
**Geographic information — Methodology
for feature cataloguing**

Information géographique — Méthodologie de catalogage des entités



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 19110 was prepared by Technical Committee ISO/TC 211, *Geographic information/Geomatics*.

Introduction

Geographic features are real world phenomena associated with a location relative to the Earth, about which data are collected, maintained, and disseminated. Feature catalogues defining the types of features, their operations, attributes, and associations represented in geographic data are indispensable to turning the data into usable information. Such feature catalogues promote the dissemination, sharing, and use of geographic data through providing a better understanding of the content and meaning of the data. Unless suppliers and users of geographic data have a shared understanding of the kinds of real world phenomena represented by the data, users will be unable to judge whether the data supplied are fit for their purpose.

The availability of standard feature catalogues that can be used multiple times will reduce costs of data acquisition and simplify the process of product specification for geographic datasets.

This International Standard provides a standard framework for organizing and reporting the classification of real world phenomena in a set of geographic data. Any set of geographic data is a greatly simplified and reduced abstraction of a complex and diverse world. A catalogue of feature types can never capture the richness of geographic reality. However, such a feature catalogue should present the particular abstraction represented in a given dataset clearly, precisely, and in a form readily understandable and accessible to users of the data.

Geographic features occur at two levels: instances and types. At the instance level, a geographic feature is represented as a discrete phenomenon that is associated with its geographic and temporal coordinates and may be portrayed by a particular graphic symbol. These individual feature instances are grouped into classes with common characteristics: feature types. It is recognized that geographic information is subjectively perceived and that its content depends upon the needs of particular applications. The needs of particular applications determine the way instances are grouped into types within a particular classification scheme. ISO 19109, *Geographic information — Rules for application schema* specifies how data shall be organized to reflect the particular needs of applications with similar data requirements.

NOTE The full description of the contents and structure of a geographic dataset is given by the application schema developed in compliance with ISO 19109. The feature catalogue defines the meaning of the feature types and their associated feature attributes, feature operations and feature associations contained in the application schema.

The collection criteria used to identify individual real world phenomena and to represent them as feature instances in a dataset are not specified in this International Standard. Because they are not included in the standards, collection criteria should be included separately in the product specification for each dataset.

A standard way of organizing feature catalogue information will not automatically result in harmonization or interoperability between applications. In situations where classifications of features differ, this International Standard may at least serve to clarify the differences and thereby help to avoid the errors that would result from ignoring them. It may also be used as a standard framework within which to harmonize existing feature catalogues that have overlapping domains.

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Geographic information — Methodology for feature cataloguing

1 Scope

This International Standard defines the methodology for cataloguing feature types. This International Standard specifies how the classification of feature types is organized into a feature catalogue and presented to the users of a set of geographic data. This International Standard is applicable to creating catalogues of feature types in previously uncatalogued domains and to revising existing feature catalogues to comply with standard practice. This International Standard applies to the cataloguing of feature types that are represented in digital form. Its principles can be extended to the cataloguing of other forms of geographic data.

This International Standard is applicable to the definition of geographic features at the type level. This International Standard is not applicable to the representation of individual instances of each type. This International Standard excludes spatial, temporal, and portrayal schemas as specified in ISO 19107, ISO 19108, and ISO 19117, respectively. It also excludes collection criteria for feature instances.

This International Standard may be used as a basis for defining the universe of discourse being modelled in a particular application, or to standardize general aspects of real world features being modelled in more than one application.

2 Conformance

Because this International Standard specifies a number of options that are not required for all feature catalogues, this clause specifies 12 conformance classes. These classes are differentiated on the basis of three criteria:

- a) What elements of a feature type are required in a catalogue?
 - 1) feature attributes only?
 - 2) feature attributes and feature associations?
 - 3) feature attributes, feature associations, and feature operations?
- b) Is there a requirement to link feature attributes, feature associations, and feature operations to only one feature type or may they be linked to multiple feature types?
- c) Is there a requirement to include inheritance relationships in the feature catalogue?

Annex A specifies a test module for each of the conformance classes, as shown in Table 1.