ISO is an independent, non-governmental international organization with a membership of 162 national standards bodies.

TC 211 – the technical committee for geographic information - has published 80 standards.

ISO has published 22407 International Standards and related documents, covering almost every industry, from technology, to food safety, to agriculture and healthcare.
The session agenda

- Moderator: Mr. Olaf Magnus Østensen, Norwegian Mapping Authority, Norway

- Mr. Olaf Magnus Østensen, Norwegian Mapping Authority, Norway
  *ISO in general and Geodesy Standards*

- Mr. Christopher Body, ISO/TC 211 Land administration
  *Land Administration Standards and its revision program*

- Prof., Dr. Serena Coetzee, University of Pretoria
  *International Addressing Standards*

- Mr. Trond Harald Hovland, ITS Norway
  *ITS and GIS Standards to support autonomous driving*

ISO is devoted to support the SDGs

When the world agrees

*Contributing to the UN Sustainable Development Goals with ISO standards*
ISO – Great things happen when the world agrees

By offering a solid base, a common language and a layer of confidence, ISO standards help our greatest minds to concentrate on pushing the limits and taking us to new places.
Standards That Make Innovation Possible - 18 November 2018, Deqing, Zhejiang Province, China

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Standards are stable platforms for innovation, standards save a lot of time and effort, which helps us to advance faster. But more importantly, standards make it easier for products to be compatible with existing technology, and to be introduced and accepted faster into new markets.

Examples of relevance for the SDGs

- ISO 19144-1:2009, Geographic information -- Classification systems -- Part 1: Classification system structure
- ISO 19144-1:2012, Geographic information - Classification systems -- Part 2: Land Cover Meta Language (LCM)
- ISO 19152:2012, Geographic information -- Land Administration Domain Model (LADM)
- ISO 19160-4:2017, Addressing -- Part 4: International postal address components and template language
- ISO 19144-1:2009, Geographic information -- Classification systems -- Part 2: Land Cover Meta Language (LCM)
- ISO 19152:2012, Geographic information -- Land Administration Domain Model (LADM)
- ISO 19160-4:2017, Addressing -- Part 4: International postal address components and template language
- All other ISO/TC 211 standards
Fundamental datasets

- UN-GGIM has identified fundamental datasets

ISO 19100-series – the basis for describing geospatial information
Geodesy Standards

"A global geodetic reference frame for sustainable development"

UN General Assembly resolution A/RES/69/266

Photo: Kyoung-Soo Eom
UN- GGIM Sub-committee on Geodesy

Standards That Make Innovation Possible - 18 November 2018, Deqing, Zhejiang Province, China

Greater need for precise positioning

Autonomous surface vessels

Image: Sea Trade Maritime News

Autonomous cars

Image: arstechnica.com

ITS in general

Image: es.123rf.com

Precision agriculture

Image: agrifoodtechplatform.nl

Drone delivery

Image: drone-delivery.com

Smart and resilient cities

Image: smartresilientcities.com
The dynamic world

- Crustal plate movement
- Earthquakes
- Sea rise
- Spinning earth
- ...

The Geodesy Standards

- ISO 19161 Geographic information -- Geodetic references -- Part 1: The international terrestrial reference system (ITRS)

  ESSENTIAL FOR THE CONSISTENT REALIZATION OF THE ITRF AND GGRF

- ISO 19111 Geographic information -- Spatial referencing by coordinates

  THE STATE-OF-THE-ART DESCRIPTION AND MODEL FOR POSITIONS
The Geodesy Standards

- ISO 19127 Geographic information -- Geodetic register

**THE AUTHORIZED INTERNATIONAL REGISTER OF GEODETIC CODES AND PARAMETERS**

- CURRENTLY MORE THAN 2400 ITEMS

[https://registry.isotc211.org](https://registry.isotc211.org) (soon to be fully launched)

The Geodesy Standards

- ISO 6709 Standard representation of geographic point location by coordinates
- ISO 19162 Geographic information -- Well-known text representation of coordinate reference systems

**THE STATE-OF-THE-ART ENCODING OF COORDINATE REFERENCES**
Recommendations
- The UN-GGIM Sub-committee on Geodesy agrees that the ITRS, through its numerical realization, the ITRF, be adopted for geospatial and scientific positioning applications. This adoption may be achieved by closely aligning to the ITRF.
- Recognizing the development of ISO19161-1 document on the ITRS, currently at the Draft International Standard (DIS) level, the Sub-Committee urges member states to record their national reference frame details, and its alignment to the ITRF, in the ISO Geodetic Register.
- The Sub-Committee takes note of the developments that are currently undertaken by the IAG for the definition and realization of the International Height Reference System (IHRS).

Background
- In order to ensure the interoperability of geospatial data for location-based, scientific and societal applications, it is critically important to adopt a unique, recognizable, traceable standard global geodetic reference system. The International Terrestrial Reference System (ITRS), that is numerically realized by the International Terrestrial Reference Frame (ITRF), was adopted for such applications by a number of international organizations, including the International Union of Geodesy and Geophysics (IUGG), the General Conference on Weights and Measures (CGPM), and the International Committee on Global Navigation Satellite Systems (ICG). With reference to the ICG, in an effort to ensure the interoperability of the user positioning applications using different GNSS systems, the GNSS Providers have aligned their GNSS-specific reference frames to the ITRF, such as WGS84 for GPS, PZ-90 for GLONASS, CGCS2000 for Beidou, and the Galileo Terrestrial Reference frame (GTRF) for Galileo, and the Japanese Geodetic System (JGS) for QZSS. Regional entities of UN-GGIM and of the International Association of Geodesy (IAG) rely on and adopt the ITRF for their operational geodesy and geospatial applications, as well as for the alignment of their regional geodetic reference frames.