



19111 Geographic information – Spatial referencing by coordinates

Any coordinate based usage of geographic information needs a unique definition of the underlying reference system. A standardized conceptual schema for coordinate based reference systems is necessary for geographic information to be shared between applications. The schema will be of value to developers of geographic information systems and other applications requiring data based upon coordinate reference systems. It will also aid users in specifying their requirements for data referenced by coordinates and will ensure that data producers use coordinate reference systems which are consistently defined. There are many well established systems in common use.

This International Standard establishes a common requirement for describing coordinate reference systems (CRSs) including the datum giving the relation to the Earth and the coordinate system used. The standard stipulates that CRSs do not alter with time. Changes with time are catered for by specification of new CRSs which identify the epoch of their realisation. Hybrid coordinate reference systems (HCRSs) are included to cater for situations when the components of position come from different CRSs. A typical example consists of geodetic coordinates (for horizontal position) and heights related to sea level.

The requirements for transformation of data with reference to different datums are given, as well as the requirements for conversion including map projection between different coordinate systems. The definitions of accuracy and precision of spatial reference by coordinates are given.

The standard is of particular relevance to the following sectors:

Sector	Of particular interest
Developers of GIS products	
Developers of GIS application systems	Yes
Producers/ suppliers of geographic data	Yes
Users of geographic data and GIS	
Developers of standards	

For further information on this standard and its implementation, please contact ISO/TC 211 secretariat via www.isotc211.org.