



# Hundreds of thousands of geospatial data sets and sensor data accessible through thousands of services

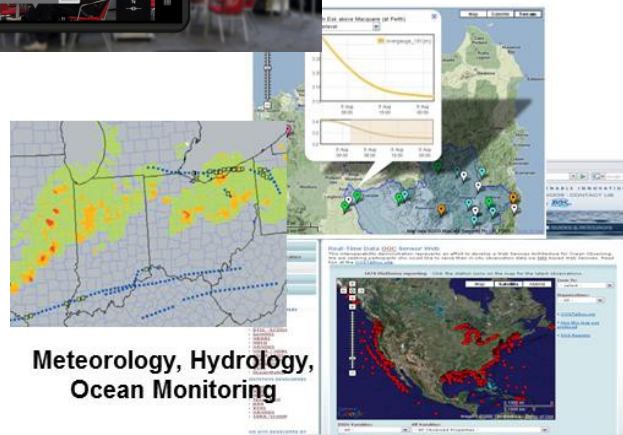
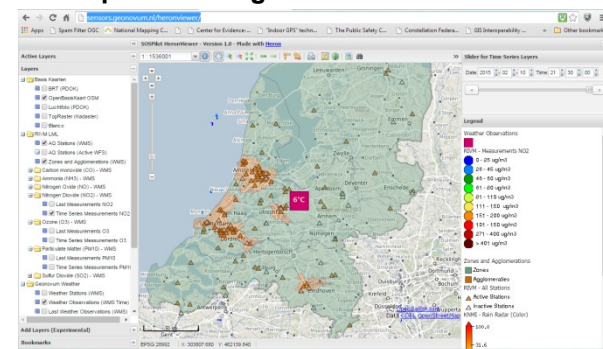
- running OGC / ISO Web Services Standards



OneGeology.Org



<http://sensors.geonovum.nl/heronviewer/>

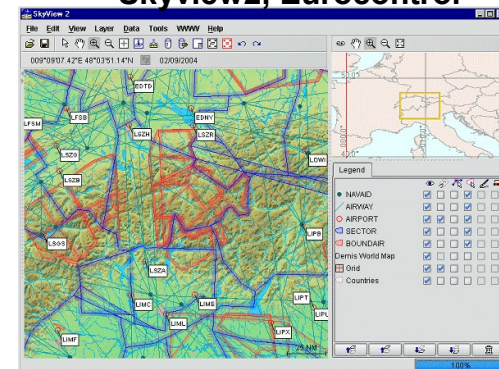


Meteorology, Hydrology, Ocean Monitoring

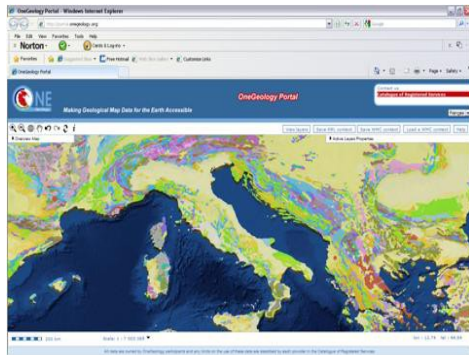
GEOSS Portal [geoportal.org](http://geoportal.org)



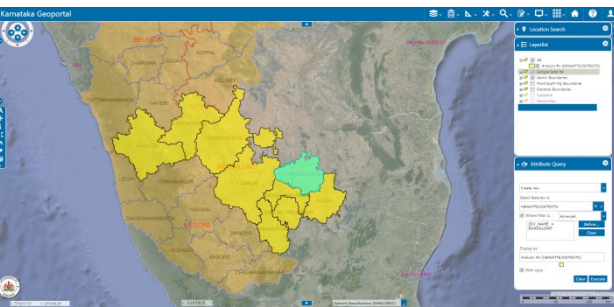
Skyview2, Eurocontrol



<http://www.opengeospatial.org/standards>



Karnataka, India GeoPortal



# Common Standards Based Geospatial Infrastructure Worldwide

**Logistics & Transport**



**Education & Research**



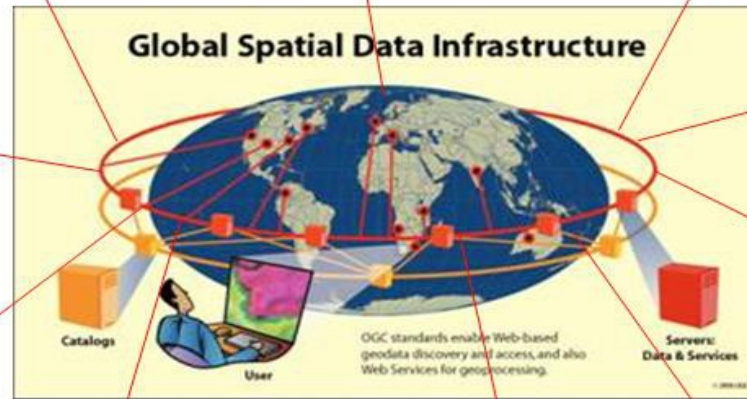
**Sustainable Development**



**Utilities**



**Health**



**E -Government**



**Emergency Services**



**Consumer Services**



**Energy**



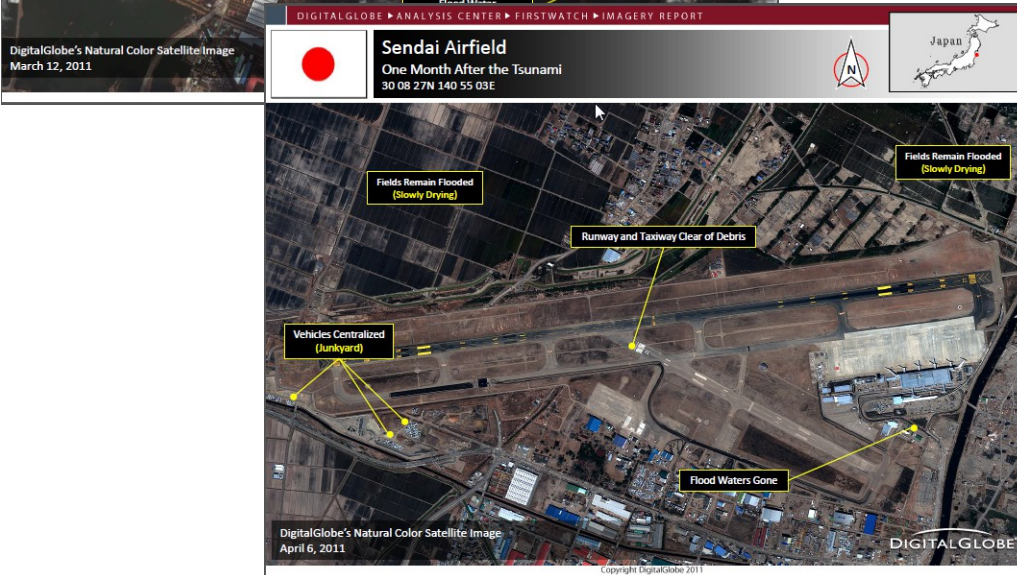
**Geosciences**



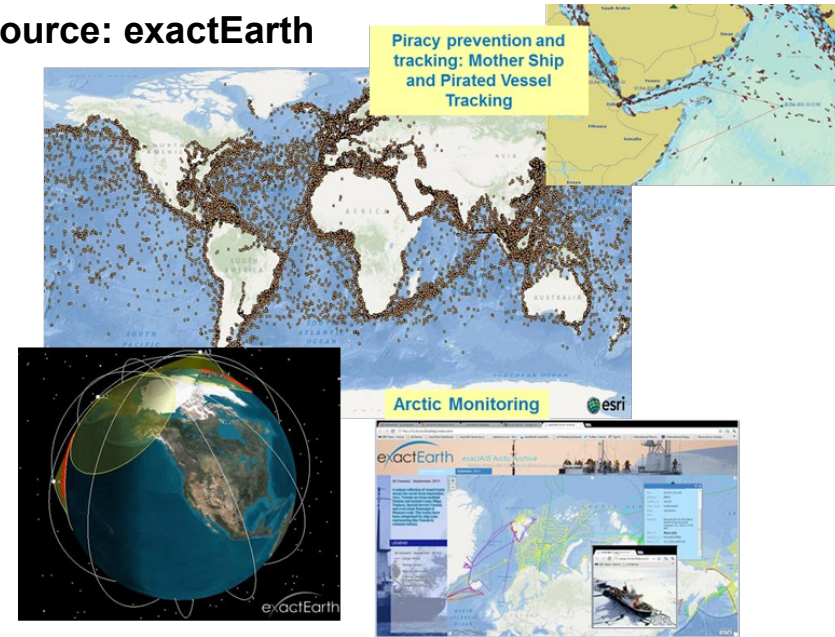
# Geospatial Information and analytic services from Commercial Providers



Source: DigitalGlobe



Source: exactEarth



- Standards-based Web services
- Delivery into SDIs worldwide
- Broad interoperability with OGC/ISO implementing products

# Standards Benefit Economies

## German DIN Study

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Standards promote worldwide trade, encouraging rationalization, quality assurance and environmental protection, as well as improving security and communication. Standards have a greater effect on economic growth than patents or licenses.

- "Economic Benefits of Standardization"
- Benefits to German economy of 17 billion Euros in 2010!

# Economic Value of Geo Services



- Oxera report on geospatial economic impact, commissioned by Google 2013
  - Global geospatial yearly revenue: \$150-\$270 billion (2013)<sup>1</sup>
  - 3.5 billion litres of gasoline/year saved globally (more than 0.1% of total world gasoline production) (2013)<sup>1</sup>
  - Faster emergency response – estimated 152 lives saved in England (2012)<sup>1</sup>
  - Other savings (2013): Travel time: 1.1 billion hours. Reduced prices of infrequently bought goods: \$1.1 billion. Agricultural irrigation: \$8-\$22 billion/year. Shipping costs: GPS alone saves \$10 billion.<sup>1</sup>

# Economic Value of Geo Services

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- Contribution of Geo Services to the Canadian GDP through productivity improvement: \$20.7 billion or 1.1% of the Canadian GDP in 2013.<sup>2</sup>
- Ireland: Geo Services' direct contribution to Irish economy in 2012: € 69.3 million. Value of time savings: € 279 million.<sup>3</sup>
- In Australia, Geo Services contributed \$6.4 - \$12.6 billion to the Australian gross domestic product (GDP), or 0.6% - 1.2% of the Australian GDP in in 2006-2007.<sup>4</sup>
- In U.S., Geo Services annual revenue 2012: \$75 billion. Economic impact: \$1.6 trillion in revenues (efficacy) and \$1.4 trillion in cost savings (efficiency)<sup>5</sup>



# Technology Providers and Users Aligned by Policy on Standards



Address: http://194.7.80.153/website/book.asp?menuid=15&vs=3&page=volume4%2Fch02s04%2Ehtml

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## NATO C3 Technical Architecture

goc

Facts NC3TA Volumes Request for Changes For

NC3TA Volumes  
NC3 Board approved version 7 (unlabelled)

< Prev

## 2.4. Data Interchange

### 2.4.1. Role of Data Interchange Services

41. Data interchange services provide support for the interchange of data between heterogeneous platforms. Each type of data - texts, documents, fax/digital recordings and technical data - requires specific classes of services.

### 2.4.2. Testing Co-ordination Authority

42. The TCA for the commercial standards is the NOSWG. The TCA for the SC/6, For Tactical Data Links the SC/5 Data Link Working Group, For Tactical Data Link Message Text Format Working Group and for Geographical and Technical standards the NOSWG.

### 2.4.3. Requirements for Data Interchange

43. Data interchange must be independent from platforms, systems and applications to facilitate interoperability, the interchange parameters, or at least as few as possible.

44. Data interchange includes the following:

- Graphics Data Interchange. Graphic device-independent description of graphics. This also includes optically scanned engineering drawings.

→ HETEROGENEOUS MISSIONS ACCESSIBILITY

Design Methodology, Architecture and Use of Geospatial Standards for the Ground Segment Support of Earth Observation Missions

European Commission > INSPIRE >

About

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- INSPIRE Conferences

Implementation

## INSPIRE DIRECTIVE

In Europe a major recent development has been the support Community environmental data themes needed for environmental legislative "regional" approach.

### Legislation

Directive 2007/2/EC of the European Parliament and of the Council (INSPIRE) was published in the Official Journal of the European Union. To ensure that the spatial data infrastructure common Implementing Rules (IR) are...

## RFP FOR CREATION OF DELHI STATE SPATIAL DATA INFRASTRUCTURE (DSSDI)

SURVEY OF INDIA  
(DEPARTMENT OF SCIENCE & TECHNOLOGY)  
GOVT. OF INDIA

1400 Hrs on 5 <sup>th</sup> November 2007 to 1500 Hrs on 8 <sup>th</sup> November 2007
1100 Hrs on 12 <sup>th</sup> November 2007
13 <sup>th</sup> November 2007 (1500 to 1700Hrs)
26 <sup>th</sup> November 2007 at 1100 Hrs.
26 <sup>th</sup> November 2007 at 1600 Hrs.

Download PDF of V4

- V1 - NATO C3 Technical Architecture Management
- V2 - Architectural Descriptions and Models
- V2-S1 - Domain Architectures
- V2-S2 - Emerging Technologies
- V3 - Base Standards and Profiles
- V4 - NC3 Common Standards Profile (NCSP)

PREFACE

- 1 - INTRODUCTION
- 2 - STANDARDS AND PROFILES PER SERVICE AREA
- A - NCSP - MINIMUM INTEROPERABILITY PROFILE (NCSP LITE)
- V5 - NC3 Common Operating Environment (NCOE)
- V5-S1 - Interface Definitions
- V5-S2 - Service Descriptions
- V5-S3 - Role of Ontologies in Transformation to NINECT

Rationale - Rationale for the Selection of NCSP Services and Standards

IHB - Implementation Handbook (NC3TA-IHB)

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http://www.earthobservations.org/newsroom/newsroom.html

## Group on Earth Observations

## STANDARDS, SPATIAL FRAMEWORK AND TECHNOLOGIES FOR NATIONAL GIS

INDIAN INSTITUTE OF ADVANCED STUDIES  
BANGALORE - 560012

SEPTEMBER 2004

treasury Board of Canada Secretariat

Standard on Geospatial Data

Effective date

The standard will take effect on June 1, 2009. Departments will have to fully implement section 6.2 of the standard.

Application

This standard applies to departments as defined in section 2 of the Access to Information Act, unless excluded by specific acts, regulations or orders in council. In this standard, any reference to all or part of national or international standards shall be construed as a reference to the most recent editions or specifications, as well as any officially issued corrigenda, amendments or international standards or specifications that have been implemented no later than one year after the effective date of this standard.

Context

Geospatial data is defined as data with explicit or implicit reference to the Earth. The standard establishes the information infrastructure for the collection and use of geospatial information and to enable effective use of this information, with other products, and with the private sector.

## Geospatial Intelligence Standards

Enabling a Common Vision

DAEN-ZC

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Army Geospatial Enterprise (AGE) Policy

- As directed by the Geospatial-Enterprise Governance Board (GGB) and the Army Geospatial Information Officer (GIO), enclosed is the approved policy.
- The enclosed policy was coordinated with the Deputy Chief of Staff (DCS) 3/57, DCS G-4, CIO/G-6, DCS G-8, ASA (ALT), US Army Training and Doctrine Development Center, and the Office of the Chief of Staff, Army G-7.
- This policy contains supporting annexes for the Army Geospatial Data Management Standards and Formats, AGE Architecture, AGE Authoritative Common Applications/Services, and the AGE Certification Criteria.
- These annexes are "living documents" and will be revised as necessary to reflect changes in technology, standards, and requirements.

DEPARTMENT OF THE ARMY  
ARMY GEOSPATIAL INFORMATION OFFICER  
2600 ARMY PENTAGON  
WASHINGTON, DC 20310-2600

DAEN-ZC

Newsroom

News | GEO in the News

The Group on Earth Observations (GEO) is leading a worldwide effort to build a Global Earth Observation System of Systems (GEOSS) over the next 10 years, as set forth in the GEOSS 10-Year Implementation Plan.

Learn more about GEO.

For media inquiries, please contact GEO at +41 22 730 8505 or by e-mail at [secretariat@geossec.org](mailto:secretariat@geossec.org).

NEWS

14 September 2006

### Greenhouse gas bubbling from permafrost

Using a combination of remote sensing, aerial surveys, and year-round in-situ measurements scientists followed trails of frozen methane bubbles and placed traps

Learn how the Global Earth Observation System of Systems (GEOSS) will transform understanding of the environment, management of Earth's resources, and mitigation of major disasters.

Press Backgrounder

RELATED DOCUMENTS

- GEOSS 10-Year Implementation Plan
- Reference Document
- GEO 2005 Work Plan, section 4 (GEO 2005)

## NEW ZEALAND GEOSPATIAL STRATEGY

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## 2.3 Core SDI standards

Including the various standards that sit within information systems identified that can be considered as part of the

ities

berlin Berlin

Berlin Business-Logistik-Center

www.virtual-berlin.de

- Energy conservation / efficiency
- Sanitation
- Intelligent Buildings
- Intelligent Transportation
- Public Safety and Security
- Environmental Monitoring
- Emergency Services
- Education
- Urban Planning
- Consumer apps
- Real Estate
- Active Aging
- Many other uses...



# European Commission Climate Action 2030



- 40% reduction in greenhouse gas emissions from 1990 levels
- Increase renewable energy to at least 27%
- Increase energy efficiency by 27% - 30%



[http://ec.europa.eu/clima/policies/2030/index\\_en.htm](http://ec.europa.eu/clima/policies/2030/index_en.htm)

# Summary

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- **Geospatial standards policy** reinforces the broad implementation of common standards to aid in:
  - Easing the sharing of geospatial information and improve interoperability of ICT tools / services
  - Reducing ICT costs and the time to mobilize new technologies
  - Avoiding ICT procurement vendor lock-in
  - Innovation and competitiveness
  - Expand vendor market reach regionally / internationally
  - Fast track research transfer to broad community use