

*ICG-9, WG-D, Prague, November 9-14, 2014*

# Relevant Developments in International Standards

## International Standards Organization (ISO) Technical Committee 211, Geographic Information/ Geomatics

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

# ISO/TC 211

## Geographic Information/Geomatics

- **ISO/TC 211 standards relevant to ICG WG-D, Reference Frames, Timing and Applications**

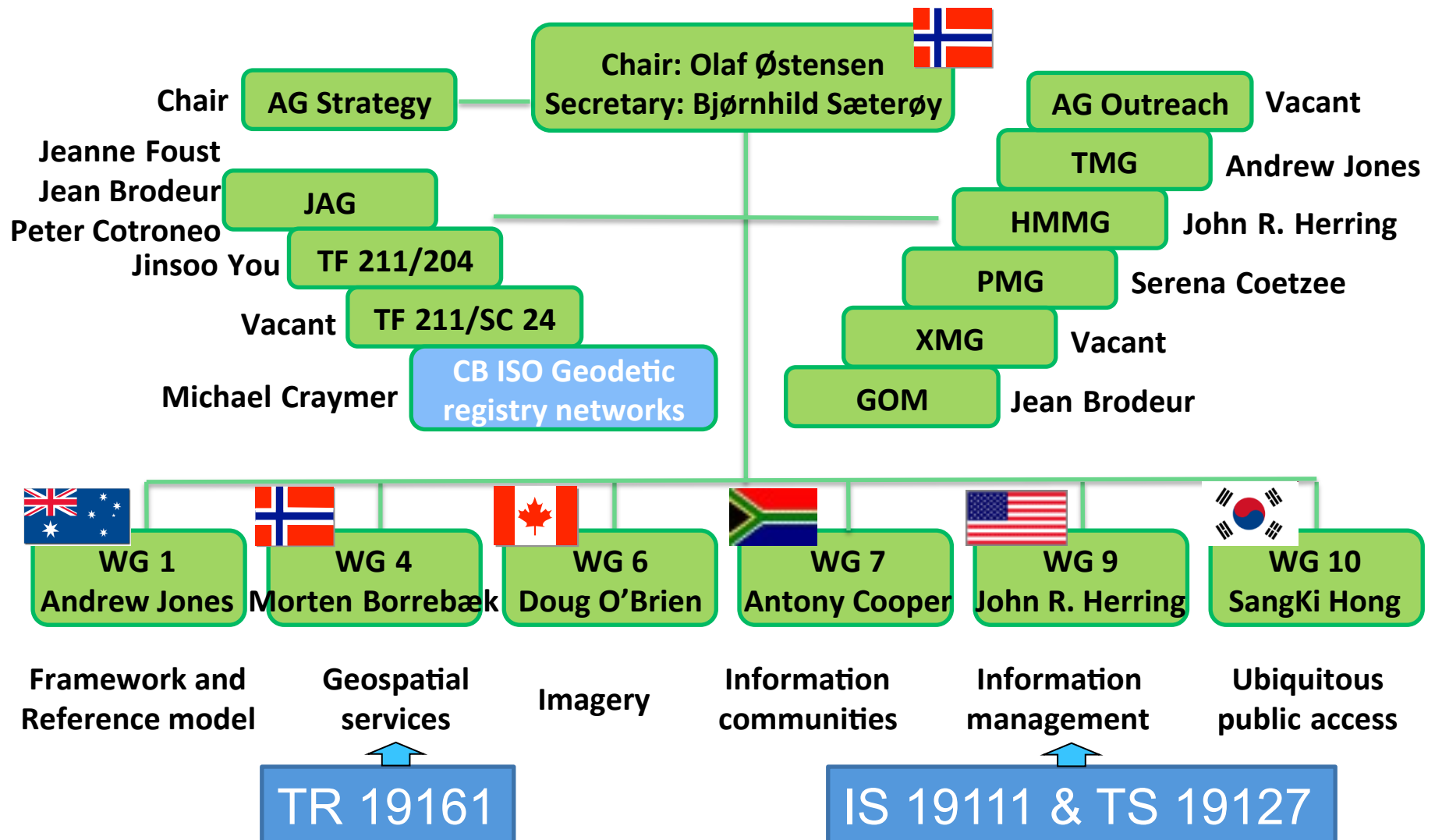
- Spatial referencing by coordinates (IS 19111)
- Geodetic codes & parameters (TS 19127)
- Procedures for item registration (IS 19135)
- Geodetic references (TR 19161)
- ISO Registry for Geodetic Codes and Parameter

**IS – International Standard; TS – Technical Specification;  
TR – Technical Report**

# 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



# Who are we ? ...member list

Active members (P-members), 36 countries

Australia

Austria

Azerbaijan

Belgium

Canada

Chile

China

Czech Rep.

Denmark

Ecuador

Finland

France

Germany

Hungary

India

Iran

Italy

Japan

Rep. of Korea

Lithuania

Malaysia

Morocco

Netherlands

New Zealand

Norway

Peru

Russian Federation

Saudi Arabia

Serbia

South Africa

Spain

Sweden

Switzerland

Thailand

United Kingdom

United States of America



# IS 19111 – Spatial Referencing by Coordinates

## Scope:

- Definition of the conceptual schema and guidelines for describing geodetic reference systems.

## Purpose and justification:

- Produce a conceptual schema for geodetic reference systems.
- Any coordinate-based usage of geographic information needs a unique definition of the underlying reference system.
- There are many well-established reference systems in common use. Standardization in this area will include selected inter-national reference systems.



# ***TS 19127 - Geodetic codes and parameters***

- Provides for creation and maintenance of a publicly available **registry of geodetic codes and parameters** that **is in compliance with IS 19111**
- Provides **guidance on applicability and appropriate use**
- Provides **guidance for**
  - ⇒ **submission** of proposals for additions to the registry,
  - ⇒ **validation** of proposals,
  - ⇒ **inclusion of new data** in the registry, and
  - ⇒ **maintenance** of the registry.
- Some **elements that were optional in ISO 19111 become mandatory** in TS 19127 to provide guidance on applicability and appropriate use.

# *TS 19127 - Geodetic codes and parameters*

- **Sponsoring authorities** that may make proposals to submit geodetic codes and parameters to the registry, include:
  - ⇒ national mapping authorities
  - ⇒ international geodetic organisations
  - ⇒ any P-member or O-member of ISO TC 211
  - ⇒ any international organisation having Category A liaison status with ISO TC 211, such as FIG, IAG, IHO and ISPRS



# TR 19161 – Geodetic References

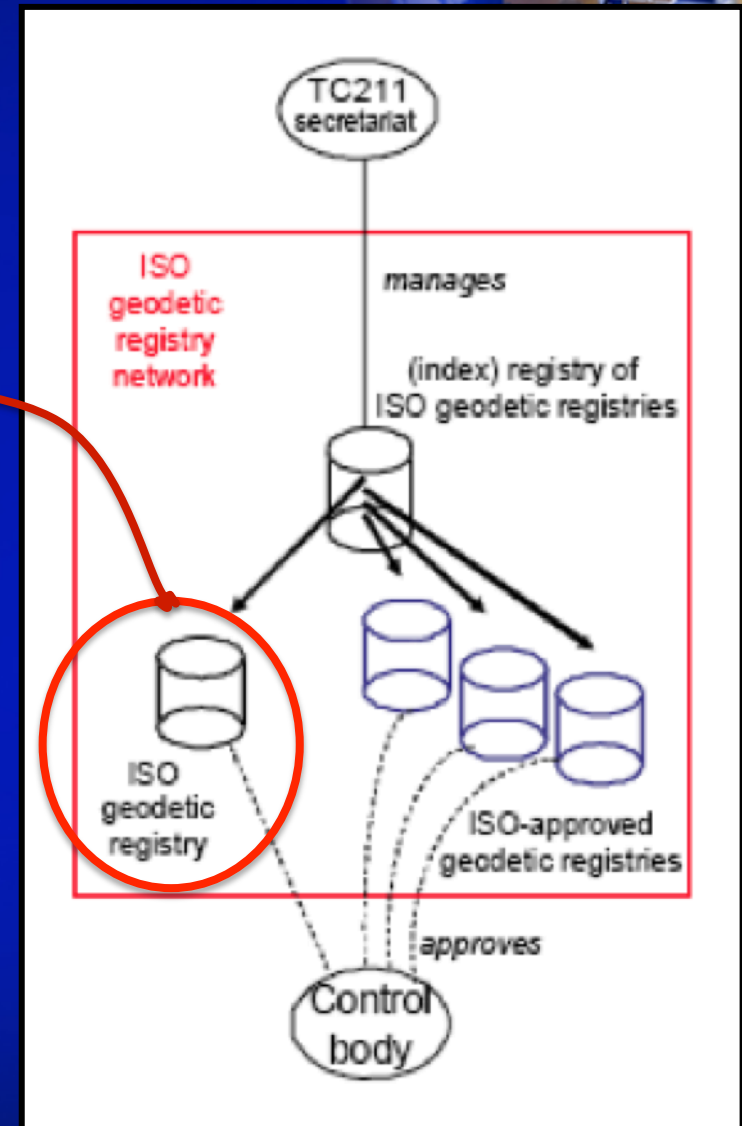
## Project Objectives

- Investigate standardization requirements related to geodetic references, as viewed by various user communities (geographical information systems, air, space, marine and land navigation, satellite navigation applications, etc.)
- Research existing relevant documents - ISO and non-ISO documents
- Discuss possible specific proposals for standards
- Produce a Technical Report (due in 2015)



# ISO Geodetic Registry Network

- **Three components:**
  - Register of ISO-approved **geodetic** registries/registers
  - **ISO geodetic registry**
  - ISO-approved external registers
- **Control Body (CB)**
  - Approves content of
    - ISO register
    - ISO-compliant parts of external registers



# ISO Registry for Geodetic Codes and Parameters

## ISO Geodetic Registry

- An information system containing a database of geodetic reference systems
- A registry of international scope
- Validated by authoritative sources
  - Control Body



# Control Body Membership



## Permanent Members

Australia (pending)

Canada

China

France

Finland

Germany

Italy

Japan

Republic of Korea (pending)

Saudi Arabia

South Africa

United Kingdom

United States

## External Liaisons

IAG (Chair & Vice-Chair)

DGIWG

FIG

IHO

**Current Chair: Michael Craymer**

**Current Vice-Chair: Larry Hothem**

**Seeking members for the Control  
Body from Russia and India**



Welcome

- Register
  - Geodetic Codes ...
    - Coordinate R...
    - Coordinate S...
    - Datums
    - Coordinate O...
  - Other
    - Area of Use
    - Coordinate...
    - Ellipsoid
    - Naming Sy...
    - Operation ...
    - Operation ...
    - Prime Meri...
    - Unit of Me...

### \*\*\* DEMONSTRATION VERSION ONLY \*\*\*

This registry is for demonstration purposes only. The current content of the registry is provided only to demonstrate the features and capabilities of the registry software.

The registry content should NOT be used for any other purposes.

**In no way should the content be considered valid data!**

## ISO Registry of Geodetic Codes and Parameters

The ISO Registry of Geodetic Codes and Parameters is a structured database of coordinate reference systems and transformations that is accessible through this on-line registry system. The register includes only systems and transformations of international application. It does not include all possible coordinate reference systems and transformations.

This registry is provided under the auspices of ISO Technical Committee 211 on geographic information/geomatics and conforms to ISO standards ISO 19111:2007 (Spatial referencing by coordinates), ISO/TS 19127:2005 (Geodetic codes and parameters), ISO 19135:2005 (Procedures for item registration) and its soon to be published revision ISO 19135-1 (Procedures for item registration - Part 1: Fundamentals), and ISO 19135-2:2012 (Procedures for item registration -- Part 2: XML schema implementation).

The registry may be used free of charge but its use is subject to acceptance of the Terms and Conditions of Use. Users of the registry may query and view data and generate reports via anonymous guest access. Users may also submit proposals for new additions or clarifications to the registry.

The registry also provides a web service interface, allowing geospatial software to query and retrieve information from the register. Information on using the web services is available in the [registry user's guide](#).

Provide feedback

# Present Status

- **Control Body Representation**
  - Seeking representation from all regions
  - Missing: South America, Russia, India
- **ISO Geodetic Registry Implementation**
  - Data being loaded for testing
  - Demonstrations at ISO TC 211 & monthly CB meetings
  - “Seeding” registry with primary global & continental reference frames for public release, for example:

ITRF

**GTRF14v01**

ETRF

AFREF

**WGS84**

**JGS (QZSS)**

NAD83

APREF

**PZ-90.11**

**CTRS 2000?**

SIRGAS

GDA94

(India?)

(Beidou)



# Future Plans

- **Registry Implementation**

- Adapt modern reference systems to current data model (make extensive use of “comments” in item descriptions)
- Complete loading of registry with an initial set of international reference systems & transformations
- Planning public release by end of year
- **Will post link to ISO Registry on IAG Website**



Thank you for your attention

