The ISO/TC 211
Geographic information/Geomatics

... building the foundation of the geospatial infrastructure, brick by brick ...
The goal of ISO/TC 211...

... is to develop a family of international standards that will

- support the understanding and usage of geographic information
- increase the availability, access, integration, and sharing of geographic information, enable inter-operability of geospatially enabled computer systems
- contribute to a unified approach to addressing global ecological and humanitarian problems
- ease the establishment of geospatial infrastructures on local, regional and global level
- contribute to sustainable development
Scope of ISO/TC 211

- Standardization in the field of digital geographic information.
- This work aims to establish a structured set of standards for information concerning objects or phenomena that are directly or indirectly associated with a location relative to the Earth.
- These standards may specify, for geographic information, methods, tools and services for data management (including definition and description), acquiring, processing, analyzing, accessing, presenting and transferring such data in digital/electronic form between different users, systems and locations.
- This work shall link to appropriate standards for information technology and data where possible, and provide a framework for the development of sector-specific applications using geographic data.
ISO/TC 211 organization

Chairman
Olaf Østensen
Secretary
Bjørnhild Sæterøy
Norway

AG WSI
TMG
TF 211/204

AG Strategy
AG Outreach
MHT

WG 4
Morten Borrebæk
Norway

WG 6
Douglas O’Brien
Canada

WG 7
Antony Cooper
South Africa

WG 8
John Rowley
UK

WG 9
Hiroshi Imai
Japan

Geospatial services
Imagery
Information communities
Location based services
Information management
### Who are we? ...member list

Active members (P-members), 29 countries

<table>
<thead>
<tr>
<th>Country</th>
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<tbody>
<tr>
<td>Australia</td>
<td>Italy</td>
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<td>Austria</td>
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<td>Belgium</td>
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<td>Germany</td>
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<td>Hungary</td>
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<td>Yugoslavia</td>
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</table>
## Member list

Observing members 27 (20 O-members, 4 corresponding members)

<table>
<thead>
<tr>
<th>Argentina</th>
<th>Iceland</th>
<th>Pakistan</th>
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<tr>
<td>Bahrain (corr.)</td>
<td>India</td>
<td>Philippines</td>
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<td>Brunei Darussalam (corr.)</td>
<td>Isl. Rep. of Iran</td>
<td>Poland</td>
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<td>Colombia</td>
<td>Ireland</td>
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<td>Cuba</td>
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<td>Slovenia</td>
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<td>Estonia (corr.)</td>
<td>Kenya</td>
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<tr>
<td>Hong Kong (corr.)</td>
<td>Oman</td>
<td>Zimbabwe</td>
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External liaisons, 1 of 2

- CEOS, Committee on Earth Observation Satellites
- DGIWG, Digital Geographic Information Working Group
- EPSG, European Petroleum Survey Group
- FIG, International Federation of Surveyors
- GSDI, Global Spatial Data Infrastructure
- IAG, International Association of Geodesy
- ICA, International Cartographic Association
- ICAO, International Civil Aviation Organization
- IEEE Geoscience and Remote Sensing Society
- IHB, International Hydrographic Bureau
- ISCGM, International Steering Committee for Global Mapping
- ISPRS, International Society for Photogrammetry and Remote Sensing
- JRC, Joint Research Centre, European Commission
- OGC, Open GIS Consortium, Incorporated
External liaisons, 2 of 2

- PCGIAP, The Permanent Committee on GIS Infrastructure for Asia and the Pacific
- UN Economic Commission for Europe, Statistical Division
- UNGIWG, United Nations Geographic Information Working Group
- WMO, World Meteorological Organization
- PC IDEA, Permanent Committee on Spatial Data Infrastructure for the Americas
- SCAR, Scientific Committee on Antarctic Research
- UNGEGN, United Nations Group of Experts on Geographical Names
- CEN/TC 287, Geographic information
Internal liaisons

- ISO/IEC JTC 1/SC 2 Coded character sets
- ISO/IEC JTC 1/SC 24 Computer graphics and image processing
- ISO/IEC JTC 1/SC 32 Data Management and Interchange
- ISO/IEC JTC 1/SC 35 User interfaces
- ISO/TC 20/SC 13 Space data and information transfer systems
- ISO/TC 23/SC 19 Agricultural electronics
- ISO/TC 46/WG 2 - Coding of country names and related entities
- ISO/TC 82 Mining
- ISO/TC 130 Graphic Technology
- ISO/TC 184/SC 4 Industrial data and global manufacturing languages
- ISO/TC 204 Transport Information and Control Systems
ISO/TC 211

Color legend: DIS, FDIS, IS

- ISO 6709:1983, Standard representation of latitude, longitude and altitude for geographic point locations
- ISO 19101 - Reference model
- ISO 19102 – Overview - deleted
- ISO/TS 19103 - Conceptual schema language
- ISO 19104 - Terminology
- ISO 19105 - Conformance and testing
- ISO 19106 - Profiles
- ISO 19107 - Spatial schema
- ISO 19108 - Temporal schema
- ISO 19109 - Rules for application schema
- ISO 19110 - Feature cataloguing methodology
- ISO 19111 - Spatial referencing by coordinates
- ISO 19112 - Spatial referencing by geographic identifiers
- ISO 19113 - Quality principles
- ISO 19114 - Quality evaluation procedures
- ISO 19115 - Metadata
- ISO 19116 - Positioning services
- ISO 19117 – Portrayal
- ISO 19118 - Encoding
- ISO 19119 - Services
- ISO/TR 19120 - Functional standards + new rev
- ISO/TR 19121 Imagery and gridded data
- ISO/TR 19122 - Qualifications and certification of personnel
- ISO 19123 - Schema for coverage geometry and functions
- ISO/RS 19124 - Imagery and gridded data components
- ISO 19125 - Simple feature access – Part 1-3
- ISO 19126 - Profile - FACC Data Dictionary
- ISO 19127 - Geodetic codes and parameters
- ISO 19128 - Web Map Server Interface
- ISO 19129 - Imagery, gridded and coverage data framework
- ISO 19130 - Sensor and data model for imagery and gridded data
- ISO 19131 - Data product specification
- ISO 19132 - Location based services possible standards
- ISO 19133 - Location based services tracking and navigation
- ISO 19134 - Multimodal location based services for routing and navigation
- ISO 19135 - Procedures for registration of geographic information items
- ISO 19136 – Geography Markup Language (GML)
- ISO 19137 - Generally used profiles of the spatial schema and of similar important other schemas
Spatial data infrastructures
- where standards fit in ...

ISO 19103 - Conceptual schema language
ISO 19107 - Spatial schema
ISO 19108 - Temporal schema
ISO 19109 - Rules for application schema
ISO 19110 - Feature cataloguing methodology
ISO 19111 - Spatial referencing by coordinates
ISO 19112 - Spatial referencing by geographic identifiers
ISO 19113 - Quality principles
ISO 19114 - Quality evaluation procedures
ISO 19115 – Metadata
ISO/TR 19121 - Imagery and gridded data
ISO 19123 - Schema for coverage geometry and functions
ISO 19124 - Imagery and gridded data components
ISO 19126 - Profile - FACC Data Dictionary
ISO 19127 - Geodetic codes and parameters
ISO 19129 - Imagery, gridded and coverage data framework
ISO 19130 - Sensor and data model for imagery and gridded data
ISO 19131 - Data product specification
ISO 19137 - Generally used profiles of the spatial schema and of similar important other schemas

ISO/TR 19122 - Qualifications and certification of personnel
Spatial data infrastructures - where standards fit in ...

Access and services

- ISO 19116 - Positioning services
- ISO 19117 – Portrayal
- ISO 19118 – Encoding
- ISO 19119 – Services
- ISO 19125-1 - Simple feature access – Common architecture
- ISO 19125-2 – SFA – SQL option
- ISO 19125-3 – SFA – COM/OLE
- ISO 19128 - Web Map Server Interface
- ISO 19132 - Location based services possible standards
- ISO 19133 - Location based services tracking and navigation
- ISO 19134 - Multimodal location based services for routing and navigation
- ISO 19136 – Geography Markup Language (GML)

- ISO 19101 – Reference model
- ISO 19104 – Terminology
- ISO 19105 – Conformance and testing
- ISO 19106 – Profiles
- ISO/TR 19120 – Functional standards
- ISO 19135 – Procedures for registration of geographic information items
WG 4 - Geospatial services

- ISO 19128 – Web map server interface
- ISO 19136 - Geography Markup Language (GML)

Morten Borrebæk
Norway
WG 6 - Imagery

- ISO 19129 - Imagery, gridded and coverage data framework
- ISO 19130 - Sensor and data model for imagery and gridded data

Douglas O’Brien
Canada
ISO/TR 19120 AMD. 1 - Functional standard - Amendment 1
ISO/TR 19122 - Qualifications and certification of personnel
ISO 19126 - Profile - FACC data dictionary
ISO 19137 – Generally used profiles of the spatial schema and of similar important other schemas
WG 8 – Location based services

- ISO 19132 - Location based services possible standards
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John Rowley
UK
WG 9 – Information management

- ISO 19127 - Geodetic codes and parameters
- ISO 19131 - Data product specifications
- ISO 19135 - Procedures for registration of geographical information items
ISO/TC 211

Special groups

- Advisory group on strategy
- MHT - Model Harmonization Team
  - harmonization of UML models
- Advisory group on outreach
- Advisory group on web server interface for geographic information
- TMG - Terminology maintenance group
- Task force to support convergence between relevant ISO/TC 204 and ISO/TC 211 projects
ISO/TC 211 Advisory group on outreach

**Mission:** Promote the adoption of ISO/TC 211 standards in user communities

Terms of reference

- Create awareness
- Enable education and training
- Facilitate adoption and implementation
- Capture user requirements and feedback
- Generate outreach resources
- Maintain Business Plan
Agreement ISO/TC 211 - OGC

Why cooperation?

- common objectives
- similar work programmes
- complementary approach
- joining resources gives strength
- avoiding inconsistent standards - *de jure* / *de facto* / industrial
- … and more

… has led to establishment of a cooperative agreement between Open GIS Consortium and ISO/TC 211, a similar agreement with DGIWG is under establishment …
OGC President David Schell:

“Our strategic relationships with other standards organizations have helped us steer the best course relative to broad technology trends, helped our OpenGIS Specifications gain acceptance, and helped other organizations fill gaps in their approaches to spatial processing. Most notably, our relationship with ISO/TC 211 has evolved to become a model for cooperation between industry consortia and de jure standards organizations, setting a precedent that shapes our relationship with TC 204. ....”
ISO/TC 211 statistics

- Almost 600 persons involved since start
- 450 have attended one or more plenaries
- 14 plenary meetings have been convened in 12 different countries on 5 continents

NB! Figures are approximate and vary over time
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<tr>
<th>Meeting</th>
<th>Place</th>
<th>Date</th>
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<tbody>
<tr>
<td>1st plenary</td>
<td>Oslo, Norway</td>
<td>November 10-11, 1994</td>
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<td>2nd plenary</td>
<td>Reston, VA, USA</td>
<td>August 30-31, 1995</td>
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<td>4th plenary</td>
<td>Sydney, Australia</td>
<td>January 23-24, 1997</td>
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<td>5th plenary</td>
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<td>October 2-3, 1997</td>
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<td>6th plenary</td>
<td>Victoria, Canada</td>
<td>March 5-6, 1998</td>
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<td>7th plenary</td>
<td>Beijing, China</td>
<td>September 24-25, 1998</td>
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<td>8th plenary</td>
<td>Vienna, Austria</td>
<td>March 4-5, 1999</td>
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<td>9th plenary</td>
<td>Kyoto, Japan</td>
<td>September 29-30, 1999</td>
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<tr>
<td>10th plenary</td>
<td>Cape Town, South-Africa</td>
<td>March 9-10, 2000</td>
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<td>11th plenary</td>
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<td>September 7-8, 2000</td>
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<td>12th plenary</td>
<td>Lisbon, Portugal</td>
<td>March 8-9, 2001</td>
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<td>13th plenary</td>
<td>Adelaide, Australia</td>
<td>October 25-26, 2001</td>
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<td>14th plenary</td>
<td>Bangkok, Thailand</td>
<td>May 23-24, 2002</td>
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<td>16th plenary</td>
<td>Switzerland</td>
<td>May 22-23, 2003</td>
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<td>17th plenary</td>
<td>Germany</td>
<td>October/November, 2003</td>
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<td>18th plenary</td>
<td>Canada</td>
<td>May, 2004</td>
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<td>19th plenary</td>
<td>Kuala Lumpur, Malaysia</td>
<td>November, 2004</td>
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<tr>
<td>20th plenary</td>
<td>Stockholm, Sweden</td>
<td>May/June, 2005</td>
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ISO/TC 211 web-site

You will find updated information on ISO/TC 211 on the following World Wide Web-server:

http://www.isotc211.org

containing:

- Secretariat
- Organization
- Calendar
- About...
- Resolutions
- Document list
- Scope and work programme
- Mail to secretariat
- News and information
- Presentations (slides)
Thank you!

ISO/TC 211 ...
... building the foundation of the geospatial infrastructure, brick by brick ...