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Geographic information -- Spatial schema

地理信息 空间模式

(English Translation)

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Foreword

This standard is identical with ISO 19107:2003 "geographic information spatial mode" (in English) and made the following editorial changes.

- a) preparation of the implementation of the method of the standard GB/T 1.1-2000 "Standardization Guide Part 1. Standard structure and drafting of regulations Then ", GB/T 20000.2-2001" Standardization Guide Part 2. Requirements of international standards of the rule, "the;
- b) to the "international standards" be replaced by "this standard";
- c) Remove the preface to the international standards;
- d) ISO/IEC 11404:1996 has been adopted as the national standard of equal, in this standard with the national standard code (GB/T 18221-2000) and substituted the name of the corresponding international standard code and name;
- e) Due to ISO 19109, ISO 19111 international standard has been published in this standard Normative references deleted the original international standard Registration identify forthcoming subscript;
- f) increase the ISO 19101 standard in this normative reference documents 2002 "Geographic Information Reference Model";
- g) an increase in the ISO 19111 reference 2007 "Geographic information-Spatialreferencingbycoor-dinates ", references to the original order by author (or institution) alphabetically been rearranged, and the numbers were cited in the text Adjusted accordingly;
- h) in the original text of the reg number error (6.5.4 is the direct 6.5.4.3) has been corrected;
- i) the original text of the statements in the code under 7.4.2.7 removes excess "[" symbol, Upcoming TP_Primitive::complex [[1... n]. Reference to TP_Primitive::complex [1... n]. Reference ;
- j) of the original text of Appendix B B. 8 homomorphism (4.52) Note the extra rear passage removed consistent with the 4.52;

k) increase the informative appendix NA.

Appendix A of this standard is a normative appendix, Appendix B, Appendix C, Appendix D, Appendix NA informative appendices.

This standard by the National Geographic Information Standardization Committee (SAC/TC230) and focal points.

This standard was drafted. Chinese Academy of Surveying and Mapping, Wuhan University.

Introduction

This standard provides a conceptual model for describing and processing spatial characteristics of geographic features, spatial characteristics of standardized conceptual models will be its He cornerstone of geographic information standards.

Elements is a real-world phenomenon of abstraction, if the feature associated with the position of the Earth called on geographic features. Vector data is composed of Geometric primitives and topological shape composed of people, alone or in combination to build objects using geometric primitives and topological primitives to express empty geographic features Room features. Raster data coverage area is divided into a regular grid unit, and the data is formed for each unit assigned a property value. this Standard relates only vector data.

In the standard model defined, the spatial features through one or more spatial attributes to describe, and the value of these properties by geometric space Object (GM_Object) or topological objects (TP_Object) is defined. Geometric coordinates and mathematical functions based on quantitatively describe to Spatial characteristics of prime dimension, position, size, shape, orientation, and so on. Mathematical functions describe the geometry of an object depends on the definition of the spatial position coordinates Reference type. When the geographic information from one geodetic reference system or coordinate system to another coordinate system or datum, only special geometry Sign change.

Topology for processing when space elastically, continuous deformation (for example, when geographic data from one coordinate system to another coordinate system) Geometry on keeping unchanged those characteristics. In the context of geographic information, topology is usually used to describe the shape dimensional map of FIG connectivity --- (Graph) a property in continuous transformation invariant. Computing topology provides information about the connectivity of geometric primitives, such information can be from basic Deduced geometrical features.

Spatial operator is to use, query, create, modify, delete functions and procedures of spatial objects. The standard definition of these operators free party Law, in order to create a definition of these operators with a standard implementation. Its objectives are.

a) unambiguously defined spatial operator to ensure that different implementations of

known accuracy and resolution defined under can generate comparable result;

b) Based on these definitions to develop a set of standard operations to form the basis of compliant systems, and as a test platform and compatible implementations Benchmark confirmed;

c) to define a set allows these operators are combined operator algebra, for the foreseeable geographic data query and processing.

Standardized spatial characteristics of conceptual models will enhance the ability to share geographic information in different applications. The conceptual model will be the geographical letter Information system and software developers and users of geographic information used in order to achieve a common understanding of spatial data structures.

GB/T 23707-2009/ISO 19107:2003 Geographic information spatial patterns

1 Scope

This standard defines the conceptual schema for describing the spatial characteristics of geographic features, and based on these patterns of a set of spatial operations. It handles Within a 3-dimensional vector geometry and topology, to be located up to three axes of the coordinate space of not more than three-dimensional topological space objects (geometry Access and topology) geographic information, query, manage, process and data exchange standard definition of space operations.

2.1 Overview

The standard Chapter 6, Chapter 7, to the Unified Modeling Language (UML) to express the spatial characteristics of geographic features used to describe the conceptual model.

These modes can be used to define the mode of application, specific standards and implementation specifications of the concept of class. This standard is only concerned with externally visible interface, and internal Ministry realization is not limited, and these interfaces are different from the interface specification under real environment need to meet the following.

- Use technology such as COM or CORBA software service interface;
- Use of technology such as SQL database interface technology;
- Encoded using the ISO 19118 definition of data exchange technology.

Few applications will require the entire contents of this standard conceptual schema described, this chapter defines a set of compatible class, these classes can be supported from the minimum compatibility requirements definition data structure to the full implementation of the object. Its flexibility is a real by a set number of ways Now the UML type control. When an application-defined function of the complete object must implement