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

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**Geographic information - Geography Markup Language(GML) -
Part 2: Extended schemas and encoding rules**

地理信息 地理标记语言 (GML) 第2部分：扩展模式及编码规则

(English Translation)

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents" Drafting.

This document is Part 2 of GB/T 23708 "Geographic Information Geographic Markup Language (GML)". GB/T 23708 has been released the following parts.

---Part 2: Extended patterns and encoding rules.

This document is equivalent to ISO 19136-2:2015 "Geographic Information Geographic Markup Language (GML) Part 2: Extension Schema and Coding Code Rules".

Compared with ISO 19136-2:2015, in terms of document structure, the original Chapter 2 has been adjusted to Chapter 4 of this document.

This document has made the following minimal editorial changes.

---GML3.2 in the original international standard document is replaced by GB/T 23708-2009, and GML3.3 in the original international standard document Use "this document" instead.

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Introduction

Geography Markup Language (GML) is an XML syntax expressed in XML Schema, used to describe application schemas as well as transmission and storage Geographic information.

GB/T 23708 aims to provide XML syntax, data types and structures for describing application patterns and transmitting and storing geographical information.

Consists of 2 parts.

---Part 1: Basics. The purpose is to provide basic geographic information models (such as geographic features, space, time and coordinate reference systems Patterns, etc.) grammar and coding rules.

---Part 2: Extended patterns and encoding rules. The purpose is to provide geographic information expansion patterns (such as irregular triangulation, linear Reference and reference grid patterns, etc.) grammar and coding rules.

Key concepts in geomarkup languages for real-world modeling are derived from the ISO 19100 series of standards and the OpenGIS abstract specification.

An element is "an abstraction of some phenomenon in the real world" (ISO 19101). If a feature corresponds to a location on Earth, then it is a geographical element. Therefore, a digital representation of the real world can be viewed as a collection of elements. The status

of an element consists of a set of special Characteristic definition, each characteristic can be defined by a triplet of {name, type, value}.

The number of attributes per feature and the name and type of each feature are determined by the type of feature. Geographic features have geometric properties elements. A feature set is a collection of multiple features, which itself can also be regarded as a feature. Therefore, a feature set has a feature type.

At the same time, in addition to the characteristics of the elements it contains, it also has its own characteristics.

According to ISO 19109, the element types of an application or application domain are usually defined in the application schema. A GML application schema is A specific XML schema can be constructed in one of two ways.

---By adopting the UML application pattern rules specified in ISO 19109, complying with the constraints of the pattern and mapping them to this document Rules for GML application schema;

---Create a GML application expressed directly in XML schema by adopting the GML application schema rules specified in this document model.

This document supports both methods. In order to ensure the correct use of the conceptual model framework in the ISO 19100 series of standards, all application models the modeling is consistent with the common element model in ISO 19109. In the ISO 19100 series of standards, it is recommended to use UML as a concept A language for pattern modeling.

Consistent with ISO 19118, GML specifies a number of conceptual classes defined in the ISO 19100 series of standards and the Open GIS Abstract Specification.

XML encoding. The definitions of these conceptual models are contained in the following standards.

---ISO 19103:2015 Conceptual pattern language (units of measurement, basic types);

---ISO 19107:2019 Spatial patterns (geometric and topological objects);

---ISO 19108:2002 time mode (time geometry and topological objects, time reference system);

---ISO 19109:2015 Rules (elements) for geographic information application models;

---ISO 19111:2019 Coordinate-based spatial reference (coordinate reference system)

---ISO 19123:2005 Geographic information covering geometric and functional patterns;

---ISO 19148:2021 Linear referencing of geographical information.

The purpose of this document is to provide the relevant types and standard encodings (i.e. standard XML implementation) of the conceptual models specified in the above-mentioned