SLOVENSKI STANDARD
SIST EN ISO 19111:2020/oprA2:2023

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Geografske informacije - Lociranje s koordinatami - Dopolnilo A2 (ISO 19111:2019/DAM 2:2023)

Geographic information - Referencing by coordinates - Amendment 2 (ISO 19111:2019/DAM 2:2023)

Geoinformation - Koordinatenreferenzsysteme - Änderung 2 (ISO 19111:2019/DAM 2:2023)

Information géographique - Système de références par coordonnées - Amendement 2 (ISO 19111:2019/DAM 2:2023)

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DRAFT AMENDMENT
ISO 19111:2019/DAM 2

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Geographic information — Referencing by coordinates

AMENDMENT 2

ICS: 35.240.70

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

Introduction

The purpose of this amendment is to correct minor omissions in 19111:2019/Amd 1:2021 identified during implementation of ISO 19162:2019 "Geographic information — Well-known text representation of coordinate reference systems" which is dependent upon the abstract data model described in ISO 19111.

1. Amendment to spherical coordinate system.

Planetary science has a requirement to describe location through two-dimensional geocentric latitude and longitude. ISO 19111:2019 describes a three-dimensional spherical coordinate system. This amendment allows a spherical coordinate system to be either two- or three-dimensional.

2. Addition of datum anchor epoch attribute to UML datums class.

Modern static geodetic reference frames are usually defined to be consistent with ITRF at a specified epoch. It is desirable that this epoch be an optional attribute of such reference frames. As it could have broader applicability the attribute is generalised through inclusion in the datum class.

3. Addition of defining transformation.

Modern geodetic coordinate reference systems may be defined through a transformation from another coordinate reference systems. This addition permits such transformations to be shown as an attribute of the defined coordinate reference system.

4. Clarification of use of derived projected CRS in compound CRSs.

5. Correction of very minor typograpic errors.

In some UML constraints an erroneous opening left parenthesis is replaced by an opening curly bracket.

Geographic information — Referencing by coordinates

AMENDMENT 2

3.1.16, datum ensemble

In EXAMPLE, remove right parentheis after "...and G1762." The complete revised definition becomes:

3.1.16
datum ensemble
group of multiple realizations of the same terrestrial or vertical reference system that, for approximate spatial referencing purposes, are not significantly different

EXAMPLE "WGS 84" as an undifferentiated group of realizations including WGS 84 (TRANSIT), WGS 84 (G730), WGS 84 (G873), WGS 84 (G1150), WGS 84 (G1674) and WGS 84 (G1762). At the surface of the Earth these have changed on average by 0.7m between the TRANSIT and G730 realizations, a further 0.2m between G730 and G873, 0.06m between G873 and G1150, 0.2m between G1150 and G1674 and 0.02m between G1674 and G1762.

Note 1 to entry: Datasets referenced to the different realizations within a datum ensemble may be merged without coordinate transformation.

Note 2 to entry: 'Approximate' is for users to define but typically is in the order of under 1 decimetre but may be up to 2 metres.

3.1.31, geodetic coordinate reference system

Replace definition with

3.1.31
geodetic coordinate reference system
two- or three-dimensional coordinate reference system based on a geodetic reference frame and having either a three-dimensional Cartesian or an ellipsoidal or a spherical coordinate system

Note 1 to entry: In this document a coordinate reference system based on a geodetic reference frame and having an ellipsoidal coordinate system is geographic.

3.1.60, spherical coordinate system

Replace definition with

3.1.60
spherical coordinate system
two- or three-dimensional coordinate system in Euclidean space in which position is specified by two angular coordinates and (in the three-dimensional case) one distance coordinate

Note 1 to entry: Not to be confused with an ellipsoidal coordinate system based on an ellipsoid 'degenerated' into a sphere.

9.3.2, Spatial compound coordinate reference system

After 9.3.2 (f) add:

g) Derived projected 2D + Vertical CRS

h) Derived projected 2D + Engineering 1D (near vertical)

9.3.4, Spatio-parametric compound coordinate reference system

Replace text with:

A spatio-parametric coordinate reference system is a compound CRS in which one component is a geographic 2D, projected 2D, engineering 2D CRS or derived projected 2D CRS, supplemented by a parametric CRS to create a three-dimensional CRS: an example is included in E.3.3. More than one parametric coordinate reference system may be included if these represent independent parametric quantities.

9.4, UML schema for the Coordinate Reference Systems package

In paragraph 4 after "... detailed in Clause 12." insert an additional new last sentence:

Associations between Coordinate Reference Systems and Coordinate Operations are summarised in the UML class diagram in Clause 12, Figure 17.

9.4, Figure 9

Replace Figure 9 with the following:

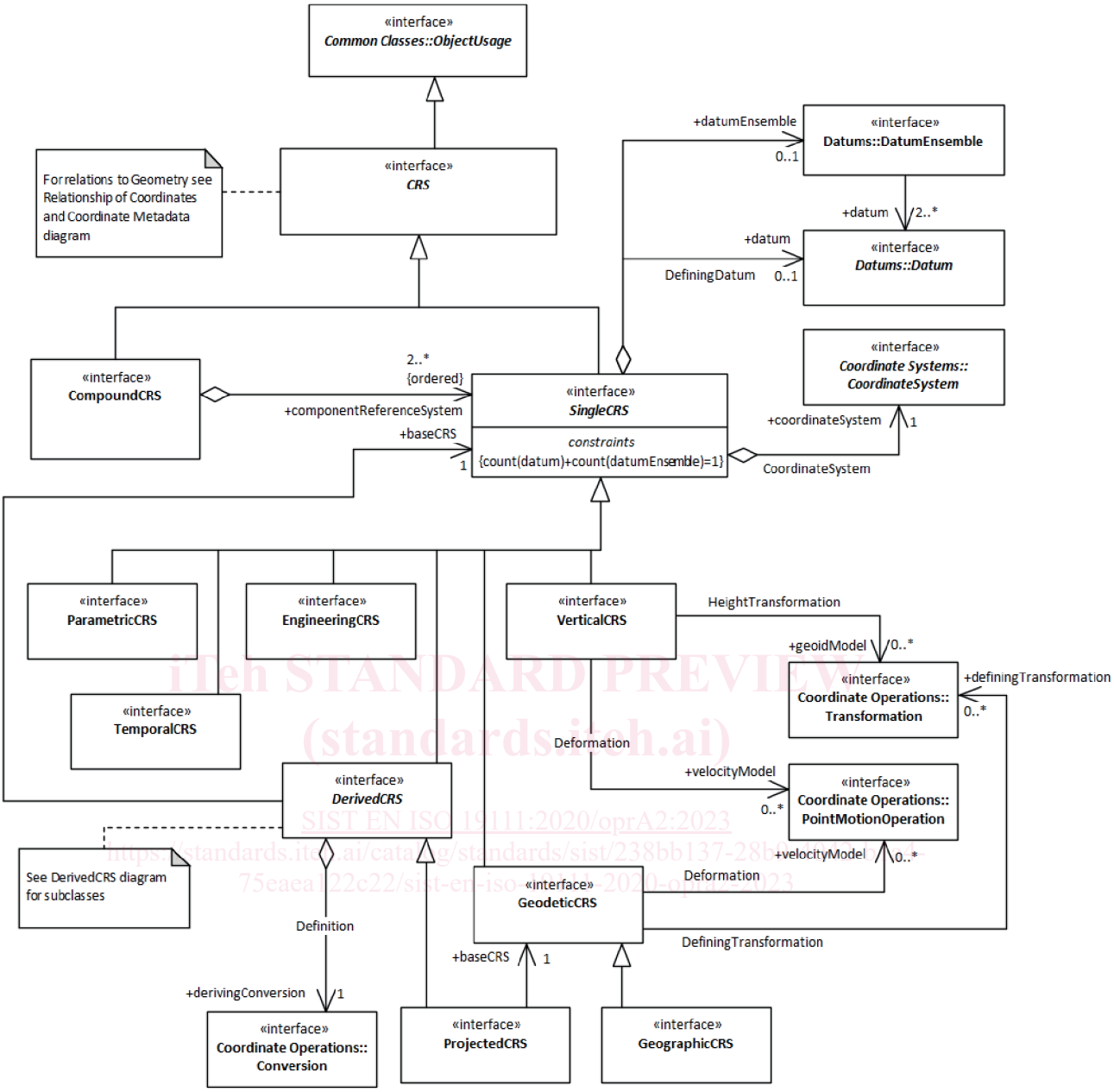

Figure 9 — UML diagram — Coordinate Reference Systems package

9.4, Table 10

Replace Table 10 with the following:

Table 10 — Defining elements of Coordinate Reference Systems::GeodeticCRS class

Definition:	coordinate reference system associated with a geodetic reference frame and a three-dimensional Cartesian or spherical coordinate system Note: If the geodetic reference frame is dynamic then the geodetic CRS is dynamic, else it is static.
Stereotype:	Interface
Class attribute:	Concrete

Table 10 *(continued)*

Inheritance from:	SingleCRS				
Generalization of:	GeographicCRS, DerivedGeodeticCRS				
Association roles:	associations inherited from SingleCRS, plus:				
Association name	UML identifier	Association with	Obligation	Maximum Occurrence	Association definition
Coordinate System	(aggregation) coordinateSystem	CoordinateSystems:: GeodeticCS	M	1	coordinate system that is a component of this geodetic coordinate reference system
Defining Datum	(aggregation) datum	Datums:: GeodeticReferenceFrame	O	1	geodetic reference frame that is a component of this geodetic coordinate reference system
Defining Transformation	definingTransformation	CoordinateOperations:: Transformation	O	N	transformation that defines this geodetic coordinate reference system
Deformation	velocityModel	CoordinateOperations:: PointMotionOperation	O	N	velocity model(s) or deformation grid(s) that may be applied to this geodetic coordinate reference system
Constraints:	constraints inherited from SingleCRS, plus: {coordinateSystem.ocl As Type(EllipsoidalCS) implies count(datum.ellipsoid)=1}				
Remarks:	The constraint enforces the requirement on geographicCRS to be associated with an ellipsoid. It is made through the GeodeticCRS class because GeographicCRS is related to Datum and hence Ellipsoid only through its subtyping from the GeodeticCRS class. GeodeticCRSs should be associated with a Cartesian coordinate system or with a spherical coordinate system.				
Public Attributes:	6 attributes (CRS name, CRS alias, CRS identifier, CRS scope, CRS validity and CRS remarks) inherited from Common Classes::IdentifiedObject and Common Classes::ObjectUsage.				

10.3, Table 26

In Table 26, replace the description of spherical CS with:

two- or three-dimensional coordinate system in Euclidean space with two angular coordinates and, in the three-dimensional case, one distance, measured from the origin. Note: not to be confused with an ellipsoidal coordinate system based on an ellipsoid 'degenerated' into a sphere.

10.4, Table 27

Replace Table 27 with the following:

Table 27 — Naming constraints for coordinate system axis

CS type	When used in CRS type	Permitted coordinate system axis names
Cartesian	geodetic	geocentric X, geocentric Y, geocentric Z
Cartesian	projected	northing or southing, easting or westing, [ellipsoidal height (if 3D)]
ellipsoidal	geographic	geodetic latitude, geodetic longitude, [ellipsoidal height (if 3D)]