SLOVENSKI STANDARD
SIST ENV 12009:1999

01-januar-1999

Geografske informacije - Referenļ ni model

Geographic information - Reference model

Geoinformation - Referenzmodell

Information géographique - Modele de référence

Ta slovenski standard je istoveten z: **ENV 12009:1997**

ICS:

07.040	Astronomija. Geodezija. Geografija	Astronomy. Geodesy. Geography
35.240.70	Uporabniške rešitve IT v znanosti	IT applications in science

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English version

Geographic information - Reference model

Information géographique - Modèle de référence Geoinformation - Referenzmodell

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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Foreword

This European Prestandard has been prepared by Technical Committee CEN/TC 287 "Geographic information", the secretariat of which is held by AFNOR.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this European Prestandard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

The basic purpose of the standardisation in the field of geographic information is to enable geographic information to be accessed by different users, suppliers, applications and systems and from different locations. This requires a standard way of defining and describing geographic information, a standard method for structuring and encoding geographic information and a standard way of accessing, transferring and updating this geographic information via geographic information processing and communication functions.

The geographic information standards bring benefits such as :

- greater understanding of geographic information ;
- harmonisation of concepts concerning the use of geographic information ;
- enabling integration of geographic information ;
- increased availability of geographic information, including information about geographic information ;
- assessment of geographic information for different applications ;
- enabling transfer of geographic information ;
- increased market opportunities ;
- reuse of geographic information for different purposes ;
- harmonisation of the methods of access to geographic information.

This European Prestandard provides a framework for development of standards in the field of geographic information. As such it :

- describes the basic concepts of field of geographic information ;
- identifies the specific items subject to standardisation ;
- shows how these fit together ;
- allows new components to be added to extend the field of geographic information.

1 Scope

This European Prestandard identifies and defines a structured set of concepts and components enabling the definition, the description, the structuring, the query and the update and the transfer of geographic information and information about geographic information.

This European Prestandard does not prescribe any specific standard, it does not serve as an implementation specification for systems nor does it serve as a basis for appraising the conformance of implementations.

2 Normative references

This European Prestandard does not include any normative references.

3 Definitions

An index of the most common terms used in this European Prestandard is provided in Annex A.

4 The field of geographic information

4.1 General

Two categories of data are distinguished :

- geographic data ;
- metadata.

Accessibility and reuse of these data are enabled by geographic data services (clause 6).

4.2 Geographic data

4.2.1 General

Geographic information is information concerning phenomena directly or indirectly associated with a location relative to the Earth. Geographic data are a computer treatable form of geographic information. The existing information technology standards will be complemented by specific geographic information standards, because the spatial aspects of geographic data are not sufficiently covered. Geographic data include semantic aspects, spatial aspects and quality aspects. The semantic aspects describe the model being represented. The spatial aspects define its position and shape. The quality aspects indicate its potential.

The spatial characteristics allow the geographic data

- to be merged by means of positional references even if data is coming from different sources ;

- to be analysed using spatial operators and functions (new information can be deduced by merging two or more geographic datasets) ;

- to be graphically presented as maps, perspective images, etc.

Geographic data is a model of the real world and plans related to it. Such a model may include temporal aspects.

The model is always a conscious approximation but is meant to be sufficiently correct, accurate and up-to-date for its purpose.

4.2.2 Semantic aspects

Geographic data, as a model, classify the elements of the reality.

Semantic aspects of geographic data include

- identifiers of the elements ;

- attributes of these elements ;

- relationships between these elements.

Classifying the elements allows them to be grouped according to attributes and/or relationships ; it enables similar actions to be performed upon each group.

The semantic aspects of the geographic data are described in a semantic schema.

4.2.3 Spatial aspects

Spatial aspects include specialized structures, attributes and relationships for positioning, geometrical aspects and topological aspects.

A positional reference system is a mathematical method to assign coordinates to a location on the Earth. There are many positional referencing systems but all of them can be described with parameters which make it possible to transform coordinates from one system to another.

An indirect positioning system (geographic identifiers) is a method to assign a location on the Earth by means of addresses or identifiers. In general, it is not possible to derive coordinates from an indirect positioning system. To transform data from a positional reference system to an indirect positioning system, it is necessary to have a complete coordinate based description of the indirect positioning system. To transform data from an indirect positioning system to another one is only possible if there is a direct translation from the set of identifiers to the second one.

The spatial aspects of the geographic data are described in a spatial schema.

The positional reference systems are described in a position schema.

The indirect positioning systems are described in a geographic identifier schema.

Figure 1 shows the relationship between the semantic aspects and the spatial aspects.

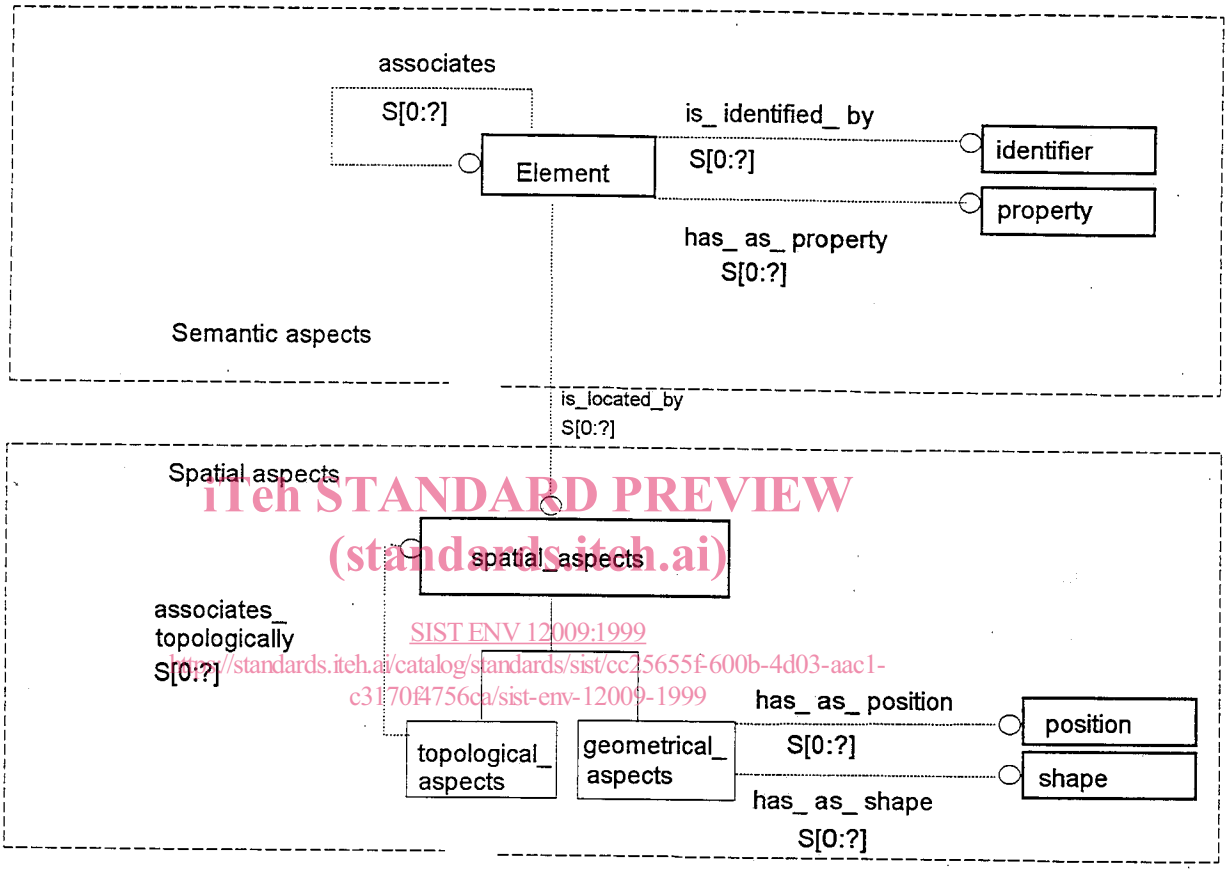

Figure 1 : Relationship between semantic and spatial aspects

4.2.4 Quality aspects

Data quality determines usability and prevents incorrect use of geographic data. Spatial analysis requires a well defined quality specification.

Quality aspects are divided into different categories, such as :

- accuracy ;
- completeness ;
- up-to-dateness.