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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 30170-2013

Geographic information -- Spatial referencing by coordinates

地理信息 基于坐标的空间参照

(English Translation)

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Foreword

This standard was drafted in accordance with GB/T 1.1-2009 given rules.

This standard uses the translation method identical with the international standard ISO 19111:2007 "Geographic information - Spatial referencing by coordinates."

Correspondence between the consistency of the standards of international documents and normative references of the following documents.

--- GB/T 22022-2008 Geographic information time mode (ISO 19108:2002, IDT)

--- GB/T 19710-2005 Geographic Information Metadata (ISO 19115:2003, MOD) According to our country, the international standards for the following editorial changes.

--- Remove the international standards outlined in the informative elements and cover preface;

--- To the "international standards" and "ISO 19111" to "this standard";

--- Complements the DMA, ED50, EGG97, EPSG, ETRS89, GRS1980, NIMA, NAD27, NAD83 in 5.2, UELN total of 10 acronyms;

--- Increasing the sample in Appendix D D.10 seven-parameter coordinate transformation;

--- Increase the informative appendix NA "class name Chinese Description Table";

--- Reference increase of the application of this standard document.

This standard was proposed by the National Mapping Geographic Information Bureau.

This standard by the National Standardization Technical Committee on Geographical Information (SAC/TC230) centralized.

This standard was drafted. National Geomatics Center of China, Chinese Academy of

Surveying and Mapping, Wuhan Science and Technology Co., Ltd. and Digital ground ESRI China (Beijing) Co., Ltd.

Introduction

Geographic information contains spatial reference, the reference data elements associated with these spatial positions expressed and the real world. Spatial Reference points Two types.

--- Based on the spatial coordinates of reference;

--- Based on Spatial reference identifier.

ISO 19112 [4] based on the provisions of the Spatial reference identifier, this standard describes the reference data based on spatial coordinates required element Su, relationships and associated metadata. This standard describes the complete definition of the various types of coordinate systems and coordinate reference systems applicable to geographic information Essential elements. A subset of some elements depends on the type of coordinates. This standard also includes optional fields to include non-essential coordinate reference Department of Information. These elements are easy to machine (computer) and human-readable.

Plane and the vertical position of the traditional separation leads to real three-dimensional coordinate reference system is not true, but divided into horizontal (two-dimensional) and vertical (1 dimension). By convention, three-dimensional position of a point can be defined together with the elevation or depth from a different coordinate reference system through its horizontal coordinates.

In this standard, this concept is defined as a compound coordinate reference system.

The concept of coordinates may be extended from the strict context of space containing the time. ISO 19108 describes the time mode, time can also be made Time frame of reference for the added compound coordinate reference system. When describing two different independent quantity can even add two time coordinates.

Example. seismic imaging, often the vertical coordinates of the point when an underground/empty position with millisecond bidirectional audio signal propagation time FIG. Another time coordinates of the observation time, usually expressed in years.

Some 3-D system used by the scientific community and non-spatial location parameter plane composition. They will be non-spatial parameters as the third dimension, that vertical axis, although with changes in elevation or depth parameter monotonously changes, but not necessarily a simple change, so the argument into elevation or Depth is not a simple conversion. Related parameters are usually absolute measurement, reference as a direct physical measurement of the parameters of reference. These non-empty Between parameters is beyond the scope of this standard. However, the modeling of different

member groups can be described by the application of this standard to customize their specific standards.

In addition to describe the coordinate reference system, the present standard for coordinate transformation or coordinate transformation between different coordinate reference systems are described. Through this these information can be given for the data under the coordinate reference system based on different geographic coordinate reference system data conversion, to facilitate the collection of spatial data to process or processes coordinate reference system for maintenance.

Geographic information - Spatial referencing by coordinates

1 Scope

This standard defines the reference coordinate space-based conceptual model can be extended to space-time reference, sets out the definition of one-dimensional, two-dimensional and three-dimensional Minimum data space coordinate reference system and the expansion of space-time coordinates of the reference coordinate reference system required, provide additional descriptive information to allow further He describes the change coordinates from one coordinate reference system to another coordinate reference system required information.

In this standard, the coordinate reference system does not change with time and change. Define (such as cars, ships, airplanes and flying in the universe for the motion platform Boats) coordinate reference system, when changing to a ground fixed coordinate frame of reference, it may contain a time element.

This standard applies to producers and users of geographic information. Although it applies to digital geographic data, but the principle can be extended to many Other forms of geographic data such as maps, charts, and text files.

The standard model can be applied to describe a combination of plane position and the third non-spatial parameters, the parameters change with elevation or depth monotone of. Extended to non-spatial data is beyond the scope of this standard, but can be realized by specific standards.

2 Conformance requirements

This standard specifies two types of consistency. A class is the coordinate reference system consistency, class B coordinates between the two coordinate reference system operations consistency. Any person claiming to be consistent with this standard coordinate reference system should meet the requirements specified in Annex A.1, any claim is consistent with this standard Coordinate operations should meet the requirements specified in Appendix A.2.

3 Normative References

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

ISO/T S19103 geographic information conceptual schema language
(Geographicinformation-Conceptualschemalan-guage) ISO 19108 Geographic Information
Time Mode (Geographicinformation-Temporalschema) ISO 19115 Geographic Information
Metadata (Geographicinformation-Metadata) to ISO 19115 normative reference to the
following limitations. In this standard, for ISO 19115 normative references do not include
MD_ CRS class and component class, and MD_ CRS and its component class defines the
description of coordinate reference elements. These elements of the standard Registration
is modeled.

NOTE: ISO 19115:2003 Technical Corrigendum 1.2006, removed MD_ CRS class and its
component class.