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Geographic information - Schema for moving features

地理信息 运动要素模式

(English Translation)

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents"

Drafting.

This document is equivalent to ISO 19141:2008 "Geographic Information Motion Feature Model".

Introduction

This document specifies a conceptual model for handling moving elements whose positions vary with time.

The conceptual framework, including classes, attributes, associations and operations, can support the processing of motion elements in different application areas, including.

- Location-based services;
- Intelligent transportation system;
- Tracking and navigation (land, sea or space);
- Modeling and simulation.

This model specifies motion mechanisms for describing translations, rotations, or mixed translations and rotations of features, but does not include deformation of features.

The conceptual basis of the formula is a single-parameter geometric set of leaf sets or trajectory sets. A leaf represents a motion element at a specific parameter value (e.g., a certain time).

The trajectory is a curve that represents the path formed by a point in the geometry of the moving element moving with the parameters.

Geographic Information Movement Element Model

1 Scope

This document specifies a method for describing the geometry of elements of a rigid body motion. The motion has the following characteristics.

- a) Elements move within the domain of arbitrary spatial objects specified in ISO 19107.
- b) Elements can move along a predetermined route or deviate from the predetermined route.
- c) The motion of an element can be affected by physical forces, such as centrifugal force, gravity or inertia.
- d) The movement of one element can affect other elements or be affected by other elements, for example.

- 1) Motion elements can move along a predetermined route (e.g., a road), which may be

part of a road network, or between known points (e.g., bus stops, waypoints) to change routes;

2) Two or more moving elements can be "pulled" together or "pushed" apart (e.g., an airplane refueling in mid-air, a predator detecting and tracking an object).

prey, refugees gather and converge);

3) Two or more moving elements can be constrained to maintain a given spatial relationship over a period of time (e.g., tractor, trailer, etc.) vehicles, fleets).

This document does not cover other types of changes to elements. Examples of these changes include.

--- Deformation of elements;

--- Inheritance of elements or element associations;

--- Changes in non-spatial attributes of elements;

---The geometric expression of an element cannot be embedded in a geometric complex that contains the geometric expression of other elements, otherwise the geometric expression of other elements Needs to be updated as the feature moves.

Since this document deals with the geometric description of feature motion, it does not specify a mechanism for describing feature motion using geographic identifiers.

Completed in ISO 19133.

2.1.1 Overview

This document defines four conformance classes based on two criteria. purpose and complexity (see Table 1).

2.1.2 Purpose

This document can be used to support data transfers that only need to describe the state of the object at the time of the transfer, and have nothing to do with the operations defined by the object.

Therefore, the two conformance classes (the data transfer for trajectory and prismatic geometry) need only implement the properties and associations of the classes specified in the schema.

Two conformance classes (data for trajectory and prismatic geometry operations) support object-oriented implementations of systems or interfaces.

In addition to implementing the above operations, you also need to implement the attributes and associations of the classes specified in the schema.