

E DIN EN ISO 19156:2022-02 (E)

Erscheinungsdatum: 2022-01-14

Geographic information - Observations, measurements and samples (ISO/DIS 19156:2022); English version prEN ISO 19156:2022

Contents

	Page
Foreword	ix
Introduction	x
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Document conventions	4
4.1 Abbreviated terms and acronyms	4
4.2 Schema language	5
4.3 Model element names	5
4.4 Requirements and recommendations	5
4.5 Requirements classes	6
4.6 Conformance classes	7
4.7 Identifiers	7
5 Conformance	8
5.1 Overview	8
5.2 Conformance classes related to models including Observations, Measurements and Samples	8
6 Packaging, requirements and dependencies	10
6.1 Requirements	10
6.2 UML	11
6.2.1 UML package structure	11
6.2.2 UML package dependencies	12
6.3 Note on the use of Any	13
7 Fundamental characteristics of observations and samples (informative)	14
7.1 Observation schema	14
7.1.1 Property evaluation	14
7.1.2 Observation	14
7.1.3 Properties of an Observation	14
7.1.4 Observation location	15
7.1.5 Result types	16
7.1.6 Use of the observation model	16
7.2 Sample schema	16
7.2.1 Role of sample features	16
7.2.2 Proximate vs. ultimate feature-of-interest	16
7.2.3 Role of Sample	18
7.2.4 Sampling process	18
7.2.5 Classification of samples	19
7.3 Alignment between Observation, Sample and domain models	19
7.3.1 Model consistency	19
7.3.2 Relationship between Sample and domain features	21
8 Conceptual Observation schema	24
8.1 General	24
8.1.1 Conceptual Observation model	24
8.1.2 Conceptual Observation schema package Requirements Class	25
8.1.3 Association relatedObservation	25
8.2 Observation	25

8.2.1	Observation Requirements Class	25
8.2.2	Interface Observation.....	26
8.2.3	Attribute phenomenonTime.....	26
8.2.4	Attribute resultTime.....	27
8.2.5	Attribute validTime	27
8.2.6	Association featureOfInterest.....	28
8.2.7	Association observedProperty.....	28
8.2.8	Association result.....	28
8.2.9	Association observingProcedure	29
8.2.10	Association observer	29
8.2.11	Association host	29
8.2.12	Constraint Observer or Host.....	29
8.2.13	Constraint ObservableProperty characteristic associated with featureOfInterest.....	29
8.2.14	Constraint suitable ObservableProperty	29
8.2.15	Constraint suitable result type.....	29
8.2.16	Constraint unit of measure	30
8.3	ObservableProperty	30
8.3.1	ObservableProperty Requirements Class	30
8.3.2	Interface ObservableProperty	30
8.3.3	Association observer	30
8.4	Procedure.....	31
8.4.1	Procedure Requirements Class	31
8.4.2	Interface Procedure.....	31
8.5	ObservingProcedure	31
8.5.1	ObservingProcedure Requirements Class	31
8.5.2	Interface ObservingProcedure	31
8.5.3	Association observer	32
8.6	Observer	32
8.6.1	Observer Requirements Class	32
8.6.2	Interface Observer	32
8.6.3	Association observableProperty.....	33
8.6.4	Association observingProcedure	33
8.6.5	Association deployment.....	33
8.7	Host.....	33
8.7.1	Host Requirements Class	33
8.7.2	Interface Host.....	33
8.7.3	Association deployment	34
8.7.4	Association relatedHost	34
8.8	Deployment.....	34
8.8.1	Deployment Requirements Class	34
8.8.2	Interface Deployment	34
8.8.3	Association observer	34
8.8.4	Association host	34
Abstract Observation Core	35	
9.1	General.....	35
9.1.1	Abstract Observation Core Package Requirements Class	35
9.1.2	Association metadata	35
9.2	AbstractObservationCharacteristics.....	35
9.2.1	AbstractObservationCharacteristics Requirements Class	35
9.2.2	Feature type AbstractObservationCharacteristics	37
9.2.3	Attribute observationType	37
9.2.4	Attribute parameter	37
9.2.5	Attribute resultQuality	37
9.2.6	Association proximateFeatureOfInterest	38
9.2.7	Association ultimateFeatureOfInterest	38
9.3	AbstractObservation.....	39
9.3.1	AbstractObservation Requirements Class	39
9.3.2	Constraint observationType	39
9.3.3	Constraint resultTime instant	39
9.3.4	Constraint parameter unique name	40
9.3.5	Constraint proximate or ultimate featureOfInterest	40
9.3.6	Constraint Observer or Host	40

9.3.7	Constraint ObservableProperty characteristic associated with featureOfInterest.....	40
9.3.8	Constraint suitable ObservableProperty	40
9.3.9	Constraint suitable result type.....	40
9.4	AbstractObservableProperty	40
9.4.1	AbstractObservableProperty Requirements Class	40
9.5	AbstractObservingProcedure.....	41
9.5.1	AbstractObservingProcedure Requirements Class	41
9.6	AbstractObserver.....	42
9.6.1	AbstractObserver Requirements Class	42
9.7	AbstractHost	43
9.7.1	AbstractHost Requirements Class	43
9.8	AbstractDeployment	44
9.8.1	AbstractDeployment Requirements Class	44
9.8.2	Attribute deploymentReason	44
9.8.3	Attribute deploymentTime	45
9.9	NamedValue	45
9.9.1	NamedValue Requirements Class	45
9.9.2	Data type NamedValue	45
9.9.3	Attribute name	45
9.9.4	Attribute value	45
9.10	Codelists	46
9.10.1	AbstractObservationType	46
Basic Observations	46
10.1	General	46
10.1.1	Basic Observations Package Requirements Class	46
10.1.2	Attribute link	46
10.1.3	Attribute location	46
10.2	Observation	47
10.2.1	Observation Requirements Class	47
10.3	ObservationCharacteristics	48
10.3.1	ObservationCharacteristics Requirements Class	48
10.3.2	Association collection	48
10.4	ObservationCollection	48
10.4.1	ObservationCollection Requirements Class	48
10.4.2	Feature type ObservationCollection	48
10.4.3	Attribute collectionType	48
10.4.4	Association member	49
10.4.5	Association memberCharacteristics	49
10.4.6	Association relatedCollection	49
10.5	ObservingCapability	49
10.5.1	ObservingCapability Requirements Class	49
10.5.2	Feature type ObservingCapability	50
10.6	ObservableProperty	51
10.6.1	ObservableProperty Requirements Class	51
10.7	ObservingProcedure	52
10.7.1	ObservingProcedure Requirements Class	52
10.8	Observer	53
10.8.1	Observer Requirements Class	53
10.9	Host	54
10.9.1	Host Requirements Class	54
10.10	Deployment	55
10.10.1	Deployment Requirements Class	55
10.11	GenericDomainFeature	56
10.11.1	GenericDomainFeature Requirements Class	56
10.11.2 Feature type GenericDomainFeature	57
10.12	Codelists	57

10.12.1	AbstractObservationCollectionType	57
10.12.2	ObservationCollectionType	58
10.12.3	ObservationTypeByResultType	60
11	Conceptual Sample schema	61
11.1	General	61
11.1.1	Conceptual Sample schema model	61
11.1.2	Conceptual Sample Schema Package Requirements Class	62
11.2	Sample	62
11.2.1	Sample Requirements Class	62
11.2.2	Interface Sample	62
11.2.3	Association sampling	63
11.2.4	Association preparationStep	63
11.2.5	Association sampledFeature	63
11.2.6	Association relatedSample	63
11.3	Sampling	63
11.3.1	Sampling Requirements Class	63
11.3.2	Interface Sampling	64
11.3.3	Association sample	64
11.3.4	Association featureOfInterest	64
11.3.5	Association sampler	64
11.3.6	Association samplingProcedure	65
11.3.7	Association relatedSampling	65
11.4	Sampler	65
11.4.1	Sampler Requirements Class	65
11.4.2	Interface Sampler	65
11.4.3	Association sampling	66
11.4.4	Association implementedProcedure	66
11.5	PreparationStep	66
11.5.1	PreparationStep Requirements Class	66
11.5.2	Interface PreparationStep	66
11.5.3	Association processingDetails	66
11.5.4	Association preparedSample	66
11.6	PreparationProcedure	66
11.6.1	PreparationProcedure Requirements Class	66
11.6.2	Interface PreparationProcedure	67
11.6.3	Association samplePreparationStep	67
11.7	SamplingProcedure	67
11.7.1	SamplingProcedure Requirements Class	67
11.7.2	Interface SamplingProcedure	67
11.7.3	Association sampling	67
11.7.4	Association sampler	67
12	Abstract Sample Core	68
12.1	General	68
12.1.1	Abstract Sample Core Package Requirements	68
12.2	AbstractSample	68
12.2.1	AbstractSample Requirements Class	68
12.2.2	Attribute sampleType	69
12.2.3	Attribute parameter	69
12.3	AbstractSampling	69
12.3.1	AbstractSampling Requirements Class	69
12.3.2	Attribute samplingLocation	70
12.3.3	Attribute time	71
12.3.4	Attribute parameter	71
12.4	AbstractSampler	71

12.4.1	AbstractSampler Requirements Class	71
12.4.2	Attribute samplerType	72
12.5	AbstractSamplingProcedure	72
12.5.1	AbstractSamplingProcedure Requirements Class	72
12.6	AbstractPreparationProcedure	73
12.6.1	AbstractPreparationProcedure Requirements Class	73
12.7	AbstractPreparationStep	74
12.7.1	AbstractPreparationStep Requirements Class	74
12.7.2	Attribute description	74
12.7.3	Attribute time	75
12.8	Codelists	75
12.8.1	AbstractSampleType	75
12.8.2	AbstractSamplerType	75
13	Basic Samples	75
13.1	General	75
13.1.1	Basic Samples Package Requirements Class	75
13.2	Sample	76
13.2.1	Sample Requirements Class	76
13.3	SpatialSample	77
13.3.1	SpatialSample Requirements Class	77
13.3.2	Feature type SpatialSample	77
13.3.3	Attribute shape	77
13.3.4	Attribute horizontalPositionalAccuracy	77
13.3.5	Attribute verticalPositionalAccuracy	78
13.4	MaterialSample	78
13.4.1	MaterialSample Requirements Class	78
13.4.2	Feature type MaterialSample	78
13.4.3	Attribute size	78
13.4.4	Attribute storageLocation	79
13.4.5	Attribute sourceLocation	79
13.5	StatisticalSample	79
13.5.1	StatisticalSample Requirements Class	79
13.5.2	Feature type StatisticalSample	79
13.5.3	Attribute classification	80
13.6	Sampling	80
13.6.1	Sampling Requirements Class	80
13.7	Sampler	81
13.7.1	Sampler Requirements Class	81
13.8	SamplingProcedure	81
13.8.1	SamplingProcedure Requirements Class	81
13.9	PreparationProcedure	82
13.9.1	PreparationProcedure Requirements Class	82
13.10	PreparationStep	83
13.10.1	PreparationStep Requirements Class	83
13.11	SampleCollection	84
13.11.1	SampleCollection Requirements Class	84
13.11.2	Feature type SampleCollection	85
13.11.3	Association member	85
13.11.4	Association relatedCollection	85
13.12	PhysicalDimension	85
13.12.1	PhysicalDimension Requirements Class	85
13.12.2	Data type PhysicalDimension	86

13.12.3.....	Attribute dimension.....	86
13.12.4.....	Attribute value.....	86
13.13 NamedLocation.....		86
13.13.1.....	NamedLocation Requirements Class.....	86
13.13.2.....	Data type NamedLocation.....	86
13.13.3.....	Attribute address.....	87
13.13.4.....	Attribute name.....	87
13.13.5.....	Attribute representativeGeometry.....	87
13.14 StatisticalClassification.....		87
13.14.1 StatisticalClassification Requirements Class.....		87
13.14.2.....	Data type StatisticalClassification.....	87
13.14.3.....	Attribute concept.....	87
13.14.4 Attribute classification.....		88
13.15 Codelists.....		88
13.15.1.....	SampleTypeByGeometryType.....	88
Annex A (normative) Abstract Test Suite		89
Annex B (informative) Common usage of OMS concepts		99
Annex C (informative) Changes in the Observation and Sample models between ISO 19156:2011, edition 1 and ISO 19156:2021, edition 2		103
Annex D (informative) Best practices in use of the Observation and Sampling models		121
Bibliography		129