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ABSTRACT

<Insert Abstract Text here>

KEYWORDS

The following are keywords to be used by search engines and document catalogues.

keyword_1, keyword_2, keyword_3, etc.

This document establishes the OGC CRS ontology and its submodules. The definition of elements of coordinate reference systems is an essential part of geospatial data provision. However, until now, coordinate reference systems and their components could not be represented in an OGC-standardized semantic web vocabulary. This document introduces the ontology model, its classes and properties, application examples and can serve as the foundation of a semantic web based coordinate system registry at OGC. Special attention is given to the compatibility of the CRS Ontology vocabulary to other OGC-endorsed Semantic Web standards such as GeoSPARQL and alignments to other data standards are provided as part of this specification.

NOTE: Insert Preface Text here. Give OGC specific commentary: describe the technical content, reason for document, history of the document and precursors, and plans for future work.

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IV

SECURITY CONSIDERATIONS

No security considerations have been made for this Standard.

V

SUBMITTERS

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VI

SOURCE OF THE CONTENT FOR THIS OGC DOCUMENT

VII

VALIDITY OF CONTENT

VIII

FUTURE WORK

NOTE: If you need to place any further sections in the preface area use the [.preface] attribute.

Additional contributors to this Standard include the following:

Individual name(s), Organization

1

SCOPE

SCOPE

<Insert Scope text here>

NOTE: Give the subject of the document and the aspects of that scope covered by the document.



2

CONFORMANCE

CONFORMANCE

<Insert conformance content here>

NOTE: Provide a short description of the content approached in subsequent sections and the main subject of the document



3

NORMATIVE REFERENCES

NORMATIVE REFERENCES

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Identification of Common Molecular Subsequences. Smith, T.F., Waterman, M.S., J. Mol. Biol. 147, 195–197 (1981)

ZIB Structure Prediction Pipeline: Composing a Complex Biological Workflow through Web Services. May, P., Ehrlich, H.C., Steinke, T. In: Nagel, W.E., Walter, W.V., Lehner, W. (eds.) Euro-Par 2006. LNCS, vol. 4128, pp. 1148–1158. Springer, Heidelberg (2006)

The Grid: Blueprint for a New Computing Infrastructure., Foster, I., Kesselman, C.. Morgan Kaufmann, San Francisco (1999).

Grid Information Services for Distributed Resource Sharing. Czajkowski, K., Fitzgerald, S., Foster, I., Kesselman, C. In: 10th IEEE International Symposium on High Performance Distributed Computing, pp. 181–184. IEEE Press, New York (2001)



4

TERMS AND DEFINITIONS

This document uses the terms defined in [OGC Policy Directive 49](#), which is based on the ISO/IEC Directives, Part 2, Rules for the structure and drafting of International Standards. In particular, the word "shall" (not "must") is the verb form used to indicate a requirement to be strictly followed to conform to this document and OGC documents do not use the equivalent phrases in the ISO/IEC Directives, Part 2.

This document also uses terms defined in the OGC Standard for Modular specifications ([OGC 08-131r3](#)), also known as the 'ModSpec'. The definitions of terms such as standard, specification, requirement, and conformance test are provided in the ModSpec.

For the purposes of this document, the following additional terms and definitions apply.

4.1. example term

term used for exemplary purposes

Note 1 to entry: An example note.

Example Here's an example of an example term.

[SOURCE:]



5

CONVENTIONS

NOTE: This section provides details and examples for any conventions used in the document. Examples of conventions are symbols, abbreviations, use of XML schema, or special notes regarding how to read the document.

5.1. Identifiers

The normative provisions in this standard are denoted by the URI

<http://www.opengis.net/spec/{standard}/{m.n}>

All requirements and conformance tests that appear in this document are denoted by partial URLs which are relative to this base.

5.2. Other conventions

<Place any other convention needed with its corresponding title>

6

CORE

This clause establishes the **Core Requirements** class, with IRI /req/core, which has a corresponding Conformance Class, **Core**, with IRI /conf/core.

The Core module establishes a set of classes and properties which define the building blocks of a spatial reference system definition. Some of the definitions are extended in specialized modules related to the Core module.



Figure 1

From a base class **SpatialReferenceSystem**, we define a class for a coordinate system, as the superclass of all spatial reference systems describing locations using coordinates. These **SpatialReferenceSystems** are described using a **Datum** and a coordinate system definitions with at least one coordinate axis. Together with several subtypes of coordinate reference system, these definitions complete the Core module.

REQUIREMENTS CLASS 1: 06-CORE.ADOC EXTENSION

| | |
|-------------------|--------------------------------------------------|
| IDENTIFIER | /req/core |
| TARGET TYPE | Implementation Specification |
| CONFORMANCE CLASS | Conformance class A.1: /conf/core |
| | /req/core/Coordinate_Reference_System_Parameters |
| REQUIREMENT | /req/core/Coordinate_Reference_System_Types |
| | /req/core/Coordinate_Reference_System_Properties |

6.1. Coordinate Reference System Parameters

REQUIREMENT 1: COORDINATE REFERENCE SYSTEM PARAMETERS

| | |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /req/core/Coordinate_Reference_System_Parameters |
| STATEMENT | Implementations shall allow the RDFS classes geosrs:AreaOfUse, geosrs:Extent, geosrs:GeographicBoundingBox, geosrs:AxesList, geosrs:SingleCRSList to be used in SPARQL graph patterns. |

6.1.1. Class: geosrs:AreaOfUse

Table 1 – geosrs:AreaOfUse

| | |
|---------------|-------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/srs/AreaOfUse |
| Definition | Area within which a coordinate operation may be used. |
| Super-classes | geo:Feature[geo:Feature] |
| Example | <code>geosrs:AreaOfUse</code> |

6.1.2. Class: geosrs:Extent

Table 2 – geosrs:Extent

| | |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/srs/Extent |
| Definition | Geographic area or time interval in which the referring object is valid. Cf. ISO 19115-1:2014:2014-04, part 6.6.1 and table B.15 line 335. |

6.1.3. Class: geosrs:GeographicBoundingBox

Table 3 – geosrs:GeographicBoundingBox

| | |
|------------|-------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/srs/GeographicBoundingBox |
| Definition | Frame delimiting an area of interest. See ISO 19115-1:2014:2014-04, part 6.6.1 and table B.15.1 line 344. |

6.1.4. Class: geosrs:AxesList

Table 4 – geosrs:AxesList

| | |
|------------|-----------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/srs/AxesList |
| Definition | Ordered list of coordinate system axes. |

6.1.5. Class: geosrs:SingleCRSList

Table 5 – geosrs:SingleCRSList

| | |
|------------|---------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/srs/SingleCRSList |
| Definition | Ordered list of simple reference coordinate systems. |

6.2. Coordinate Reference System Properties

REQUIREMENT 2: COORDINATE REFERENCE SYSTEM PROPERTIES

| | |
|------------|----------------------------------------------------------------------------------------------------|
| IDENTIFIER | /req/core/Coordinate_Reference_System_Properties |
| STATEMENT | Implementations shall allow the RDFS properties geosrs:method to be used in SPARQL graph patterns. |

6.2.1. Property: geosrs:method

Table 6 – geosrs:method

| | |
|--------|-----------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/method |
| Type | owl:ObjectProperty |
| Range | CoordinateOperation |
| Domain | CRS |

6.3. Coordinate Reference System Types

REQUIREMENT 3: COORDINATE REFERENCE SYSTEM TYPES

| | |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /req/core/Coordinate_Reference_System_Types |
| STATEMENT | Implementations shall allow the RDFS classes geosrs:BoundCRS, geosrs:CompoundCRS, geosrs:CRS, geosrs:EngineeringCRS, geosrs:GeocentricCRS, geosrs:GeodeticCRS, geosrs:GeographicCRS, geosrs:ParametricCRS, geosrs:ProjectedCRS, geosrs:SelenographicCRS, geosrs:ReferenceSystem, geosrs:SingleCRS, geosrs:SpatialReferenceSystem, geosrs:SpatioParametricCompoundCRS, geosrs:SpatioParametricTemporalCompoundCRS, geosrs:SpatioTemporalCompoundCRS, geosrs:StaticCRS, geosrs:TemporalCRS, geosrs:VerticalCRS to be used in SPARQL graph patterns. |

Coordinate reference systems are typed according to their area of application, e.g. Geodetic vs. Engineering vs. TemporalCRS and by their ability to contain further

6.3.1. Class: geosrs:BoundCRS

Table 7 – geosrs:BoundCRS

| | |
|---------------|-----------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/srs/BoundCRS |
| Super-classes | CRS |

6.3.2. Class: geosrs:CompoundCRS

Table 8 – geosrs:CompoundCRS

| | |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/srs/CompoundCRS |
| Definition | Coordinate reference system using at least two independent single coordinate reference systems. Cf. ISO 19111:2007:2007-07, parts 8.2.3.c, 8.2.4, table 6 and annex B.1.2.4. |
| Super-classes | CRS |
| Example | geosrs:CompoundCRS |

6.3.3. Class: geosrs:CRS

Table 9 – geosrs:CRS

| | |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/srs/CRS |
| Definition | Depending on the spatial dimension of coordinates (1D, 2D, 3D), this piece of metadata is used for specifying the elements of definition associated to a given set of coordinates: its datum, its ellipsoid, its prime meridian, the type of coordinates (geocentric, geographic, projected,...), the coordinates units of measure, when appropriate the cartographic projection used, the vertical coordinate reference system. |
| Super-classes | SpatialReferenceSystem |

6.3.4. Class: geosrs:EngineeringCRS

Table 10 – geosrs:EngineeringCRS

| | |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/srs/EngineeringCRS |
| Definition | A contextually local coordinate reference system which can be divided into two broad categories: – earth-fixed systems applied to engineering activities on or near the surface of the earth; – CRSs on moving platforms such as road vehicles, vessels, aircraft or spacecraft. |
| Super-classes | CRS |

6.3.5. Class: geosrs:GeocentricCRS

Table 11 – geosrs:GeocentricCRS

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/srs/GeocentricCRS |
| Definition | A cartesian coordinate reference system that represents locations in the vicinity of the Earth (including its surface, interior, atmosphere, and surrounding outer space) as X, Y, and Z measurements from its center of mass. Commonly used to track the orbits of satellites. |
| Super-classes | CRS |
| Example | geosrs:GeocentricCRS |

6.3.6. Class: geosrs:GeodeticCRS

Table 12 – geosrs:GeodeticCRS

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/srs/GeodeticCRS |
| Definition | Coordinate Reference System associated with a geodetic datum. Cf. ISO 19111:2007:2007-07, part 8.2.2.a, table 10 and annex B.1.2.1.a. |
| Super-classes | CRS |

6.3.7. Class: geosrs:GeographicCRS

Table 13 – geosrs:GeographicCRS

| | |
|---------------|------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/srs/GeographicCRS |
| Definition | Coordinate Reference System that has a geodetic reference frame and an ellipsoidal coordinate system |
| Super-classes | CRS |
| Example | geosrs:GeographicCRS |

6.3.8. Class: geosrs:ParametricCRS

Table 14 – geosrs:ParametricCRS

| | |
|---------------|---------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/srs/ParametricCRS |
| Definition | Coordinate Reference System based on a parametric datum |
| Super-classes | CRS |

6.3.9. Class: geosrs:ProjectedCRS

Table 15 – geosrs:ProjectedCRS

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/srs/ProjectedCRS |
| Definition | Coordinate Reference System derived from a two-dimensional geodetic coordinate reference system by applying a map projection. Cf. ISO 19111:2007:2007-07, part 8.2.3.b, table 11 and annex B.1.2.3. |
| Super-classes | CRS |
| Example | geosrs:ProjectedCRS |

6.3.10. Class: geosrs:SelenographicCRS

Table 16 – geosrs:SelenographicCRS

| | |
|---------------|---------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/srs/SelenographicCRS |
| Definition | Coordinate Reference System to refer locations on the surface of the Earth's Moon. |
| Super-classes | CRS |

6.3.11. Class: geosrs:ReferenceSystem

Table 17 – geosrs:ReferenceSystem

| | |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/srs/ReferenceSystem |
| Definition | An abstract coordinate system, whose origin, orientation and scale are specified in physical space. It is based on a set of reference points, defined as geometric points whose position is identified physically and mathematically. |

6.3.12. Class: geosrs:SingleCRS

Table 18 – geosrs:SingleCRS

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/srs/SingleCRS |
| Definition | Coordinate reference system consisting of one coordinate system and one datum. Cf. ISO 19111:2007:2007-07, table 5. |
| Super-classes | CRS |

6.3.13. Class: geosrs:SpatialReferenceSystem

Table 19 – geosrs:SpatialReferenceSystem

| | |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/srs/SpatialReferenceSystem |
| Definition | A spatial reference system (SRS) is a system for establishing spatial position. A spatial reference system can use geographic identifiers (place names, for example), coordinates (in which case it is a coordinate reference |

| | |
|---------------|-------------------------------------------------------------------------------------------------------|
| | system), or identifiers with structured geometry (in which case it is a discrete global grid system). |
| Super-classes | ReferenceSystem |

6.3.14. Class: geosrs:SpatialParametricCompoundCRS

Table 20 – geosrs:SpatialParametricCompoundCRS

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/srs/ SpatialParametricCompoundCRS |
| Definition | A spatio-parametric coordinate reference system is a compound CRS in which one component is a geographic 2D, projected 2D or engineering 2D CRS, supplemented by a parametric CRS to create a three-dimensional CRS |
| Super-classes | CompoundCRS |

6.3.15. Class: geosrs:SpatialParametricTemporalCompoundCRS

Table 21 – geosrs:SpatialParametricTemporalCompoundCRS

| | |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/srs/ SpatialParametricTemporalCompoundCRS |
| Definition | Coordinate reference system combining a spatio-parametric reference system with at least one temporal reference system |
| Super-classes | SpatioParametricCompoundCRS |

6.3.16. Class: geosrs:SpatialTemporalCompoundCRS

Table 22 – geosrs:SpatialTemporalCompoundCRS

| | |
|---------------|----------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/srs/ SpatialTemporalCompoundCRS |
| Definition | Coordinate reference system combining a spatial reference system with at least one temporal reference system |
| Super-classes | CompoundCRS |

6.3.17. Class: geosrs:StaticCRS

Table 23 – geosrs:StaticCRS

| | |
|---------------|-------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/srs/StaticCRS |
| Definition | Coordinate Reference System that has a static reference frame |
| Super-classes | CRS |

6.3.18. Class: geosrs:TemporalCRS

Table 24 – geosrs:TemporalCRS

| | |
|---------------|-----------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/srs/TemporalCRS |
| Definition | Coordinate Reference System based on a temporal datum |
| Super-classes | CRS |

6.3.19. Class: geosrs:VerticalCRS

Table 25 – geosrs:VerticalCRS

| | |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/srs/VerticalCRS |
| Definition | One-dimensional coordinate reference system associated with a vertical datum and used for recording heights or depths. Ellipsoidal heights are not captured in a vertical coordinate reference system but as part of a 3D coordinates tuple defined in a geodetic 3D coordinate reference system. Cf. ISO 19111:2007:2007-07, parts 8.2.2.b, table 14 and annex B.1.2.1.b. |
| Super-classes | CRS |
| Example | geosrs:VerticalCRS |



7

COORDINATE OPERATION MODULE

COORDINATE OPERATION MODULE

This clause establishes the **Co Requirements** class, with IRI /req/co, which has a corresponding Conformance Class, **Co**, with IRI /conf/co.



Figure 2

REQUIREMENTS CLASS 2: 07-CO_MODULE.ADOC EXTENSION

| | |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /req/co |
| TARGET TYPE | Implementation Specification |
| CONFORMANCE CLASS | Conformance class A.2: /conf/co |
| REQUIREMENT | <ul style="list-style-type: none"> /req/co/Coordinate_Operation_Methods /req/co/Coordinate_Operation_Parameters /req/co/Coordinate_Operation_Categories /req/co/Coordinate_Operation_Properties |

7.1. Coordinate Operation Categories

REQUIREMENT 4: COORDINATE OPERATION CATEGORIES

| | |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /req/co/Coordinate_Operation_Categories |
| STATEMENT | Implementations shall allow the RDFS classes geosrs:GeographicObject, geosrs:RegisterOperations, geosrs:ScaleOperation, geosrs:RotationOperation, geosrs:IdentityOperation, geosrs:ShearOperation, geosrs:TranslationOperation, geosrs:AffineTransformationOperation, geosrs:CoordinateTransformationOperation to be used in SPARQL graph patterns. |

7.1.1. Class: geosrs:GeographicObject

Table 26 – geosrs:GeographicObject

| | |
|---------------|-------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/co/GeographicObject |
| Definition | Identifier of a geographic feature of which the coordinates are used as operation parameters. |
| Super-classes | Geometry#Geometry |

7.1.2. Class: geosrs:RegisterOperations

Table 27 – geosrs:RegisterOperations

| | |
|------------|-----------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/co/RegisterOperations |
| Definition | Operations supported in the Coordinate Operations package. |

7.1.3. Class: geosrs:ScaleOperation

Table 28 – geosrs:ScaleOperation

| | |
|------------|---------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/co/ScaleOperation |
| Definition | Scale transformation operation |

| | |
|---------------|-----------------------------------------------|
| Super-classes | AffineTransformationOperation |
|---------------|-----------------------------------------------|

7.1.4. Class: geosrs:RotationOperation

Table 29 – geosrs:RotationOperation

| | |
|---------------|---------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/co/RotationOperation |
| Definition | Rotation transformation operation |
| Super-classes | AffineTransformationOperation |

7.1.5. Class: geosrs:IdentityOperation

Table 30 – geosrs:IdentityOperation

| | |
|---------------|---------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/co/IdentityOperation |
| Definition | Identity transformation operation |
| Super-classes | AffineTransformationOperation |

7.1.6. Class: geosrs:ShearOperation

Table 31 – geosrs:ShearOperation

| | |
|---------------|---------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/co/ShearOperation |
| Definition | Shear transformation operation |
| Super-classes | AffineTransformationOperation |

7.1.7. Class: geosrs:TranslationOperation

Table 32 – geosrs:TranslationOperation

| | |
|---------------|---------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/co/TranslationOperation |
| Definition | Translation transformation operation |
| Super-classes | AffineTransformationOperation |

7.1.8. Class: geosrs:AffineTransformationOperation

Table 33 – geosrs:AffineTransformationOperation

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/co/AffineTransformationOperation |
| Definition | Affine coordinate transformation operation |
| Super-classes | CoordinateTransformationOperation [] |

7.1.9. Class: geosrs:CoordinateTransformationOperation

Table 34 – geosrs:CoordinateTransformationOperation

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/co/CoordinateTransformationOperation |
| Definition | Coordinate operation in which the two coordinate reference systems are based on different datums. |
| Super-classes | SingleOperation |

7.2. Coordinate Operation Methods

REQUIREMENT 5: COORDINATE OPERATION METHODS

| | |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /req/co/Coordinate_Operation_Methods |
| STATEMENT | Implementations shall allow the RDFS classes geosrs:CoordinateOperation, geosrs:PassThroughOperation, geosrs:ConcatenatedOperation, geosrs:SingleOperation, geosrs:Transformation, |

REQUIREMENT 5: COORDINATE OPERATION METHODS

geosrs:Conversion, geosrs:PointMotionOperation, geosrs:OperationMethod to be used in SPARQL graph patterns.

7.2.1. Class: geosrs:PassThroughOperation

Table 35 – geosrs:PassThroughOperation

| | |
|---------------|---------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/co/PassThroughOperation |
| Definition | Specification of a subset of coordinate tuples that is subject to a coordinate operation |
| Super-classes | CoordinateOperation |

7.2.2. Class: geosrs:ConcatenatedOperation

Table 36 – geosrs:ConcatenatedOperation

| | |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/co/ConcatenatedOperation |
| Definition | Ordered sequence of two or more single coordinate operations. Note: The sequence of coordinate operations is constrained by the requirement that the source coordinate reference system of step $(n + 1)$ shall be the same as the target coordinate reference system of step (n) . The source coordinate reference system of the first step and the target coordinate reference system of the last step are the source and target coordinate reference system associated with the concatenated coordinate operation. For a concatenated coordinate operation sequence of n coordinate operations: source CRS (concatenated coordinate operation) .eq. source CRS (coordinate operation step 1) target CRS (coordinate operation step i) .eq. source CRS (coordinate operation step $i + 1$); i .eq. $1 \dots (n - 1)$ target CRS (concatenated coordinate operation) .eq. target CRS (coordinate operation step n) Instead of a forward coordinate operation, an inverse coordinate operation may be used for one or more of the coordinate operation steps mentioned above, if the inverse coordinate operation is uniquely defined by the forward coordinate operation method. |

Super-classes

[CoordinateOperation](#)

7.2.3. Class: geosrs:PointMotionOperation

Table 37 – geosrs:PointMotionOperation

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/co/PointMotionOperation |
| Definition | Mathematical operation that describes the change of coordinate values within one coordinate reference system due to the motion of the point between one coordinate epoch and another coordinate epoch Note: In this document the motion is due to tectonic plate movement or deformation. |
| Super-classes | SingleOperation |

7.3. Coordinate Operation Parameters

REQUIREMENT 6: COORDINATE OPERATION PARAMETERS

IDENTIFIER /req/co/Coordinate_Operation_Parameters

STATEMENT Implementations shall allow the RDFS classes geosrs:GeneralOperationParameter, geosrs:OperationParameterGroup, geosrs:OperationParameter, geosrs:GeneralParameterValue, geosrs:ParameterValueGroup, geosrs:OperationParameterValue to be used in SPARQL graph patterns.

7.3.1. Class: geosrs:OperationParameterGroup

Table 38 – geosrs:OperationParameterGroup

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/co/OperationParameterGroup |
| Definition | Definition of a group of related parameters used by a coordinate operation method. |
| Super-classes | GeneralOperationParameter |

7.3.2. Class: geosrs:ParameterValueGroup

Table 39 – geosrs:ParameterValueGroup

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/co/ParameterValueGroup |
| Definition | Group of related parameter values. Note: The same group can be repeated more than once in a coordinate operation or higher level ParameterValueGroup, if those instances contain different values of one or more ParameterValues which suitably distinguish among those groups. |
| Super-classes | GeneralParameterValue |

7.4. Coordinate Operation Properties

REQUIREMENT 7: COORDINATE OPERATION PROPERTIES

IDENTIFIER /req/co/Coordinate_Operation_Properties

STATEMENT Implementations shall allow the RDFS properties geosrs:derivingConversion, geosrs:parameter, geosrs:sourceCRS, geosrs:targetCRS to be used in SPARQL graph patterns.

7.4.1. Property: geosrs:derivingConversion

Table 40 – geosrs:derivingConversion

| | |
|------------|-----------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/co/derivingConversion |
| Type | owl:ObjectProperty |
| Definition | Relates a derived CRS to a conversion |
| Range | Conversion |
| Domain | DerivedCRS |

7.4.2. Property: geosrs:parameter

Table 41 – geosrs:parameter

| | |
|------------|-----------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/co/parameter |
| Type | owl:ObjectProperty |
| Definition | Value of the datum-defining parameter |
| Range | OperationParameter |
| Domain | Conversion |

7.4.3. Property: geosrs:sourceCRS

Table 42 – geosrs:sourceCRS

| | |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/co/sourceCRS |
| Type | owl:ObjectProperty |
| Definition | The coordinate reference system associated to the data used as input of a given operation. Cf. ISO 19111:2007:2007-07, table 42, named association Source. |
| Range | CRS |
| Domain | CoordinateOperation |
| Example | geosrs:sourceCRS |

7.4.4. Property: geosrs:targetCRS

Table 43 – geosrs:targetCRS

| | |
|-----|-----------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/co/targetCRS |
|-----|-----------------------------------------------------------------------------------------|

| | |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type | <u>owl:ObjectProperty</u> |
| Definition | The coordinate reference system associated to the data obtained as output of a given operation. Cf. ISO 19111:2007:2007-07, table 42, named association Target. |
| Range | <u>CRS</u> |
| Domain | <u>CoordinateOperation</u> |



8

COORDINATE SYSTEM MODULE

COORDINATE SYSTEM MODULE

This clause establishes the **CS Requirements** class, with IRI /req/cs, which has a corresponding Conformance Class, **CS**, with IRI /conf/cs.

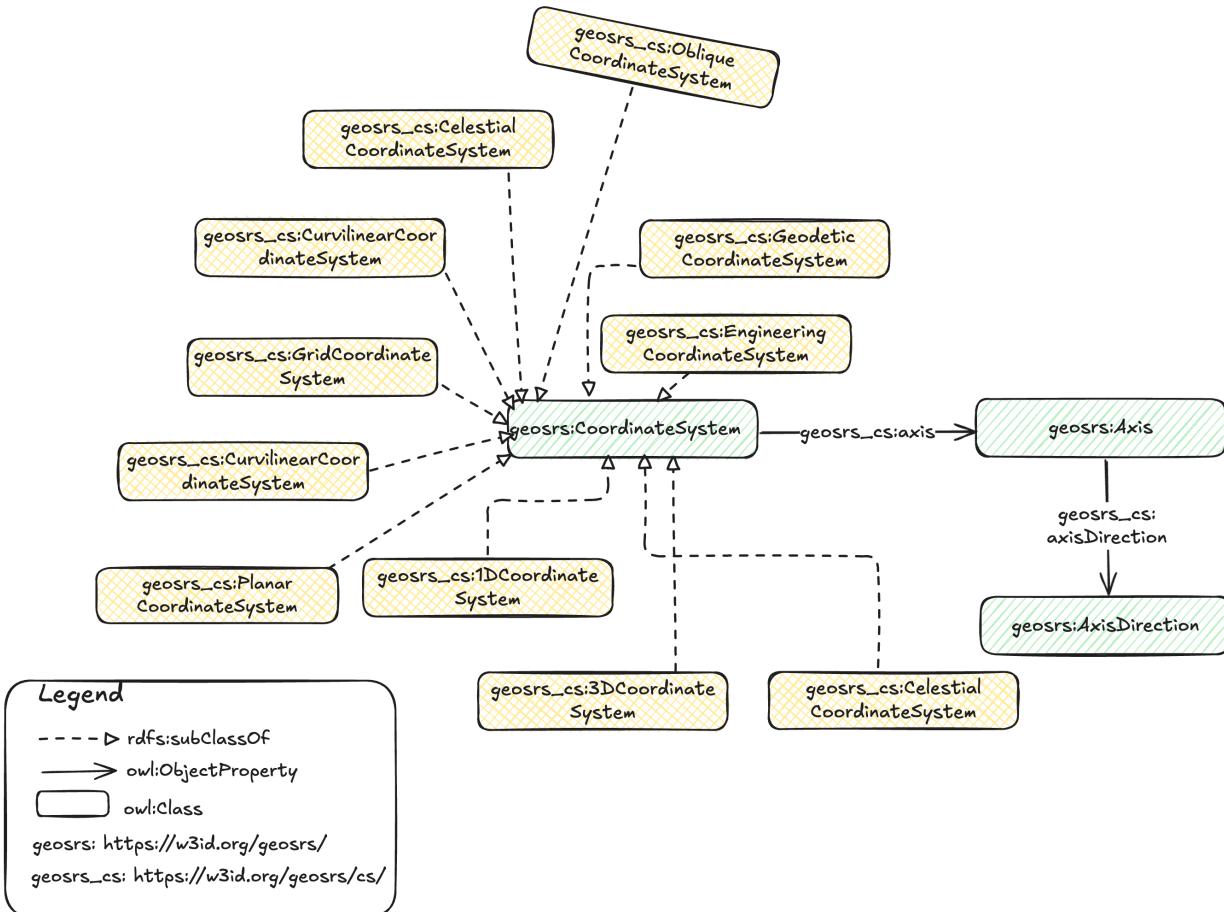


Figure 3

The coordinate system module introduces different types of coordinate systems which are distinguished in geospatial science and applications. Coordinate systems are distinguished by their area of use, i.e planetary or interstellar and by their multidimensionality.

REQUIREMENTS CLASS 3: 08-CS_MODULE.ADOC EXTENSION

| | |
|-------------------|---------------------------------|
| IDENTIFIER | /req/cs |
| TARGET TYPE | Implementation Specification |
| CONFORMANCE CLASS | Conformance class A.3: /conf/cs |

REQUIREMENTS CLASS 3: 08-CS_MODULE.ADOC EXTENSION

| | |
|-------------|--------------------------------------|
| REQUIREMENT | /req/cs/Temporal_Coordinate_Systems |
| | /req/cs/3D_Coordinate_Systems |
| | /req/cs/Coordinate_System_Types |
| | /req/cs/Celestial_Coordinate_Systems |
| | /req/cs/Coordinate_System_Components |
| | /req/cs/Coordinate_System_Properties |

8.1. 3D Coordinate Systems

REQUIREMENT 8: 3D COORDINATE SYSTEMS

| | |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /req/cs/3D_Coordinate_Systems |
| STATEMENT | Implementations shall allow the RDFS classes geosrs:3DCoordinateSystem, geosrs:ConicalCoordinateSystem, geosrs:CylindricalCoordinateSystem, geosrs:EllipsoidalCoordinateSystem, geosrs:SphericalCoordinateSystem to be used in SPARQL graph patterns. |

8.1.1. Class: geosrs:3DCoordinateSystem

The class geosrs:3DCoordinateSystem describes a coordinate system in three dimensions. These coordinate systems are common for 3D representations or 2D representations with a time aspect.

Table 44 – geosrs:3DCoordinateSystem

| | |
|---------------|-----------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/cs/3DCoordinateSystem |
| Definition | Non-repeating sequence of coordinate system axes that spans a given coordinate space in three dimensions |
| Super-classes | CoordinateSystem |
| Example | geosrs:3DCoordinateSystem |

8.1.2. Class: geosrs:ConicalCoordinateSystem

Table 45 – geosrs:ConicalCoordinateSystem

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/cs/ConicalCoordinateSystem |
| Definition | A conical coordinate system is a three-dimensional orthogonal coordinate system consisting of concentric spheres (described by their radius r) and by two families of perpendicular cones, aligned along the z - and x -axes, respectively |
| Super-classes | OrthogonalCoordinateSystem |

8.1.3. Class: geosrs:CylindricalCoordinateSystem

Table 46 – geosrs:CylindricalCoordinateSystem

| | |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/cs/CylindricalCoordinateSystem |
| Definition | Three-dimensional coordinate system in Euclidean space in which position is specified by two linear coordinates and one angular coordinate |
| Super-classes | 3DCoordinateSystem |

8.2. Celestial Coordinate Systems

REQUIREMENT 9: CELESTIAL COORDINATE SYSTEMS

| | |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /req/cs/Celestial_Coordinate_Systems |
| STATEMENT | Implementations shall allow the RDFS classes geosrs:CelestialCoordinateSystem, geosrs:EclipticCoordinateSystem, geosrs:EquatorialCoordinateSystem, geosrs:GalacticCoordinateSystem, geosrs:HorizontalCoordinateSystem, geosrs:PerifocalCoordinateSystem, geosrs:SuperGalacticCS to be used in SPARQL graph patterns. |

8.2.1. Class: geosrs:CelestialCoordinateSystem

Table 47 – geosrs:CelestialCoordinateSystem

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/cs/CelestialCoordinateSystem |
| Definition | A coordinate system for specifying positions of celestial objects relative to physical reference points |
| Super-classes | CoordinateSystem |

8.2.2. Class: geosrs:EclipticCoordinateSystem

Table 48 – geosrs:EclipticCoordinateSystem

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/cs/EclipticCoordinateSystem |
| Definition | An ecliptic coordinate system is used for representing the apparent positions and orbits of solar system objects. |
| Super-classes | CelestialCoordinateSystem |

8.2.3. Class: geosrs:EquatorialCoordinateSystem

Table 49 – geosrs:EquatorialCoordinateSystem

| | |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/cs/EquatorialCoordinateSystem |
| Definition | A celestial coordinate system in which an object's position on the celestial sphere is described in terms of its north-south declination and east-west right ascension, measured relative to the celestial equator and vernal equinox, respectively. |
| Super-classes | CelestialCoordinateSystem |

8.2.4. Class: geosrs:GalacticCoordinateSystem

Table 50 – geosrs:GalacticCoordinateSystem

| | |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/cs/GalacticCoordinateSystem |
| Definition | A coordinate system with the Sun as its center, the primary direction aligned with the approximate center of the Milky Way Galaxy, and the fundamental plane parallel to an approximation of the galactic plane but offset to its north. |
| Super-classes | CelestialCoordinateSystem 3DCoordinateSystem |

8.2.5. Class: geosrs:HorizontalCoordinateSystem

Table 51 – geosrs:HorizontalCoordinateSystem

| | |
|---------------|----------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/cs/HorizontalCoordinateSystem |
| Definition | A horizontal coordinate system is a celestial coordinate system that uses the observer's local horizon as the fundamental plane. |
| Super-classes | CelestialCoordinateSystem |

8.2.6. Class: geosrs:PerifocalCoordinateSystem

Table 52 – geosrs:PerifocalCoordinateSystem

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/cs/PerifocalCoordinateSystem |
| Definition | A frame of reference centered at the focus of the orbit, i.e. the celestial body about which the orbit is centered. |
| Super-classes | CelestialCoordinateSystem |

8.2.7. Class: geosrs:SuperGalacticCS

Table 53 – geosrs:SuperGalacticCS

| | |
|------------|--------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/cs/SuperGalacticCS |
| Definition | A reference frame for the supercluster of galaxies that contains the Milky Way galaxy, referenced to a local |

| | |
|---------------|---------------------------------------------------------------------------------------|
| | relatively flat collection of galaxy clusters used to define the supergalactic plane. |
| Super-classes | CelestialCoordinateSystem 3DCoordinateSystem |

8.3. Coordinate System Components

REQUIREMENT 10: COORDINATE SYSTEM COMPONENTS

| | |
|------------|---------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /req/cs/Coordinate_System_Components |
| STATEMENT | Implementations shall allow the RDFS classes geosrs:CoordinateSystemAxis to be used in SPARQL graph patterns. |

8.4. Coordinate System Properties

REQUIREMENT 11: COORDINATE SYSTEM PROPERTIES

| | |
|------------|------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /req/cs/Coordinate_System_Properties |
| STATEMENT | Implementations shall allow the RDFS properties geosrs:axis, geosrs:axisDirection to be used in SPARQL graph patterns. |

8.4.1. Property: geosrs:axis

Table 54 – geosrs:axis

| | |
|------------|-------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/cs/axis |
| Type | owl:ObjectProperty |
| Definition | The property relates a coordinate system to one of its axis |
| Range | Axis |

| | |
|--------|----------------------------------|
| Domain | CoordinateSystem |
|--------|----------------------------------|

8.4.2. Property: geosrs:axisDirection

Table 55 – geosrs:axisDirection

| | |
|------------|-------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/cs/axisDirection |
| Type | owl:ObjectProperty |
| Definition | The direction of an axis. Cf. ISO 19111:2007:2007-07, table 27, attribute coordinate system axis direction. |
| Range | AxisDirection |
| Domain | Axis |
| Example | geosrs:axisDirection |

8.5. Coordinate System Types

REQUIREMENT 12: COORDINATE SYSTEM TYPES

IDENTIFIER /req/cs/Coordinate_System_Types

STATEMENT Implementations shall allow the RDFS classes geosrs:CoordinateSystem, geosrs:AffineCoordinateSystem, geosrs:BarycentricCoordinateSystem, geosrs:CartesianCoordinateSystem, geosrs:CurvilinearCoordinateSystem, geosrs:EngineeringCoordinateSystem, geosrs:GeodeticCoordinateSystem, geosrs:GeographicalCoordinateSystem, geosrs:GridCoordinateSystem, geosrs:HexagonalCoordinateSystem, geosrs:LinearCoordinateSystem, geosrs:LocalCoordinateSystem, geosrs:ObliqueCoordinateSystem, geosrs:OrdinalCoordinateSystem, geosrs:OrthogonalCoordinateSystem, geosrs:ParametricCoordinateSystem, geosrs:PlanarCoordinateSystem, geosrs:PolarCoordinateSystem, geosrs:VerticalCoordinateSystem to be used in SPARQL graph patterns.

8.5.1. Class: geosrs:AffineCoordinateSystem

Table 56 – geosrs:AffineCoordinateSystem

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/cs/AffineCoordinateSystem |
| Definition | Coordinate system in Euclidean space with straight axes that are not necessarily mutually perpendicular |
| Super-classes | CoordinateSystem |

8.5.2. Class: geosrs:BarycentricCoordinateSystem

Table 57 – geosrs:BarycentricCoordinateSystem

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/cs/BarycentricCoordinateSystem |
| Definition | A coordinate system in which the location of a point is specified by reference to a simplex (a triangle for points in a plane, a tetrahedron for points in three-dimensional space, etc.) |
| Super-classes | CoordinateSystem |

8.5.3. Class: geosrs:CurvilinearCoordinateSystem

Table 58 – geosrs:CurvilinearCoordinateSystem

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/cs/CurvilinearCoordinateSystem |
| Definition | A coordinate system for the Euclidean space in which the coordinate lines may be curved |
| Super-classes | CoordinateSystem |

8.5.4. Class: geosrs:EngineeringCoordinateSystem

Table 59 – geosrs:EngineeringCoordinateSystem

| | |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/cs/EngineeringCoordinateSystem |
| Definition | Coordinate system used by an engineering coordinate reference system, one of an affine coordinate system, a Cartesian coordinate system, a cylindrical coordinate |

| | |
|---------------|------------------------------------------------------------------------------------------------------------------------------|
| | system, a linear coordinate system, an ordinal coordinate system, a polar coordinate system or a spherical coordinate system |
| Super-classes | CoordinateSystem |

8.5.5. Class: geosrs:GeodeticCoordinateSystem

Table 60 – geosrs:GeodeticCoordinateSystem

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/cs/GeodeticCoordinateSystem |
| Definition | Coordinate system used by a Geodetic CRS, one of a Cartesian coordinate system or a spherical coordinate system. |
| Super-classes | CoordinateSystem |

8.5.6. Class: geosrs:GeographicalCoordinateSystem

Table 61 – geosrs:GeographicalCoordinateSystem

| | |
|---------------|--------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/cs/GeographicalCoordinateSystem |
| Definition | Spherical or geodetic coordinate system for measuring and communicating positions directly on Earth as latitude and longitude. |
| Super-classes | SphericalCoordinateSystem GeodeticCoordinateSystem |

8.5.7. Class: geosrs:GridCoordinateSystem

Table 62 – geosrs:GridCoordinateSystem

| | |
|---------------|---------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/cs/GridCoordinateSystem |
| Definition | A grid coordinate system identifies areas within a grid. |
| Super-classes | CoordinateSystem |

8.5.8. Class: geosrs:HexagonalCoordinateSystem

Table 63 – geosrs:HexagonalCoordinateSystem

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/cs/HexagonalCoordinateSystem |
| Definition | A hexagonal coordinate system identifies areas within a hexagonal lattice. |
| Super-classes | GridCoordinateSystem |

8.5.9. Class: geosrs:LocalCoordinateSystem

Table 64 – geosrs:LocalCoordinateSystem

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/cs/LocalCoordinateSystem |
| Definition | Coordinate system with a point of local reference. |
| Super-classes | CoordinateSystem |

8.5.10. Class: geosrs:ObliqueCoordinateSystem

Table 65 – geosrs:ObliqueCoordinateSystem

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/cs/ObliqueCoordinateSystem |
| Definition | A plane coordinate system whose axes are not perpendicular. |
| Super-classes | CoordinateSystem |

8.5.11. Class: geosrs:OrthogonalCoordinateSystem

Table 66 – geosrs:OrthogonalCoordinateSystem

| | |
|-----|---------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/cs/OrthogonalCoordinateSystem |
|-----|---------------------------------------------------------------------------------------------------------------------------|

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Definition | A orthogonal coordinate system is a system of curvilinear coordinates in which each family of surfaces intersects the others at right angles. |
| Super-classes | CurvilinearCoordinateSystem |

8.5.12. Class: geosrs:PlanarCoordinateSystem

Table 67 – geosrs:PlanarCoordinateSystem

| | |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/cs/PlanarCoordinateSystem |
| Definition | A two-dimensional measurement system that locates features on a plane based on their distance from an origin (0,0) along two perpendicular axes. |
| Super-classes | CoordinateSystem |
| Example | geosrs:PlanarCoordinateSystem |

8.6. Temporal Coordinate Systems

REQUIREMENT 13: TEMPORAL COORDINATE SYSTEMS

| | |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /req/cs/Temporal_Coordinate_Systems |
| STATEMENT | Implementations shall allow the RDFS classes geosrs:1DCoordinateSystem, geosrs:Date TimeTemporalCoordinateSystem, geosrs:TemporalCountCoordinateSystem, geosrs:Temporal CoordinateSystem, geosrs:TemporalMeasureCoordinateSystem to be used in SPARQL graph patterns. |

8.6.1. Class: geosrs:1DCoordinateSystem

The class geosrs:1DCoordinateSystem describes a coordinate system with only one dimension. Often, these definitions include temporal coordinate systems which only represent time using one coordinate system axis.

Table 68 – geosrs:1DCoordinateSystem

| | |
|---------------|-----------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/cs/1DCoordinateSystem |
| Definition | Non-repeating sequence of coordinate system axes that spans a given coordinate space in one dimension |
| Super-classes | CoordinateSystem |

8.6.2. Class: geosrs:DateTimeTemporalCoordinateSystem

Table 69 – geosrs:DateTimeTemporalCoordinateSystem

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/cs/DateTimeTemporalCoordinateSystem |
| Definition | One-dimensional coordinate system used to record time in dateTime representation as defined in ISO 8601. |
| Super-classes | TemporalCoordinateSystem |

8.6.3. Class: geosrs:TemporalCountCoordinateSystem

Table 70 – geosrs:TemporalCountCoordinateSystem

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/cs/TemporalCountCoordinateSystem |
| Definition | One-dimensional coordinate system used to record time as an integer count. |
| Super-classes | TemporalCoordinateSystem |

8.6.4. Class: geosrs:TemporalCoordinateSystem

Table 71 – geosrs:TemporalCoordinateSystem

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/cs/TemporalCoordinateSystem |
| Definition | One-dimensional coordinate system where the axis is time. |
| Super-classes | 1DCoordinateSystem |

8.6.5. Class: geosrs:TemporalMeasureCoordinateSystem

Table 72 – geosrs:TemporalMeasureCoordinateSystem

| | |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/cs/ TemporalMeasureCoordinateSystem |
| Definition | One-dimensional coordinate system used to record a time as a real number. |
| Super-classes | TemporalCoordinateSystem |

9

DATUM MODULE

DATUM MODULE

This clause establishes the **Datum** Requirements class, with IRI /req/datum, which has a corresponding Conformance Class, **Datum**, with IRI /conf/datum.



Figure 4

REQUIREMENTS CLASS 4: 09-DATUM_MODULE.ADOC EXTENSION

| | |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /req/datum |
| TARGET TYPE | Implementation Specification |
| CONFORMANCE CLASS | Conformance class A.4: /conf/datum |
| REQUIREMENT | <ul style="list-style-type: none"> /req/datum/Datum_Types /req/datum/Datum_Parameters /req/datum/Spheroid_Types /req/datum/Spheroid_Properties |

REQUIREMENTS CLASS 4: 09-DATUM_MODULE.ADOC EXTENSION

/req/datum/Datum_Properties

9.1. Datum Parameters

REQUIREMENT 14: DATUM PARAMETERS

IDENTIFIER /req/datum/Datum_Parameters

STATEMENT Implementations shall allow the RDFS classes geosrs:PrimeMeridian, geosrs:DefiningParameter to be used in SPARQL graph patterns.

9.1.1. Class: geosrs:DefiningParameter

Table 73 – geosrs:DefiningParameter

| | |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/datum/DefiningParameter |
| Definition | Parameter value, an ordered sequence of values, or a reference to a file of parameter values that define a parametric datum. Cf. ISO 19111:2019 Geographic information — Referencing by coordinates. |

9.2. Datum Properties

REQUIREMENT 15: DATUM PROPERTIES

IDENTIFIER /req/datum/Datum_Properties

STATEMENT Implementations shall allow the RDFS properties geosrs:datumDefiningParameter, geosrs:ellipsoid, geosrs:primeMeridian to be used in SPARQL graph patterns.

9.2.1. Property: geosrs:datumDefiningParameter

Table 74 – geosrs:datumDefiningParameter

| | |
|------------|-------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/datum/datumDefiningParameter |
| Type | owl:ObjectProperty |
| Definition | Parameter used to define the parametric datum |
| Range | DefiningParameter |
| Domain | ParametricDatum |

9.2.2. Property: geosrs:ellipsoid

Table 75 – geosrs:ellipsoid

| | |
|------------|-----------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/datum/ellipsoid |
| Type | owl:ObjectProperty |
| Definition | The properties relates a datum to its ellipsoid definition |
| Range | Ellipsoid |
| Domain | Datum |
| Example | geosrs:ellipsoid |

9.2.3. Property: geosrs:primeMeridian

Table 76 – geosrs:primeMeridian

| | |
|------|-------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/datum/primeMeridian |
| Type | owl:ObjectProperty |

| | |
|------------|---------------------------------------------------------------------------------------------------------------------|
| Definition | The prime meridian used by a geodetic datum. Cf. ISO 19111:2007:2007-07, table 34, association role prime Meridian. |
| Range | PrimeMeridian |
| Domain | Datum |
| Example | geosrs:primeMeridian |

9.3. Datum Types

REQUIREMENT 16: DATUM TYPES

IDENTIFIER /req/datum/Datum_Types

STATEMENT Implementations shall allow the RDFS classes `geosrs:Datum`, `geosrs:GeodeticDatum`, `geosrs:DynamicGeodeticReferenceFrame`, `geosrs:VerticalDatum`, `geosrs:DynamicVerticalDatum`, `geosrs:ParametricDatum`, `geosrs:EngineeringDatum`, `geosrs:TemporalDatum`, `geosrs:DatumEnsemble` to be used in SPARQL graph patterns.

9.3.1. Class: `geosrs:DynamicGeodeticReferenceFrame`

Table 77 – `geosrs:DynamicGeodeticReferenceFrame`

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/datum/ DynamicGeodeticReferenceFrame |
| Definition | Geodetic reference frame in which some of the parameters describe time evolution of defining station coordinatesExample: defining station coordinates having linear velocities to account for crustal motion. |
| Super-classes | GeodeticDatum |

9.3.2. Class: `geosrs:DynamicVerticalDatum`

Table 78 – geosrs:DynamicVerticalDatum

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/datum/DynamicVerticalDatum |
| Definition | Vertical reference frame in which some of the defining parameters have time dependencyExample: Defining station heights have velocity to account for post-glacial isostatic rebound motion. Cf. ISO 19111:2019 Geographic information – Referencing by coordinates. |
| Super-classes | VerticalDatum |
| Example | geosrs:DynamicVerticalDatum |

9.3.3. Class: geosrs:ParametricDatum

Table 79 – geosrs:ParametricDatum

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/datum/ParametricDatum |
| Definition | Textual description and/or a set of parameters identifying a particular reference surface used as the origin of a parametric coordinate system, including its position with respect to the Earth. Cf. ISO 19111:2019 Geographic information – Referencing by coordinates. |
| Super-classes | Datum |

9.3.4. Class: geosrs:EngineeringDatum

Table 80 – geosrs:EngineeringDatum

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/datum/EngineeringDatum |
| Definition | Definition of the origin and orientation of an engineering coordinate reference systemNote: The origin can be fixed with respect to the Earth (such as a defined point at a construction site), or be a defined point on a moving vehicle (such as on a ship or satellite), or a defined point of an image. Cf. ISO 19111:2019 Geographic information – Referencing by coordinates. |
| Super-classes | Datum |

9.3.5. Class: geosrs:TemporalDatum

Table 81 – geosrs:TemporalDatum

| | |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/datum/TemporalDatum |
| Definition | Definition of the relationship of a temporal coordinate system to an objectNote: The object is normally time on the Earth. Cf. ISO 19111:2019 Geographic information – Referencing by coordinates. |
| Super-classes | Datum |

9.3.6. Class: geosrs:DatumEnsemble

Table 82 – geosrs:DatumEnsemble

| | |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/datum/DatumEnsemble |
| Definition | A collection of two or more datums (or if geodetic or vertical, a collection of two or more reference frames) that are realizations of one Conventional Reference System and which for all but the highest accuracy requirements may be considered to be insignificantly different from each other. Note: Within the datum ensemble every frame or datum is constrained to be a realization of the same reference system. Cf. ISO 19111:2019 Geographic information – Referencing by coordinates. |

9.4. Spheroid Properties

REQUIREMENT 17: SPHEROID PROPERTIES

IDENTIFIER /req/datum/Spheroid_Properties

STATEMENT Implementations shall allow the RDFS properties geosrs:eccentricity, geosrs:inverseFlattening, geosrs:isSphere, geosrs:semiMajorAxis, geosrs:semiMinorAxis to be used in SPARQL graph patterns.

9.4.1. Property: geosrs:eccentricity

Table 83 – geosrs:eccentricity

| | |
|------------|-----------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/datum/eccentricity |
| Type | owl:DatatypeProperty |
| Definition | A measure of how much an ellipse deviates from a perfect circle. |
| Range | xsd:double |
| Domain | Ellipsoid |
| Example | geosrs:eccentricity |

9.4.2. Property: geosrs:inverseFlattening

Table 84 – geosrs:inverseFlattening

| | |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/datum/inverseFlattening |
| Type | owl:DatatypeProperty |
| Definition | Indicates the inverse flattening value of an ellipsoid, expressed as a number or a ratio (percentage rate, parts per million, etc.). Cf. ISO 19111:2007:2007-07, table 37, attribute inverse flattening |
| Range | xsd:double |
| Domain | Ellipsoid |
| Example | geosrs:inverseFlattening |

9.4.3. Property: geosrs:isSphere

Table 85 – geosrs:isSphere

| | |
|------------|--------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/datum/isSphere |
| Type | owl:DatatypeProperty |
| Definition | Indicates whether the ellipsoid is a sphere. Cf. ISO 19111:2007:2007-07, table 37, attribute ellipsoid=sphere indicator. |
| Range | xsd:boolean |
| Domain | Ellipsoid |
| Example | geosrs:isSphere |

9.4.4. Property: geosrs:semiMajorAxis

Table 86 – geosrs:semiMajorAxis

| | |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/datum/semiMajorAxis |
| Type | owl:DatatypeProperty |
| Definition | Indicates the length of the semi major axis of an ellipsoid. Cf. ISO 19111:2007:2007-07, table 36, attribute length of semi-major axis. |
| Range | xsd:double |
| Domain | Ellipsoid |
| Example | geosrs:semiMajorAxis |

9.4.5. Property: geosrs:semiMinorAxis

Table 87 – geosrs:semiMinorAxis

| | |
|------|-------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/datum/semiMinorAxis |
| Type | owl:DatatypeProperty |

| | |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Definition | Indicates the length of the semi minor axis of an ellipsoid. Cf. ISO 19111:2007:2007-07, table 37, attribute length of semi-minor axis. |
| Range | <u>xsd:double</u> |
| Domain | <u>Ellipsoid</u> |
| Example | <u>geosrs:semiMinorAxis</u> |

9.5. Spheroid Types

REQUIREMENT 18: SPHEROID TYPES

| | |
|------------|------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /req/datum/Spheroid_Types |
| STATEMENT | Implementations shall allow the RDFS classes geosrs:Ellipsoid, geosrs:TriaxialEllipsoid to be used in SPARQL graph patterns. |

9.5.1. Class: geosrs:TriaxialEllipsoid

Table 88 – geosrs:TriaxialEllipsoid

| | |
|------------|-----------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/datum/TriaxialEllipsoid |
| Definition | Surface of an analytic ellipsoid defined by three axes of different length. Also referred as scalene ellipsoid. |

10

SRS APPLICATION MODULE

SRS APPLICATION MODULE

This clause establishes the **SRSAPP** Requirements class, with IRI /req/srsapp, which has a corresponding Conformance Class, **SRSAPP**, with IRI /conf/srsapp.

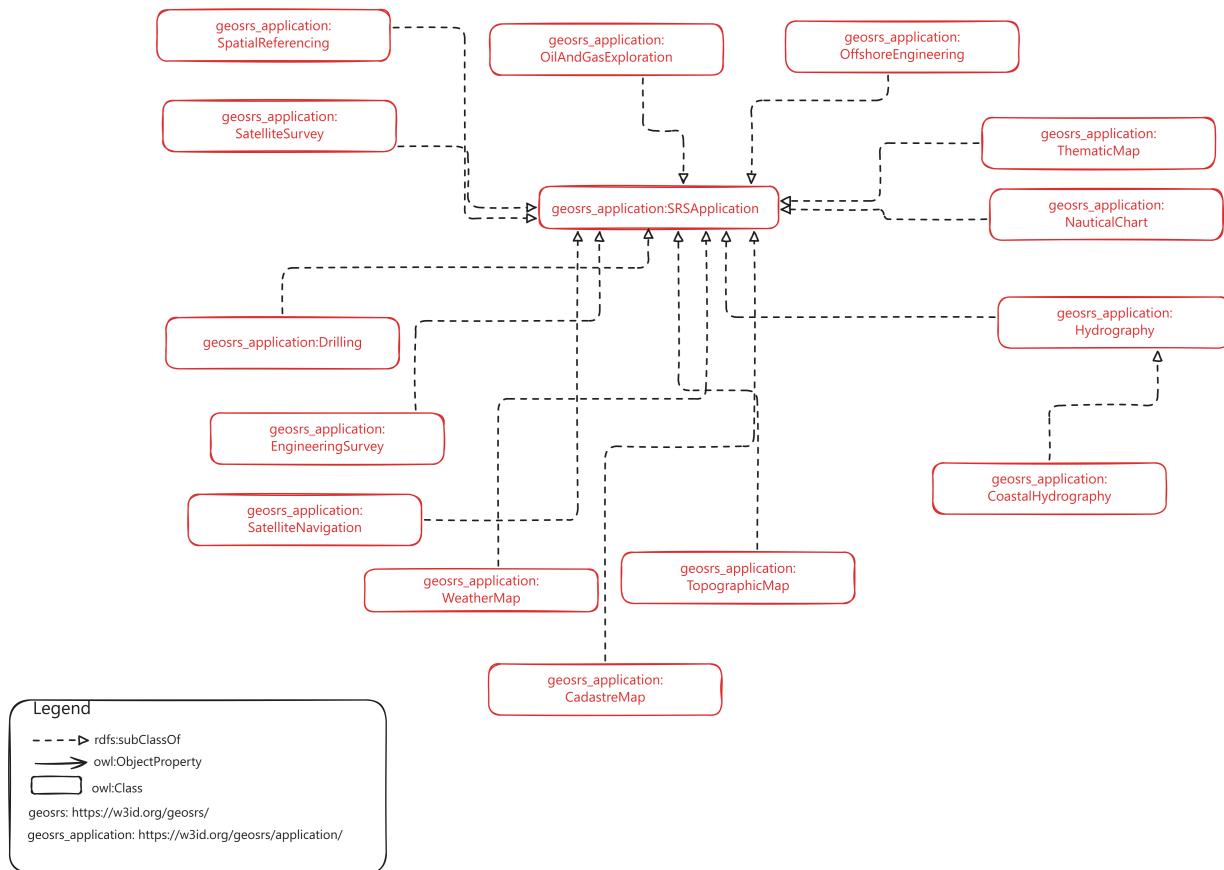


Figure 5

REQUIREMENTS CLASS 5: 10-SRSAPPLICATION_MODULE.ADOC EXTENSION

| | |
|-------------------|----------------------------------------------------------------------------|
| IDENTIFIER | /req/srsapplication |
| TARGET TYPE | Implementation Specification |
| CONFORMANCE CLASS | Conformance class A.5: /conf/srsapplication |
| REQUIREMENT | /req/srsapplication/SRS_Application_Types /req/srsapplication/Map_Types |

10.1. Map Types

REQUIREMENT 19: MAP TYPES

IDENTIFIER /req/srsapplication/Map_Types

STATEMENT Implementations shall allow the RDFS classes geosrs:CadastreMap, geosrs:NauticalChart, geosrs:ThematicMap, geosrs:TopographicMap, geosrs:WeatherMap to be used in SPARQL graph patterns.

10.1.1. Class: geosrs:CadastreMap

Table 89 – geosrs:CadastreMap

| | |
|---------------|---------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/application/CadastreMap |
| Definition | A map displaying a cadastre. |
| Super-classes | SRSApplication |
| Example | geosrs:CadastreMap |

10.1.2. Class: geosrs:NauticalChart

Table 90 – geosrs:NauticalChart

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/application/NauticalChart |
| Definition | A graphic representation of a sea area and adjacent coastal regions. |
| Super-classes | SRSApplication |

10.1.3. Class: geosrs:ThematicMap

Table 91 – geosrs:ThematicMap

| | |
|-----|---------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/application/ThematicMap |
|-----|---------------------------------------------------------------------------------------------------------------|

| | |
|---------------|------------------------------------------------|
| Definition | A map used to highlight a specific phenomenon. |
| Super-classes | SRSApplication |

10.1.4. Class: geosrs:TopographicMap

Table 92 – geosrs:TopographicMap

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/application/TopographicMap |
| Definition | A type of map characterized by large-scale detail and quantitative representation of relief. |
| Super-classes | SRSApplication |
| Example | geosrs:TopographicMap |

10.1.5. Class: geosrs:WeatherMap

Table 93 – geosrs:WeatherMap

| | |
|---------------|-------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/application/WeatherMap |
| Definition | A map for showing the local direction in which weather systems are moving. |
| Super-classes | SRSApplication |

10.2. SRS Application Types

REQUIREMENT 20: SRS APPLICATION TYPES

IDENTIFIER /req/srsapplication/SRS_Application_Types

STATEMENT Implementations shall allow the RDFS classes geosrs:SRSApplication, geosrs:SpatialReferencing, geosrs:EngineeringSurvey, geosrs:SatelliteSurvey, geosrs:SatelliteNavigation, geosrs:Coastal Hydrography, geosrs:OffshoreEngineering, geosrs:Hydrography, geosrs:Drilling, geosrs:OilAndGas Exploration to be used in SPARQL graph patterns.

10.2.1. Class: geosrs:SRSApplication

Table 94 – geosrs:SRSApplication

| | |
|------------|---------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/application/SRSApplication |
| Definition | An application for which a spatial reference system is used. |

10.2.2. Class: geosrs:SpatialReferencing

Table 95 – geosrs:SpatialReferencing

| | |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/application/SpatialReferencing |
| Definition | Spatial referencing is the process of assigning real-world coordinates to data so that it can be located on the Earth's surface and used in a geographic information system (GIS). |
| Super-classes | SRSApplication |

10.2.3. Class: geosrs:EngineeringSurvey

Table 96 – geosrs:EngineeringSurvey

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/application/EngineeringSurvey |
| Definition | An engineering survey is the branch of surveying that provides the precise measurements and data needed to plan, build, and maintain engineering and infrastructure projects. |
| Super-classes | SRSApplication |
| Example | geosrs:EngineeringSurvey |

10.2.4. Class: geosrs:SatelliteSurvey

Table 97 – geosrs:SatelliteSurvey

| | |
|---------------|------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/application/SatelliteSurvey |
| Definition | A remote sensing survey conducted from Earth-orbiting satellites, collecting imagery and other data without direct ground contact. |
| Super-classes | SRSApplication |

10.2.5. Class: geosrs:SatelliteNavigation

Table 98 – geosrs:SatelliteNavigation

| | |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/application/SatelliteNavigation |
| Definition | Satellite navigation is a system that uses satellites to provide autonomous geo-spatial positioning. It allows small electronic receivers to determine their location (longitude, latitude, and altitude) to high precision using time signals transmitted along a line of sight by radio from satellites. |
| Super-classes | SRSApplication |

10.2.6. Class: geosrs:CoastalHydrography

Table 99 – geosrs:CoastalHydrography

| | |
|---------------|--------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/application/CoastalHydrography |
| Definition | Hydrographic surveying & monitoring focused on nearshore waters, where navigation safety and coastal change are most critical. |
| Super-classes | Hydrography |
| Example | geosrs:CoastalHydrography |

10.2.7. Class: geosrs:OffshoreEngineering

Table 100 – geosrs:OffshoreEngineering

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/application/OffshoreEngineering |
| Definition | Offshore engineering (also called ocean engineering or marine engineering in some contexts) is the branch of engineering concerned with the design, construction, installation, and maintenance of structures and systems in the ocean environment, such as oil and gas platforms, subsea pipelines, and renewable energy facilities. |
| Super-classes | SRSApplication |
| Example | geosrs:OffshoreEngineering |

10.2.8. Class: geosrs:Hydrography

Table 101 – geosrs:Hydrography

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/application/Hydrography |
| Definition | Hydrography is the branch of applied sciences which deals with the measurement and description of the physical features of oceans, seas, coastal areas, lakes, and rivers, as well as the prediction of their change over time, for the primary purpose of safety of navigation and in support of all other marine activities, including economic development, security and defense, scientific research, and environmental protection. |
| Super-classes | SRSApplication |
| Example | geosrs:Hydrography |

10.2.9. Class: geosrs:Drilling

Table 102 – geosrs:Drilling

| | |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/application/Drilling |
| Definition | Drilling is the process of creating holes in the ground (or other solid materials) using specialized tools, widely applied in energy, construction, mining, and manufacturing. |

| | |
|---------------|---------------------------------|
| Super-classes | SRSApplication |
| Example | geosrs:Drilling |

10.2.10. Class: geosrs:OilAndGasExploration

Table 103 – geosrs:OilAndGasExploration

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/application/ OilAndGasExploration |
| Definition | Oil and natural gas exploration is the search for underground or underwater reservoirs containing hydrocarbons, using geological and geophysical methods, followed by drilling to confirm and produce them. |
| Super-classes | SRSApplication |

11

PROJECTIONS MODULE

This clause establishes the **PROJ** Requirements class, with IRI /req/proj, which has a corresponding Conformance Class, **PROJ**, with IRI /conf/proj.

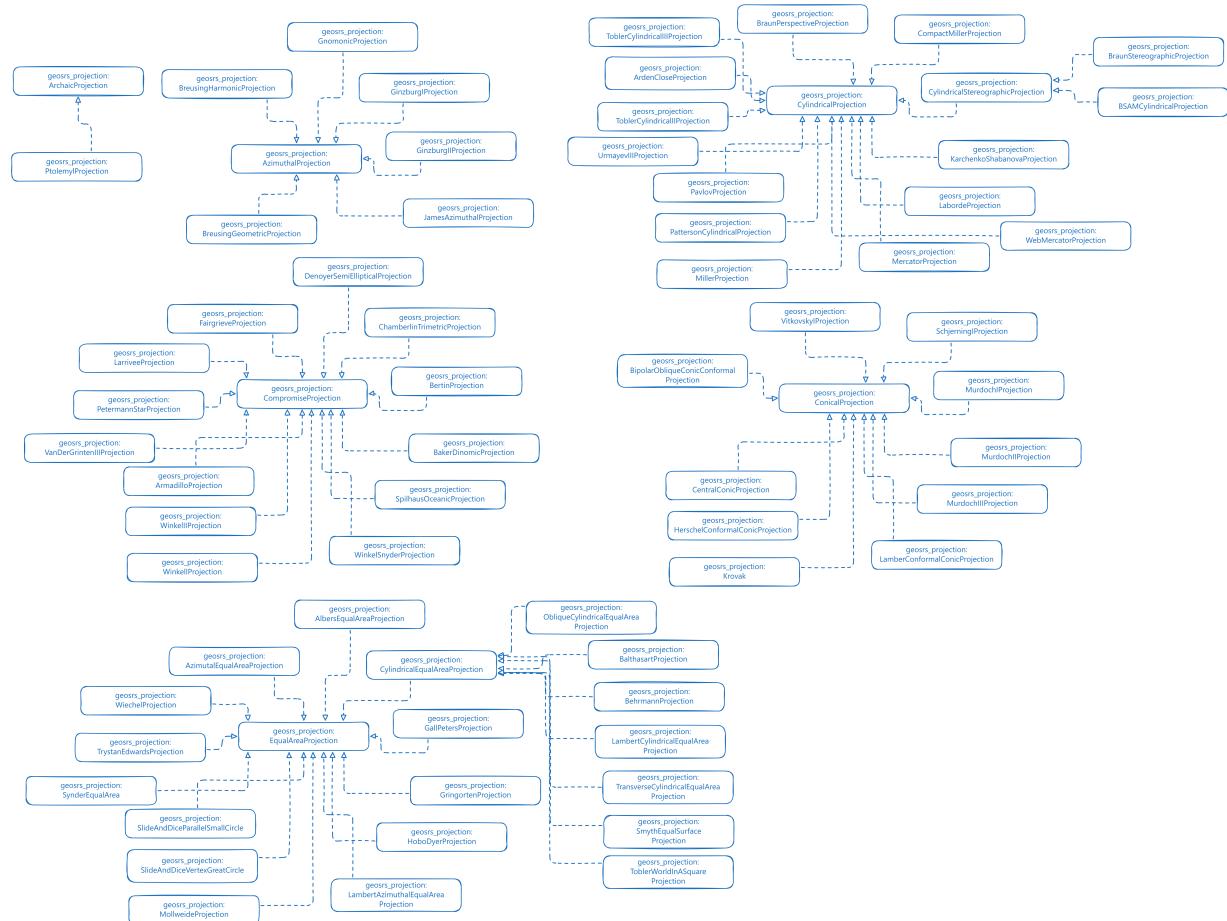


Figure 6

| REQUIREMENTS CLASS 6: 11-PROJECTIONS_MODULE.ADOC EXTENSION | |
|------------------------------------------------------------|-----------------------------------------------------------------------------------|
| IDENTIFIER | /req/projections |
| TARGET TYPE | Implementation Specification |
| CONFORMANCE CLASS | Conformance class A.6: /conf/projections |
| REQUIREMENT | /req/projections/Lenticular_Projections /req/projections/Conformal_Projections |

REQUIREMENTS CLASS 6: 11-PROJECTIONS_MODULE.ADOC EXTENSION

/req/projections/Minimum_Error_Projections

/req/projections/Pseudo_Azimuthal_Projections

/req/projections/Equal_Area_Projections

/req/projections/Pseudo_Conical_Projections

/req/projections/Globular_Projections

/req/projections/Pseudo_Cylindrical_Projections

/req/projections/Archaic_Projections

/req/projections/Cylindrical_Projections

/req/projections/Compromise_Projections

/req/projections/Polyhedral_Projections

/req/projections/Equidistant_Projections

/req/projections/Azimuthal_Projections

/req/projections/Conical_Projections

/req/projections/Perspective_Projections

/req/projections/Stereographic_Projections

/req/projections/Polyconic_Projections

/req/projections/Projection

11.1. Archaic Projections

REQUIREMENT 21: ARCHAIC PROJECTIONS

IDENTIFIER /req/projections/Archaic_Projections

STATEMENT Implementations shall allow the RDFS classes geosrs:ArchaicProjection, geosrs:PtolemyIProjection to be used in SPARQL graph patterns.

11.1.1. Class: geosrs:ArchaicProjection

Table 104 – geosrs:ArchaicProjection

| | |
|-----|-------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ArchaicProjection |
|-----|-------------------------------------------------------------------------------------------------------------------------|

11.1.2. Class: geosrs:PtolemyIProjection

Table 105 – geosrs:PtolemyIProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/PtolemyIProjection |
| Super-classes | ArchaicProjection |

11.2. Azimuthal Projections

REQUIREMENT 22: AZIMUTHAL PROJECTIONS

IDENTIFIER /req/projections/Azimuthal_Projections

STATEMENT Implementations shall allow the RDFS classes geosrs:AzimuthalProjection, geosrs:BreusingGeometricProjection, geosrs:BreusingHarmonicProjection, geosrs:GinzburgIIProjection, geosrs:GinzburgIProjection, geosrs:GnomonicProjection, geosrs:JamesAzimuthalProjection to be used in SPARQL graph patterns.

11.2.1. Class: geosrs:AzimuthalProjection

Table 106 – geosrs:AzimuthalProjection

| | |
|-----|-----------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/AzimuthalProjection |
|-----|-----------------------------------------------------------------------------------------------------------------------------|

11.2.2. Class: geosrs:BreusingGeometricProjection

Table 107 – geosrs:BreusingGeometricProjection

| | |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ BreusingGeometricProjection |
| Super-classes | AzimuthalProjection |

11.2.3. Class: geosrs:BreusingHarmonicProjection

Table 108 – geosrs:BreusingHarmonicProjection

| | |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ BreusingHarmonicProjection |
| Super-classes | AzimuthalProjection |

11.2.4. Class: geosrs:GinzburgIIProjection

Table 109 – geosrs:GinzburgIIProjection

| | |
|---------------|------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ GinzburgIIProjection |
| Super-classes | AzimuthalProjection |

11.2.5. Class: geosrs:GinzburgIProjection

Table 110 – geosrs:GinzburgIProjection

| | |
|---------------|----------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ GinzburgIProjection |
| Super-classes | AzimuthalProjection |

11.2.6. Class: geosrs:GnomonicProjection

Table 111 – geosrs:GnomonicProjection

| | |
|---------------|--------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ GnomonicProjection |
| Super-classes | AzimuthalProjection |

11.2.7. Class: geosrs:JamesAzimuthalProjection

Table 112 – geosrs:JamesAzimuthalProjection

| | |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ JamesAzimuthalProjection |
| Super-classes | AzimuthalProjection |

11.3. Compromise Projections

REQUIREMENT 23: COMPROMISE PROJECTIONS

IDENTIFIER /req/projections/Compromise_Projections

STATEMENT Implementations shall allow the RDFS classes geosrs:ArmadilloProjection, geosrs:BakerDinomicProjection, geosrs:BertinProjection, geosrs:ChamberlinTrimetricProjection, geosrs:DenoyerSemiEllipticalProjection, geosrs:FairgrieveProjection, geosrs:LarriveeProjection, geosrs:PetermannStarProjection, geosrs:SpilhausOceanicProjection, geosrs:VanDerGrintenIIIProjection, geosrs:WinkelIIProjection, geosrs:WinkellProjection, geosrs:WinkelSnyderProjection to be used in SPARQL graph patterns.

11.3.1. Class: geosrs:ArmadilloProjection

Table 113 – geosrs:ArmadilloProjection

| | |
|---------------|----------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ ArmadilloProjection |
| Super-classes | CompromiseProjection |

11.3.2. Class: geosrs:BakerDinomicProjection

Table 114 – geosrs:BakerDinomicProjection

| | |
|-----|----------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ BakerDinomicProjection |
|-----|----------------------------------------------------------------------------------------------------------------------------------------|

| | |
|---------------|--------------------------------------|
| Super-classes | CompromiseProjection |
|---------------|--------------------------------------|

11.3.3. Class: geosrs:BertinProjection

Table 115 – geosrs:BertinProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/BertinProjection |
| Super-classes | CompromiseProjection |

11.3.4. Class: geosrs:ChamberlinTrimetricProjection

Table 116 – geosrs:ChamberlinTrimetricProjection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ChamberlinTrimetricProjection |
| Super-classes | CompromiseProjection |

11.3.5. Class: geosrs:DenoyerSemiEllipticalProjection

Table 117 – geosrs:DenoyerSemiEllipticalProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/DenoyerSemiEllipticalProjection |
| Super-classes | CompromiseProjection |

11.3.6. Class: geosrs:FairgrieveProjection

Table 118 – geosrs:FairgrieveProjection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/FairgrieveProjection |
| Super-classes | CompromiseProjection |

11.3.7. Class: geosrs:LarriveeProjection

Table 119 – geosrs:LarriveeProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/LarriveeProjection |
| Super-classes | CompromiseProjection |

11.3.8. Class: geosrs:PetermannStarProjection

Table 120 – geosrs:PetermannStarProjection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/PetermannStarProjection |
| Super-classes | CompromiseProjection |

11.3.9. Class: geosrs:SpilhausOceanicProjection

Table 121 – geosrs:SpilhausOceanicProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/SpilhausOceanicProjection |
| Super-classes | CompromiseProjection |

11.3.10. Class: geosrs:VanDerGrintenIIIProjection

Table 122 – geosrs:VanDerGrintenIIIProjection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/VanDerGrintenIIIProjection |
| Super-classes | CompromiseProjection |

11.3.11. Class: geosrs:WinkelIIIProjection

Table 123 – geosrs:WinkelIIProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/WinkelIIProjection |
| Super-classes | CompromiseProjection |

11.3.12. Class: geosrs:WinkelIIProjection

Table 124 – geosrs:WinkelIIProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/WinkelIIProjection |
| Super-classes | CompromiseProjection |

11.3.13. Class: geosrs:WinkelSnyderProjection

Table 125 – geosrs:WinkelSnyderProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/WinkelSnyderProjection |
| Super-classes | CompromiseProjection |

11.4. Conformal Projections

REQUIREMENT 24: CONFORMAL PROJECTIONS

IDENTIFIER /req/projections/Conformal_Projections

STATEMENT Implementations shall allow the RDFS classes geosrs:AdamsProjection, geosrs:AdamsWorldInASquareIIProjection, geosrs:AdamsWorldInASquareIProjection, geosrs:AugustEpicycloidalProjection, geosrs:CoxConformalProjection, geosrs:EisenlohrProjection, geosrs:GS50Projection, geosrs:PeirceQuincuncialProjection, geosrs:StereographicProjection to be used in SPARQL graph patterns.

11.4.1. Class: geosrs:AdamsProjection

Table 126 – geosrs:AdamsProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/AdamsProjection |
| Super-classes | ConformalProjection |

11.4.2. Class: geosrs:AdamsWorldInASquareIIProjection

Table 127 – geosrs:AdamsWorldInASquareIIProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/AdamsWorldInASquareIIProjection |
| Super-classes | ConformalProjection |

11.4.3. Class: geosrs:AdamsWorldInASquareIProjection

Table 128 – geosrs:AdamsWorldInASquareIProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/AdamsWorldInASquareIProjection |
| Super-classes | ConformalProjection |

11.4.4. Class: geosrs:AugustEpicycloidalProjection

Table 129 – geosrs:AugustEpicycloidalProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/AugustEpicycloidalProjection |
| Definition | A projection in which every angle between two curves that cross each other on a celestial body is preserved in the image of the projection |
| Super-classes | ConformalProjection |

11.4.5. Class: geosrs:CoxConformalProjection

Table 130 – geosrs:CoxConformalProjection

| | |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ CoxConformalProjection |
| Super-classes | ConformalProjection |

11.4.6. Class: geosrs:EisenlohrProjection

Table 131 – geosrs:EisenlohrProjection

| | |
|---------------|----------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ EisenlohrProjection |
| Super-classes | ConformalProjection |

11.4.7. Class: geosrs:GS50Projection

Table 132 – geosrs:GS50Projection

| | |
|---------------|------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ GS50Projection |
| Super-classes | ConformalProjection |

11.4.8. Class: geosrs:PeirceQuincuncialProjection

Table 133 – geosrs:PeirceQuincuncialProjection

| | |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ PeirceQuincuncialProjection |
| Super-classes | ConformalProjection |

11.4.9. Class: geosrs:StereographicProjection

Table 134 – geosrs:StereographicProjection

| | |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ StereographicProjection |
| Super-classes | ConformalProjection |
| Example | geosrs:StereographicProjection |

11.5. Conical Projections

REQUIREMENT 25: CONICAL PROJECTIONS

IDENTIFIER /req/projections/Conical_Projections

STATEMENT Implementations shall allow the RDFS classes geosrs:BipolarObliqueConicConformalProjection, geosrs:CentralConicProjection, geosrs:HerschelConformalConicProjection, geosrs:Krovak, geosrs:LambertConformalConicProjection, geosrs:MurdochIIIProjection, geosrs:MurdochIIProjection, geosrs:MurdochIProjection, geosrs:SchjerningIProjection, geosrs:VitkovskyIProjection to be used in SPARQL graph patterns.

11.5.1. Class: geosrs:BipolarObliqueConicConformalProjection

Table 135 – geosrs:BipolarObliqueConicConformalProjection

| | |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ BipolarObliqueConicConformalProjection |
| Super-classes | ConicalProjection |

11.5.2. Class: geosrs:CentralConicProjection

Table 136 – geosrs:CentralConicProjection

| | |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ CentralConicProjection |
| Super-classes | ConicalProjection |

11.5.3. Class: geosrs:HerschelConformalConicProjection

Table 137 – geosrs:HerschelConformalConicProjection

| | |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ HerschelConformalConicProjection |
| Super-classes | ConicalProjection |

11.5.4. Class: geosrs:Krovak

Table 138 – geosrs:Krovak

| | |
|---------------|---------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/Krovak |
| Super-classes | ConicalProjection |
| Example | geosrs:Krovak |

11.5.5. Class: geosrs:LambertConformalConicProjection

Table 139 – geosrs:LambertConformalConicProjection

| | |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ LambertConformalConicProjection |
| Super-classes | ConicalProjection |

11.5.6. Class: geosrs:MurdochIIIProjection

Table 140 – geosrs:MurdochIIIProjection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/MurdochIIIProjection |
| Super-classes | ConicalProjection |

11.5.7. Class: geosrs:MurdochIIProjection

Table 141 – geosrs:MurdochIIProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/MurdochIIProjection |
| Super-classes | ConicalProjection |

11.5.8. Class: geosrs:MurdochIProjection

Table 142 – geosrs:MurdochIProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/MurdochIProjection |
| Super-classes | ConicalProjection |

11.5.9. Class: geosrs:SchjerningIProjection

Table 143 – geosrs:SchjerningIProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/SchjerningIProjection |
| Super-classes | ConicalProjection |

11.5.10. Class: geosrs:VitkovskylProjection

Table 144 – geosrs:VitkovskylProjection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/VitkovskylProjection |
| Super-classes | ConicalProjection |

11.6. Cylindrical Projections

REQUIREMENT 26: CYLINDRICAL PROJECTIONS

IDENTIFIER /req/projections/Cylindrical_Projections

STATEMENT Implementations shall allow the RDFS classes geosrs:ArdenCloseProjection, geosrs:BSAMCylindricalProjection, geosrs:BalthasartProjection, geosrs:BehrmannProjection, geosrs:BraunPerspectiveProjection, geosrs:BraunStereographicProjection, geosrs:CompactMillerProjection, geosrs:CylindricalProjection, geosrs:CylindricalStereographicProjection, geosrs:KarchenkoShabanovaProjection, geosrs:LabordeProjection, geosrs:MercatorProjection, geosrs:MillerProjection, geosrs:PattersonCylindricalProjection, geosrs:PavlovProjection, geosrs:ToblerCylindricalIIIProjection, geosrs:ToblerCylindricalIIProjection, geosrs:TransverseMercatorProjection, geosrs:UrmayevIIIProjection, geosrs:WebMercatorProjection to be used in SPARQL graph patterns.

11.6.1. Class: geosrs:ArdenCloseProjection

Table 145 – geosrs:ArdenCloseProjection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ArdenCloseProjection |
| Super-classes | CylindricalProjection |

11.6.2. Class: geosrs:BSAMCylindricalProjection

Table 146 – geosrs:BSAMCylindricalProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/BSAMCylindricalProjection |
| Super-classes | CylindricalStereographicProjection |

11.6.3. Class: geosrs:BalthasartProjection

Table 147 – geosrs:BalthasartProjection

| | |
|-----|-------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/BalthasartProjection |
|-----|-------------------------------------------------------------------------------------------------------------------------------|

| | |
|---------------|---------------------------------------------------------------------------------------|
| Definition | A cylindrical equal-area projection that uses a standard parallel of phi_s=50 degrees |
| Super-classes | CylindricalEqualArea |

11.6.4. Class: geosrs:BehrmannProjection

Table 148 – geosrs:BehrmannProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/BehrmannProjection |
| Definition | A cylindrical equal-area map projection with standard parallels set at 30° north and south |
| Super-classes | CylindricalEqualArea |

11.6.5. Class: geosrs:BraunPerspectiveProjection

Table 149 – geosrs:BraunPerspectiveProjection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/BraunPerspectiveProjection |
| Super-classes | CylindricalProjection |

11.6.6. Class: geosrs:BraunStereographicProjection

Table 150 – geosrs:BraunStereographicProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/BraunStereographicProjection |
| Super-classes | CylindricalStereographicProjection |

11.6.7. Class: geosrs:CompactMillerProjection

Table 151 – geosrs:CompactMillerProjection

| | |
|-----|-------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/CompactMillerProjection |
|-----|-------------------------------------------------------------------------------------------------------------------------------------|

Super-classes

[CylindricalProjection](#)

11.6.8. Class: geosrs:CylindricalProjection

Table 152 – geosrs:CylindricalProjection

URI

<https://w3id.org/geosrs/projection/CylindricalProjection>

11.6.9. Class: geosrs:CylindricalStereographicProjection

Table 153 – geosrs:CylindricalStereographicProjection

URI

<https://w3id.org/geosrs/projection/CylindricalStereographicProjection>

Super-classes

[CylindricalProjection](#)

11.6.10. Class: geosrs:KarchenkoShabanovaProjection

Table 154 – geosrs:KarchenkoShabanovaProjection

URI

<https://w3id.org/geosrs/projection/KarchenkoShabanovaProjection>

Super-classes

[CylindricalProjection](#)

11.6.11. Class: geosrs:LabordeProjection

Table 155 – geosrs:LabordeProjection

URI

<https://w3id.org/geosrs/projection/LabordeProjection>

Super-classes

[CylindricalProjection](#)

Example

[geosrs:LabordeProjection](#)

11.6.12. Class: geosrs:MercatorProjection

Table 156 – geosrs:MercatorProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/MercatorProjection |
| Super-classes | CylindricalProjection |
| Example | geosrs:MercatorProjection |

11.6.13. Class: geosrs:MillerProjection

Table 157 – geosrs:MillerProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/MillerProjection |
| Super-classes | CylindricalProjection |

11.6.14. Class: geosrs:PattersonCylindricalProjection

Table 158 – geosrs:PattersonCylindricalProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/PattersonCylindricalProjection |
| Super-classes | CylindricalProjection |

11.6.15. Class: geosrs:PavlovProjection

Table 159 – geosrs:PavlovProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/PavlovProjection |
| Super-classes | CylindricalProjection |

11.6.16. Class: geosrs:ToblerCylindricalIIIProjection

Table 160 – geosrs:ToblerCylindricalIIIProjection

| | |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ ToblerCylindricalIIIProjection |
| Super-classes | CylindricalProjection |

11.6.17. Class: geosrs:ToblerCylindricalIIIProjection

Table 161 – geosrs:ToblerCylindricalIIIProjection

| | |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ ToblerCylindricalIIIProjection |
| Super-classes | CylindricalProjection |

11.6.18. Class: geosrs:TransverseMercatorProjection

Table 162 – geosrs:TransverseMercatorProjection

| | |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ TransverseMercatorProjection |
| Super-classes | MercatorProjection |

11.6.19. Class: geosrs:UrmayevIIIProjection

Table 163 – geosrs:UrmayevIIIProjection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/UrmayevIIIProjection |
| Super-classes | CylindricalProjection |

11.6.20. Class: geosrs:WebMercatorProjection

Table 164 – geosrs:WebMercatorProjection

| | |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ WebMercatorProjection |
| Super-classes | CylindricalProjection |

11.7. Equal Area Projections

REQUIREMENT 27: EQUAL AREA PROJECTIONS

IDENTIFIER /req/projections/Equal_Area_Projections

STATEMENT Implementations shall allow the RDFS classes geosrs:AlbersEqualAreaProjection, geosrs:AzimuthalEqualAreaProjection, geosrs:CylindricalEqualArea, geosrs:EqualAreaProjection, geosrs:GallPetersProjection, geosrs:HoboDyerProjection, geosrs:LambertAzimuthalEqualArea, geosrs:LambertCylindricalEqualAreaProjection, geosrs:ObliqueCylindricalEqualAreaProjection, geosrs:SlideAndDiceParallelSmallCircle, geosrs:SliceAndDiceVertexGreatCircle, geosrs:SmythEqualSurfaceProjection, geosrs:SnyderEqualArea, geosrs:ToblerWorldInASquareProjection, geosrs:TransverseCylindricalEqualAreaProjection, geosrs:TrystanEdwardsProjection, geosrs:WiechelProjection to be used in SPARQL graph patterns.

11.7.1. Class: geosrs:AlbersEqualAreaProjection

Table 165 – geosrs:AlbersEqualAreaProjection

| | |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ AlbersEqualAreaProjection |
| Super-classes | EqualAreaProjection |
| Example | geosrs:AlbersEqualAreaProjection |

11.7.2. Class: geosrs:AzimuthalEqualAreaProjection

Table 166 – geosrs:AzimuthalEqualAreaProjection

| | |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ AzimuthalEqualAreaProjection |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------|

Super-classes

[EqualAreaProjection](#)

11.7.3. Class: geosrs:CylindricalEqualArea

Table 167 – geosrs:CylindricalEqualArea

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/CylindricalEqualArea |
| Super-classes | EqualAreaProjection |
| Example | geosrs:CylindricalEqualArea |

11.7.4. Class: geosrs:EqualAreaProjection

Table 168 – geosrs:EqualAreaProjection

| | |
|-----|-----------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/EqualAreaProjection |
|-----|-----------------------------------------------------------------------------------------------------------------------------|

11.7.5. Class: geosrs:GallPetersProjection

Table 169 – geosrs:GallPetersProjection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/GallPetersProjection |
| Super-classes | EqualAreaProjection |

11.7.6. Class: geosrs:HoboDyerProjection

Table 170 – geosrs:HoboDyerProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/HoboDyerProjection |
| Super-classes | EqualAreaProjection |

11.7.7. Class: geosrs:LambertAzimuthalEqualArea

Table 171 – geosrs:LambertAzimuthalEqualArea

| | |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ LambertAzimuthalEqualArea |
| Super-classes | EqualAreaProjection |

11.7.8. Class: geosrs:LambertCylindricalEqualAreaProjection

Table 172 – geosrs:LambertCylindricalEqualAreaProjection

| | |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ LambertCylindricalEqualAreaProjection |
| Super-classes | CylindricalEqualArea |

11.7.9. Class: geosrs:ObliqueCylindricalEqualAreaProjection

Table 173 – geosrs:ObliqueCylindricalEqualAreaProjection

| | |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ ObliqueCylindricalEqualAreaProjection |
| Super-classes | CylindricalEqualArea |

11.7.10. Class: geosrs:SlideAndDiceParallelSmallCircle

Table 174 – geosrs:SlideAndDiceParallelSmallCircle

| | |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ SlideAndDiceParallelSmallCircle |
| Definition | The Parallel Small Circle version of the equa-area projection method defined for polyhedral globes by van Leeuwen and Strebe. van Leeuwen, D., & Strebe, D. (2006). A “Slice-and-Dice” Approach to Area Equivalence in Polyhedral Map Projections. Cartography and Geographic Information Science, 33(4), 269–286. |

| | |
|---------------|-------------------------------------|
| Super-classes | EqualAreaProjection |
|---------------|-------------------------------------|

11.7.11. Class: geosrs:SliceAndDiceVertexGreatCircle

Table 175 – geosrs:SliceAndDiceVertexGreatCircle

| | |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ SliceAndDiceVertexGreatCircle |
| Definition | The Vertex-oriented Great Circle version of the equal-area projection method defined for polyhedral globes by van Leeuwen and Strebe. van Leeuwen, D., & Strebe, D. (2006). A “Slice-and-Dice” Approach to Area Equivalence in Polyhedral Map Projections. <i>Cartography and Geographic Information Science</i> , 33(4), 269–286. |
| Super-classes | EqualAreaProjection |

11.7.12. Class: geosrs:SmythEqualSurfaceProjection

Table 176 – geosrs:SmythEqualSurfaceProjection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ SmythEqualSurfaceProjection |
| Super-classes | CylindricalEqualArea |

11.7.13. Class: geosrs:SnyderEqualArea

Table 177 – geosrs:SnyderEqualArea

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/SnyderEqualArea |
| Definition | Equal area projection for polyhedral globes, used frequently in Discrete Global Grid Systems. Snyder, J.P. (1992). “An Equal-Area Map Projection for Polyhedral Globes”. <i>Cartographica</i> . 29 (1): 10–21 |
| Super-classes | EqualAreaProjection |

11.7.14. Class: geosrs:ToblerWorldInASquareProjection

Table 178 – geosrs:ToblerWorldInASquareProjection

| | |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ ToblerWorldInASquareProjection |
| Super-classes | CylindricalEqualArea |

11.7.15. Class: geosrs:TransverseCylindricalEqualAreaProjection

Table 179 – geosrs:TransverseCylindricalEqualAreaProjection

| | |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ TransverseCylindricalEqualAreaProjection |
| Super-classes | CylindricalEqualArea |

11.7.16. Class: geosrs:TrystanEdwardsProjection

Table 180 – geosrs:TrystanEdwardsProjection

| | |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ TrystanEdwardsProjection |
| Super-classes | EqualAreaProjection |

11.7.17. Class: geosrs:WiechelProjection

Table 181 – geosrs:WiechelProjection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/WiechelProjection |
| Super-classes | EqualAreaProjection |

11.8. Equidistant Projections

REQUIREMENT 28: EQUIDISTANT PROJECTIONS

| | |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /req/projections/Equidistant_Projections |
| STATEMENT | Implementations shall allow the RDFS classes geosrs:AzimuthalEquidistantProjection, geosrs:BerghausStarProjection, geosrs:CassiniProjection, geosrs:EquidistantConicProjection, geosrs:EquidistantCylindricalProjection, geosrs:EquidistantProjection, geosrs:EquirectangularProjection, geosrs:ObliquePlateCarreeProjection, geosrs:PlateCarreeProjection, geosrs:TwoPointEquidistantProjection to be used in SPARQL graph patterns. |

11.8.1. Class: geosrs:AzimuthalEquidistantProjection

Table 182 – geosrs:AzimuthalEquidistantProjection

| | |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ AzimuthalEquidistantProjection |
| Super-classes | EquidistantProjection |
| Example | geosrs:AzimuthalEquidistantProjection |

11.8.2. Class: geosrs:BerghausStarProjection

Table 183 – geosrs:BerghausStarProjection

| | |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ BerghausStarProjection |
| Super-classes | EquidistantProjection |

11.8.3. Class: geosrs:CassiniProjection

Table 184 – geosrs:CassiniProjection

| | |
|-----|-------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/CassiniProjection |
|-----|-------------------------------------------------------------------------------------------------------------------------|

| | |
|---------------|----------------------------------------------------------------------------------------------------|
| Definition | A map projection first described in an approximate form by César-François Cassini de Thury in 1745 |
| Super-classes | EquidistantProjection |
| Example | geosrs:CassiniProjection |

11.8.4. Class: geosrs:EquidistantConicProjection

Table 185 – geosrs:EquidistantConicProjection

| | |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ EquidistantConicProjection |
| Super-classes | EquidistantProjection |

11.8.5. Class: geosrs:EquidistantCylindricalProjection

Table 186 – geosrs:EquidistantCylindricalProjection

| | |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ EquidistantCylindricalProjection |
| Super-classes | EquidistantProjection |
| Example | geosrs:EquidistantCylindricalProjection |

11.8.6. Class: geosrs:EquidistantProjection

Table 187 – geosrs:EquidistantProjection

| | |
|-----|--------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ EquidistantProjection |
|-----|--------------------------------------------------------------------------------------------------------------------------------------|

11.8.7. Class: geosrs:EquirectangularProjection

Table 188 – geosrs:EquirectangularProjection

| | |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ EquirectangularProjection |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------|

| | |
|---------------|---------------------------------------|
| Super-classes | EquidistantProjection |
|---------------|---------------------------------------|

11.8.8. Class: geosrs:ObliquePlateCarreeProjection

Table 189 – geosrs:ObliquePlateCarreeProjection

| | |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ ObliquePlateCarreeProjection |
| Super-classes | EquidistantProjection |

11.8.9. Class: geosrs:PlateCarreeProjection

Table 190 – geosrs:PlateCarreeProjection

| | |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ PlateCarreeProjection |
| Super-classes | EquidistantProjection |

11.8.10. Class: geosrs:TwoPointEquidistantProjection

Table 191 – geosrs:TwoPointEquidistantProjection

| | |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ TwoPointEquidistantProjection |
| Super-classes | EquidistantProjection |

11.9. Globular Projections

REQUIREMENT 29: GLOBULAR PROJECTIONS

| | |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /req/projections/Globular_Projections |
| STATEMENT | Implementations shall allow the RDFS classes geosrs:ApianGlobularProjection, geosrs:BaconGlobularProjection, geosrs:FournierGlobularProjection to be used in SPARQL graph patterns. |

11.9.1. Class: geosrs:ApianGlobularIProjection

Table 192 – geosrs:ApianGlobularIProjection

| | |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ ApianGlobularIProjection |
| Super-classes | GlobularProjection |

11.9.2. Class: geosrs:BaconGlobularProjection

Table 193 – geosrs:BaconGlobularProjection

| | |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ BaconGlobularProjection |
| Super-classes | GlobularProjection |

11.9.3. Class: geosrs:FournierGlobularIProjection

Table 194 – geosrs:FournierGlobularIProjection

| | |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ FournierGlobularIProjection |
| Super-classes | GlobularProjection |

11.10. Lenticular Projections

REQUIREMENT 30: LENTICULAR PROJECTIONS

IDENTIFIER /req/projections/Lenticular_Projections

STATEMENT Implementations shall allow the RDFS classes geosrs:A4Projection, geosrs:BriesemeisterProjection, geosrs:CiriciProjection, geosrs:CupolaProjection, geosrs:DedistortProjection, geosrs:DietrichKitadaProjection, geosrs:FranculaIIIProjection, geosrs:FranculaVProjection, geosrs:FranculaXProjection, geosrs:FranculaVIIIProjection, geosrs:FranculaVProjection, geosrs:FranculaXIIIProjection, geosrs:

REQUIREMENT 30: LENTICULAR PROJECTIONS

FranculaXIIProjection, geosrs:FranculaXIVProjection, geosrs:HamusoidalProjection, geosrs:Kiss
Projection to be used in SPARQL graph patterns.

11.10.1. Class: geosrs:A4Projection

Table 195 – geosrs:A4Projection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/A4Projection |
| Super-classes | LenticularProjection |

11.10.2. Class: geosrs:BriesemeisterProjection

Table 196 – geosrs:BriesemeisterProjection

| | |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ BriesemeisterProjection |
| Super-classes | LenticularProjection |

11.10.3. Class: geosrs:CircIProjection

Table 197 – geosrs:CircIProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/CircIProjection |
| Super-classes | LenticularProjection |

11.10.4. Class: geosrs:CupolaProjection

Table 198 – geosrs:CupolaProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/CupolaProjection |
| Super-classes | LenticularProjection |

11.10.5. Class: geosrs:DedistortProjection

Table 199 – geosrs:DedistortProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/DedistortProjection |
| Super-classes | LenticularProjection |

11.10.6. Class: geosrs:DietrichKitadaProjection

Table 200 – geosrs:DietrichKitadaProjection

| | |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ DietrichKitadaProjection |
| Super-classes | LenticularProjection |

11.10.7. Class: geosrs:FranculallIIProjection

Table 201 – geosrs:FranculallIIProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/FranculallIIProjection |
| Super-classes | LenticularProjection |

11.10.8. Class: geosrs:FranculalVProjection

Table 202 – geosrs:FranculalVProjection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/FranculalVProjection |
| Super-classes | LenticularProjection |

11.10.9. Class: geosrs:FranculalXProjection

Table 203 – geosrs:FranculaIXProjection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/FranculaIXProjection |
| Super-classes | LenticularProjection |

11.10.10. Class: geosrs:FranculaVIIIProjection

Table 204 – geosrs:FranculaVIIIProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/FranculaVIIIProjection |
| Super-classes | LenticularProjection |

11.10.11. Class: geosrs:FranculaVProjection

Table 205 – geosrs:FranculaVProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/FranculaVProjection |
| Super-classes | LenticularProjection |

11.10.12. Class: geosrs:FranculaXIIIProjection

Table 206 – geosrs:FranculaXIIIProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/FranculaXIIIProjection |
| Super-classes | LenticularProjection |

11.10.13. Class: geosrs:FranculaXIIProjection

Table 207 – geosrs:FranculaXIIProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/FranculaXIIProjection |
| Super-classes | LenticularProjection |

11.10.14. Class: geosrs:FranculaXIVProjection

Table 208 – geosrs:FranculaXIVProjection

| | |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ FranculaXIVProjection |
| Super-classes | LenticularProjection |

11.10.15. Class: geosrs:HamusoidalProjection

Table 209 – geosrs:HamusoidalProjection

| | |
|---------------|------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ HamusoidalProjection |
| Super-classes | LenticularProjection |

11.10.16. Class: geosrs:KissProjection

Table 210 – geosrs:KissProjection

| | |
|---------------|------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ KissProjection |
| Super-classes | LenticularProjection |

11.11. Minimum Error Projections

REQUIREMENT 31: MINIMUM ERROR PROJECTIONS

| | |
|------------|---------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /req/projections/Minimum_Error_Projections |
| STATEMENT | Implementations shall allow the RDFS classes geosrs:AiryProjection to be used in SPARQL graph patterns. |

11.11.1. Class: geosrs:AiryProjection

Table 211 – geosrs:AiryProjection

| | |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/AiryProjection |
| Definition | An azimuthal minimum error projection for the region within the small or great circle defined by an angular distance, from the tangency point of the plane |
| Super-classes | MinimumErrorProjection |
| Example | geosrs:AiryProjection |

11.12. Perspective Projections

REQUIREMENT 32: PERSPECTIVE PROJECTIONS

IDENTIFIER /req/projections/Perspective_Projections

STATEMENT Implementations shall allow the RDFS classes geosrs:CentralCylindricalProjection, geosrs:GeneralVerticalPerspectiveProjection, geosrs:GilbertTwoWorldPerspectiveProjection, geosrs:LaHireProjection, geosrs:LorgnaProjection, geosrs:LowryProjection, geosrs:OrthographicProjection, geosrs:PerspectiveConicProjection, geosrs:PerspectiveProjection, geosrs:TiltedPerspectiveProjection, geosrs:VerticalPerspectiveProjection to be used in SPARQL graph patterns.

11.12.1. Class: geosrs:CentralCylindricalProjection

Table 212 – geosrs:CentralCylindricalProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/CentralCylindricalProjection |
| Super-classes | PerspectiveProjection |
| Example | geosrs:CentralCylindricalProjection |

11.12.2. Class: geosrs:GeneralVerticalPerspectiveProjection

Table 213 – geosrs:GeneralVerticalPerspectiveProjection

| | |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ GeneralVerticalPerspectiveProjection |
| Super-classes | PerspectiveProjection |

11.12.3. Class: geosrs:GilbertTwoWorldPerspectiveProjection

Table 214 – geosrs:GilbertTwoWorldPerspectiveProjection

| | |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ GilbertTwoWorldPerspectiveProjection |
| Super-classes | PerspectiveProjection |

11.12.4. Class: geosrs:LaHireProjection

Table 215 – geosrs:LaHireProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/LahireProjection |
| Super-classes | PerspectiveProjection |

11.12.5. Class: geosrs:LorgnaProjection

Table 216 – geosrs:LorgnaProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/LorgnaProjection |
| Super-classes | PerspectiveProjection |

11.12.6. Class: geosrs:LowryProjection

Table 217 – geosrs:LowryProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/LowryProjection |
| Super-classes | PerspectiveProjection |

11.12.7. Class: geosrs:OrthographicProjection

Table 218 – geosrs:OrthographicProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/OrthographicProjection |
| Super-classes | PerspectiveProjection |

11.12.8. Class: geosrs:PerspectiveConicProjection

Table 219 – geosrs:PerspectiveConicProjection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/PerspectiveConicProjection |
| Super-classes | PerspectiveProjection |

11.12.9. Class: geosrs:PerspectiveProjection

Table 220 – geosrs:PerspectiveProjection

| | |
|-----|---------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/PerspectiveProjection |
|-----|---------------------------------------------------------------------------------------------------------------------------------|

11.12.10. Class: geosrs:TiltedPerspectiveProjection

Table 221 – geosrs:TiltedPerspectiveProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/TiltedPerspectiveProjection |
| Super-classes | PerspectiveProjection |

11.12.11. Class: geosrs:VerticalPerspectiveProjection

Table 222 – geosrs:VerticalPerspectiveProjection

| | |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ VerticalPerspectiveProjection |
| Super-classes | PerspectiveProjection |

11.13. Polyconic Projections

REQUIREMENT 33: POLYCONIC PROJECTIONS

IDENTIFIER /req/projections/Polyconic_Projections

STATEMENT Implementations shall allow the RDFS classes geosrs:GinzburgIVProjection, geosrs:GinzburgIXProjection, geosrs:GinzburgVIPProjection, geosrs:GinzburgVProjection, geosrs:GinzburgVProjection, geosrs:GottWagnerProjection, geosrs:HillEucyclicProjection, geosrs:LagrangeProjection, geosrs:LaskowskiProjection, geosrs:PolyconicProjection, geosrs:RectangularPolyconicProjection, geosrs:StabiusWernerIIIProjection, geosrs:StabiusWernerIIProjection, geosrs:VanDerGrintenIIProjection, geosrs:VanDerGrintenIIProjection, geosrs:VanDerGrintenIVProjection, geosrs:VanDerGrintenIVProjection, geosrs:WagnerIXProjection, geosrs:WagnerVIIIProjection, geosrs:WagnerVIIProjection to be used in SPARQL graph patterns.

11.13.1. Class: geosrs:GinzburgIVProjection

Table 223 – geosrs:GinzburgIVProjection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/GinzburgIVProjection |
| Super-classes | PolyconicProjection |

11.13.2. Class: geosrs:GinzburgIXProjection

Table 224 – geosrs:GinzburgIXProjection

| | |
|-----|-------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/GinzburgIXProjection |
|-----|-------------------------------------------------------------------------------------------------------------------------------|

Super-classes

[PolyconicProjection](#)

11.13.3. Class: geosrs:GinzburgVIProjection

Table 225 – geosrs:GinzburgVIProjection

URI

<https://w3id.org/geosrs/projection/GinzburgVIProjection>

Super-classes

[PolyconicProjection](#)

11.13.4. Class: geosrs:GinzburgVProjection

Table 226 – geosrs:GinzburgVProjection

URI

<https://w3id.org/geosrs/projection/GinzburgVProjection>

Super-classes

[PolyconicProjection](#)

11.13.5. Class: geosrs:GottWagnerProjection

Table 227 – geosrs:GottWagnerProjection

URI

<https://w3id.org/geosrs/projection/GottWagnerProjection>

Super-classes

[PolyconicProjection](#)

11.13.6. Class: geosrs:HillEucyclicProjection

Table 228 – geosrs:HillEucyclicProjection

URI

<https://w3id.org/geosrs/projection/HillEucyclicProjection>

Super-classes

[PolyconicProjection](#)

11.13.7. Class: geosrs:LagrangeProjection

Table 229 – geosrs:LagrangeProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/LagrangeProjection |
| Super-classes | PolyconicProjection |

11.13.8. Class: geosrs:LaskowskiProjection

Table 230 – geosrs:LaskowskiProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/LaskowskiProjection |
| Super-classes | PolyconicProjection |

11.13.9. Class: geosrs:PolyconicProjection

Table 231 – geosrs:PolyconicProjection

| | |
|-----|-----------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/PolyconicProjection |
|-----|-----------------------------------------------------------------------------------------------------------------------------|

11.13.10. Class: geosrs:RectangularPolyconicProjection

Table 232 – geosrs:RectangularPolyconicProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/RectangularPolyconicProjection |
| Super-classes | PolyconicProjection |

11.13.11. Class: geosrs:StabiusWernerIIIProjection

Table 233 – geosrs:StabiusWernerIIIProjection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/StabiusWernerIIIProjection |
| Super-classes | PolyconicProjection |

11.13.12. Class: geosrs:StabiusWernerIProjection

Table 234 – geosrs:StabiusWernerIProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/StabiusWernerIProjection |
| Super-classes | PolyconicProjection |

11.13.13. Class: geosrs:VanDerGrintenIIProjection

Table 235 – geosrs:VanDerGrintenIIProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/VanDerGrintenIIProjection |
| Super-classes | PolyconicProjection |

11.13.14. Class: geosrs:VanDerGrintenIProjection

Table 236 – geosrs:VanDerGrintenIProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/VanDerGrintenIProjection |
| Super-classes | PolyconicProjection |

11.13.15. Class: geosrs:VanDerGrintenIVProjection

Table 237 – geosrs:VanDerGrintenIVProjection

| | |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/VanDerGrintenIVProjection |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------|

Super-classes

[PolyconicProjection](#)

11.13.16. Class: geosrs:WagnerIXProjection

Table 238 – geosrs:WagnerIXProjection

URI

<https://w3id.org/geosrs/projection/WagnerIXProjection>

Super-classes

[PolyconicProjection](#)

11.13.17. Class: geosrs:WagnerVIIIProjection

Table 239 – geosrs:WagnerVIIIProjection

URI

<https://w3id.org/geosrs/projection/WagnerVIIIProjection>

Super-classes

[PolyconicProjection](#)

11.13.18. Class: geosrs:WagnerVIIIProjection

Table 240 – geosrs:WagnerVIIIProjection

URI

<https://w3id.org/geosrs/projection/WagnerVIIIProjection>

Super-classes

[PolyconicProjection](#)

11.14. Polyhedral Projections

REQUIREMENT 34: POLYHEDRAL PROJECTIONS

IDENTIFIER /req/projections/Polyhedral_Projections

STATEMENT Implementations shall allow the RDFS classes geosrs:AuthaGraphProjection, geosrs:CahillKeyesProjection, geosrs:CollignonButterflyProjection, geosrs:DodecahedralProjection, geosrs:DymaxionProjection, geosrs:GnomonicButterflyProjection, geosrs:GnomonicCubedSphereProjection, geosrs:

REQUIREMENT 34: POLYHEDRAL PROJECTIONS

GnomonicicosahedronProjection, geosrs:GuyouProjection, geosrs:IcosahedralProjection, geosrs:LeeProjection, geosrs:MyrahedralProjection, geosrs:OctantProjection, geosrs:PolyhedralProjection, geosrs:QuadrilateralizedSphericalCubeProjection, geosrs:WatermanButterflyProjection to be used in SPARQL graph patterns.

11.14.1. Class: geosrs:AuthaGraphProjection

Table 241 – geosrs:AuthaGraphProjection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/AuthaGraphProjection |
| Super-classes | PolyhedralProjection |

11.14.2. Class: geosrs:CahillKeyesProjection

Table 242 – geosrs:CahillKeyesProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/CahillKeyesProjection |
| Super-classes | PolyhedralProjection |

11.14.3. Class: geosrs:CollignonButterflyProjection

Table 243 – geosrs:CollignonButterflyProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/CollignonButterflyProjection |
| Super-classes | PolyhedralProjection |

11.14.4. Class: geosrs:DodecahedralProjection

Table 244 – geosrs:DodecahedralProjection

| | |
|-----|-----------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/DodecahedralProjection |
|-----|-----------------------------------------------------------------------------------------------------------------------------------|

Super-classes

[PolyhedralProjection](#)

11.14.5. Class: geosrs:DymaxionProjection

Table 245 – geosrs:DymaxionProjection

URI

<https://w3id.org/geosrs/projection/DymaxionProjection>

Super-classes

[PolyhedralProjection](#)

11.14.6. Class: geosrs:GnomonicButterflyProjection

Table 246 – geosrs:GnomonicButterflyProjection

URI

<https://w3id.org/geosrs/projection/GnomonicButterflyProjection>

Super-classes

[PolyhedralProjection](#)

11.14.7. Class: geosrs:GnomonicCubedSphereProjection

Table 247 – geosrs:GnomonicCubedSphereProjection

URI

<https://w3id.org/geosrs/projection/GnomonicCubedSphereProjection>

Super-classes

[PolyhedralProjection](#)

11.14.8. Class: geosrs:GnomonicIcosahedronProjection

Table 248 – geosrs:GnomonicIcosahedronProjection

URI

<https://w3id.org/geosrs/projection/GnomonicIcosahedronProjection>

Super-classes

[PolyhedralProjection](#)

11.14.9. Class: geosrs:GuyouProjection

Table 249 – geosrs:GuyouProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/GuyouProjection |
| Super-classes | PolyhedralProjection |

11.14.10. Class: geosrs:IcosahedralProjection

Table 250 – geosrs:IcosahedralProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/IcosahedralProjection |
| Super-classes | PolyhedralProjection |

11.14.11. Class: geosrs:LeeProjection

Table 251 – geosrs:LeeProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/LeeProjection |
| Super-classes | PolyhedralProjection |

11.14.12. Class: geosrs:MyrahedalProjection

Table 252 – geosrs:MyrahedalProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/MyrahedalProjection |
| Super-classes | PolyhedralProjection |

11.14.13. Class: geosrs:OctantProjection

Table 253 – geosrs:OctantProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/OctantProjection |
| Super-classes | PolyhedralProjection |

11.14.14. Class: geosrs:PolyhedralProjection

Table 254 – geosrs:PolyhedralProjection

| | |
|-----|-------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/PolyhedralProjection |
|-----|-------------------------------------------------------------------------------------------------------------------------------|

11.14.15. Class: geosrs:QuadrilateralizedSphericalCubeProjection

Table 255 – geosrs:QuadrilateralizedSphericalCubeProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/QuadrilateralizedSphericalCubeProjection |
| Super-classes | PolyhedralProjection |

11.14.16. Class: geosrs:WatermanButterflyProjection

Table 256 – geosrs:WatermanButterflyProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/WatermanButterflyProjection |
| Super-classes | PolyhedralProjection |

11.15. Projection

REQUIREMENT 35: PROJECTION

IDENTIFIER /req/projections/Projection

REQUIREMENT 35: PROJECTION

| | |
|-----------|-----------------------------------------------------------------------------------------------------|
| STATEMENT | Implementations shall allow the RDFS classes geosrs:Projection to be used in SPARQL graph patterns. |
|-----------|-----------------------------------------------------------------------------------------------------|

11.15.1. Class: geosrs:Projection

Table 257 – geosrs:Projection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/Projection |
| Super-classes | Conversion |

11.16. Pseudo Azimuthal Projections

REQUIREMENT 36: PSEUDO AZIMUTHAL PROJECTIONS

| | |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /req/projections/Pseudo_Azimuthal_Projections |
| STATEMENT | Implementations shall allow the RDFS classes geosrs:AitoffObliqueProjection, geosrs:AitoffProjection, geosrs:BartholomewProjection, geosrs:HammerProjection, geosrs:PseudoAzimuthalProjection, geosrs:Strebe1995Projection, geosrs:WinkelTripelProjection to be used in SPARQL graph patterns. |

11.16.1. Class: geosrs:AitoffObliqueProjection

Table 258 – geosrs:AitoffObliqueProjection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/AitoffObliqueProjection |
| Super-classes | PseudoAzimuthalProjection |

11.16.2. Class: geosrs:AitoffProjection

Table 259 – geosrs:AitoffProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/AitoffProjection |
| Definition | A modified azimuthal projection whose graticule takes the form of an ellipse |
| Super-classes | PseudoAzimuthalProjection |

11.16.3. Class: geosrs:BartholomewProjection

Table 260 – geosrs:BartholomewProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/BartholomewProjection |
| Super-classes | WinkelTripelProjection |

11.16.4. Class: geosrs:HammerProjection

Table 261 – geosrs:HammerProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/HammerProjection |
| Super-classes | PseudoAzimuthalProjection |

11.16.5. Class: geosrs:PseudoAzimuthalProjection

Table 262 – geosrs:PseudoAzimuthalProjection

| | |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/PseudoAzimuthalProjection |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------|

11.16.6. Class: geosrs:Strebe1995Projection

Table 263 – geosrs:Strebe1995Projection

| | |
|-----|-------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/Strebe1995Projection |
|-----|-------------------------------------------------------------------------------------------------------------------------------|

Super-classes

[PseudoAzimuthalProjection](#)

11.16.7. Class: geosrs:WinkelTripelProjection

Table 264 – geosrs:WinkelTripelProjection

| | |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ WinkelTripelProjection |
| Super-classes | PseudoAzimuthalProjection |

11.17. Pseudo Conical Projections

REQUIREMENT 37: PSEUDO CONICAL PROJECTIONS

IDENTIFIER /req/projections/Pseudo_Conical_Projections

STATEMENT Implementations shall allow the RDFS classes geosrs:AmericanPolyconicProjection, geosrs:BonneProjection, geosrs:BottomleyProjection, geosrs:NicolosiGlobularProjection, geosrs:PseudoConicalProjection, geosrs:PtolemyIIProjection, geosrs:StabiusWernerIIProjection, geosrs:WernerProjection to be used in SPARQL graph patterns.

11.17.1. Class: geosrs:AmericanPolyconicProjection

Table 265 – geosrs:AmericanPolyconicProjection

| | |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ AmericanPolyconicProjection |
| Super-classes | PseudoConicalProjection |
| Example | geosrs:AmericanPolyconicProjection |

11.17.2. Class: geosrs:BonneProjection

Table 266 – geosrs:BonneProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/BonneProjection |
| Super-classes | PseudoConicalProjection |

11.17.3. Class: geosrs:BottomleyProjection

Table 267 – geosrs:BottomleyProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/BottomleyProjection |
| Super-classes | PseudoConicalProjection |

11.17.4. Class: geosrs:NicolosiGlobularProjection

Table 268 – geosrs:NicolosiGlobularProjection

| | |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ NicolosiGlobularProjection |
| Super-classes | PseudoConicalProjection |

11.17.5. Class: geosrs:PseudoConicalProjection

Table 269 – geosrs:PseudoConicalProjection

| | |
|-----|------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ PseudoConicalProjection |
|-----|------------------------------------------------------------------------------------------------------------------------------------------|

11.17.6. Class: geosrs:PtolemyIIProjection

Table 270 – geosrs:PtolemyIIProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/PtolemyIIProjection |
| Super-classes | PseudoConicalProjection |

11.17.7. Class: geosrs:StabiusWernerIIProjection

Table 271 – geosrs:StabiusWernerIIProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/StabiusWernerIIProjection |
| Super-classes | BonneProjection |

11.17.8. Class: geosrs:WernerProjection

Table 272 – geosrs:WernerProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/WernerProjection |
| Super-classes | PseudoConicalProjection |

11.18. Pseudo Cylindrical Projections

REQUIREMENT 38: PSEUDO CYLINDRICAL PROJECTIONS

IDENTIFIER /req/projections/Pseudo_Cylindrical_Projections

STATEMENT Implementations shall allow the RDFS classes geosrs:ApianIIProjection, geosrs:AtlantisProjection, geosrs:BaranyilllProjection, geosrs:BaranyillProjection, geosrs:BaranyilProjection, geosrs:BaranyiIVProjection, geosrs:BoggsEumorphicProjection, geosrs:BromleyProjection, geosrs:CabotProjection, geosrs:CollignonProjection, geosrs:CrasterParabolicProjection, geosrs:DeakinMinimumErrorProjection, geosrs:Eckert1Projection, geosrs:Eckert2Projection, geosrs:Eckert3Projection, geosrs:Eckert4Projection, geosrs:Eckert5Projection, geosrs:Eckert6Projection, geosrs:EqualEarthProjection, geosrs:FaheyProjection, geosrs:FoucautProjection, geosrs:FoucautSinusoidalProjection, geosrs:FournierIIProjection, geosrs:GinzburgVIIIProjection, geosrs:GoodeHomolosineProjection, geosrs:HEALPixProjection, geosrs:HatanoAsymmetricalEqualAreaProjection, geosrs:HufnagelProjection, geosrs:Kavrayskiy7Projection, geosrs:LoximuthalProjection, geosrs:MayrProjection, geosrs:McBrydeThomasFlatPolarParabolicProjection, geosrs:McBrydeThomasFlatPolarQuarticProjection, geosrs:McBrydeThomasFlatPolarSinusoidalProjection, geosrs:McBrydeThomasIIProjection, geosrs:McBrydeThomasIProjection, geosrs:NaturalEarth2Projection, geosrs:NaturalEarthProjection, geosrs:NellHammerProjection, geosrs:NellProjection, geosrs:OrteliusOvalProjection, geosrs:PseudoCylindricalProjection, geosrs:PutninsP1Projection, geosrs:PutninsP2Projection, geosrs:PutninsP3Projection, geosrs:PutninsP5Projection, geosrs:PutninsP6Projection, geosrs:QuarticAuthalicProjection,

REQUIREMENT 38: PSEUDO CYLINDRICAL PROJECTIONS

geosrs:RobinsonProjection, geosrs:SinusoidalProjection, geosrs:TheTimesProjection, geosrs:ToblerG1Projection, geosrs:ToblerHyperellipticalProjection, geosrs:WagnerIIIProjection, geosrs:WagnerIIProjection, geosrs:WagnerIProjection, geosrs:WagnerIVProjection, geosrs:WagnerVIProjection, geosrs:WagnerVProjection, geosrs:WerenskioldIProjection, geosrs:PutninsP3'Projection, geosrs:PutninsP4'Projection, geosrs:PutninsP5'Projection, geosrs:PutninsP6'Projection to be used in SPARQL graph patterns.

11.18.1. Class: geosrs:ApianIIProjection

Table 273 – geosrs:ApianIIProjection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ApianIIProjection |
| Super-classes | PseudoCylindricalProjection |

11.18.2. Class: geosrs:AtlantisProjection

Table 274 – geosrs:AtlantisProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/AtlantisProjection |
| Super-classes | PseudoCylindricalProjection |

11.18.3. Class: geosrs:BaranyillIIProjection

Table 275 – geosrs:BaranyillIIProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/BaranyillIIProjection |
| Super-classes | PseudoCylindricalProjection |

11.18.4. Class: geosrs:BaranyillIIProjection

Table 276 – geosrs:BaranyillIIProjection

| | |
|-----|---------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/BaranyillIIProjection |
|-----|---------------------------------------------------------------------------------------------------------------------------------|

Super-classes

[PseudoCylindricalProjection](#)

11.18.5. Class: geosrs:BaranyilProjection

Table 277 – geosrs:BaranyilProjection

URI

<https://w3id.org/geosrs/projection/BaranyilProjection>

Super-classes

[PseudoCylindricalProjection](#)

11.18.6. Class: geosrs:BaranyilVProjection

Table 278 – geosrs:BaranyilVProjection

URI

<https://w3id.org/geosrs/projection/BaranyilVProjection>

Super-classes

[PseudoCylindricalProjection](#)

11.18.7. Class: geosrs:BoggsEumorphicProjection

Table 279 – geosrs:BoggsEumorphicProjection

URI

<https://w3id.org/geosrs/projection/BoggsEumorphicProjection>

Super-classes

[PseudoCylindricalProjection](#)

11.18.8. Class: geosrs:BromleyProjection

Table 280 – geosrs:BromleyProjection

URI

<https://w3id.org/geosrs/projection/BromleyProjection>

Super-classes

[PseudoCylindricalProjection](#)

11.18.9. Class: geosrs:CabotProjection

Table 281 – geosrs:CabotProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/CabotProjection |
| Super-classes | PseudoCylindricalProjection |

11.18.10. Class: geosrs:CollignonProjection

Table 282 – geosrs:CollignonProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/CollignonProjection |
| Definition | An equal-area pseudocylindrical projection that maps the sphere onto a triangle or diamond |
| Super-classes | PseudoCylindricalProjection |

11.18.11. Class: geosrs:CrasterParabolicProjection

Table 283 – geosrs:CrasterParabolicProjection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/CrasterParabolicProjection |
| Super-classes | PseudoCylindricalProjection |

11.18.12. Class: geosrs:DeakinMinimumErrorProjection

Table 284 – geosrs:DeakinMinimumErrorProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/DeakinMinimumErrorProjection |
| Super-classes | PseudoCylindricalProjection |

11.18.13. Class: geosrs:Eckert1Projection

Table 285 – geosrs:Eckert1Projection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/Eckert1Projection |
| Super-classes | PseudoCylindricalProjection |

11.18.14. Class: geosrs:Eckert2Projection

Table 286 – geosrs:Eckert2Projection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/Eckert2Projection |
| Super-classes | PseudoCylindricalProjection |

11.18.15. Class: geosrs:Eckert3Projection

Table 287 – geosrs:Eckert3Projection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/Eckert3Projection |
| Super-classes | PseudoCylindricalProjection |

11.18.16. Class: geosrs:Eckert4Projection

Table 288 – geosrs:Eckert4Projection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/Eckert4Projection |
| Super-classes | PseudoCylindricalProjection |

11.18.17. Class: geosrs:Eckert5Projection

Table 289 – geosrs:Eckert5Projection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/Eckert5Projection |
| Super-classes | PseudoCylindricalProjection |

11.18.18. Class: geosrs:Eckert6Projection

Table 290 – geosrs:Eckert6Projection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/Eckert6Projection |
| Super-classes | PseudoCylindricalProjection |

11.18.19. Class: geosrs:EqualEarthProjection

Table 291 – geosrs:EqualEarthProjection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/EqualEarthProjection |
| Super-classes | PseudoCylindricalProjection |
| Example | geosrs:EqualEarthProjection |

11.18.20. Class: geosrs:FaheyProjection

Table 292 – geosrs:FaheyProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/FaheyProjection |
| Super-classes | PseudoCylindricalProjection |

11.18.21. Class: geosrs:FoucautProjection

Table 293 – geosrs:FoucautProjection

| | |
|-----|-------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/FoucautProjection |
|-----|-------------------------------------------------------------------------------------------------------------------------|

Super-classes

[PseudoCylindricalProjection](#)

11.18.22. Class: geosrs:FoucautSinusoidalProjection

Table 294 – geosrs:FoucautSinusoidalProjection

URI

[https://w3id.org/geosrs/projection/
FoucautSinusoidalProjection](https://w3id.org/geosrs/projection/FoucautSinusoidalProjection)

Super-classes

[PseudoCylindricalProjection](#)

11.18.23. Class: geosrs:FournierIIProjection

Table 295 – geosrs:FournierIIProjection

URI

[https://w3id.org/geosrs/projection/
FournierIIProjection](https://w3id.org/geosrs/projection/FournierIIProjection)

Super-classes

[PseudoCylindricalProjection](#)

11.18.24. Class: geosrs:GinzburgVIIIProjection

Table 296 – geosrs:GinzburgVIIIProjection

URI

[https://w3id.org/geosrs/projection/
GinzburgVIIIProjection](https://w3id.org/geosrs/projection/GinzburgVIIIProjection)

Super-classes

[PseudoCylindricalProjection](#)

11.18.25. Class: geosrs:GoodeHomolosineProjection

Table 297 – geosrs:GoodeHomolosineProjection

URI

[https://w3id.org/geosrs/projection/
GoodeHomolosineProjection](https://w3id.org/geosrs/projection/GoodeHomolosineProjection)

Super-classes

[PseudoCylindricalProjection](#)

11.18.26. Class: geosrs:HEALPixProjection

Table 298 – geosrs:HEALPixProjection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/HEALPixProjection |
| Super-classes | PseudoCylindricalProjection |

11.18.27. Class: geosrs:HatanoAsymmetricalEqualAreaProjection

Table 299 – geosrs:HatanoAsymmetricalEqualAreaProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/HatanoAsymmetricalEqualAreaProjection |
| Super-classes | PseudoCylindricalProjection |

11.18.28. Class: geosrs:HufnagelProjection

Table 300 – geosrs:HufnagelProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/HufnagelProjection |
| Super-classes | PseudoCylindricalProjection |

11.18.29. Class: geosrs:Kavrayskiy7Projection

Table 301 – geosrs:Kavrayskiy7Projection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/Kavrayskiy7Projection |
| Super-classes | PseudoCylindricalProjection |

11.18.30. Class: geosrs:LoximuthalProjection

Table 302 – geosrs:LoximuthalProjection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/LoximuthalProjection |
| Super-classes | PseudoCylindricalProjection |

11.18.31. Class: geosrs:MayrProjection

Table 303 – geosrs:MayrProjection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/MayrProjection |
| Super-classes | PseudoCylindricalProjection |

11.18.32. Class: geosrs:McBrydeThomasFlatPolarParabolicProjection

Table 304 – geosrs:McBrydeThomasFlatPolarParabolicProjection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/McBrydeThomasFlatPolarParabolicProjection |
| Super-classes | PseudoCylindricalProjection |

11.18.33. Class: geosrs:McBrydeThomasFlatPolarQuarticProjection

Table 305 – geosrs:McBrydeThomasFlatPolarQuarticProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/McBrydeThomasFlatPolarQuarticProjection |
| Super-classes | PseudoCylindricalProjection |

11.18.34. Class: geosrs:McBrydeThomasFlatPolarSinusoidalProjection

Table 306 – geosrs:McBrydeThomasFlatPolarSinusoidalProjection

| | |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/McBrydeThomasFlatPolarSinusoidalProjection |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Super-classes

[PseudoCylindricalProjection](#)

11.18.35. Class: geosrs:McBrydeThomasIIProjection

Table 307 – geosrs:McBrydeThomasIIProjection

URI

[https://w3id.org/geosrs/projection/
McBrydeThomasIIProjection](https://w3id.org/geosrs/projection/McBrydeThomasIIProjection)

Super-classes

[PseudoCylindricalProjection](#)

11.18.36. Class: geosrs:McBrydeThomasIProjection

Table 308 – geosrs:McBrydeThomasIProjection

URI

[https://w3id.org/geosrs/projection/
McBrydeThomasIProjection](https://w3id.org/geosrs/projection/McBrydeThomasIProjection)

Super-classes

[PseudoCylindricalProjection](#)

11.18.37. Class: geosrs:NaturalEarth2Projection

Table 309 – geosrs:NaturalEarth2Projection

URI

[https://w3id.org/geosrs/projection/
NaturalEarth2Projection](https://w3id.org/geosrs/projection/NaturalEarth2Projection)

Super-classes

[PseudoCylindricalProjection](#)

11.18.38. Class: geosrs:NaturalEarthProjection

Table 310 – geosrs:NaturalEarthProjection

URI

[https://w3id.org/geosrs/projection/
NaturalEarthProjection](https://w3id.org/geosrs/projection/NaturalEarthProjection)

Definition

A pseudocylindrical map projection designed by Tom Patterson and introduced in 2008

Super-classes

[PseudoCylindricalProjection](#)

11.18.39. Class: geosrs:NellHammerProjection

Table 311 – geosrs:NellHammerProjection

| | |
|---------------|------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ NellHammerProjection |
| Super-classes | PseudoCylindricalProjection |

11.18.40. Class: geosrs:NellProjection

Table 312 – geosrs:NellProjection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/NellProjection |
| Super-classes | PseudoCylindricalProjection |

11.18.41. Class: geosrs:OrteliusOvalProjection

Table 313 – geosrs:OrteliusOvalProjection

| | |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ OrteliusOvalProjection |
| Super-classes | PseudoCylindricalProjection |

11.18.42. Class: geosrs:PseudoCylindricalProjection

Table 314 – geosrs:PseudoCylindricalProjection

| | |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ PseudoCylindricalProjection |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------|

11.18.43. Class: geosrs:PutninsP1Projection

Table 315 – geosrs:PutninsP1Projection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/PutninsP1Projection |
| Super-classes | PseudoCylindricalProjection |

11.18.44. Class: geosrs:PutninsP2Projection

Table 316 – geosrs:PutninsP2Projection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/PutninsP2Projection |
| Super-classes | PseudoCylindricalProjection |

11.18.45. Class: geosrs:PutninsP3Projection

Table 317 – geosrs:PutninsP3Projection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/PutninsP3Projection |
| Super-classes | PseudoCylindricalProjection |

11.18.46. Class: geosrs:PutninsP5Projection

Table 318 – geosrs:PutninsP5Projection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/PutninsP5Projection |
| Super-classes | PseudoCylindricalProjection |

11.18.47. Class: geosrs:PutninsP6Projection

Table 319 – geosrs:PutninsP6Projection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/PutninsP6Projection |
| Super-classes | PseudoCylindricalProjection |

11.18.48. Class: geosrs:QuarticAuthalicProjection

Table 320 – geosrs:QuarticAuthalicProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/QuarticAuthalicProjection |
| Super-classes | PseudoCylindricalProjection |

11.18.49. Class: geosrs:RobinsonProjection

Table 321 – geosrs:RobinsonProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/RobinsonProjection |
| Super-classes | PseudoCylindricalProjection |

11.18.50. Class: geosrs:SinusoidalProjection

Table 322 – geosrs:SinusoidalProjection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/SinusoidalProjection |
| Super-classes | PseudoCylindricalProjection |

11.18.51. Class: geosrs:TheTimesProjection

Table 323 – geosrs:TheTimesProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/TheTimesProjection |
| Super-classes | PseudoCylindricalProjection |

11.18.52. Class: geosrs:ToblerG1Projection

Table 324 – geosrs:ToblerG1Projection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ToblerG1Projection |
| Super-classes | PseudoCylindricalProjection |

11.18.53. Class: geosrs:ToblerHyperellipticalProjection

Table 325 – geosrs:ToblerHyperellipticalProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ToblerHyperellipticalProjection |
| Super-classes | PseudoCylindricalProjection |

11.18.54. Class: geosrs:WagnerIIIProjection

Table 326 – geosrs:WagnerIIIProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/WagnerIIIProjection |
| Super-classes | PseudoCylindricalProjection |

11.18.55. Class: geosrs:WagnerIIProjection

Table 327 – geosrs:WagnerIIProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/WagnerIIProjection |
| Super-classes | PseudoCylindricalProjection |

11.18.56. Class: geosrs:WagnerIProjection

Table 328 – geosrs:WagnerIProjection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/WagnerIProjection |
| Super-classes | PseudoCylindricalProjection |

11.18.57. Class: geosrs:WagnerIVProjection

Table 329 – geosrs:WagnerIVProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/WagnerIVProjection |
| Super-classes | PseudoCylindricalProjection |

11.18.58. Class: geosrs:WagnerVIProjection

Table 330 – geosrs:WagnerVIProjection

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/WagnerVIProjection |
| Super-classes | PseudoCylindricalProjection |

11.18.59. Class: geosrs:WagnerVProjection

Table 331 – geosrs:WagnerVProjection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/WagnerVProjection |
| Super-classes | PseudoCylindricalProjection |

11.18.60. Class: geosrs:WerenskioldIProjection

Table 332 – geosrs:WerenskioldIProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/WerenskioldIProjection |
| Super-classes | PseudoCylindricalProjection |

11.18.61. Class: geosrs:PutninsP3Projection

Table 333 – geosrs:PutninsP3’Projection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/PutninsP3'Projection |
| Super-classes | PseudoCylindricalProjection |

11.18.62. Class: geosrs:PutninsP4’Projection

Table 334 – geosrs:PutninsP4’Projection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/PutninsP4'Projection |
| Super-classes | PseudoCylindricalProjection |

11.18.63. Class: geosrs:PutninsP5’Projection

Table 335 – geosrs:PutninsP5’Projection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/PutninsP5'Projection |
| Super-classes | PseudoCylindricalProjection |

11.18.64. Class: geosrs:PutninsP6’Projection

Table 336 – geosrs:PutninsP6’Projection

| | |
|---------------|-------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/PutninsP6'Projection |
| Super-classes | PseudoCylindricalProjection |

11.19. Stereographic Projections

REQUIREMENT 39: STEREOGRAPHIC PROJECTIONS

| | |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /req/projections/Stereographic_Projections |
| STATEMENT | Implementations shall allow the RDFS classes geosrs:GallStereographicProjection, geosrs:MillerOblatedStereographicProjection, geosrs:RoussilheProjection to be used in SPARQL graph patterns. |

11.19.1. Class: geosrs:GallStereographicProjection

Table 337 – geosrs:GallStereographicProjection

| | |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ GallStereographicProjection |
| Super-classes | StereographicProjection |

11.19.2. Class: geosrs:MillerOblatedStereographicProjection

Table 338 – geosrs:MillerOblatedStereographicProjection

| | |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/ MillerOblatedStereographicProjection |
| Super-classes | StereographicProjection |

11.19.3. Class: geosrs:RoussilheProjection

Table 339 – geosrs:RoussilheProjection

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projection/RoussilheProjection |
| Super-classes | StereographicProjection |

12

PLANET MODULE

This clause establishes the **PLANET** Requirements class, with IRI /req/planet, which has a corresponding Conformance Class, **PLANET**, with IRI /conf/planet.



Figure 7

REQUIREMENTS CLASS 7: 12-PLANET_MODULE.ADOC EXTENSION

| | |
|-------------------|-------------------------------------|
| IDENTIFIER | /req/planet |
| TARGET TYPE | Implementation Specification |
| CONFORMANCE CLASS | Conformance class A.7: /conf/planet |
| REQUIREMENT | /req/planet/Interstellar_Body |

12.1. Interstellar Body

REQUIREMENT 40: INTERSTELLAR BODY

IDENTIFIER /req/planet/Interstellar_Body

STATEMENT Implementations shall allow the RDFS classes geosrs:ArtificialSatellite, geosrs:Asteroid, geosrs:Comet, geosrs:DwarfPlanet, geosrs:InterstellarBody, geosrs:Moon, geosrs:NaturalSatellite, geosrs:Planet, geosrs:PlanetStatus, geosrs:Plutoid, geosrs:Star, geosrs:Satellite to be used in SPARQL graph patterns.

12.1.1. Class: geosrs:ArtificialSatellite

Table 340 – geosrs:ArtificialSatellite

| | |
|---------------|---------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/planet/ArtificialSatellite |
| Super-classes | Satellite |

12.1.2. Class: geosrs:Asteroid

Table 341 – geosrs:Asteroid

| | |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/planet/Asteroid |
| Definition | Asteroid, any of a host of small bodies, about 1000 km (600 miles) or less in diameter, that orbit the Sun primarily between the orbits of Mars and Jupiter in a nearly flat ring called the asteroid belt (source: https://www.britannica.com/science/asteroid) |
| Super-classes | InterstellarBody |

12.1.3. Class: geosrs:Comet

Table 342 – geosrs:Comet

| | |
|---------------|-----------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/planet/Comet |
| Super-classes | InterstellarBody |

12.1.4. Class: geosrs:DwarfPlanet

Table 343 – geosrs:DwarfPlanet

| | |
|-----|-----------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/planet/DwarfPlanet |
|-----|-----------------------------------------------------------------------------------------------------|

12.1.5. Class: geosrs:InterstellarBody

Table 344 – geosrs:InterstellarBody

| | |
|-----|---------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/planet/InterstellarBody |
|-----|---------------------------------------------------------------------------------------------------------------|

12.1.6. Class: geosrs:Moon

Table 345 – geosrs:Moon

| | |
|---------------|---------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/planet/Moon |
| Super-classes | InterstellarBody |

12.1.7. Class: geosrs:NaturalSatellite

Table 346 – geosrs:NaturalSatellite

| | |
|---------------|---------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/planet/NaturalSatellite |
| Super-classes | Satellite |

12.1.8. Class: geosrs:Planet

Table 347 – geosrs:Planet

| | |
|---------------|-------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/planet/Planet |
| Super-classes | InterstellarBody |

12.1.9. Class: geosrs:PlanetStatus

Table 348 – geosrs:PlanetStatus

| | |
|-----|-------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/planet/PlanetStatus |
|-----|-------------------------------------------------------------------------------------------------------|

12.1.10. Class: geosrs:Plutoid

Table 349 – geosrs:Plutoid

| | |
|-----|---------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/planet/Plutoid |
|-----|---------------------------------------------------------------------------------------------|

12.1.11. Class: geosrs:Star

Table 350 – geosrs:Star

| | |
|---------------|---------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/planet/Star |
| Super-classes | InterstellarBody |

12.1.12. Class: geosrs:Satellite

Table 351 – geosrs:Satellite

| | |
|-----|-------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/planet/Satellite |
|-----|-------------------------------------------------------------------------------------------------|

13

COMMON INSTANCES

This clause establishes common instances which are needed in CRS specifications as Requirement class **INSTANCES**, with IRI /req/instances, which has a corresponding Conformance Class, **INSTANCES**, with IRI /conf/instances.

REQUIREMENTS CLASS 8: 13-INSTANCES.ADOC EXTENSION

| | |
|-------------------|----------------------------------------|
| IDENTIFIER | /req/instances |
| TARGET TYPE | Implementation Specification |
| CONFORMANCE CLASS | Conformance class A.8: /conf/instances |
| | /req/instances/Coordinate_System_Axis |
| REQUIREMENT | /req/instances/Spheroids |
| | /req/instances/SRS_Literal_Types |

13.1. Coordinate System Axis

REQUIREMENT 41: COORDINATE SYSTEM AXIS

| | |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /req/instances/Coordinate_System_Axis |
| STATEMENT | Implementations shall allow the RDFS instances geosrs:Down, geosrs:East, geosrs:North, geosrs:South, geosrs:Up, geosrs:West to be used in SPARQL graph patterns. |

13.1.1. Instance: geosrs:Down

Table 352 – geosrs:Down

| | |
|------|-------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/Down |
| Type | geosrs:AxisDirection |

| | |
|------------|--------------------------|
| Definition | Downwards axis direction |
|------------|--------------------------|

13.1.2. Instance: geosrs:East

Table 353 – geosrs:East

| | |
|------------|-------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/East |
| Type | geosrs:AxisDirection |
| Definition | east axis direction |

13.1.3. Instance: geosrs:North

Table 354 – geosrs:North

| | |
|------------|---------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/North |
| Type | geosrs:AxisDirection |
| Definition | North axis direction |

13.1.4. Instance: geosrs:South

Table 355 – geosrs:South

| | |
|------------|---------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/South |
| Type | geosrs:AxisDirection |
| Definition | South axis direction |

13.1.5. Instance: geosrs:Up

Table 356 – geosrs:Up

| | |
|------------|---------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/Up |
| Type | geosrs:AxisDirection |
| Definition | Up axis direction |

13.1.6. Instance: geosrs:West

Table 357 – geosrs:West

| | |
|------------|-------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/West |
| Type | geosrs:AxisDirection |
| Definition | West axis direction |

13.2. SRS Literal Types

REQUIREMENT 42: SRS LITERAL TYPES

IDENTIFIER /req/instances/SRS_Literal_Types

STATEMENT Implementations shall allow the RDFS instances geosrs:proj4Literal, geosrs:projJSONLiteral, geosrs:wktLiteral to be used in SPARQL graph patterns.

13.2.1. Instance: geosrs:proj4Literal

Table 358 – geosrs:proj4Literal

| | |
|------------|-----------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/proj4Literal |
| Type | rdf:Datatype[rdf:Datatype] |
| Definition | A literal which stores a proj4 String |

Example

[geosrs:proj4Literal](#)

13.2.2. Instance: geosrs:projJSONLiteral

Table 359 – geosrs:projJSONLiteral

| | |
|------------|-----------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/projJSONLiteral |
| Type | rdf:Datatype[rdf:Datatype] |
| Definition | A literal which stores a projection JSON (ProjJSON) String |
| Example | geosrs:projJSONLiteral |

13.2.3. Instance: geosrs:wktLiteral

Table 360 – geosrs:wktLiteral

| | |
|------------|-------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/wktLiteral |
| Type | rdf:Datatype[rdf:Datatype] |
| Definition | A literal which stores a WKT for CRS String |
| Example | geosrs:wktLiteral |

13.3. Spheroids

REQUIREMENT 43: SPHEROIDS

IDENTIFIER /req/instances/Spheroids

STATEMENT Implementations shall allow the RDFS instances geosrs:GRS1980, geosrs:GRS67, geosrs:PZ90, geosrs:Airy1830, geosrs:AiryModified1849, geosrs:International1924, geosrs:AustralianNationalSpheroid, geosrs:Everest1930, geosrs:Clarke1866, geosrs:Plessis1817, geosrs:Danish1876, geosrs:Struve1860, geosrs:IAG1975, geosrs:Clarke1858, geosrs:Clarke1880, geosrs:Helmert1906, geosrs:CGCS2000, geosrs:GSK-2011, geosrs:Zach1812, geosrs:Clarke1880ARC, geosrs:Clarke1880IGN,

REQUIREMENT 43: SPHEROIDS

geosrs:WGS66, geosrs:WGS72, geosrs:WGS84, geosrs:Krassowsky1940 to be used in SPARQL graph patterns.

13.3.1. Instance: geosrs:GRS1980

Table 361 – geosrs:GRS1980

| | |
|------------|-------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/GRS1980 |
| Type | geosrs:Ellipsoid |
| Definition | GRS 1980 Ellipsoid |
| Example | geosrs:GRS1980 |

13.3.2. Instance: geosrs:GRS67

Table 362 – geosrs:GRS67

| | |
|------------|---------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/GRS67 |
| Type | geosrs:Ellipsoid |
| Definition | GRS 67 Ellipsoid |
| Example | geosrs:GRS67 |

13.3.3. Instance: geosrs:PZ90

Table 363 – geosrs:PZ90

| | |
|------------|-------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/PZ90 |
| Type | geosrs:Ellipsoid |
| Definition | PZ 90 Ellipsoid |

Example

[geosrs:PZ90](#)

13.3.4. Instance: geosrs:Airy1830

Table 364 – geosrs:Airy1830

| | |
|------------|---------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/Airy1830 |
| Type | geosrs:Ellipsoid |
| Definition | Airy 1830 Ellipsoid |
| Example | geosrs:Airy1830 |

13.3.5. Instance: geosrs:AiryModified1849

Table 365 – geosrs:AiryModified1849

| | |
|------------|-------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/AiryModified1849 |
| Type | geosrs:Ellipsoid |
| Definition | Airy 1849 Modified Ellipsoid |
| Example | geosrs:AiryModified1849 |

13.3.6. Instance: geosrs:International1924

Table 366 – geosrs:International1924

| | |
|------------|---------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/International1924 |
| Type | geosrs:Ellipsoid |
| Definition | International 1924 Ellipsoid |
| Example | geosrs:International1924 |

13.3.7. Instance: geosrs:AustralianNationalSpheroid

Table 367 – geosrs:AustralianNationalSpheroid

| | |
|------------|---------------------------------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/AustralianNationalSpheroid |
| Type | geosrs:Ellipsoid |
| Definition | Australian National Spheroid |
| Example | geosrs:AustralianNationalSpheroid |

13.3.8. Instance: geosrs:Everest1930

Table 368 – geosrs:Everest1930

| | |
|------------|---------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/Everest1930 |
| Type | geosrs:Ellipsoid |
| Definition | Everest 1930 Spheroid |

13.3.9. Instance: geosrs:Clarke1866

Table 369 – geosrs:Clarke1866

| | |
|------------|-------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/Clarke1866 |
| Type | geosrs:Ellipsoid |
| Definition | Clarke 1866 Spheroid |
| Example | geosrs:Clarke1866 |

13.3.10. Instance: geosrs:Plessis1817

Table 370 – geosrs:Plessis1817

| | |
|------------|---------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/Plessis1817 |
| Type | geosrs:Ellipsoid |
| Definition | Plessis 1817 Spheroid |
| Example | geosrs:Plessis1817 |

13.3.11. Instance: geosrs:Danish1876

Table 371 – geosrs:Danish1876

| | |
|------------|-------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/Danish1876 |
| Type | geosrs:Ellipsoid |
| Definition | Danish 1876 Spheroid |
| Example | geosrs:Danish1876 |

13.3.12. Instance: geosrs:Struve1860

Table 372 – geosrs:Struve1860

| | |
|------------|-------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/Struve1860 |
| Type | geosrs:Ellipsoid |
| Definition | Struve 1860 Spheroid |
| Example | geosrs:Struve1860 |

13.3.13. Instance: geosrs:IAG1975

Table 373 – geosrs:IAG1975

| | |
|-----|-------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/IAG1975 |
|-----|-------------------------------------------------------------------------------|

| | |
|------------|----------------------------------|
| Type | geosrs:Ellipsoid |
| Definition | IAG 1975 Spheroid |
| Example | geosrs:IAG1975 |

13.3.14. Instance: geosrs:Clarke1858

Table 374 – geosrs:Clarke1858

| | |
|------------|-------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/Clarke1858 |
| Type | geosrs:Ellipsoid |
| Definition | Clarke 1858 Spheroid |
| Example | geosrs:Clarke1858 |

13.3.15. Instance: geosrs:Clarke1880

Table 375 – geosrs:Clarke1880

| | |
|------------|-------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/Clarke1880 |
| Type | geosrs:Ellipsoid |
| Definition | Clarke 1880 Spheroid |
| Example | geosrs:Clarke1880 |

13.3.16. Instance: geosrs:Helmert1906

Table 376 – geosrs:Helmert1906

| | |
|------|---------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/Helmert1906 |
| Type | geosrs:Ellipsoid |

| | |
|------------|-----------------------------------|
| Definition | Helmert 1906 Spheroid |
| Example | geosrs:Helmer1906 |

13.3.17. Instance: geosrs:CGCS2000

Table 377 – geosrs:CGCS2000

| | |
|------------|---------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/CGCS2000 |
| Type | geosrs:Ellipsoid |
| Definition | CGCS2000 Spheroid |
| Example | geosrs:CGCS2000 |

13.3.18. Instance: geosrs:GSK-2011

Table 378 – geosrs:GSK-2011

| | |
|------------|---------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/GSK-2011 |
| Type | geosrs:Ellipsoid |
| Definition | GSK-2011 Spheroid |

13.3.19. Instance: geosrs:Zach1812

Table 379 – geosrs:Zach1812

| | |
|------------|---------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/Zach1812 |
| Type | geosrs:Ellipsoid |
| Definition | Zach 1812 Spheroid |
| Example | geosrs:Zach1812 |

13.3.20. Instance: geosrs:Clarke1880ARC

Table 380 – geosrs:Clarke1880ARC

| | |
|------------|-------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/Clarke1880ARC |
| Type | geosrs:Ellipsoid |
| Definition | Clarke 1880 (Arc) Spheroid |
| Example | geosrs:Clarke1880ARC |

13.3.21. Instance: geosrs:Clarke1880IGN

Table 381 – geosrs:Clarke1880IGN

| | |
|------------|-------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/Clarke1880IGN |
| Type | geosrs:Ellipsoid |
| Definition | Clarke 1880 (Ing) Spheroid |
| Example | geosrs:Clarke1880IGN |

13.3.22. Instance: geosrs:WGS66

Table 382 – geosrs:WGS66

| | |
|------------|---------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/WGS66 |
| Type | geosrs:Ellipsoid |
| Definition | WGS 66 Spheroid |

13.3.23. Instance: geosrs:WGS72

Table 383 – geosrs:WGS72

| | |
|------------|---------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/WGS72 |
| Type | geosrs:Ellipsoid |
| Definition | WGS 72 Spheroid |
| Example | geosrs:WGS72 |

13.3.24. Instance: geosrs:WGS84

Table 384 – geosrs:WGS84

| | |
|------------|---------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/WGS84 |
| Type | geosrs:Ellipsoid |
| Definition | WGS 84 Spheroid |
| Example | geosrs:WGS84 |

13.3.25. Instance: geosrs:Krassowsky1940

Table 385 – geosrs:Krassowsky1940

| | |
|------------|---------------------------------------------------------------------------------------------|
| URI | https://w3id.org/geosrs/Krassowsky1940 |
| Type | geosrs:Ellipsoid |
| Definition | Krassowsky 1940 Spheroid |
| Example | geosrs:Krassowsky1940 |





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A

ANNEX A (NORMATIVE) ABSTRACT TEST SUITE

A

ANNEX A (NORMATIVE) ABSTRACT TEST SUITE

A.0. Overview

This Annex lists tests for the Conformance Classes defined in the main body sections of this Specification with links to their Requirements and test purpose method and type. Conformance classes may be used to signify the compatibility of a given implementation to parts of the CRS Ontology standard. They may be stated as part of a SPARQL 1.1 Service Description [SPARQLSERVDESC].

A.1. Conformance Class: Core

CONFORMANCE CLASS A.1: 06-CORE.ADOC

IDENTIFIER /conf/core

REQUIREMENTS CLASS Requirements class 1: /req/core

CONFORMANCE TESTS Abstract test A.1: /conf/core/Coordinate_Reference_System_Parameters
Abstract test A.2: /conf/core/Coordinate_Reference_System_Types
Abstract test A.3: /conf/core/Coordinate_Reference_System_Properties

A.1.1. Coordinate Reference System Parameters

ABSTRACT TEST A.1

IDENTIFIER /conf/core/Coordinate_Reference_System_Parameters

ABSTRACT TEST A.1

| | |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| REQUIREMENT | Requirement 1: /req/core/Coordinate_Reference_System_Parameters |
| TEST PURPOSE | Check conformance with this requirement |
| TEST METHOD | Verify that queries involving geosrs:AreaOfUse geosrs:Extent geosrs:GeographicBoundingBox geosrs:AxesList geosrs:SingleCRSList return the correct result on a test dataset. |
| TEST-METHOD-TYPE | Capabilities |
| REFERENCE | geosrs:AreaOfUse geosrs:Extent geosrs:GeographicBoundingBox geosrs:AxesList geosrs:SingleCRSList |

A.1.2. Coordinate Reference System Types

ABSTRACT TEST A.2

| | |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /conf/core/Coordinate_Reference_System_Types |
| REQUIREMENT | Requirement 3: /req/core/Coordinate_Reference_System_Types |
| TEST PURPOSE | Check conformance with this requirement |
| TEST METHOD | Verify that queries involving geosrs:BoundCRS geosrs:CompoundCRS geosrs:CRS geosrs: EngineeringCRS geosrs:GeocentricCRS geosrs:GeodeticCRS geosrs:GeographicCRS geosrs: ParametricCRS geosrs:ProjectedCRS geosrs:SelenographicCRS geosrs:ReferenceSystem geosrs: SingleCRS geosrs:SpatialReferenceSystem geosrs:SpatioParametricCompoundCRS geosrs:Spatio ParametricTemporalCompoundCRS geosrs:SpatioTemporalCompoundCRS geosrs:StaticCRS geosrs:TemporalCRS geosrs:VerticalCRS return the correct result on a test dataset. |
| TEST-METHOD-TYPE | Capabilities |
| REFERENCE | geosrs:BoundCRS geosrs:CompoundCRS geosrs:CRS geosrs:EngineeringCRS geosrs:Geocentric CRS geosrs:GeodeticCRS geosrs:GeographicCRS geosrs:ParametricCRS geosrs:ProjectedCRS geosrs:SelenographicCRS geosrs:ReferenceSystem geosrs:SingleCRS geosrs:SpatialReference System geosrs:SpatioParametricCompoundCRS geosrs:SpatioParametricTemporalCompoundCRS geosrs:SpatioTemporalCompoundCRS geosrs:StaticCRS geosrs:TemporalCRS geosrs:VerticalCRS |

A.1.3. Coordinate Reference System Properties

ABSTRACT TEST A.3

| | |
|------------------|------------------------------------------------------------------------------------------|
| IDENTIFIER | /conf/core/Coordinate_Reference_System_Properties |
| REQUIREMENT | Requirement 2: /req/core/Coordinate_Reference_System_Properties |
| TEST PURPOSE | Check conformance with this requirement |
| TEST METHOD | Verify that queries involving geosrs:method return the correct result on a test dataset. |
| TEST-METHOD-TYPE | Capabilities |
| REFERENCE | geosrs:method |

A.2. Conformance Class: Co

CONFORMANCE CLASS A.2: 07-CO_MODULE.ADOC

| | |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /conf/co |
| REQUIREMENTS CLASS | Requirements class 2: /req/co |
| CONFORMANCE TESTS | Abstract test A.4: /conf/co/Coordinate_Operation_Methods Abstract test A.5: /conf/co/Coordinate_Operation_Parameters Abstract test A.6: /conf/co/Coordinate_Operation_Categories Abstract test A.7: /conf/co/Coordinate_Operation_Properties |

A.2.1. Coordinate Operation Methods

ABSTRACT TEST A.4

| | |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /conf/co/Coordinate_Operation_Methods |
| REQUIREMENT | Requirement 5: /req/co/Coordinate_Operation_Methods |
| TEST PURPOSE | Check conformance with this requirement |
| TEST METHOD | Verify that queries involving geosrs:CoordinateOperation geosrs:PassThroughOperation geosrs:ConcatenatedOperation geosrs:SingleOperation geosrs:Transformation geosrs:Conversion |

ABSTRACT TEST A.4

| |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| geosrs:PointMotionOperation geosrs:OperationMethod return the correct result on a test dataset. |
| TEST-METHOD-TYPE Capabilities |
| REFERENCE geosrs:CoordinateOperation geosrs:PassThroughOperation geosrs:ConcatenatedOperation geosrs:SingleOperation geosrs:Transformation geosrs:Conversion geosrs:PointMotionOperation geosrs:OperationMethod |

A.2.2. Coordinate Operation Parameters

ABSTRACT TEST A.5

| | |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /conf/co/Coordinate_Operation_Parameters |
| REQUIREMENT | Requirement 6: /req/co/Coordinate_Operation_Parameters |
| TEST PURPOSE | Check conformance with this requirement |
| TEST METHOD | Verify that queries involving geosrs:GeneralOperationParameter geosrs:OperationParameter Group geosrs:OperationParameter geosrs:GeneralParameterValue geosrs:ParameterValueGroup geosrs:OperationParameterValue return the correct result on a test dataset. |
| TEST-METHOD-TYPE | Capabilities |
| REFERENCE | geosrs:GeneralOperationParameter geosrs:OperationParameterGroup geosrs:Operation Parameter geosrs:GeneralParameterValue geosrs:ParameterValueGroup geosrs:Operation ParameterValue |

A.2.3. Coordinate Operation Categories

ABSTRACT TEST A.6

| | |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /conf/co/Coordinate_Operation_Categories |
| REQUIREMENT | Requirement 4: /req/co/Coordinate_Operation_Categories |
| TEST PURPOSE | Check conformance with this requirement |
| TEST METHOD | Verify that queries involving geosrs:GeographicObject geosrs:RegisterOperations geosrs:Scale Operation geosrs:RotationOperation geosrs:IdentityOperation geosrs:ShearOperation geosrs: |

ABSTRACT TEST A.6

| | |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TEST-METHOD-TYPE | TranslationOperation geosrs:AffineTransformationOperation geosrs:CoordinateTransformation Operation return the correct result on a test dataset. |
| REFERENCE | geosrs:GeographicObject geosrs:RegisterOperations geosrs:ScaleOperation geosrs:Rotation Operation geosrs:IdentityOperation geosrs:ShearOperation geosrs:TranslationOperation geosrs: AffineTransformationOperation geosrs:CoordinateTransformationOperation |

A.2.4. Coordinate Operation Properties

ABSTRACT TEST A.7

| | |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /conf/co/Coordinate_Operation_Properties |
| REQUIREMENT | Requirement 7: /req/co/Coordinate_Operation_Properties |
| TEST PURPOSE | Check conformance with this requirement |
| TEST METHOD | Verify that queries involving geosrs:derivingConversion geosrs:parameter geosrs:sourceCRS geosrs:targetCRS return the correct result on a test dataset. |
| TEST-METHOD-TYPE | Capabilities |
| REFERENCE | geosrs:derivingConversion geosrs:parameter geosrs:sourceCRS geosrs:targetCRS |

A.3. Conformance Class: Cs

CONFORMANCE CLASS A.3: 08-CS_MODULE.ADOC

| | |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /conf/cs |
| REQUIREMENTS CLASS | Requirements class 3: /req/cs |
| CONFORMANCE TESTS | Abstract test A.8: /conf/cs/Temporal_Coordinate_Systems Abstract test A.9: /conf/cs/3D_Coordinate_Systems Abstract test A.10: /conf/cs/Coordinate_System_Types Abstract test A.11: /conf/cs/Celestial_Coordinate_Systems |

CONFORMANCE CLASS A.3: 08-CS_MODULE.ADOC

Abstract test A.12: /conf/cs/Coordinate_System_Components

Abstract test A.13: /conf/cs/Coordinate_System_Properties

A.3.1. Temporal Coordinate Systems

ABSTRACT TEST A.8

| | |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /conf/cs/Temporal_Coordinate_Systems |
| REQUIREMENT | Requirement 13: /req/cs/Temporal_Coordinate_Systems |
| TEST PURPOSE | Check conformance with this requirement |
| TEST METHOD | Verify that queries involving geosrs:1DCoordinateSystem geosrs:DateTimeTemporalCoordinate System geosrs:TemporalCountCoordinateSystem geosrs:TemporalCoordinateSystem geosrs:TemporalMeasureCoordinateSystem return the correct result on a test dataset. |
| TEST-METHOD-TYPE | Capabilities |
| REFERENCE | geosrs:1DCoordinateSystem geosrs:DateTimeTemporalCoordinateSystem geosrs:TemporalCountCoordinateSystem geosrs:TemporalCoordinateSystem geosrs:TemporalMeasureCoordinateSystem |

A.3.2. 3D Coordinate Systems

ABSTRACT TEST A.9

| | |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /conf/cs/3D_Coordinate_Systems |
| REQUIREMENT | Requirement 8: /req/cs/3D_Coordinate_Systems |
| TEST PURPOSE | Check conformance with this requirement |
| TEST METHOD | Verify that queries involving geosrs:3DCoordinateSystem geosrs:ConicalCoordinateSystem geosrs:CylindricalCoordinateSystem geosrs:EllipsoidalCoordinateSystem geosrs:SphericalCoordinateSystem return the correct result on a test dataset. |
| TEST-METHOD-TYPE | Capabilities |
| REFERENCE | geosrs:3DCoordinateSystem geosrs:ConicalCoordinateSystem geosrs:CylindricalCoordinateSystem geosrs:EllipsoidalCoordinateSystem geosrs:SphericalCoordinateSystem |

A.3.3. Coordinate System Types

ABSTRACT TEST A.10

IDENTIFIER /conf/cs/Coordinate_System_Types

REQUIREMENT Requirement 12: /req/cs/Coordinate_System_Types

TEST PURPOSE Check conformance with this requirement

TEST METHOD Verify that queries involving geosrs:CoordinateSystem geosrs:AffineCoordinateSystem geosrs:BarycentricCoordinateSystem geosrs:CartesianCoordinateSystem geosrs:CurvilinearCoordinateSystem geosrs:EngineeringCoordinateSystem geosrs:GeodeticCoordinateSystem geosrs:GeographicalCoordinateSystem geosrs:GridCoordinateSystem geosrs:HexagonalCoordinateSystem geosrs:LinearCoordinateSystem geosrs:LocalCoordinateSystem geosrs:ObliqueCoordinateSystem geosrs:OrdinalCoordinateSystem geosrs:OrthogonalCoordinateSystem geosrs:ParametricCoordinateSystem geosrs:PlanarCoordinateSystem geosrs:PolarCoordinateSystem geosrs:VerticalCoordinateSystem return the correct result on a test dataset.

TEST-METHOD-TYPE Capabilities

REFERENCE geosrs:CoordinateSystem geosrs:AffineCoordinateSystem geosrs:BarycentricCoordinateSystem geosrs:CartesianCoordinateSystem geosrs:CurvilinearCoordinateSystem geosrs:EngineeringCoordinateSystem geosrs:GeodeticCoordinateSystem geosrs:GeographicalCoordinateSystem geosrs:GridCoordinateSystem geosrs:HexagonalCoordinateSystem geosrs:LinearCoordinateSystem geosrs:LocalCoordinateSystem geosrs:ObliqueCoordinateSystem geosrs:OrdinalCoordinateSystem geosrs:OrthogonalCoordinateSystem geosrs:ParametricCoordinateSystem geosrs:PlanarCoordinateSystem geosrs:PolarCoordinateSystem geosrs:VerticalCoordinateSystem

A.3.4. Celestial Coordinate Systems

ABSTRACT TEST A.11

IDENTIFIER /conf/cs/Celestial_Coordinate_Systems

REQUIREMENT Requirement 9: /req/cs/Celestial_Coordinate_Systems

TEST PURPOSE Check conformance with this requirement

TEST METHOD Verify that queries involving geosrs:CelestialCoordinateSystem geosrs:EclipticCoordinateSystem geosrs:EquatorialCoordinateSystem geosrs:GalacticCoordinateSystem geosrs:Horizontal

ABSTRACT TEST A.11

| | |
|--------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CoordinateSystem geosrs:PerifocalCoordinateSystem geosrs:SuperGalacticCS | return the correct result on a test dataset. |
| TEST-METHOD-TYPE | Capabilities |
| REFERENCE | geosrs:CelestialCoordinateSystem geosrs:EclipticCoordinateSystem geosrs:EquatorialCoordinateSystem geosrs:GalacticCoordinateSystem geosrs:HorizontalCoordinateSystem geosrs:PerifocalCoordinateSystem geosrs:SuperGalacticCS |

A.3.5. Coordinate System Components

ABSTRACT TEST A.12

| | |
|------------------|--------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /conf/cs/Coordinate_System_Components |
| REQUIREMENT | Requirement 10: /req/cs/Coordinate_System_Components |
| TEST PURPOSE | Check conformance with this requirement |
| TEST METHOD | Verify that queries involving geosrs:CoordinateSystemAxis return the correct result on a test dataset. |
| TEST-METHOD-TYPE | Capabilities |
| REFERENCE | geosrs:CoordinateSystemAxis |

A.3.6. Coordinate System Properties

ABSTRACT TEST A.13

| | |
|------------------|-------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /conf/cs/Coordinate_System_Properties |
| REQUIREMENT | Requirement 11: /req/cs/Coordinate_System_Properties |
| TEST PURPOSE | Check conformance with this requirement |
| TEST METHOD | Verify that queries involving geosrs:axis geosrs:axisDirection return the correct result on a test dataset. |
| TEST-METHOD-TYPE | Capabilities |

ABSTRACT TEST A.13

REFERENCE geosrs:axis geosrs:axisDirection

A.4. Conformance Class: Datum

CONFORMANCE CLASS A.4: 09-DATUM_MODULE.ADOC

IDENTIFIER /conf/datum

REQUIREMENTS CLASS Requirements class 4: /req/datum

CONFORMANCE TESTS Abstract test A.14: /conf/datum/Datum_Types
Abstract test A.15: /conf/datum/Datum_Parameters
Abstract test A.16: /conf/datum/Spheroid_Types
Abstract test A.17: /conf/datum/Spheroid_Properties
Abstract test A.18: /conf/datum/Datum_Properties

A.4.1. Datum Types

ABSTRACT TEST A.14

IDENTIFIER /conf/datum/Datum_Types

REQUIREMENT Requirement 16: /req/datum/Datum_Types

TEST PURPOSE Check conformance with this requirement

TEST METHOD Verify that queries involving geosrs:Datum geosrs:GeodeticDatum geosrs:DynamicGeodeticReferenceFrame geosrs:VerticalDatum geosrs:DynamicVerticalDatum geosrs:ParametricDatum geosrs:EngineeringDatum geosrs:TemporalDatum geosrs:DatumEnsemble return the correct result on a test dataset.

TEST-METHOD-TYPE Capabilities

REFERENCE geosrs:Datum geosrs:GeodeticDatum geosrs:DynamicGeodeticReferenceFrame geosrs:VerticalDatum geosrs:DynamicVerticalDatum geosrs:ParametricDatum geosrs:EngineeringDatum geosrs:TemporalDatum geosrs:DatumEnsemble

A.4.2. Datum Parameters

ABSTRACT TEST A.15

| | |
|------------------|--------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /conf/datum/Datum_Parameters |
| REQUIREMENT | Requirement 14: /req/datum/Datum_Parameters |
| TEST PURPOSE | Check conformance with this requirement |
| TEST METHOD | Verify that queries involving geosrs:PrimeMeridian geosrs:DefiningParameter return the correct result on a test dataset. |
| TEST-METHOD-TYPE | Capabilities |
| REFERENCE | geosrs:PrimeMeridian geosrs:DefiningParameter |

A.4.3. Spheroid Types

ABSTRACT TEST A.16

| | |
|------------------|----------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /conf/datum/Spheroid_Types |
| REQUIREMENT | Requirement 18: /req/datum/Spheroid_Types |
| TEST PURPOSE | Check conformance with this requirement |
| TEST METHOD | Verify that queries involving geosrs:Ellipsoid geosrs:TriaxialEllipsoid return the correct result on a test dataset. |
| TEST-METHOD-TYPE | Capabilities |
| REFERENCE | geosrs:Ellipsoid geosrs:TriaxialEllipsoid |

A.4.4. Spheroid Properties

ABSTRACT TEST A.17

| | |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /conf/datum/Spheroid_Properties |
| REQUIREMENT | Requirement 17: /req/datum/Spheroid_Properties |
| TEST PURPOSE | Check conformance with this requirement |
| TEST METHOD | Verify that queries involving geosrs:eccentricity geosrs:inverseFlattening geosrs:isSphere geosrs:semiMajorAxis geosrs:semiMinorAxis return the correct result on a test dataset. |
| TEST-METHOD-TYPE | Capabilities |
| REFERENCE | geosrs:eccentricity geosrs:inverseFlattening geosrs:isSphere geosrs:semiMajorAxis geosrs:semiMinorAxis |

A.4.5. Datum Properties

ABSTRACT TEST A.18

| | |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /conf/datum/Datum_Properties |
| REQUIREMENT | Requirement 15: /req/datum/Datum_Properties |
| TEST PURPOSE | Check conformance with this requirement |
| TEST METHOD | Verify that queries involving geosrs:datumDefiningParameter geosrs:ellipsoid geosrs:primeMeridian return the correct result on a test dataset. |
| TEST-METHOD-TYPE | Capabilities |
| REFERENCE | geosrs:datumDefiningParameter geosrs:ellipsoid geosrs:primeMeridian |

A.5. Conformance Class: Srsapplication

CONFORMANCE CLASS A.5: 10-SRSAPPLICATION_MODULE.ADOC

| | |
|------------|----------------------|
| IDENTIFIER | /conf/srsapplication |
|------------|----------------------|

CONFORMANCE CLASS A.5: 10-SRSAPPLICATION_MODULE.ADOC

| | |
|--------------------|----------------------------------------------------------------------------------------------------------------------|
| REQUIREMENTS CLASS | Requirements class 5: /req/srsapplication |
| CONFORMANCE TESTS | Abstract test A.19: /conf/srsapplication/SRS_Application_Types Abstract test A.20: /conf/srsapplication/Map_Types |

A.5.1. SRS Application Types

ABSTRACT TEST A.19

| | |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /conf/srsapplication/SRS_Application_Types |
| REQUIREMENT | Requirement 20: /req/srsapplication/SRS_Application_Types |
| TEST PURPOSE | Check conformance with this requirement |
| TEST METHOD | Verify that queries involving geosrs:SRSApplication geosrs:SpatialReferencing geosrs:EngineeringSurvey geosrs:SatelliteSurvey geosrs:SatelliteNavigation geosrs:CoastalHydrography geosrs:OffshoreEngineering geosrs:Hydrography geosrs:Drilling geosrs:OilAndGasExploration return the correct result on a test dataset. |
| TEST-METHOD-TYPE | Capabilities |
| REFERENCE | geosrs:SRSApplication geosrs:SpatialReferencing geosrs:EngineeringSurvey geosrs:SatelliteSurvey geosrs:SatelliteNavigation geosrs:CoastalHydrography geosrs:OffshoreEngineering geosrs:Hydrography geosrs:Drilling geosrs:OilAndGasExploration |

A.5.2. Map Types

ABSTRACT TEST A.20

| | |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /conf/srsapplication/Map_Types |
| REQUIREMENT | Requirement 19: /req/srsapplication/Map_Types |
| TEST PURPOSE | Check conformance with this requirement |
| TEST METHOD | Verify that queries involving geosrs:CadastreMap geosrs:NauticalChart geosrs:ThematicMap geosrs:TopographicMap geosrs:WeatherMap return the correct result on a test dataset. |
| TEST-METHOD-TYPE | Capabilities |

ABSTRACT TEST A.20

REFERENCE

geosrs:CadastreMap geosrs:NauticalChart geosrs:ThematicMap geosrs:TopographicMap geosrs:WeatherMap

A.6. Conformance Class: Projections

CONFORMANCE CLASS A.6: 11-PROJECTIONS_MODULE.ADOC

IDENTIFIER /conf/projections

REQUIREMENTS CLASS Requirements class 6: /req/projections

Abstract test A.21: /conf/projections/Lenticular_Projections
Abstract test A.22: /conf/projections/Conformal_Projections
Abstract test A.23: /conf/projections/Minimum_Error_Projections
Abstract test A.24: /conf/projections/Pseudo_Azimuthal_Projections
Abstract test A.25: /conf/projections/Equal_Area_Projections
Abstract test A.26: /conf/projections/Pseudo_Conical_Projections
Abstract test A.27: /conf/projections/Globular_Projections
Abstract test A.28: /conf/projections/Pseudo_Cylindrical_Projections
Abstract test A.29: /conf/projections/Archaic_Projections
Abstract test A.30: /conf/projections/Cylindrical_Projections
Abstract test A.31: /conf/projections/Compromise_Projections
Abstract test A.32: /conf/projections/Polyhedral_Projections
Abstract test A.33: /conf/projections/Equidistant_Projections
Abstract test A.34: /conf/projections/Azimuthal_Projections
Abstract test A.35: /conf/projections/Conical_Projections
Abstract test A.36: /conf/projections/Perspective_Projections
Abstract test A.37: /conf/projections/Stereographic_Projections
Abstract test A.38: /conf/projections/Polyconic_Projections
Abstract test A.39: /conf/projections/Projection

A.6.1. Lenticular Projections

ABSTRACT TEST A.21

IDENTIFIER /conf/projections/Lenticular_Projections

REQUIREMENT Requirement 30: /req/projections/Lenticular_Projections

ABSTRACT TEST A.21

TEST PURPOSE Check conformance with this requirement

TEST METHOD Verify that queries involving geosrs:A4Projection geosrs:BriesemeisterProjection geosrs:CircIProjection geosrs:CupolaProjection geosrs:DedistortProjection geosrs:DietrichKitadaProjection geosrs:FranculaIIIProjection geosrs:FranculaIVProjection geosrs:FranculaIXProjection geosrs:FranculaVIIIProjection geosrs:FranculaVProjection geosrs:FranculaXIIProjection geosrs:FranculaXIVProjection geosrs:HamusoidalProjection geosrs:KissProjection return the correct result on a test dataset.

TEST-METHOD-TYPE Capabilities

REFERENCE geosrs:A4Projection geosrs:BriesemeisterProjection geosrs:CircIProjection geosrs:CupolaProjection geosrs:DedistortProjection geosrs:DietrichKitadaProjection geosrs:FranculaIIIProjection geosrs:FranculaIVProjection geosrs:FranculaIXProjection geosrs:FranculaVIIIProjection geosrs:FranculaVProjection geosrs:FranculaXIIProjection geosrs:FranculaXIVProjection geosrs:HamusoidalProjection geosrs:KissProjection

A.6.2. Conformal Projections

ABSTRACT TEST A.22

IDENTIFIER /conf/projections/Conformal_Projections

REQUIREMENT Requirement 24: /req/projections/Conformal_Projections

TEST PURPOSE Check conformance with this requirement

TEST METHOD Verify that queries involving geosrs:AdamsProjection geosrs:AdamsWorldInASquareIIProjection geosrs:AdamsWorldInASquareIProjection geosrs:AugustEpicycloidalProjection geosrs:CoxConformalProjection geosrs:EisenlohrProjection geosrs:GS50Projection geosrs:PeirceQuincuncialProjection geosrs:StereographicProjection return the correct result on a test dataset.

TEST-METHOD-TYPE Capabilities

REFERENCE geosrs:AdamsProjection geosrs:AdamsWorldInASquareIIProjection geosrs:AdamsWorldInASquareIProjection geosrs:AugustEpicycloidalProjection geosrs:CoxConformalProjection geosrs:EisenlohrProjection geosrs:GS50Projection geosrs:PeirceQuincuncialProjection geosrs:StereographicProjection

A.6.3. Minimum Error Projections

ABSTRACT TEST A.23

| | |
|------------------|--------------------------------------------------------------------------------------------------|
| IDENTIFIER | /conf/projections/Minimum_Error_Projections |
| REQUIREMENT | Requirement 31: /req/projections/Minimum_Error_Projections |
| TEST PURPOSE | Check conformance with this requirement |
| TEST METHOD | Verify that queries involving geosrs:AiryProjection return the correct result on a test dataset. |
| TEST-METHOD-TYPE | Capabilities |
| REFERENCE | geosrs:AiryProjection |

A.6.4. Pseudo Azimuthal Projections

ABSTRACT TEST A.24

| | |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /conf/projections/Pseudo_Azimuthal_Projections |
| REQUIREMENT | Requirement 36: /req/projections/Pseudo_Azimuthal_Projections |
| TEST PURPOSE | Check conformance with this requirement |
| TEST METHOD | Verify that queries involving geosrs:AitoffObliqueProjection geosrs:AitoffProjection geosrs:BartholomewProjection geosrs:HammerProjection geosrs:PseudoAzimuthalProjection geosrs:Strebe1995Projection geosrs:WinkelTripelProjection return the correct result on a test dataset. |
| TEST-METHOD-TYPE | Capabilities |
| REFERENCE | geosrs:AitoffObliqueProjection geosrs:AitoffProjection geosrs:BartholomewProjection geosrs:HammerProjection geosrs:PseudoAzimuthalProjection geosrs:Strebe1995Projection geosrs:WinkelTripelProjection |

A.6.5. Equal Area Projections

ABSTRACT TEST A.25

| | |
|------------|------------------------------------------|
| IDENTIFIER | /conf/projections/Equal_Area_Projections |
|------------|------------------------------------------|

ABSTRACT TEST A.25

REQUIREMENT Requirement 27: /req/projections/Equal_Area_Projections

TEST PURPOSE Check conformance with this requirement

TEST METHOD Verify that queries involving geosrs:AlbersEqualAreaProjection geosrs:AzimuthalEqualAreaProjection geosrs:CylindricalEqualArea geosrs:EqualAreaProjection geosrs:GallPetersProjection geosrs:HoboDyerProjection geosrs:LambertAzimuthalEqualArea geosrs:LambertCylindricalEqualAreaProjection geosrs:ObliqueCylindricalEqualAreaProjection geosrs:SlideAndDiceParallelSmallCircle geosrs:SliceAndDiceVertexGreatCircle geosrs:SmythEqualSurfaceProjection geosrs:SnyderEqualArea geosrs:ToblerWorldInASquareProjection geosrs:TransverseCylindricalEqualAreaProjection geosrs:TrystanEdwardsProjection geosrs:WiechelProjection return the correct result on a test dataset.

TEST-METHOD-TYPE Capabilities

REFERENCE geosrs:AlbersEqualAreaProjection geosrs:AzimuthalEqualAreaProjection geosrs:CylindricalEqualArea geosrs:EqualAreaProjection geosrs:GallPetersProjection geosrs:HoboDyerProjection geosrs:LambertAzimuthalEqualArea geosrs:LambertCylindricalEqualAreaProjection geosrs:ObliqueCylindricalEqualAreaProjection geosrs:SlideAndDiceParallelSmallCircle geosrs:SliceAndDiceVertexGreatCircle geosrs:SmythEqualSurfaceProjection geosrs:SnyderEqualArea geosrs:ToblerWorldInASquareProjection geosrs:TransverseCylindricalEqualAreaProjection geosrs:TrystanEdwardsProjection geosrs:WiechelProjection

A.6.6. Pseudo Conical Projections

ABSTRACT TEST A.26

IDENTIFIER /conf/projections/Pseudo_Conical_Projections

REQUIREMENT Requirement 37: /req/projections/Pseudo_Conical_Projections

TEST PURPOSE Check conformance with this requirement

TEST METHOD Verify that queries involving geosrs:AmericanPolyconicProjection geosrs:BonneProjection geosrs:BottomleyProjection geosrs:NicolosiGlobularProjection geosrs:PseudoConicalProjection geosrs:PtolemyIIProjection geosrs:StabiusWernerIIProjection geosrs:WernerProjection return the correct result on a test dataset.

TEST-METHOD-TYPE Capabilities

REFERENCE geosrs:AmericanPolyconicProjection geosrs:BonneProjection geosrs:BottomleyProjection geosrs:NicolosiGlobularProjection geosrs:PseudoConicalProjection geosrs:PtolemyIIProjection geosrs:StabiusWernerIIProjection geosrs:WernerProjection

A.6.7. Globular Projections

| ABSTRACT TEST A.27 | |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /conf/projections/Globular_Projections |
| REQUIREMENT | Requirement 29: /req/projections/Globular_Projections |
| TEST PURPOSE | Check conformance with this requirement |
| TEST METHOD | Verify that queries involving geosrs:ApianGlobularProjection geosrs:BaconGlobularProjection geosrs:FournierGlobularProjection return the correct result on a test dataset. |
| TEST-METHOD-TYPE | Capabilities |
| REFERENCE | geosrs:ApianGlobularProjection geosrs:BaconGlobularProjection geosrs:FournierGlobularProjection |

A.6.8. Pseudo Cylindrical Projections

| ABSTRACT TEST A.28 | |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /conf/projections/Pseudo_Cylindrical_Projections |
| REQUIREMENT | Requirement 38: /req/projections/Pseudo_Cylindrical_Projections |
| TEST PURPOSE | Check conformance with this requirement |
| TEST METHOD | Verify that queries involving geosrs:ApianIIProjection geosrs:AtlantisProjection geosrs:BaranyillIIProjection geosrs:BaranyillProjection geosrs:BaranyilProjection geosrs:BaranyiIVProjection geosrs:BoggsEumorphicProjection geosrs:BromleyProjection geosrs:CabotProjection geosrs:CollignonProjection geosrs:CrasterParabolicProjection geosrs:DeakinMinimumErrorProjection geosrs:Eckert1Projection geosrs:Eckert2Projection geosrs:Eckert3Projection geosrs:Eckert4Projection geosrs:Eckert5Projection geosrs:Eckert6Projection geosrs:EqualEarthProjection geosrs:FaheyProjection geosrs:FoucautProjection geosrs:FoucautSinusoidalProjection geosrs:FournierIIProjection geosrs:GinzburgVIIIProjection geosrs:GoodeHomolosineProjection geosrs:HEALPixProjection geosrs:HatanoAsymmetricalEqualAreaProjection geosrs:HufnagelProjection geosrs:Kavrayskiy7Projection geosrs:LoximuthalProjection geosrs:MayrProjection geosrs:McBrydeThomasFlatPolarParabolicProjection geosrs:McBrydeThomasFlatPolarQuarticProjection geosrs:McBrydeThomasFlatPolarSinusoidalProjection geosrs:McBrydeThomasIIProjection geosrs:McBrydeThomasIProjection geosrs:NaturalEarth2Projection geosrs:NaturalEarthProjection geosrs:NellHammerProjection geosrs:NellProjection geosrs:OrteliusOvalProjection geosrs: |

ABSTRACT TEST A.28

PseudoCylindricalProjection geosrs:PutninsP1Projection geosrs:PutninsP2Projection geosrs:PutninsP3Projection geosrs:PutninsP5Projection geosrs:PutninsP6Projection geosrs:QuarticAuthalicProjection geosrs:RobinsonProjection geosrs:SinusoidalProjection geosrs:TheTimesProjection geosrs:ToblerG1Projection geosrs:ToblerHyperellipticalProjection geosrs:WagnerIIIProjection geosrs:WagnerIIProjection geosrs:WagnerIProjection geosrs:WagnerIVProjection geosrs:WagnerVIProjection geosrs:WagnerVProjection geosrs:WerenskioldIProjection geosrs:PutninsP3'Projection geosrs:PutninsP4'Projection geosrs:PutninsP5'Projection geosrs:PutninsP6'Projection return the correct result on a test dataset.

TEST-

METHOD-

Capabilities

TYPE

REFERENCE

geosrs:ApianIIProjection geosrs:AtlantisProjection geosrs:BaranyiIIIProjection geosrs:BaranyiIIProjection geosrs:BaranyiIProjection geosrs:BaranyiIVProjection geosrs:BoggsEumorphicProjection geosrs:BromleyProjection geosrs:CabotProjection geosrs:CollignonProjection geosrs:CrasterParabolicProjection geosrs:DeakinMinimumErrorProjection geosrs:Eckert1Projection geosrs:Eckert2Projection geosrs:Eckert3Projection geosrs:Eckert4Projection geosrs:Eckert5Projection geosrs:Eckert6Projection geosrs:EqualEarthProjection geosrs:FaheyProjection geosrs:FoucautProjection geosrs:FoucautSinusoidalProjection geosrs:FournierIIProjection geosrs:GinzburgVIIIProjection geosrs:GoodeHomolosineProjection geosrs:HEALPixProjection geosrs:HatanoAsymmetricalEqualAreaProjection geosrs:HufnagelProjection geosrs:Kavrayskiy7Projection geosrs:LoximuthalProjection geosrs:MayrProjection geosrs:McBrydeThomasFlatPolarParabolicProjection geosrs:McBrydeThomasFlatPolarQuarticProjection geosrs:McBrydeThomasFlatPolarSinusoidalProjection geosrs:McBrydeThomasIIProjection geosrs:McBrydeThomasIProjection geosrs:NaturalEarth2Projection geosrs:NaturalEarthProjection geosrs:NellHammerProjection geosrs:NellProjection geosrs:OrteliusOvalProjection geosrs:PseudoCylindricalProjection geosrs:PutninsP1Projection geosrs:PutninsP2Projection geosrs:PutninsP3Projection geosrs:PutninsP5Projection geosrs:PutninsP6Projection geosrs:QuarticAuthalicProjection geosrs:RobinsonProjection geosrs:SinusoidalProjection geosrs:TheTimesProjection geosrs:ToblerG1Projection geosrs:ToblerHyperellipticalProjection geosrs:WagnerIIIProjection geosrs:WagnerIIProjection geosrs:WagnerIProjection geosrs:WagnerIVProjection geosrs:WagnerVIProjection geosrs:WagnerVProjection geosrs:WerenskioldIProjection geosrs:PutninsP3'Projection geosrs:PutninsP4'Projection geosrs:PutninsP5'Projection geosrs:PutninsP6'Projection

A.6.9. Archaic Projections

ABSTRACT TEST A.29

IDENTIFIER /conf/projections/Archaic_Projections

REQUIREMENT Requirement 21: /req/projections/Archaic_Projections

TEST PURPOSE Check conformance with this requirement

ABSTRACT TEST A.29

| | |
|------------------|-------------------------------------------------------------------------------------------------------------------------------|
| TEST METHOD | Verify that queries involving geosrs:ArchaicProjection geosrs:PtolemyIProjection return the correct result on a test dataset. |
| TEST-METHOD-TYPE | Capabilities |
| REFERENCE | geosrs:ArchaicProjection geosrs:PtolemyIProjection |

A.6.10. Cylindrical Projections

ABSTRACT TEST A.30

| | |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /conf/projections/Cylindrical_Projections |
| REQUIREMENT | Requirement 26: /req/projections/Cylindrical_Projections |
| TEST PURPOSE | Check conformance with this requirement |
| TEST METHOD | Verify that queries involving geosrs:ArdenCloseProjection geosrs:BSAMCylindricalProjection geosrs:BalthasartProjection geosrs:BehrmannProjection geosrs:BraunPerspectiveProjection geosrs:BraunStereographicProjection geosrs:CompactMillerProjection geosrs:CylindricalProjection geosrs:CylindricalStereographicProjection geosrs:KarchenkoShabanovaProjection geosrs:LabordeProjection geosrs:MercatorProjection geosrs:MillerProjection geosrs:PattersonCylindricalProjection geosrs:PavlovProjection geosrs:ToblerCylindricalIIIProjection geosrs:ToblerCylindricalIProjection geosrs:TransverseMercatorProjection geosrs:UrmayevIIIProjection geosrs:WebMercatorProjection return the correct result on a test dataset. |
| TEST-METHOD-TYPE | Capabilities |
| REFERENCE | geosrs:ArdenCloseProjection geosrs:BSAMCylindricalProjection geosrs:BalthasartProjection geosrs:BehrmannProjection geosrs:BraunPerspectiveProjection geosrs:BraunStereographicProjection geosrs:CompactMillerProjection geosrs:CylindricalProjection geosrs:CylindricalStereographicProjection geosrs:KarchenkoShabanovaProjection geosrs:LabordeProjection geosrs:MercatorProjection geosrs:MillerProjection geosrs:PattersonCylindricalProjection geosrs:PavlovProjection geosrs:ToblerCylindricalIIIProjection geosrs:ToblerCylindricalIProjection geosrs:TransverseMercatorProjection geosrs:UrmayevIIIProjection geosrs:WebMercatorProjection |

A.6.11. Compromise Projections

ABSTRACT TEST A.31

| | |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /conf/projections/Compromise_Projections |
| REQUIREMENT | Requirement 23: /req/projections/Compromise_Projections |
| TEST PURPOSE | Check conformance with this requirement |
| TEST METHOD | Verify that queries involving geosrs:ArmadilloProjection geosrs:BakerDinomicProjection geosrs:BertinProjection geosrs:ChamberlinTrimetricProjection geosrs:DenoyerSemiEllipticalProjection geosrs:FairgrieveProjection geosrs:LarriveeProjection geosrs:PetermannStarProjection geosrs:SpilhausOceanicProjection geosrs:VanDerGrintenIIIProjection geosrs:WinkelIIIProjection geosrs:WinkelProjection geosrs:WinkelSnyderProjection return the correct result on a test dataset. |
| TEST-METHOD-TYPE | Capabilities |
| REFERENCE | geosrs:ArmadilloProjection geosrs:BakerDinomicProjection geosrs:BertinProjection geosrs:ChamberlinTrimetricProjection geosrs:DenoyerSemiEllipticalProjection geosrs:FairgrieveProjection geosrs:LarriveeProjection geosrs:PetermannStarProjection geosrs:SpilhausOceanicProjection geosrs:VanDerGrintenIIIProjection geosrs:WinkelIIIProjection geosrs:WinkelProjection geosrs:WinkelSnyderProjection |

A.6.12. Polyhedral Projections

ABSTRACT TEST A.32

| | |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /conf/projections/Polyhedral_Projections |
| REQUIREMENT | Requirement 34: /req/projections/Polyhedral_Projections |
| TEST PURPOSE | Check conformance with this requirement |
| TEST METHOD | Verify that queries involving geosrs:AuthaGraphProjection geosrs:CahillKeyesProjection geosrs:CollignonButterflyProjection geosrs:DodecahedralProjection geosrs:DymaxionProjection geosrs:GnomonicButterflyProjection geosrs:GnomonicCubedSphereProjection geosrs:GnomonicIcosahedronProjection geosrs:GuyouProjection geosrs:IcosahedralProjection geosrs:LeeProjection geosrs:MyrahedralProjection geosrs:OctantProjection geosrs:PolyhedralProjection geosrs:QuadrilateralizedSphericalCubeProjection geosrs:WatermanButterflyProjection return the correct result on a test dataset. |
| TEST-METHOD-TYPE | Capabilities |
| REFERENCE | geosrs:AuthaGraphProjection geosrs:CahillKeyesProjection geosrs:CollignonButterflyProjection geosrs:DodecahedralProjection geosrs:DymaxionProjection geosrs:GnomonicButterflyProjection geosrs:GnomonicCubedSphereProjection geosrs:GnomonicIcosahedronProjection geosrs:GuyouProjection |

ABSTRACT TEST A.32

Projection geosrs:IcosahedralProjection geosrs:LeeProjection geosrs:MyrahedalProjection geosrs:
OctantProjection geosrs:PolyhedralProjection geosrs:QuadrilateralizedSphericalCubeProjection
geosrs:WatermanButterflyProjection

A.6.13. Equidistant Projections

ABSTRACT TEST A.33

IDENTIFIER /conf/projections/Equidistant_Projections

REQUIREMENT Requirement 28: /req/projections/Equidistant_Projections

TEST PURPOSE Check conformance with this requirement

TEST METHOD Verify that queries involving geosrs:AzimuthalEquidistantProjection geosrs:BerghausStar
Projection geosrs:CassiniProjection geosrs:EquidistantConicProjection geosrs:Equidistant
CylindricalProjection geosrs:EquidistantProjection geosrs:EquirectangularProjection geosrs:
ObliquePlateCarreeProjection geosrs:PlateCarreeProjection geosrs:TwoPointEquidistant
Projection return the correct result on a test dataset.

**TEST-METHOD-
TYPE** Capabilities

REFERENCE geosrs:AzimuthalEquidistantProjection geosrs:BerghausStarProjection geosrs:CassiniProjection
geosrs:EquidistantConicProjection geosrs:EquidistantCylindricalProjection geosrs:Equidistant
Projection geosrs:EquirectangularProjection geosrs:ObliquePlateCarreeProjection geosrs:Plate
CarreeProjection geosrs:TwoPointEquidistantProjection

A.6.14. Azimuthal Projections

ABSTRACT TEST A.34

IDENTIFIER /conf/projections/Azimuthal_Projections

REQUIREMENT Requirement 22: /req/projections/Azimuthal_Projections

TEST PURPOSE Check conformance with this requirement

TEST METHOD Verify that queries involving geosrs:AzimuthalProjection geosrs:BreusingGeometricProjection
geosrs:BreusingHarmonicProjection geosrs:GinzburgIIProjection geosrs:GinzburgIProjection
geosrs:GnomonicProjection geosrs:JamesAzimuthalProjection return the correct result on a test
dataset.

ABSTRACT TEST A.34

| | |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TEST-METHOD-TYPE | Capabilities |
| REFERENCE | geosrs:AzimuthalProjection geosrs:BreusingGeometricProjection geosrs:BreusingHarmonicProjection geosrs:GinzburgIIProjection geosrs:GinzburgIProjection geosrs:GnomonicProjection geosrs:JamesAzimuthalProjection |

A.6.15. Conical Projections

ABSTRACT TEST A.35

| | |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /conf/projections/Conical_Projections |
| REQUIREMENT | Requirement 25: /req/projections/Conical_Projections |
| TEST PURPOSE | Check conformance with this requirement |
| TEST METHOD | Verify that queries involving geosrs:BipolarObliqueConicConformalProjection geosrs:CentralConicProjection geosrs:HerschelConformalConicProjection geosrs:Krovak geosrs:LambertConformalConicProjection geosrs:MurdochIIIProjection geosrs:MurdochIIProjection geosrs:MurdochIProjection geosrs:SchjerningIProjection geosrs:VitkovskyIProjection return the correct result on a test dataset. |
| TEST-METHOD-TYPE | Capabilities |
| REFERENCE | geosrs:BipolarObliqueConicConformalProjection geosrs:CentralConicProjection geosrs:HerschelConformalConicProjection geosrs:Krovak geosrs:LambertConformalConicProjection geosrs:MurdochIIIProjection geosrs:MurdochIIProjection geosrs:MurdochIProjection geosrs:SchjerningIProjection geosrs:VitkovskyIProjection |

A.6.16. Perspective Projections

ABSTRACT TEST A.36

| | |
|--------------|----------------------------------------------------------|
| IDENTIFIER | /conf/projections/Perspective_Projections |
| REQUIREMENT | Requirement 32: /req/projections/Perspective_Projections |
| TEST PURPOSE | Check conformance with this requirement |

ABSTRACT TEST A.36

| | |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TEST METHOD | Verify that queries involving geosrs:CentralCylindricalProjection geosrs:GeneralVerticalPerspectiveProjection geosrs:GilbertTwoWorldPerspectiveProjection geosrs:LaHireProjection geosrs:LorgnaProjection geosrs:LowryProjection geosrs:OrthographicProjection geosrs:PerspectiveConicProjection geosrs:PerspectiveProjection geosrs:TiltedPerspectiveProjection geosrs:VerticalPerspectiveProjection return the correct result on a test dataset. |
| TEST-METHOD-TYPE | Capabilities |
| REFERENCE | geosrs:CentralCylindricalProjection geosrs:GeneralVerticalPerspectiveProjection geosrs:GilbertTwoWorldPerspectiveProjection geosrs:LaHireProjection geosrs:LorgnaProjection geosrs:LowryProjection geosrs:OrthographicProjection geosrs:PerspectiveConicProjection geosrs:PerspectiveProjection geosrs:TiltedPerspectiveProjection geosrs:VerticalPerspectiveProjection |

A.6.17. Stereographic Projections

ABSTRACT TEST A.37

| | |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /conf/projections/Stereographic_Projections |
| REQUIREMENT | Requirement 39: /req/projections/Stereographic_Projections |
| TEST PURPOSE | Check conformance with this requirement |
| TEST METHOD | Verify that queries involving geosrs:GallStereographicProjection geosrs:MillerOblatedStereographicProjection geosrs:RoussilheProjection return the correct result on a test dataset. |
| TEST-METHOD-TYPE | Capabilities |
| REFERENCE | geosrs:GallStereographicProjection geosrs:MillerOblatedStereographicProjection geosrs:RoussilheProjection |

A.6.18. Polyconic Projections

ABSTRACT TEST A.38

| | |
|--------------|--------------------------------------------------------|
| IDENTIFIER | /conf/projections/Polyconic_Projections |
| REQUIREMENT | Requirement 33: /req/projections/Polyconic_Projections |
| TEST PURPOSE | Check conformance with this requirement |

ABSTRACT TEST A.38

| | |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TEST METHOD | Verify that queries involving geosrs:GinzburgIVProjection geosrs:GinzburgIXProjection geosrs:GinzburgVIProjection geosrs:GinzburgVProjection geosrs:GottWagnerProjection geosrs:HillEucyclicProjection geosrs:LagrangeProjection geosrs:LaskowskiProjection geosrs:PolyconicProjection geosrs:RectangularPolyconicProjection geosrs:StabiusWernerIIIProjection geosrs:StabiusWernerIProjection geosrs:VanDerGrintenIIProjection geosrs:VanDerGrintenIProjection geosrs:VanDerGrintenIVProjection geosrs:WagnerIXProjection geosrs:WagnerVIIIProjection geosrs:WagnerVIIProjection return the correct result on a test dataset. |
| TEST-METHOD-TYPE | Capabilities |
| REFERENCE | geosrs:GinzburgIVProjection geosrs:GinzburgIXProjection geosrs:GinzburgVIProjection geosrs:GinzburgVProjection geosrs:GottWagnerProjection geosrs:HillEucyclicProjection geosrs:LagrangeProjection geosrs:LaskowskiProjection geosrs:PolyconicProjection geosrs:RectangularPolyconicProjection geosrs:StabiusWernerIIIProjection geosrs:StabiusWernerIProjection geosrs:VanDerGrintenIIProjection geosrs:VanDerGrintenIProjection geosrs:VanDerGrintenIVProjection geosrs:WagnerIXProjection geosrs:WagnerVIIIProjection geosrs:WagnerVIIProjection |

A.6.19. Projection

ABSTRACT TEST A.39

| | |
|------------------|----------------------------------------------------------------------------------------------|
| IDENTIFIER | /conf/projections/Projection |
| REQUIREMENT | Requirement 35: /req/projections/Projection |
| TEST PURPOSE | Check conformance with this requirement |
| TEST METHOD | Verify that queries involving geosrs:Projection return the correct result on a test dataset. |
| TEST-METHOD-TYPE | Capabilities |
| REFERENCE | geosrs:Projection |

A.7. Conformance Class: Planet

CONFORMANCE CLASS A.7: 12-PLANET_MODULE.ADOC

| | |
|--------------------|----------------------------------------------------|
| IDENTIFIER | /conf/planet |
| REQUIREMENTS CLASS | Requirements class 7: /req/planet |
| CONFORMANCE TEST | Abstract test A.40: /conf/planet/Interstellar_Body |

A.7.1. Interstellar Body

ABSTRACT TEST A.40

| | |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /conf/planet/Interstellar_Body |
| REQUIREMENT | Requirement 40: /req/planet/Interstellar_Body |
| TEST PURPOSE | Check conformance with this requirement |
| TEST METHOD | Verify that queries involving geosrs:ArtificialSatellite geosrs:Asteroid geosrs:Comet geosrs:Dwarf Planet geosrs:InterstellarBody geosrs:Moon geosrs:NaturalSatellite geosrs:Planet geosrs:Planet Status geosrs:PlutoId geosrs:Star geosrs:Satellite return the correct result on a test dataset. |
| TEST-METHOD-TYPE | Capabilities |
| REFERENCE | geosrs:ArtificialSatellite geosrs:Asteroid geosrs:Comet geosrs:DwarfPlanet geosrs:Interstellar Body geosrs:Moon geosrs:NaturalSatellite geosrs:Planet geosrs:PlanetStatus geosrs:PlutoId geosrs:Star geosrs:Satellite |

A.8. Conformance Class: Instances

CONFORMANCE CLASS A.8: 13-INSTANCES.ADOC

| | |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /conf/instances |
| REQUIREMENTS CLASS | Requirements class 8: /req/instances |
| CONFORMANCE TESTS | Abstract test A.41: /conf/instances/Coordinate_System_Axis Abstract test A.42: /conf/instances/Spheroids Abstract test A.43: /conf/instances/SRS_Literal_Types |

A.8.1. Coordinate System Axis

ABSTRACT TEST A.41

| | |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /conf/instances/Coordinate_System_Axis |
| REQUIREMENT | Requirement 41: /req/instances/Coordinate_System_Axis |
| TEST PURPOSE | Check conformance with this requirement |
| TEST METHOD | Verify that queries involving geosrs:Down geosrs:East geosrs:North geosrs:South geosrs:Up geosrs:West return the correct result on a test dataset. |
| TEST-METHOD-TYPE | Capabilities |
| REFERENCE | geosrs:Down geosrs:East geosrs:North geosrs:South geosrs:Up geosrs:West |

A.8.2. Spheroids

ABSTRACT TEST A.42

| | |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /conf/instances/Spheroids |
| REQUIREMENT | Requirement 43: /req/instances/Spheroids |
| TEST PURPOSE | Check conformance with this requirement |
| TEST METHOD | Verify that queries involving geosrs:GRS1980 geosrs:GRS67 geosrs:PZ90 geosrs:Airy1830 geosrs:AiryModified1849 geosrs:International1924 geosrs:AustralianNationalSpheroid geosrs:Everest1930 geosrs:Clarke1866 geosrs:Plessis1817 geosrs:Danish1876 geosrs:Struve1860 geosrs:IAG1975 geosrs:Clarke1858 geosrs:Clarke1880 geosrs:Helmert1906 geosrs:CGCS2000 geosrs:GSK-2011 geosrs:Zach1812 geosrs:Clarke1880ARC geosrs:Clarke1880IGN geosrs:WGS66 geosrs:WGS72 geosrs:WGS84 geosrs:Krassowsky1940 return the correct result on a test dataset. |
| TEST-METHOD-TYPE | Capabilities |
| REFERENCE | geosrs:GRS1980 geosrs:GRS67 geosrs:PZ90 geosrs:Airy1830 geosrs:AiryModified1849 geosrs:International1924 geosrs:AustralianNationalSpheroid geosrs:Everest1930 geosrs:Clarke1866 geosrs:Plessis1817 geosrs:Danish1876 geosrs:Struve1860 geosrs:IAG1975 geosrs:Clarke1858 geosrs:Clarke1880 geosrs:Helmert1906 geosrs:CGCS2000 geosrs:GSK-2011 geosrs:Zach1812 |

ABSTRACT TEST A.42

geosrs:Clarke1880ARC geosrs:Clarke1880IGN geosrs:WGS66 geosrs:WGS72 geosrs:WGS84
geosrs:Krassowsky1940

A.8.3. SRS Literal Types

ABSTRACT TEST A.43

| | |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| IDENTIFIER | /conf/instances/SRS_Literal_Types |
| REQUIREMENT | Requirement 42: /req/instances/SRS_Literal_Types |
| TEST PURPOSE | Check conformance with this requirement |
| TEST METHOD | Verify that queries involving geosrs:proj4Literal geosrs:projJSONLiteral geosrs:wktLiteral return the correct result on a test dataset. |
| TEST-METHOD-TYPE | Capabilities |
| REFERENCE | geosrs:proj4Literal geosrs:projJSONLiteral geosrs:wktLiteral |



B

ANNEX B (INFORMATIVE) ALIGNMENTS

B

ANNEX B (INFORMATIVE) ALIGNMENTS

Overview

The prefixes used for the ontologies mapped to in all following sections are given in the following table.

Table B.1 – Alignment: Namespaces

| | |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ign: | http://data.ign.fr/def/ignf# |
| iso19111: | http://def.isotc211.org/iso19112/2019/SpatialReferencingByGeographicIdentifier# |
| geosrs: | http://www.opengis.net/ont/geosparql# |
| ifc: | https://standards.buildingsmart.org/IFC/DEV/IFC4/ADD2_TC1/OWL/ |
| owl: | http://www.w3.org/2002/07/owl# |
| prov: | http://www.w3.org/ns/prov# |
| rdf: | http://www.w3.org/1999/02/22-rdf-syntax-ns# |
| rdfs: | http://www.w3.org/2000/01/rdf-schema# |

B.1. IGN Ontology

Table B.2 – Alignment: IGN Ontology

| FROM ELEMENT | MAPPING RELATION | TO ELEMENT | NOTES |
|----------------------------------------------------|-------------------------------------|---------------------------------------------|-------|
| geosrs:CoordinateSystem | owl:equivalentClass | ign:CoordinateSystem | - |
| geosrs:Datum | owl:equivalentClass | ign:Datum | - |
| geosrs:Ellipsoid | owl:equivalentClass | ign:Ellipsoid | - |
| geosrs:Conversion | owl:equivalentClass | ign:Conversion | - |
| geosrs:CoordinateOperation | owl:equivalentClass | ign:CoordinateOperation | - |
| geosrs:OperationMethod | owl:equivalentClass | ign:OperationMethod | - |
| geosrs:OperationParameter | owl:equivalentClass | ign:OperationParameter | - |
| geosrs:OperationParameterValue | owl:equivalentClass | ign:OperationParameterValue | - |
| geosrs:SingleOperation | owl:equivalentClass | ign:SingleOperation | - |
| geosrs:Transformation | owl:equivalentClass | ign:Transformation | - |
| geosrs:CartesianCoordinateSystem | owl:equivalentClass | ign:CartesianCS | - |
| geosrs:CoordinateSystem | owl:equivalentClass | ign:CoordinateSystem | - |
| geosrs:CoordinateSystemAxis | owl:equivalentClass | ign:CoordinateSystemAxis | - |
| geosrs:EllipsoidalCoordinateSystem | owl:equivalentClass | ign:EllipsoidalCS | - |
| geosrs:VerticalCoordinateSystem | owl:equivalentClass | ign:VerticalCS | - |
| geosrs:Datum | owl:equivalentClass | ign:Datum | - |
| geosrs:Ellipsoid | owl:equivalentClass | ign:Ellipsoid | - |
| geosrs:GeodeticDatum | owl:equivalentClass | ign:GeodeticDatum | - |
| geosrs:PrimeMeridian | owl:equivalentClass | ign:PrimeMeridian | - |
| geosrs:VerticalDatum | owl:equivalentClass | ign:VerticalDatum | - |
| geosrs:AxesList | owl:equivalentClass | ign:AxesList | - |

| FROM ELEMENT | MAPPING RELATION | TO ELEMENT | NOTES |
|----------------------------------------------|-------------------------------------|-------------------------------------------|-------|
| geosrs:CRS | owl:equivalentClass | ign:CRS | - |
| geosrs:CompoundCRS | owl:equivalentClass | ign:CompoundCRS | - |
| geosrs:Extent | owl:equivalentClass | ign:Extent | - |
| geosrs:GeodeticCRS | owl:equivalentClass | ign:GeodeticCRS | - |
| geosrs:GeographicBoundingBox | owl:equivalentClass | ign:GeographicBoundingBox | - |
| geosrs:ProjectedCRS | owl:equivalentClass | ign:ProjectedCRS | - |
| geosrs:SingleCRS | owl:equivalentClass | ign:SingleCRS | - |
| geosrs:SingleCRSList | owl:equivalentClass | ign:SingleCRSList | - |
| geosrs:VerticalCRS | owl:equivalentClass | ign:VerticalCRS | - |

B.2. ISO19111 Ontology

Table B.3 – Alignment: ISO19111 Ontology

| FROM ELEMENT | MAPPING RELATION | TO ELEMENT | NOTES |
|-----------------------------------------|-------------------------------------|-------------------------------------------|-------|
| geosrs:CoordinateSystem | owl:equivalentClass | iso19111:CoordinateSystem | - |
| geosrs:Datum | owl:equivalentClass | iso19111:Datum | - |
| geosrs:Ellipsoid | owl:equivalentClass | iso19111:Ellipsoid | - |
| geosrs:CRS | owl:equivalentClass | iso19111:CRS | - |
| geosrs:CompoundCRS | owl:equivalentClass | iso19111:CompoundCRS | - |
| geosrs:EngineeringCRS | owl:equivalentClass | iso19111:EngineeringCRS | - |
| geosrs:GeodeticCRS | owl:equivalentClass | iso19111:GeodeticCRS | - |

| FROM ELEMENT | MAPPING RELATION | TO ELEMENT | NOTES |
|--------------------------------------|-------------------------------------|----------------------------------------|-------|
| geosrs:GeographicCRS | owl:equivalentClass | iso19111:GeographicCRS | - |
| geosrs:ParametricCRS | owl:equivalentClass | iso19111:ParametricCRS | - |
| geosrs:ProjectedCRS | owl:equivalentClass | iso19111:ProjectedCRS | - |
| geosrs:SingleCRS | owl:equivalentClass | iso19111:SingleCRS | - |
| geosrs:TemporalCRS | owl:equivalentClass | iso19111:TemporalCRS | - |
| geosrs:VerticalCRS | owl:equivalentClass | iso19111:VerticalCRS | - |

B.3. IFC Ontology

Table B.4 – Alignment: IFC Ontology

| FROM ELEMENT | MAPPING RELATION | TO ELEMENT | NOTES |
|--------------------------------------------|----------------------------------------|-------------------------------------------------|-------|
| geosrs:AxisDirection | owl:equivalentClass | ifcIfcDirection | - |
| geosrs:CRS | owl:equivalentClass | ifcIfcCoordinateReferenceSystem | - |
| geosrs:CoordinateOperation | owl:equivalentClass | ifcIfcCoordinateOperation | - |
| geosrs:ProjectedCRS | owl:equivalentClass | ifcIfcProjectedCRS | - |
| geosrs:axis | owl:equivalentProperty | ifcaxis_ifcAxis1Placement | - |
| geosrs:sourceCRS | owl:equivalentProperty | ifcsourceCRS | - |
| geosrs:targetCRS | owl:equivalentProperty | ifctargetCRS | - |

C

ANNEX C (INFORMATIVE) SHACL SHAPES

C

ANNEX C (INFORMATIVE) SHACL SHAPES

This section introduces SHACL shapes which can be used to verify graphs encoded using the vocabulary defined in this specification.

Overview

SHACL shapes in this specification are subdivided by the same module designations as used previously. In order to verify a graph a single validation file of SHACL shapes is provided alongside this specification.

C.1. SHACL Shapes: Core

Table C.1 – Core

| LABEL | TARGETNODE | PROPERTY | CLASS | MINCOUNT | MAXCOUNT | COMMENT |
|----------|------------|-------------------------|-------------------------|----------|----------|-------------------------------------------------------------------------|
| Shape S1 | geosrs:CRS | geosrs:coordinateSystem | geosrs:CoordinateSystem | 1 | 1 | A coordinate reference system should have exactly one coordinate system |
| Shape S2 | geosrs:CRS | geosrs:domainOfValidity | geosrs:AreaOfUse | 1 | - | A coordinate reference system should have at least one area of use |
| Shape S3 | geosrs:CRS | geosrs:datum | geosrs:Datum | - | 1 | A coordinate reference |

| LABEL | TARGETNODE | PROPERTY | CLASS | MINCOUNT | MAXCOUNT | COMMENT |
|-------------|--------------------------|-----------------------------|----------------------------------------|----------|----------|----------------------------------------------------------------------------------------------------------------------------------------|
| | | | | | | system should have exactly one datum |
| Shape S4 | geosrs:CRS | geosrs:datum Ensemble | geosrs:DatumEnsemble | - | 1 | A coordinate reference system may have exactly one datum ensemble |
| Shape S5 | geosrs: CompoundCRS | geosrs:includes SRS | geosrs:SingleCRS | 1 | - | A compound coordinate reference system should consist of at least one single coordinate reference system |
| Shape S6 | geosrs: GeodeticCRS | geosrs:coordinate System | geosrs:GeodeticCoordinate System | 1 | 1 | A geodetic coordinate reference system should have exactly one geodetic coordinate system |
| Shape S7 | geosrs: GeographicCRS | geosrs:datum | geosrs:GeodeticDatum | 1 | 1 | A geographic coordinate reference system should have exactly one geodetic datum |
| Shape S8 | geosrs: GeographicCRS | geosrs:coordinate System | geosrs:EllipsoidalCoordinate System | 1 | 1 | A geographic coordinate reference system should have |

| LABEL | TARGETNODE | PROPERTY | CLASS | MINCOUNT | MAXCOUNT | COMMENT |
|-----------|-----------------------|--------------------------|-------------------------|----------|----------|-----------------------------------------------------------------------------------|
| | | | | | | exactly one ellipsoidal coordinate system |
| Shape S9 | geosrs: ParametricCRS | geosrs:datum | geosrs:ParametricDatum | 1 | 1 | A parametric coordinate reference system should have exactly one parametric datum |
| Shape S10 | geosrs: ProjectedCRS | geosrs:conversion | geosrs:Conversion | 1 | - | A projected coordinate reference system should have at least one conversion |
| Shape S11 | geosrs:Single CRS | geosrs:coordinate System | geosrs:CoordinateSystem | 1 | 1 | A single coordinate reference system should have exactly one coordinate system |
| Shape S12 | geosrs:Single CRS | geosrs:datum | geosrs:Datum | 1 | 1 | A single coordinate reference system should have exactly one datum |
| Shape S13 | geosrs: TemporalCRS | geosrs:datum | geosrs:TemporalDatum | 1 | 1 | A projected coordinate reference system should have exactly one temporal datum |

C.2. SHACL Shapes: Datum

Table C.2 – Datum

| LABEL | TARGETNODE | PROPERTY | CLASS | MINCOUNT | MAXCOUNT | COMMENT |
|----------|-------------------------|---------------------------|---------------------------|----------|----------|----------------------------------------------------------------|
| Shape S1 | geosrs:Parametric Datum | geosrs:defining Parameter | geosrs:Defining Parameter | 1 | - | A parametric datum should have at least one defining parameter |

C.3. SHACL Shapes: Cs

Table C.3 – Cs

| LABEL | TARGETNODE | PROPERTY | CLASS | MINCOUNT | MAXCOUNT | COM |
|----------|--------------------------------|-------------|------------------------------|----------|----------|--------------------------------------------------------|
| Shape S1 | geosrs:1DCoordinateSystem | geosrs:axis | geosrs:Coordinate SystemAxis | 1 | 1 | A 1D coordinate system should have exactly one axis |
| Shape S2 | geosrs:3DCoordinateSystem | geosrs:axis | geosrs:Coordinate SystemAxis | 3 | - | A 3D coordinate system should have at least three axes |
| Shape S3 | geosrs:ConicalCoordinateSystem | geosrs:axis | geosrs:Coordinate SystemAxis | 3 | - | A conical coordinate system |

| LABEL | TARGETNODE | PROPERTY | CLASS | MINCOUNT | MAXCOUNT | COM |
|----------|------------------------------------|----------------------|-----------------------------|----------|----------|-------------------------------------------------------------------------------------------------------------|
| Shape S4 | geosrs:CoordinateSystem | geosrs:axis | geosrs:CoordinateSystemAxis | 1 | - | should have at least three axes |
| Shape S5 | geosrs:CoordinateSystemAxis | geosrs:axisDirection | geosrs:AxisDirection | 1 | 1 | A coordinate system should have at least one axis |
| Shape S6 | geosrs:CurvilinearCoordinateSystem | geosrs:axis | geosrs:CoordinateSystemAxis | 3 | - | A curvilinear coordinate system is defined in Euclidean space and should therefore have at least three axes |
| Shape S7 | geosrs:CylindricalCoordinateSystem | geosrs:axis | geosrs:CoordinateSystemAxis | 3 | - | A cylindrical coordinate |

| LABEL | TARGETNODE | PROPERTY | CLASS | MINCOUNT | MAXCOUNT | COM |
|-----------|-----------------------------------------|-------------|-----------------------------|----------|----------|---------------------------------------------------------------------------------------------------|
| | | | | | | system should have at least three axes |
| Shape S8 | geosrs:DateTimeTemporalCoordinateSystem | geosrs:axis | geosrs:CoordinateSystemAxis | 1 | 1 | A date time temporal coordinate system should have exactly one axis |
| Shape S9 | geosrs:PlanarCoordinateSystem | geosrs:axis | geosrs:CoordinateSystemAxis | 2 | - | A planar coordinate system should have at least two axes |
| Shape S10 | geosrs:TemporalCoordinateSystem | geosrs:axis | geosrs:CoordinateSystemAxis | 1 | 1 | A temporal coordinate system should have exactly one axis |
| Shape S11 | geosrs:TemporalCountCoordinateSystem | geosrs:axis | geosrs:CoordinateSystemAxis | 1 | 1 | A temporal count coordinate system should have exactly |

| PROPERTY | CLASS | MINCOUNT | MAXCOUNT | COM |
|----------|----------------------------------|-------------|-------------------|----------------------------------------------------------------------------------------------|
| LABEL | TARGETNODE | | | |
| Shape | geosrs:TemporalMeasureCoordinate | | | one axis |
| S12 | System | geosrs:axis | geosrs:Coordinate | A temporal measure coordinate system should have exactly one axis |



D

ANNEX D (INFORMATIVE) APPLICATION EXAMPLES

D

ANNEX D (INFORMATIVE) APPLICATION EXAMPLES

Overview

D.1. Minimum Example

D.2. Elaborate Example



E

ANNEX E (INFORMATIVE) JSON-LD CONTEXT

ANNEX E (INFORMATIVE) JSON-LD CONTEXT

We provide JSON-LD contexts to be compatible with other JSON-based formats which provide coordinate reference system data.

Overview

E.1. Compatibility to PROJJSON

PROJJSON is an established format to share geospatial data which has emerge from the PROJ library and encodes the WKT encoding of coordinate references systems. By adding a JSON-LD context to the PROJJSON standard we achieve an immediate compatibility with an established standard simply by extending it by one simple statement.

```
{  
  "@context": "https://opengeo spatial.github.io/ontology-crs/context/geosrs-  
  context.json",  
  "$schema": "https://proj.org/schemas/v0.7/projjson.schema.json",  
  ...  
}
```

Listing E.1

We provide examples of application of this JSON-LD context with the distribution of this standard.

E.2. Compatibility to OGCJSON

The OGC CRS working group is aiming towards the creation of their own JSON format for CRS. The JSON-LD context we provide aims to be compatible with both PROJJSON and OGCJSON.



F

ANNEX F (INFORMATIVE) REVISION HISTORY

F

ANNEX F (INFORMATIVE) REVISION HISTORY

| DATE | RELEASE | AUTHOR | PRIMARY CLAUSES MODIFIED | DESCRIPTION |
|------------|---------|-----------|--------------------------|-----------------|
| 2016-04-28 | 0.1 | G. Editor | all | initial version |



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