HIGH LEVEL FORUM ON GLOBAL GEOSPATIAL MANAGEMENT INFORMATION

WORKING PAPER No. 17

First Forum
Seoul, Republic of Korea, 24-26 October 2011

Standards for Cross Community Understanding and Decision-making *

* Submitted by: Mr. Mark E. Reichardt, President & CEO, OGC

Standards for Cross Community Understanding and Decision-making

UN High Level Forum on Global Geospatial Information Management

Mark E. Reichardt
President & CEO
mreichardt@myogc.org
+1 301 840-1361

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Cross-Boundary and Cross Domain Information Sharing

- Continues to be one of our biggest challenges!

Source: www.fao.org/docrep/008/ae929e/ae929e03.htm

Source: David Rydevik, Thailand Tsunami, 2004

Ability to access, fuse and apply diverse content when and where needed…

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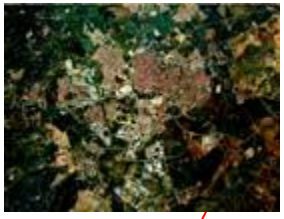
Standards Activities Must Be Driven by Community Needs

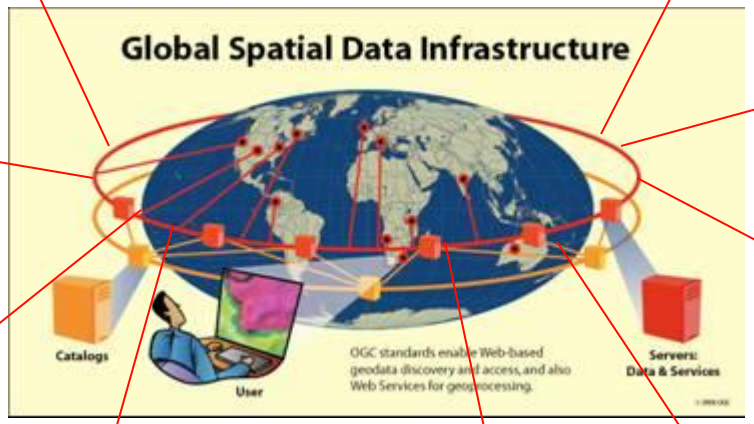
Education & Research

Sustainable Development



Utilities

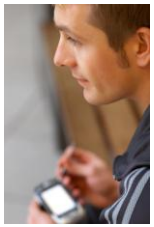
Health



E -Government

Emergency Services

Consumer Services



Energy

Water

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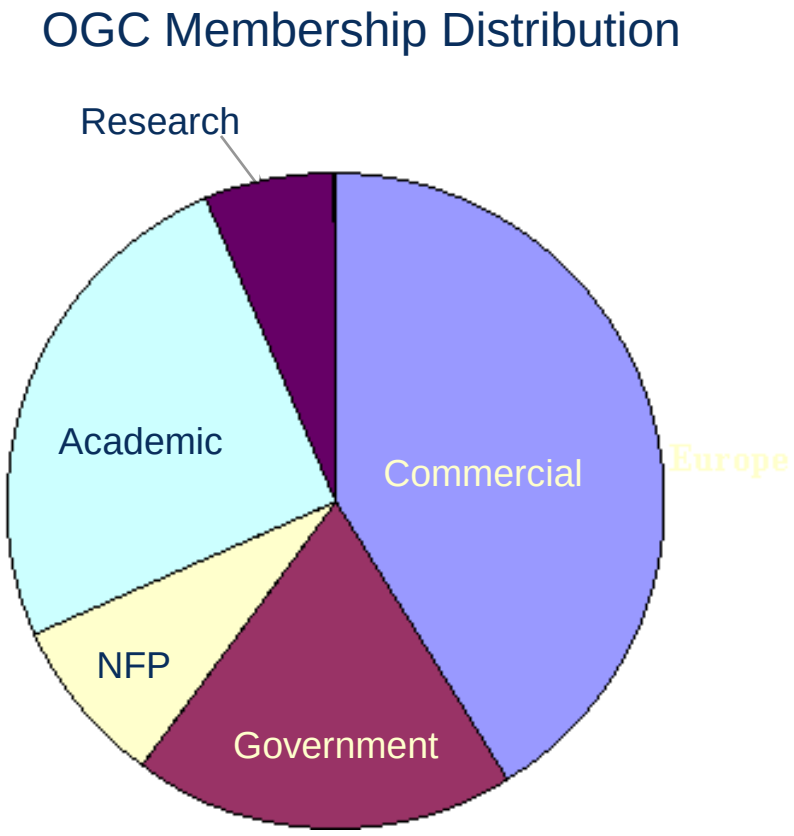
OGC Snapshot

- A Voluntary Consensus Standards Organization, founded in 1994.
- 435 members
- 30+ adopted standards
- Hundreds of product implementations
- Broad user community implementation worldwide
- Alliance partnerships with 30+ standards & professional orgs



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OGC Standards

- Rapid discovery, access, fusion and application of location information for:
  - Critical Infrastructure
  - Emergency Management
  - Weather Forecasting / Warning
  - Climate Change
  - Defense and Intelligence
  - Local Government Services
  - Routing / Logistics
  - And many more applications…
- Formal liaison with, and adoption through ISO/TC 211

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Community Implementations

-Share Broadly

-Mobilize Quickly

- Repurpose when needed

-Save Lives

-Save Time

-Reduce Costs

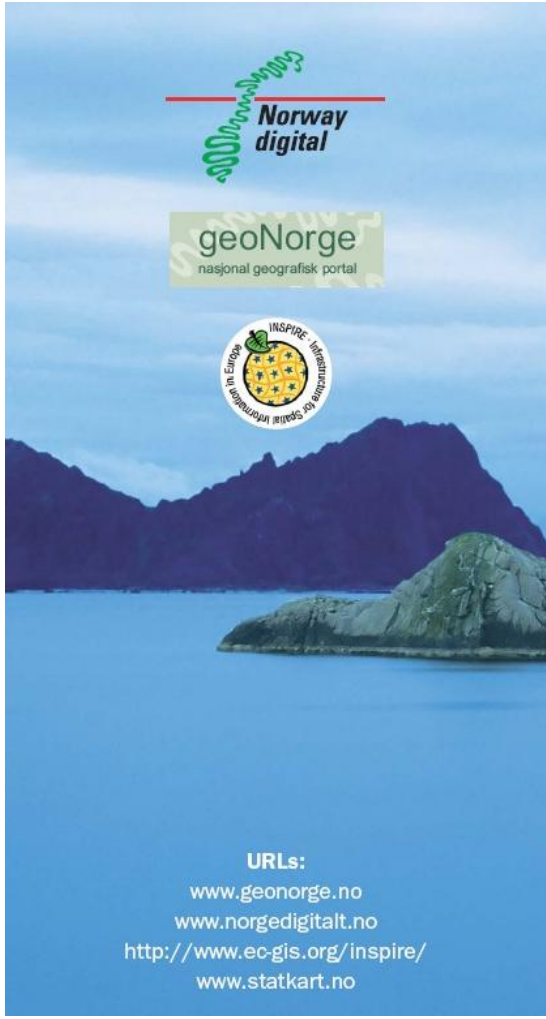
Norway

Norway Digital

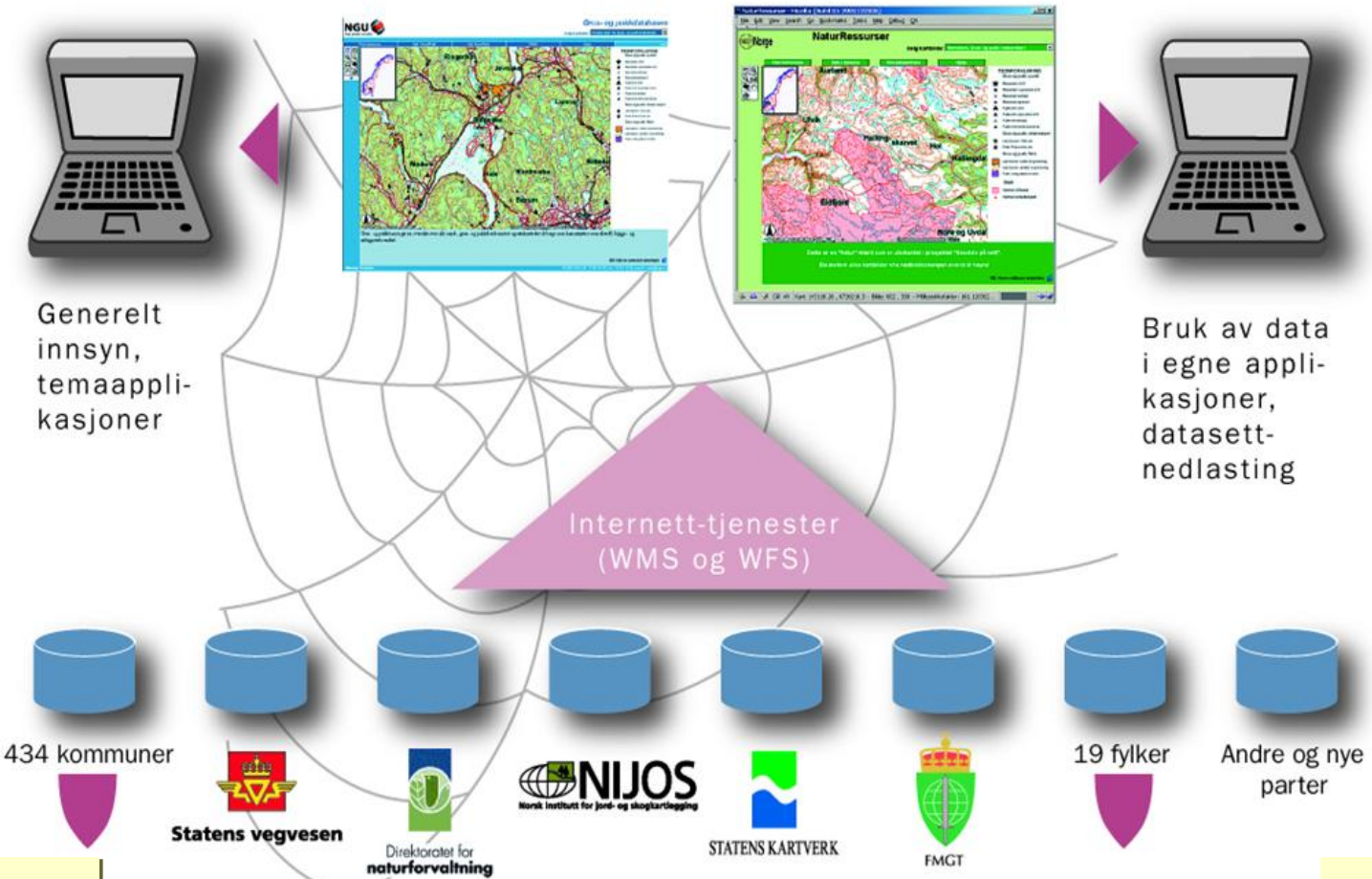
- Norway Digital is the Norwegian government's initiative to build the national geographical infrastructure.

- Norway Digital is already a working co-operation and infrastructure with reference data and thematic data available, more than 100 operational web map services, geoportal and other services.

  www.statkart.no/Norge_digitalt/Engelsk/About_Norway_Digital/



Enabling Cross-Government Data Sharing
Norway Digital



400 municipalities

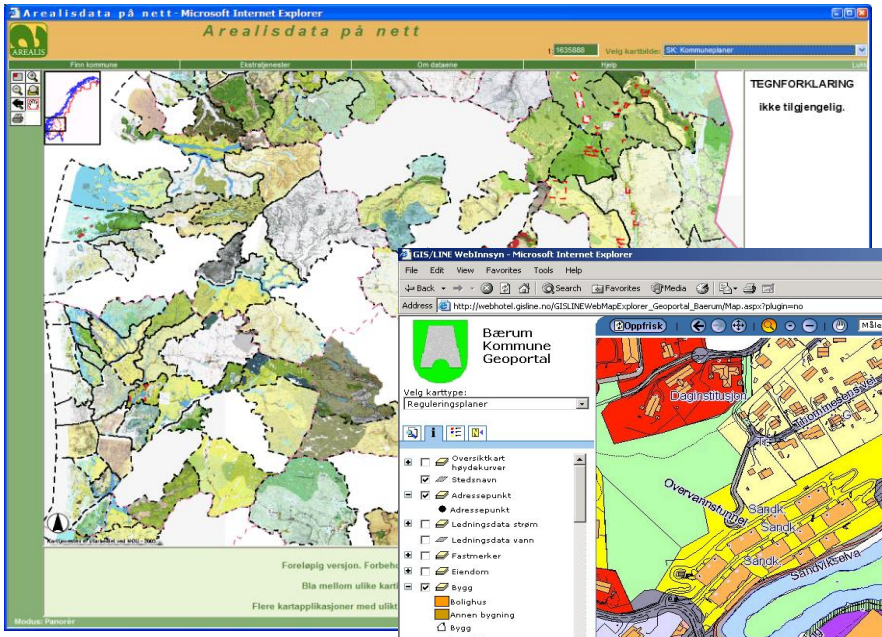
19 counties

Norway Digital

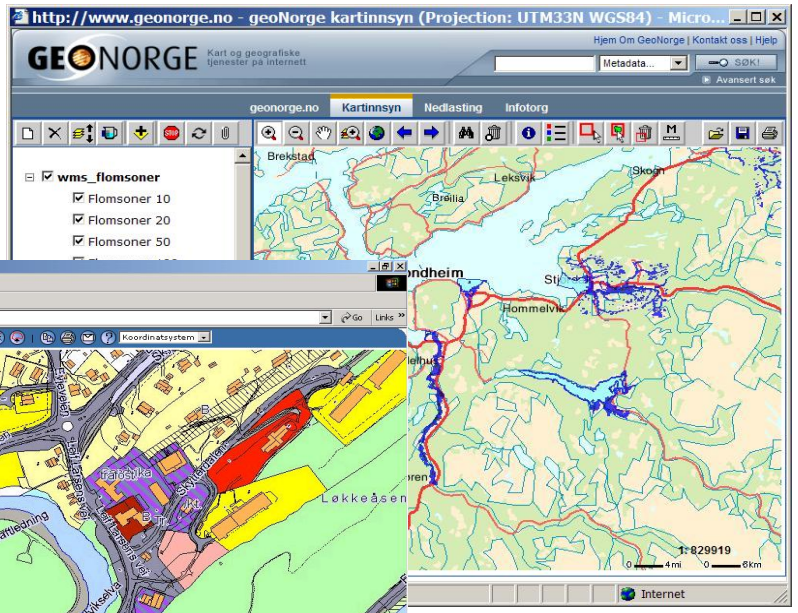
Source http://www.statkart.no/Norge_digitalt/Engelsk/About_Norway_Digital/

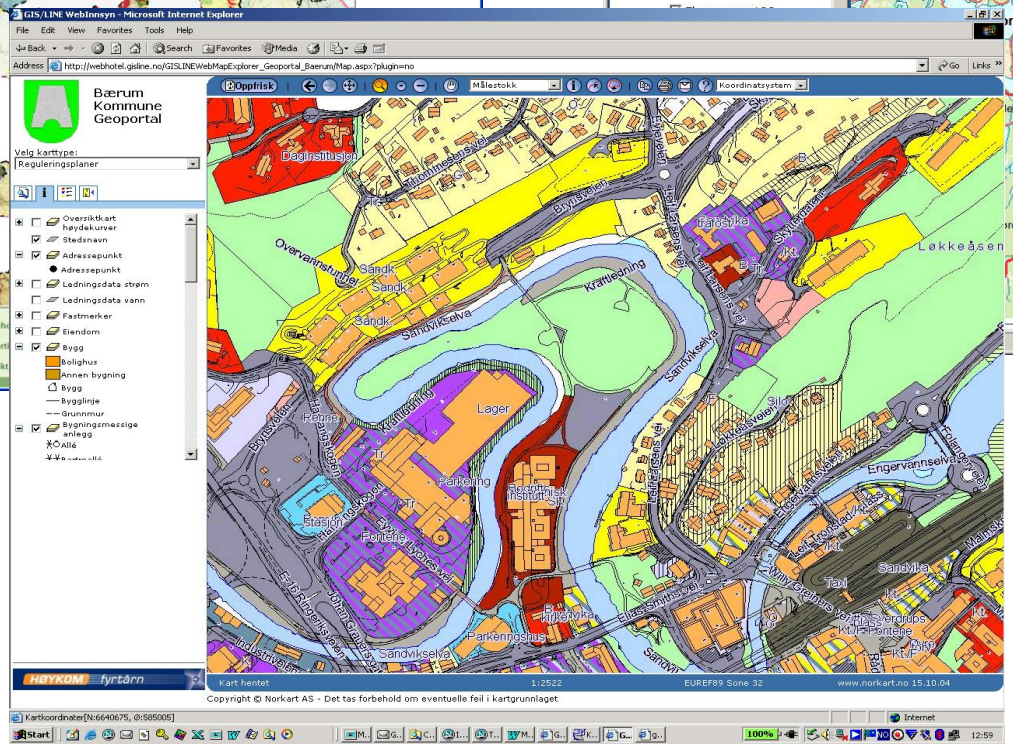
Norway Digital – Applications

Municipal Areas



Flood Risk Areas





- Fisheries
- Waste Water Outflow
- Water Supply

Land Use

- Demography
- Biodiversity
- Agriculture and Forestry

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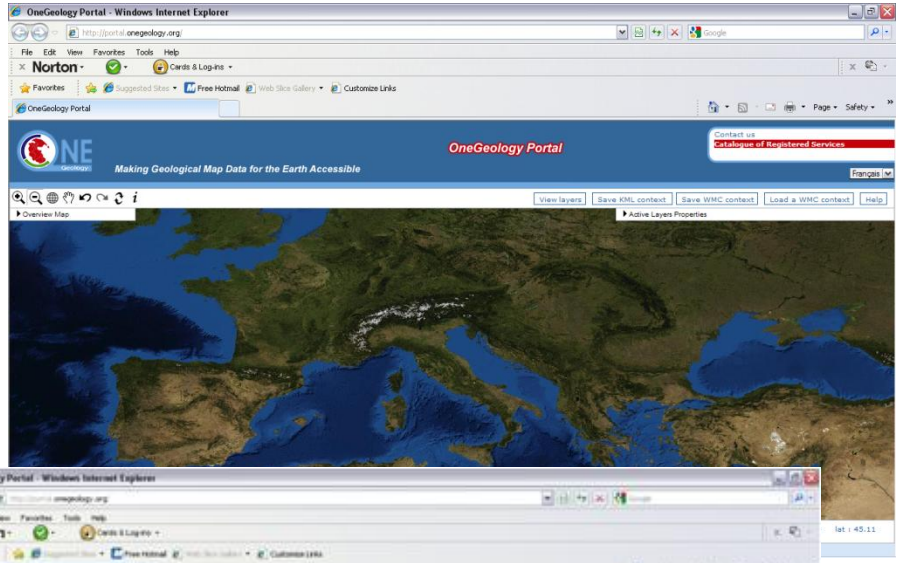
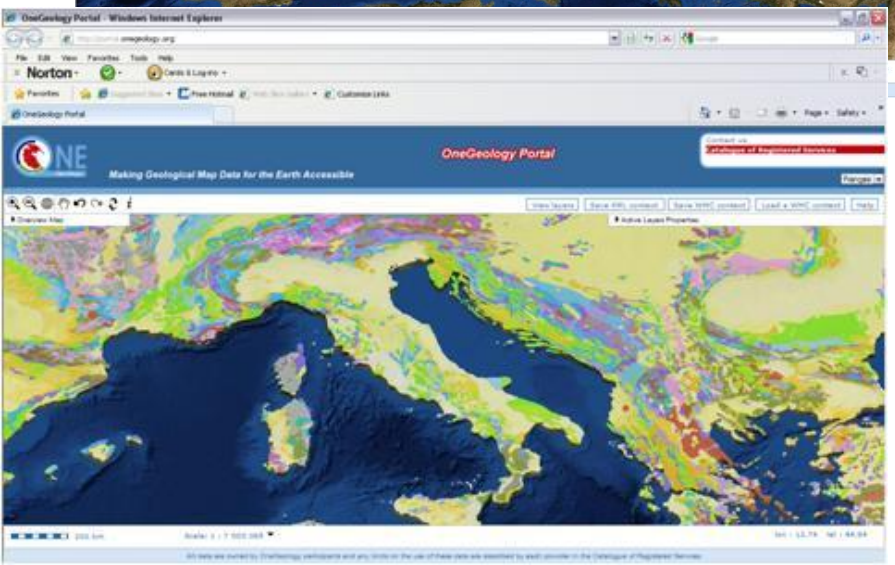
OneGeology





- Distributed, interoperable geologic information
- Powered by:
  - OGC Web Map Service
  - OGC Web Feature Service
  - Geography Markup Language
  - OGC Observations & Measurements
  - GeoSCIML (GML Schema)
- Agreement between national Survey and umbrella organizations
  - http://onegeology.org

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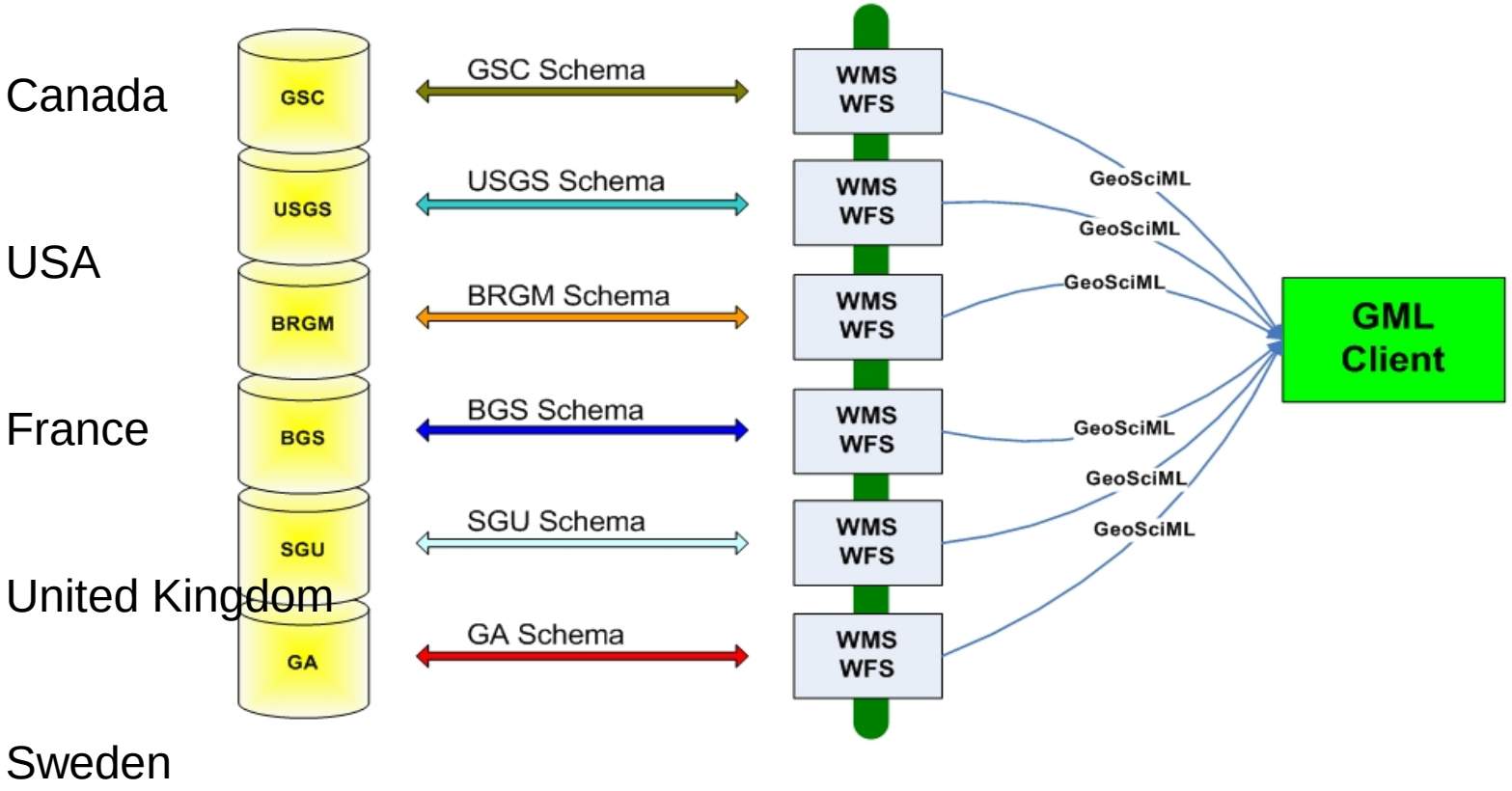
OneGeology
Addressing Semantic Differences

GeoSciML – an OGC Geography Markup Language application schema for the sharing of Geologic information



Source: Commission for the Management and Application of Geoscience Information(CGI)

OneGeology Participants

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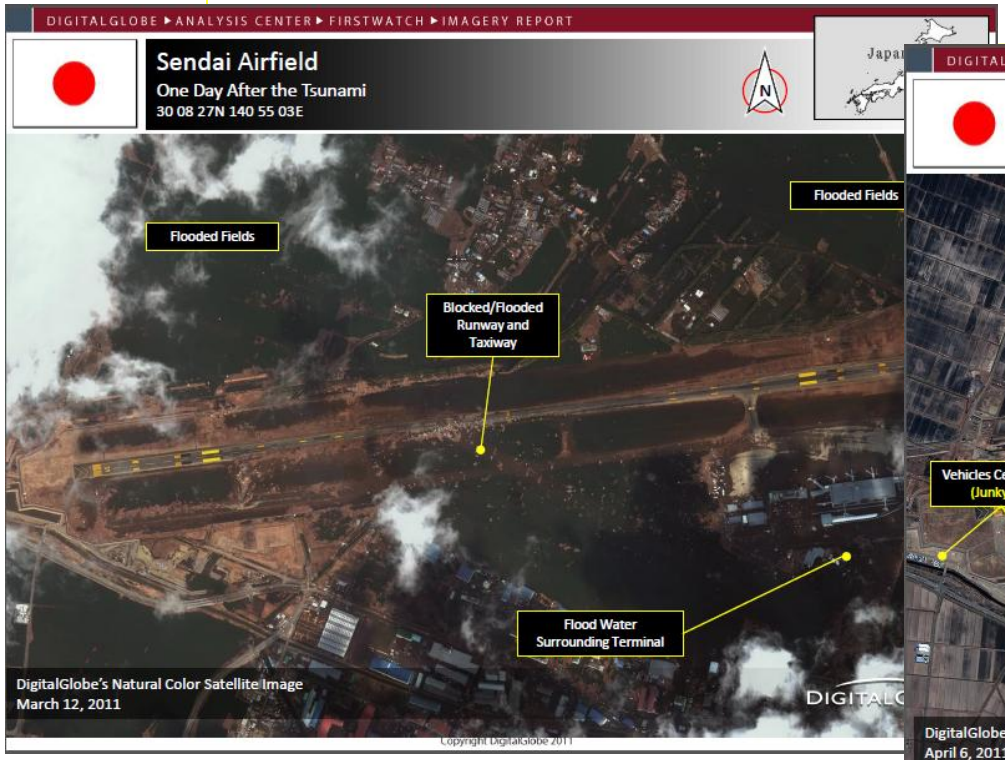
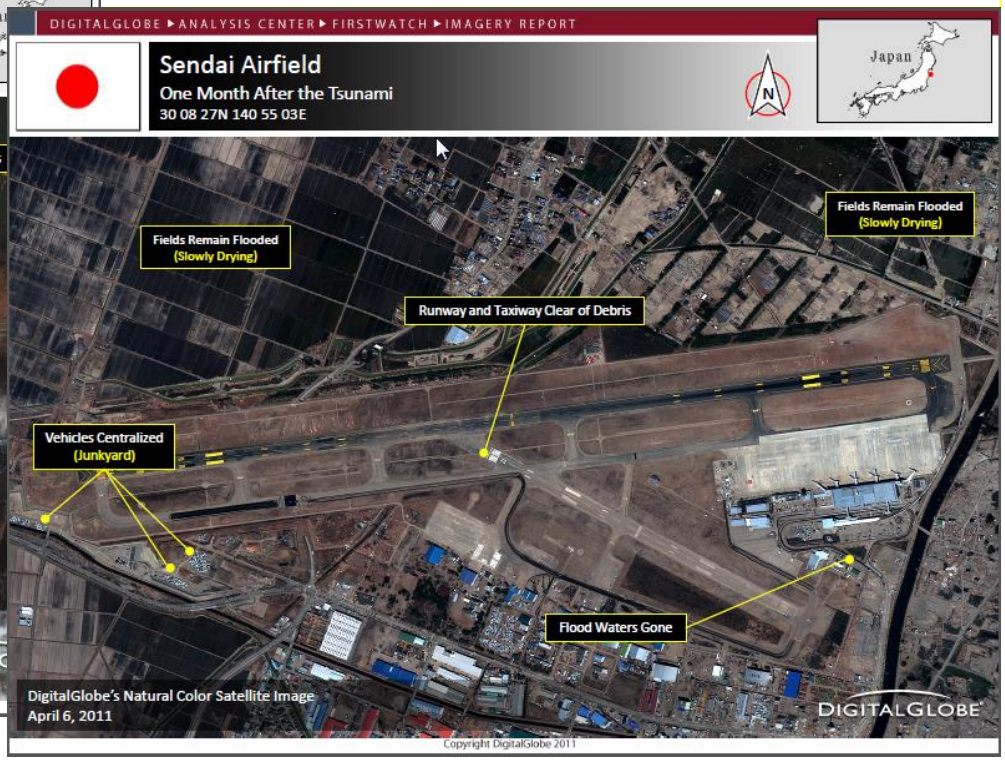
Commercial Imagery Provider Interoperability Crisis Event Services

- Worldwide monitoring and coverage
- Historical context exploiting pre-event imagery
- Color, Pan and NIR* imagery
- Over 3 million sqkm available Online

Leveraging OGC For Crisis Response





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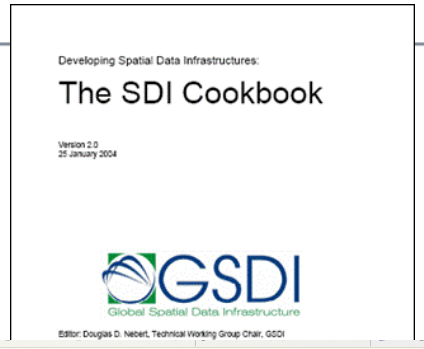
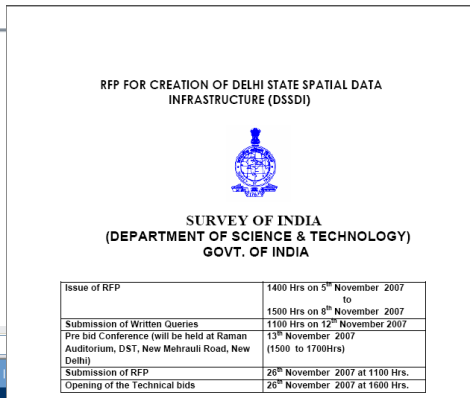
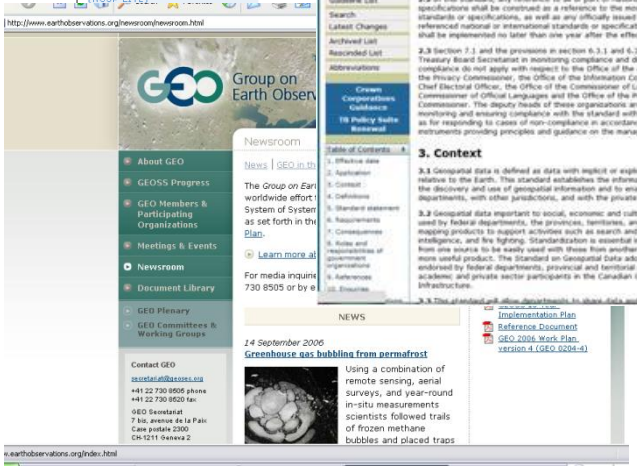
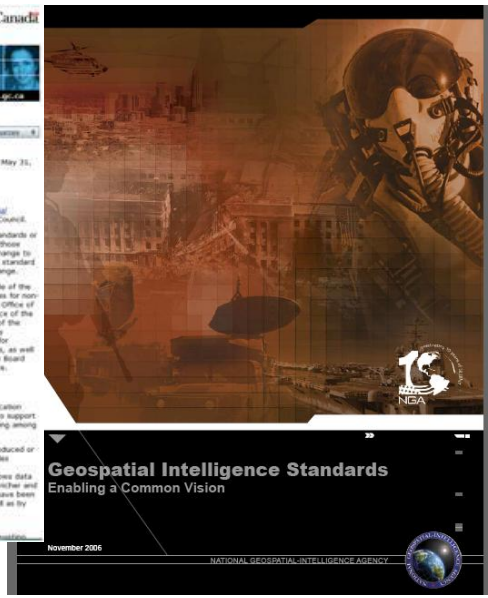
Geospatial Standards – Policy / Guidance

- National level policy and legislation, e.g. Canada, The Netherlands, India, Australia, New Zealand…
- European INSPIRE Directive
- Global Earth Observation System of Systems (GEOSS)
- NATO C3
- European Space Agency
- Defense and Intelligence
- Sub-national level - Delhi, Abu Dhabi









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Making location count.

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Building on Community Needs and Market Trends

A Key to Success

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Sensors and Sensor Data
Real-time Situational Awareness

- Sensors connected to and discoverable on the Web
- Sensors have position & generate observations
- Sensor descriptions available
- Services to task and access sensors
- Local, regional, national scalability
- Enabling the Enterprise

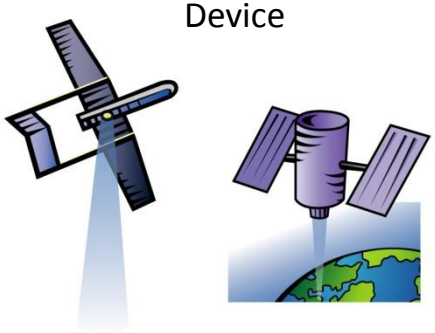
Industrial Process Monitor

Environmental Monitor

Automobile As Sensor Probe

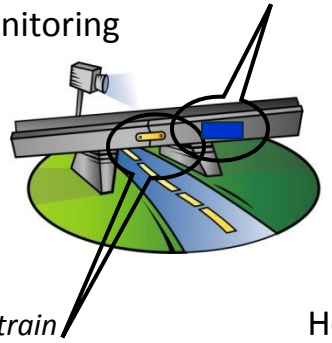
Stored Sensor Data

Airborne & Space-based Imaging Device



Temp Sensor

Traffic Monitoring



Strain Gauge

Charging Station

Source: DDOTDC, Flickr

Smart Meter

Source: Duke Energy, Flickr

Webcam

Source: retro bebel design, Flickr

Health Monitor

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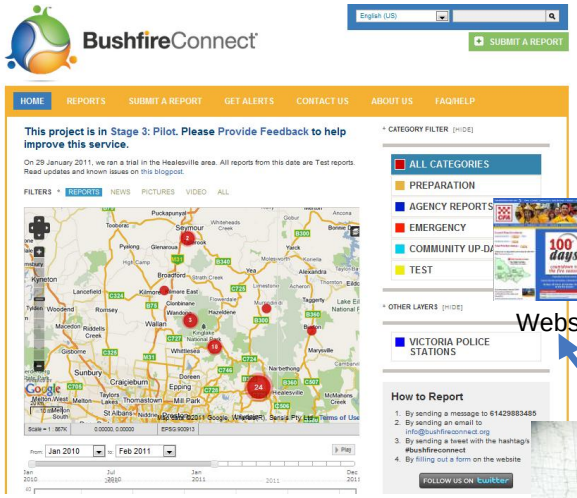
Bridging the Ecosystems

Linking Crisis Response to Volunteer Information Organizations



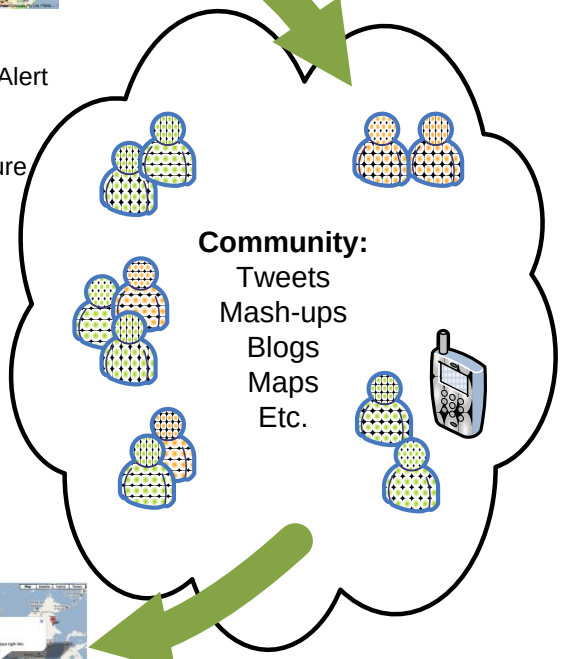
Website

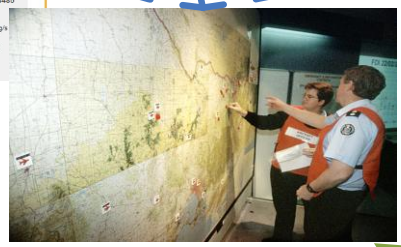
Map Services

Feeds

A2C

- Additional Alert Channels
- Scalable Infrastructure

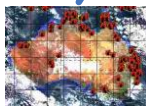




Command Centre - COP

C2A

Crowdsourced "Human Intelligence"



Satellite Hotspots

Field Reports

Weather

Source: www.bushfireconnect.org

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An Emerging Standard: OGC Open GeoSMS

- Significant potential from emergency/disaster response to consumer services

- Characteristics
  - Multilingual
  - Multi-device
  - Harmonized with many existing applications
  - Incorporates relevant ISO standards
  - Approved as an OGC Standard in September 2011

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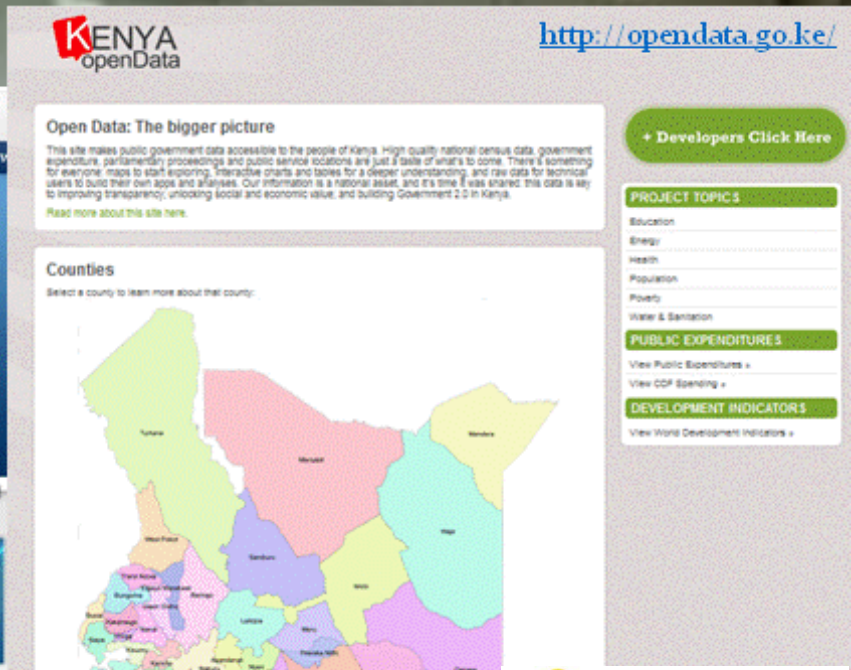
Open Data & Linked Data

www.ottawa.ca/online_services/opendata/



Tomorrow: The Internet of things

Location apps

Sensor webs

Location marketing

Indoor/outdoor location

Building information models

Environmental monitoring

Predictive maintenance

Machine-to-machine communication

Augmented reality

Smart buildings

Smart pipes

Smart grid

Today's Internet

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Other Ongoing Standards Activities

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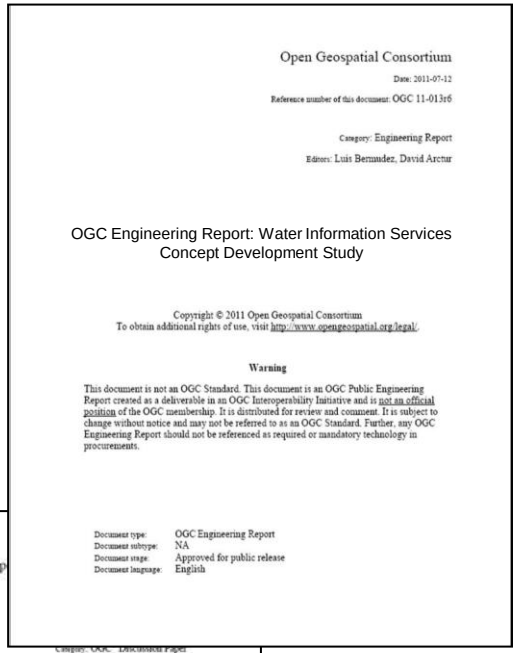
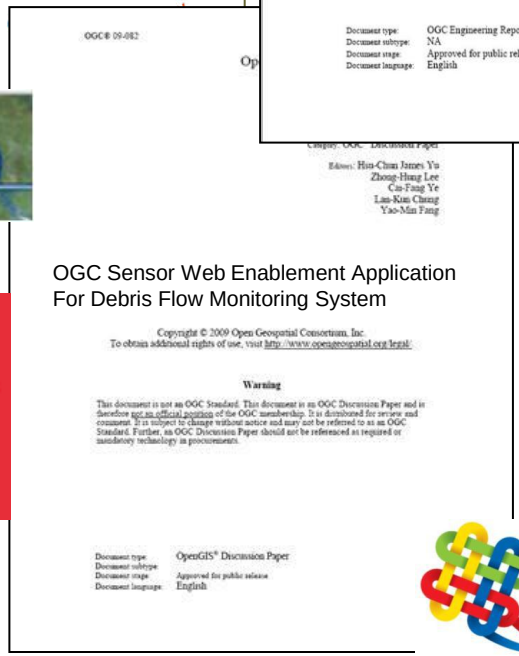
Recommendation #1: Coordinate Sharing of Best Practices

www.landgate.wa.gov.au/slip





OGC Forms GeoSynchronization Services Standards Working Group. See: http://www.opengeospatial.org/pressroom/pressreleases/1308

5 Nov via web

SNIT
Ministerio de Bienes Nacionales

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Recommendation #2: Practice, Pilot, Prepare

- Emphasize pilot projects
  - Investigate / test and validate improved interoperability frameworks and methods
  - Validate geospatial information, technologies, standards, best practices, procedures and policies
  - Based on member nation use cases and experiences
  - Share outcomes broadly
  - Involve industry data providers, vendors, and academia, and standards organizations

Sendai Airport – By Roberto Devido

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Interoperability Program
Active Prototyping, Testing and Validation

OGC Web Services Phase 4 Testbed (2006)
Scenario: Dirty bomb in port of NY/NJ

- Testbeds, Pilots, Experiments
  - Join technology providers and users
  - Based on real world use cases provided by the user community
  - Proven Process – over 40 Initiatives since 1999
  - Produce:
    - Tested and validated draft standards, architectural recommendations and Best Practices
    - Industry technology implementations
    - Live demonstrations to validate utility of standards frameworks in user context

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Recommendation #3 – Maintain Agility

- Active involvement in standards organization programs
  - Identify issues and promote standards and associated Best Practices
    - Water Resources
    - Climate Change
    - Earth Observation (GEOSS)
    - Emergency / Disaster Management
    - Urban Planning & Management
  - Influence the maintenance of existing standards and advance new standards when needed
  - Work directly with industry, academia and government members to address market trends and adopt new standards & best practices
  - Influence how location is addressed in broader IT standards community

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Location Is A Critical Requirement

OGC SDO and Association Alliance Partners

W3C

ISO International Organization for Standardization

web 3D CONSORTIUM

GSDI Global Spatial Data Infrastructure

IEEE GRSS

INTERNATIONAL Environmental Modelling & Software SOCIETY IEMSS

IETF

AGILE ASSOCIATION GEOGRAPHIC INFORMATION LABORATORIES EUROPE

World Meteorological Organization
Working together in weather, climate and water

OpenGridForum
OPEN FORUM | OPEN STANDARDS

mismo

OMG OBJECT MANAGEMENT GROUP

OGC DIGITAL GEOGRAPHIC INFORMATION WORKING GROUP

IEEE

OSGeo Your Open Source Compass

isprs Information from Imagery

OASIS

buildingSMART International Alliance for Interoperability

oma Open Mobile Alliance

ncoic

OSCRE

… and many others
www.opengeospatial.org/ogc/alliancepartners

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Standards are like parachutes…
…they work best when they're open.

Thank you

Taichung, Chinese Taipei June 2011

Mountain View CA, USA December 2009

Bonn, Germany, March 2011

United Nations, New York USA, January 2005

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