# SeaDataNet metadata profile of ISO 19115 – XML encoding

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Encoding of the SeaDataNet metadata profile in XML, by means of both XML schema and Schematron rules definitions

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## Foreword

This document has been drafted in the context of the SeaDataNet FP7 project by CNR. "*ISO/IEC Directives, Part 2: Rules for the structure and drafting of International Standards"* was used as a reference for the drafting.

## Introduction

The SeaDataNet Common Data Index (CDI) Data Discovery and Access Service provides users online unified access via a central portal to distributed marine and oceanographic datasets, managed by data centres that are connected to the SeaDataNet infrastructure.

The Common Data Index (CDI) format, based upon the ISO 19115 standard, and related service is adopted by several projects and programmes funded by the European Commission such as the EMODNet pilots, Geo-Seas, Upgrade Black Sea SCENE, EuroFleets, Jerico, etc. At present, July 2012, already 65+ NODC's and marine data centres from 35 countries bordering to European seas have successfully implemented the SeaDataNet CDI standard and are maintaining it as part of the CDI Data Discovery and Access service to give overview and access to their data sets. As part of SeaDataNet II and associated projects more data centres are connecting while also the volume and range of types of data sets is expanding.

The operational CDI service this way gives access to a vast and rapidly increasing resource of marine and ocean datasets, managed by an increasing number of distributed data centres. At present, July 2012, it provides metadata and access to more than 1.000.000 data sets, originating from more than 300 organisations in Europe, covering physical, geological, chemical, biological and geophysical data, and acquired in European waters and global oceans. The CDI service gives users a highly detailed insight in the availability and geographical spreading of this large variety of marine and ocean data sets. Moreover it provides a unique interface for requesting access, and if granted, for downloading data sets from these distributed data centres across Europe.

Therefore the CDI format can be considered a de-facto standard for marine metadata in Europe.

The CDI format is a marine profile of the ISO 19115 metadata content standard. However the present CDI Schema has been derived from the ISO 19115 DTD that was available at the time. Nowadays the ISO 19139 Schema is mature, which has also been adopted as part of the EU INSPIRE Directive Implementing Rules. Therefore an analysis has been undertaken for upgrading the CDI Schema and its encoding to ensure future INSPIRE compliance. The existing CDI metadata content has been taken as basis but 2 extra optional elements have been included for bibliographic and EDMED references. The analysis has been performed by CNR with support of MARIS, IFREMER, STFC, BODC and ENEA.

The document SeaDataNet metadata profile of ISO 19115 (of which this document constitutes a part), defines the SeaDataNet metadata profile, according to the ISO 19115 international metadata standard.

## Scope

This document defines a ISO 19139:2006 TS compliant encoding for the SeaDataNet metadata profile. The encoding is

based on the XML Schema implementation defined in ISO 19139, plus newly defined extensions. Schematron rules were also defined to express XML constraints not enforceable by the schema.
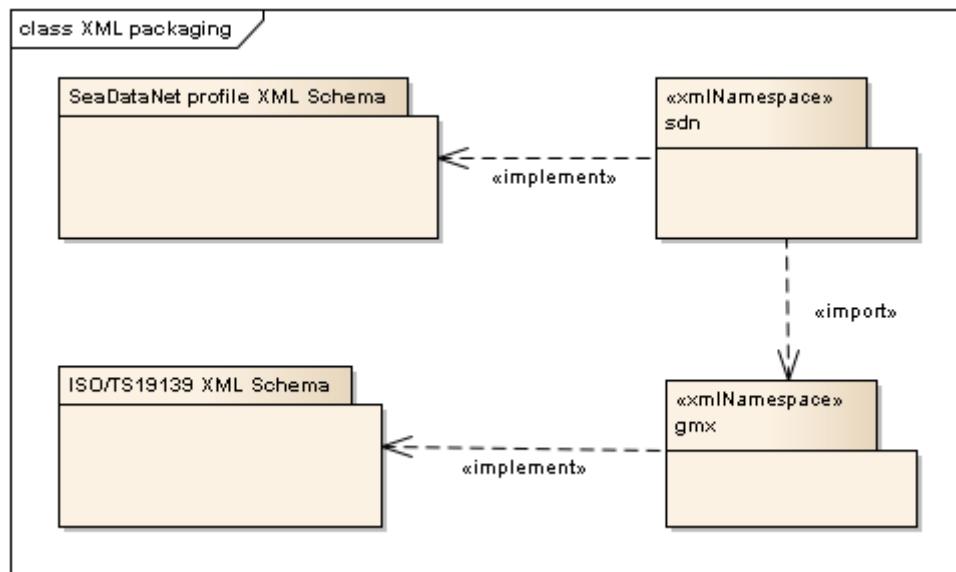
# XML encoding definition

This document conforms to the Annex A of the ISO/TS 19139:2006, Geographic information – Metadata – XML schema implementation (Conformance Requirements). The XML schema used is exactly the one defined in ISO/TS 19139, plus specific extensions/restrictions. In particular the nine new codelists elements defined in the SeaDataNet profile document have been implemented in the XML schema.

Additionally, a set of Schematron rules have been defined. They are used to enforce the following constraints, as well as extensions/restrictions:

- Restricted obligation (e.g. optional elements that change to mandatory in the SeaDataNet profile)
- Restricted cardinality (e.g. elements that change cardinality from 1…N to 1…1 in the SeaDataNet profile)
- Restricted domain (e.g. elements that change from a free text domain to a controlled vocabulary domain)
  - Codelists validation (as a subcase, validation of codelists is conveniently checked against the linked online codelist catalogue)
- Enforce a correct use of null elements (these are not permitted, unless in case of optional elements along with a nilReason or xlink pointers)
- Conformance Rules from Table A.1, ISO/TS 19139:2006 (a set of constraints not enforced by the ISO 19139 XML schema)
- Additional ISO/TS 19139:2006 constraints not enforced by the ISO 19139 XML schema and not listed in Table A.1 (i.e. on bounding box values)
- Additional INSPIRE constraints from the implementing rules (not enforced by any of the previous constraint types)
- Additional SeaDataNet constraints (not enforced by any of the previous constraint types)

## Xml Schema for the SeaDataNet profile

The XML schema for the SeaDataNet profile is defined in this section. The new *sdn* namespace is introduced: it implements the SeaDataNet profile XML schema; it also imports the *gmx* namespace defined in ISO/TS 19139, which implements in turn ISO/TS 19139 XML Schema (see Figure 1 XML Packaging). The extended elements (codelists) defined in the SeaDataNet profile are defined in the *sdn* namespace (in compliance with the conformance requirements for extensions, described at point 2 of Annex A.3, ISO/TS 19139).

**Figure 1 XML Packaging**

### sdn namespace

The *http://www.seadatanet.org* namespace (prefixed as sdn) contains the extended codelists defined in the SeaDataNet profile document. It also imports the gmx namespace defined in ISO 19139.

### sdn.xsd

This XML schema includes all the implemented codelists from the *sdn* namespace:

- SDN_FormatNameCode
- SDN_HierarchyLevelNameCode
- SDN_DeviceCategoryCode
- SDN_PlatformCategoryCode
- SDN_ParameterDiscoveryCode
- SDN_EDMERPCode
- SDN_EDMOCode
- SDN_EDMEDCode
- SDN_CRSCode
- SDN_CountryCode
- SDN_CSRCode

Moreover, it imports the gmx.xsd schema.

## Schematron rules for the SeaDataNet profile

A set of Schematron rules has been defined to enforce the different kinds of constraints specified in the SeaDataNet profile document. These constraints are mostly restrictions imposed by the SeaDataNet profile on existing ISO 19115 metadata. In compliance with the conformance requirements for restrictions, described in Annex A.4, ISO/TS 19139, they have been

implemented as a set of Schematron rules.

## Restricted obligation

Elements that have changed their obligation to mandatory: (e.g. fileIdentifier, language, …).

A rule for each mandatory element checks its presence in the given instance document.

## Restricted cardinality

Elements that have changed their cardinality (e.g. hierarchyLevel from N to 1).

A rule for each of these elements checks its presence in the given instance document with the restricted cardinality.

## Restricted domain

Elements that have restricted their domain (e.g. characterSet restricts its original domain to 'utf8').

A rule for each of these elements check the values assigned to the element in the given instance document are in the restricted domain.

Different type of restricted domains are checked by the rules. E.g.:

- fileIdentifier: the domain is restricted from free text to a valid URN starting with "urn:SDN:CDI:"
- language, characterSet, hierarchyLevel, topicCategory: these domain of these codelists has been restricted to a subset of the initial values
- hierarchyLevelName, metadataStandardName: the domain is restricted from free text to a fixed string

## Correct use of null elements (not allowed, unless for optional elements along with a nilReason or xlink pointers)

Null elements (i.e. elements without content) are not permitted to appear in instance documents of this profile in place of mandatory elements. They have instead an use when documenting a missing optional element. Indeed two methods are available to document a missing optional element:

1. Skip the element entirely
2. Document a null element (element without content) along with a nilReason attribute explaining the reason for the null elment. A possible encoding using the ISO 19139 schema is the following: <gmd:alternateTitle gco:nilReason="missing"></gmd:alternateTitle>

A null element is also allowed if containing an xlink pointer to the element actual content. A typical use is to omit from the published metadata record common to different documents or extensive information (e.g. extension information, pubblications): this information is hence linked.

As an example, the following is the use of a xlink pointer, referencing a publication already described in the SeaDataNet citations catalogue.

```
<sdn:additionalDocumentation xlink:href=" http://seadatanet.maris2.nl/isocodelists/sdncodelists/publications-
Codelists.xml#SDN_PUBCode_151" >
</sdn:additionalDocumentation>
```

This rule checks the absence of elements with an empty content, unless they are accompanied with a gco:nilReason or xlink:href attributes.

### Conformance Rules from Table A.1, ISO/TS 19139:2006

Table A.1 of ISO/TS 19139:2006 lists a set of co-constraints that the ISO19139 XML Schema is not able to enforce. A rule has been drafted to check each of these constraints (that are not already enforced by other rules).

### Additional co-constraints not enforced by the ISO 19139 XML schema and not listed in Table A.1

Additional constraints from ISO 19115 (not included in the previous section) have been identified:

- westBoundLongitude must be in -180; 180
- eastBoundLongitude must be in -180; 180
- southBoundLatitude must be in -90; 90 and less than northBoundLatitude
- northBoundLatitude must be in -90; 90 and greater than southBoundLatitude

Specific rules have been implemented to perform these checks.

### Additional constraints from the INSPIRE implementing rules

The following constraints, imposed by the INSPIRE implementing rules, are checked by specific rules in the SeaDataNet profile (the remaining INSPIRE constraints are already enforced by other rules):

- **SC7**. There shall not be more than one instance of MD_Metadata.identificationInfo[1].MD_Identification.citation.CI_Citation.date declared as a creation date (i.e. CI_Date.dateType having the 'creation' value)
- **SC8**. MD_Metadata.identificationInfo[1].MD_DataIdentification.citation.CI_Citation.identifier is mandatory for metadata sets related to spatial dataset and spatial dataset series;
- **SC10**.There is at least one instance of MD_Metadata.identificationInfo[1].MD_DataIdentification.extent defining the geographic location of the resource as a geographic bounding box (i.e. an instance of EX_GeographicBoundingBox or one of its subclasses).
- **SC16**. The value of MD_Metadata.contact[1].CI_ResponsibleParty.role.CI_RoleCode shall be pointOfContact.
- **SC17**. For datasets and series at least one keyword of GEMET thesaurus shall be documented using MD_Metadata.identificationInfo[1].MD_DataIdentification.descriptiveKeywords.
- There shall be a **conformance result report** against the latest INSPIRE commission regulation about metadata or other relevant regulations. E.g. a DQ_DataQuality.report.DQ_ConformanceResult with values:
  - specification.CI_Citation.title.CharacterString = 'COMMISSION REGULATION (EC) No 1205/2008 of 3 December 2008 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards metadata'
  - specification.CI_Citation.date.CI_Date.date.Date = '2008-12-04'
  - specification.CI_Citation.date.CI_Date.dateType.CI_DateTypeCode.@codeListValue = 'publication'

- explanation.CharacterString = 'See the referenced specification'
- pass.Boolean = 'true'

### SeaDataNet specific constraints

Additional SeaDataNet specific constraints are listed below:

- The reference system identifier (RS_Identifier) should be documented along with the authority.CI_Citation, with values:
  - alternateTitle='L101'
  - identifier. MD_Identifier.code.CharacterString=' http://www.seadatanet.org/urnurl/SDN:L101'
- The thesaurus used for keywords should be correctly referenced. E.g. for code list SDN_ParameterDiscoveryCode:
  - alternateTitle='P021'
  - identifier. MD_Identifier.code.CharacterString=' http://www.seadatanet.org/urnurl/SDN:P021'
- At least one keyword with type 'parameter' should be documented
- At least one keyword with type 'platform_class' should be documented
- A maximum of one associationType.AssociationTypeCode/@codeListValue = 'source' for all aggregationInfo

A rule exists to enforce each of these additional constraints.

### Codelists validation

Validation of the codelists present in a given SeaDataNet profile instance document is carried on by a specific Schematron rule. Each codelist is online validated against the linked codelist catalogue.

SDN_CountryCode code list example:

```
<gmd:country>
        <sdn:SDN_CountryCode
                codeList="../schema/resources/Codelist/sdnCodelists.xml#SDN_CountryCode"
                codeListValue="FR"
                codeSpace="SeaDataNet">France</sdn:SDN_CountryCode>
</gmd:country>
```

In this example the SDN_CountryCode code list points to the online catalog referenced by the URL specified by the codeList attribute. This rule query the online catalogue for the available values, and checks if the given codeListValue (in this case "FR") is amongst the allowed values.

## New codelists

For each new codelist created in this profile an online catalogue is created and populated.

## Expanded codelists

Expanded codelists require the update of online catalogues, by population of the additional values to them.

## Annex A (normative) Abstract test suite

This section defines an abstract test suite, providing a validation mechanism for SeaDataNet profile document instances.

Minimum conformance with this Technical Specification requires that geographic metadata instance (XML) documents can be validated without error against:

- the XML schemas described in detail in the document
- the Schematron rules described in detail in the document

# Annex B (informative) Comparison with the legacy CDI metadata encoding

Following the encoding of (the legacy) CDI metadata format is shown. Almost all the information content stored in this format can be accommodated in the new format subject of this documentation. Left out elements are highlighted in red:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<Metadata xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:gml="http://www.opengis.net/gml" xsi:noNamespaceSchemaLocation="cdi_sdn_v1.6_gml_4.53.xsd">
  <mdFileID>SDN:CDI:LOCAL:MARIS-TEST</mdFileID>
  <mdLang>
    <languageCode value="en"/>
  </mdLang>
  <mdChar>
    <CharSetCd value="utf8"/>
  </mdChar>
  <mdHrLv>
    <ScopeCd value="dataset"/>
  </mdHrLv>
  <mdHrLvName SDNIdent="SDN:L231:3:CDI">Common Data Index record</mdHrLvName>
  <mdContact>
    <rpOrgName SDNIdent="SDN:EDMO::1">University of Birmingham, Department of Geological
      Sciences</rpOrgName>
    <rpCntInfo>
      <cntPhone>
        <voiceNum/>
        <faxNum/
      </cntPhone>
      <cntAddress>
        <delPoint>School of Earth Sciences Edgbaston </delPoint>
        <city>Birmingham</city>
        <adminArea/>
        <postCode>B15 2TT</postCode>
        <country>United Kingdom</country>
        <eMailAdd/>
      </cntAddress>
      <cntOnLineRes>
        <linkage>http://www.bham.ac.uk/EarthSciences/</linkage>
      </cntOnLineRes>
    </rpCntInfo>
    <role>
      <RoleCd value="author"/>
    </role>
  </mdContact>
  <mdDateSt>2010-04-23T16:52:01</mdDateSt>
  <spatRepInfo>
    <VectSpatRep>
      <geometObjs>
        <geoObjTyp>
          <GeoObjTypCd value="curve"/>
        </geoObjTyp>
      </geometObjs>
    </VectSpatRep>
  </spatRepInfo>
  <spatRepInfo>
```

```xml
<GridSpatRep>
  <axDimProps>
    <Dimen>
      <dimName>time</dimName>
      <dimResol>
        <Distance>
          <value>
            <Decimal>20</Decimal>
          </value>
          <uomName SDNIdent="SDN:P061:37:UTHZ">Hertz</uomName>
        </Distance>
      </dimResol>
    </Dimen>
  </axDimProps>
</GridSpatRep>
</spatRepInfo>
<spatRepInfo>
  <GridSpatRep>
    <axDimProps>
      <Dimen>
        <dimName>track</dimName>
        <dimResol>
          <Distance>
            <value>
              <Decimal>50</Decimal>
            </value>
            <uomName SDNIdent="SDN:P061:21:ULAA">metres</uomName>
          </Distance>
        </dimResol>
      </Dimen>
    </axDimProps>
  </GridSpatRep>
</spatRepInfo>
<refSysInfo>
  <MdCoRefSys>
    <refSysID>
      <identAuth>
        <resTitle>SeaDataNet geographic co-ordinate reference frames</resTitle>
        <resAltTitle>L101</resAltTitle>
        <resRefDate>
          <refDate>2007-02-10T06:45:02</refDate>
          <refDateType>
            <DateTypCd value="revision"/>
          </refDateType>
        </resRefDate>
        <resEd>2</resEd>
        <citId>http://www.seadatanet.org/urnurl/</citId>
      </identAuth>
      <identCode SDNIdent="SDN:L101:2:4326">World Geodetic System 84</identCode>
    </refSysID>
  </MdCoRefSys>
</refSysInfo>
<mdExtInfo>
  <extEleInfo>
    <extEleName>SDN:EDMO::</extEleName>
    <extEleDef>http://www.seadatanet.org/urnurl/</extEleDef>
```

```xml
      <eleDatatype>
        <DatatypeCd value="codelist"/>
      </eleDatatype>
      <extEleParEnt>SeaDataNet</extEleParEnt>
      <extEleSrc>
        <resTitle>European Directory of Marine Organisations</resTitle>
        <resAltTitle>EDMO</resAltTitle>
        <resRefDate>
          <refDate/>
          <refDateType>
            <DateTypCd value="revision"/>
          </refDateType>
        </resRefDate>
        <resEd/>
        <citId>http://www.seadatanet.org/urnurl/</citId>
      </extEleSrc>
    </extEleInfo>
    <extEleInfo>
      <extEleName>SDN:L021:1:</extEleName>
      <extEleDef>http://www.seadatanet.org/urnurl/</extEleDef>
      <eleDatatype>
        <DatatypeCd value="codelist"/>
      </eleDatatype>
      <extEleParEnt>SeaDataNet</extEleParEnt>
      <extEleSrc>
        <resTitle>SeaDataNet Geospatial Feature Types</resTitle>
        <resAltTitle>L021</resAltTitle>
        <resRefDate>
          <refDate>2007-12-20T02:00:05</refDate>
          <refDateType>
            <DateTypCd value="revision"/>
          </refDateType>
        </resRefDate>
        <resEd>1</resEd>
        <citId>http://www.seadatanet.org/urnurl/</citId>
      </extEleSrc>
    </extEleInfo>
    <extEleInfo>
      <extEleName>SDN:L031:2:</extEleName>
      <extEleDef>http://www.seadatanet.org/urnurl/</extEleDef>
      <eleDatatype>
        <DatatypeCd value="codelist"/>
      </eleDatatype>
      <extEleParEnt>SeaDataNet</extEleParEnt>
      <extEleSrc>
        <resTitle>SeaDataNet Measurement Periodicity Classes</resTitle>
        <resAltTitle>L031</resAltTitle>
        <resRefDate>
          <refDate>2006-12-21T06:43:27</refDate>
          <refDateType>
            <DateTypCd value="revision"/>
          </refDateType>
        </resRefDate>
        <resEd>2</resEd>
        <citId>http://www.seadatanet.org/urnurl/</citId>
      </extEleSrc>
```

```xml
    </extEleInfo>
    <extEleInfo>
      <extEleName>SDN:L071:1:</extEleName>
      <extEleDef>http://www.seadatanet.org/urnurl/</extEleDef>
      <eleDatatype>
        <DatatypeCd value="codelist"/>
      </eleDatatype>
      <extEleParEnt>SeaDataNet</extEleParEnt>
      <extEleSrc>
        <resTitle>SeaDataNet data access mechanisms</resTitle>
        <resAltTitle>L071</resAltTitle>
        <resRefDate>
          <refDate>2007-02-16T16:59:36</refDate>
          <refDateType>
            <DateTypCd value="revision"/>
          </refDateType>
        </resRefDate>
        <resEd>1</resEd>
        <citId>http://www.seadatanet.org/urnurl/</citId>
      </extEleSrc>
    </extEleInfo>
    <extEleInfo>
      <extEleName>SDN:L081:2:</extEleName>
      <extEleDef>http://www.seadatanet.org/urnurl/</extEleDef>
      <eleDatatype>
        <DatatypeCd value="codelist"/>
      </eleDatatype>
      <extEleParEnt>SeaDataNet</extEleParEnt>
      <extEleSrc>
        <resTitle>SeaDataNet Data Access Restriction Policies</resTitle>
        <resAltTitle>L081</resAltTitle>
        <resRefDate>
          <refDate>2008-09-26T01:00:06</refDate>
          <refDateType>
            <DateTypCd value="revision"/>
          </refDateType>
        </resRefDate>
        <resEd>2</resEd>
        <citId>http://www.seadatanet.org/urnurl/</citId>
      </extEleSrc>
    </extEleInfo>
    <extEleInfo>
      <extEleName>SDN:L231:3:</extEleName>
      <extEleDef>http://www.seadatanet.org/urnurl/</extEleDef>
      <eleDatatype>
        <DatatypeCd value="codelist"/>
      </eleDatatype>
      <extEleParEnt>SeaDataNet</extEleParEnt>
      <extEleSrc>
        <resTitle>SeaDataNet metadata entities</resTitle>
        <resAltTitle>L231</resAltTitle>
        <resRefDate>
          <refDate>2008-06-03T01:00:05</refDate>
          <refDateType>
            <DateTypCd value="revision"/>
          </refDateType>
```

```xml
        </resRefDate>
        <resEd>3</resEd>
        <citId>http://www.seadatanet.org/urnurl/</citId>
      </extEleSrc>
    </extEleInfo>
    <extEleInfo>
      <extEleName>SDN:L241:1:</extEleName>
      <extEleDef>http://www.seadatanet.org/urnurl/</extEleDef>
      <eleDatatype>
        <DatatypeCd value="codelist"/>
      </eleDatatype>
      <extEleParEnt>SeaDataNet</extEleParEnt>
      <extEleSrc>
        <resTitle>SeaDataNet data transport formats</resTitle>
        <resAltTitle>L241</resAltTitle>
        <resRefDate>
          <refDate>2007-09-15T01:00:03</refDate>
          <refDateType>
            <DateTypCd value="revision"/>
          </refDateType>
        </resRefDate>
        <resEd>1</resEd>
        <citId>http://www.seadatanet.org/urnurl/</citId>
      </extEleSrc>
    </extEleInfo>
  </mdExtInfo>
  <dataIdInfo>
    <idCitation>
      <resTitle>Test record with full coverage</resTitle>
      <resAltTitle>MARIS-TEST</resAltTitle>
      <resRefDate>
        <refDate>2012-04-16T10:38:10</refDate>
        <refDateType>
          <DateTypCd value="revision"/>
        </refDateType>
      </resRefDate>
      <citRespParty>
        <rpOrgName SDNIdent="SDN:EDMO::18">Scott Polar Research Institute (SPRI)</rpOrgName>
        <rpCntInfo>
          <cntPhone>
            <voiceNum/>
            <faxNum/>
          </cntPhone>
          <cntAddress>
            <delPoint>University of Cambridge Lensfield Road</delPoint>
            <city>Cambridge</city>
            <adminArea/>
            <postCode>CB2 1ER</postCode>
            <country>United Kingdom</country>
            <eMailAdd/>
          </cntAddress>
          <cntOnLineRes>
            <linkage>http://www.spri.cam.ac.uk/</linkage>
          </cntOnLineRes>
        </rpCntInfo>
        <role>
```

```xml
      <RoleCd value="originator"/>
    </role>
  </citRespParty>
  <citRespParty>
    <rpOrgName SDNIdent="SDN:EDMO::70">Midland and Scottish Resources Plc</rpOrgName>
    <rpCntInfo>
      <cntPhone>
        <voiceNum/>
        <faxNum/>
      </cntPhone>
      <cntAddress>
        <delPoint>Crawpeel Road Altens</delPoint>
        <city>Aberdeen</city>
        <adminArea/>
        <postCode>AB12 3LG</postCode>
        <country>United Kingdom</country>
        <eMailAdd/>
      </cntAddress>
      <cntOnLineRes>
        <linkage/>
      </cntOnLineRes>
    </rpCntInfo>
    <role>
      <RoleCd value="originator"/>
    </role>
  </citRespParty>
  <citRespParty>
    <rpOrgName SDNIdent="SDN:EDMO::181">County Administration of Vasterbotten</rpOrgName>
    <rpCntInfo>
      <cntPhone>
        <voiceNum>+46-(0)90-10 72 56</voiceNum>
        <faxNum>+46-(0)90-10 71 00</faxNum>
      </cntPhone>
      <cntAddress>
        <delPoint>Storgatan 71 B </delPoint>
        <city>Umea</city>
        <adminArea/>
        <postCode>SE-901 86</postCode>
        <country>Sweden</country>
        <eMailAdd>jan.albertsson@ac.lst.se</eMailAdd>
      </cntAddress>
      <cntOnLineRes>
        <linkage>http://www.ac.lst.se</linkage>
      </cntOnLineRes>
    </rpCntInfo>
    <role>
      <RoleCd value="originator"/>
    </role>
  </citRespParty>
  <citRespParty>
    <rpOrgName SDNIdent="SDN:EDMO::354">Puertos del Estado. Departamento de Clima
    Maritimo</rpOrgName>
    <rpCntInfo>
      <cntPhone>
        <voiceNum>+34 915 245500</voiceNum>
        <faxNum>+34 915 245501</faxNum>
```

```xml
        </cntPhone>
        <cntAddress>
          <delPoint>Av. del Partenon 10</delPoint>
          <city>Madrid</city>
          <adminArea/>
          <postCode>28042</postCode>
          <country>Spain</country>
          <eMailAdd>obdulio@puertos.es</eMailAdd>
        </cntAddress>
        <cntOnLineRes>
          <linkage>http://www.puertos.es/clima</linkage>
        </cntOnLineRes>
      </rpCntInfo>
      <role>
        <RoleCd value="originator"/>
      </role>
    </citRespParty>
    <citRespParty>
      <rpOrgName SDNIdent="SDN:EDMO::464">Fisheries Laboratory, Faroe Islands</rpOrgName>
      <rpCntInfo>
        <cntPhone>
          <voiceNum>(+298) 35 39 00</voiceNum>
          <faxNum>(+298) 35 39 01</faxNum>
        </cntPhone>
        <cntAddress>
          <delPoint>PO-Box 3051, Nóatún 1</delPoint>
          <city>Torshavn</city>
          <adminArea/>
          <postCode>FO-110</postCode>
          <country>Denmark</country>
          <eMailAdd>fishlab@frs.fo</eMailAdd>
        </cntAddress>
        <cntOnLineRes>
          <linkage>http://www.frs.fo/default.asp</linkage>
        </cntOnLineRes>
      </rpCntInfo>
      <role>
        <RoleCd value="originator"/>
      </role>
    </citRespParty>
  </idCitation>
  <idAbs>This record is meant for test purposes. It contains a value for every field and
    multiple values whereever possible.</idAbs>
  <idPoC>
    <rpOrgName SDNIdent="SDN:EDMO::634">Marine Information Service (MARIS)</rpOrgName>
    <rpCntInfo>
      <cntPhone>
        <voiceNum>+31 70 3004710</voiceNum>
        <faxNum>+31 70 3903546</faxNum>
      </cntPhone>
      <cntAddress>
        <delPoint>Koningin Julianalaan 345A</delPoint>
        <city>Voorburg</city>
        <adminArea/>
        <postCode>2273JJ</postCode>
        <country>Netherlands</country>
```

```xml
      <eMailAdd>maris@xs4all.nl</eMailAdd>
    </cntAddress>
    <cntOnLineRes>
      <linkage>http://www.maris.nl</linkage>
    </cntOnLineRes>
  </rpCntInfo>
  <role>
    <RoleCd value="custodian"/>
  </role>
</idPoC>
<descKeys>
  <keyword SDNIdent="SDN:P021:41:ATVS">Atmospheric visibility and transparency</keyword>
  <keyword SDNIdent="SDN:P021:70:AMON">Ammonium concentration parameters in the water
    column</keyword>
  <keyword SDNIdent="SDN:P021:70:CHUM">Atmospheric humidity</keyword>
  <keyTyp>
    <KeyTypCd value="parameter"/>
  </keyTyp>
  <thesaName>
    <resTitle>BODC Parameter Discovery Vocabulary</resTitle>
    <resAltTitle>P021</resAltTitle>
    <resRefDate>
      <refDate>2009-06-05T01:00:02</refDate>
      <refDateType>
        <DateTypCd value="revision"/>
      </refDateType>
    </resRefDate>
    <resEd>41</resEd>
    <citId>http://www.seadatanet.org/urnurl/</citId>
  </thesaName>
</descKeys>
<descKeys>
  <keyword SDNIdent="SDN:L05:4:13">aerosol samplers</keyword>
  <keyword SDNIdent="SDN:L05:4:POS04">Differential Global Positioning System
    receivers</keyword>
  <keyTyp>
    <KeyTypCd value="instrument"/>
  </keyTyp>
  <thesaName>
    <resTitle>SeaDataNet device categories</resTitle>
    <resAltTitle>L05</resAltTitle>
    <resRefDate>
      <refDate>2008-01-11T02:00:04</refDate>
      <refDateType>
        <DateTypCd value="revision"/>
      </refDateType>
    </resRefDate>
    <resEd>4</resEd>
    <citId>http://www.seadatanet.org/urnurl/</citId>
  </thesaName>
</descKeys>
<descKeys>
  <keyword SDNIdent="SDN:L061:7:75">cetacean</keyword>
  <keyTyp>
    <KeyTypCd value="platform_class"/>
  </keyTyp>
```

```xml
<thesaName>
  <resTitle>SeaDataNet Platform Classes</resTitle>
  <resAltTitle>L061</resAltTitle>
  <resRefDate>
    <refDate>2008-12-05T02:00:04</refDate>
    <refDateType>
      <DateTypCd value="revision"/>
    </refDateType>
  </resRefDate>
  <resEd>7</resEd>
  <citId>http://www.seadatanet.org/urnurl/</citId>
</thesaName>
</descKeys>
<descKeys>
  <keyword SDNIdent="SDN:EDMERP::8857">Integrated Ocean Drilling Program (IODP) - Artic
    expedition (ACEX) {acronym=&quot;IODP&quot; organisation=&quot;Natural Environment
    Research Council (NERC)&quot; country=&quot;United Kingdom&quot;}</keyword>
  <keyword SDNIdent="SDN:EDMERP::8889">National Coastal Data Co-ordinator
    {acronym=&quot;&quot; organisation=&quot;Department for Environment, Food and Rural
    Affairs (DEFRA)&quot; country=&quot;United Kingdom&quot;}</keyword>
  <keyword SDNIdent="SDN:EDMERP::7576">GEOWARN - Geo-spatial warning system Nisyros volcano
    (Greece). An emergency case study. {acronym=&quot;GEOWARN&quot;
    organisation=&quot;Hellenic Centre for Marine Research, Institute of Oceanography
    (HCMR/IO)&quot; country=&quot;Greece&quot;}</keyword>
  <keyTyp>
    <KeyTypCd value="project"/>
  </keyTyp>
  <thesaName>
    <resTitle>European Directory of Marine Environmental Research Projects</resTitle>
    <resAltTitle>EDMERP</resAltTitle>
    <resRefDate>
      <refDate/>
      <refDateType>
        <DateTypCd value="revision"/>
      </refDateType>
    </resRefDate>
    <resEd/>
    <citId>http://www.seadatanet.org/urnurl/</citId>
  </thesaName>
</descKeys>
<resConst>
  <LegConsts>
    <accessConsts SDNIdent="SDN:L081:2:LS">SeaDataNet licence</accessConsts>
    <accessConsts SDNIdent="SDN:L081:2:LI">licence</accessConsts>
  </LegConsts>
</resConst>
<aggrInfo>
  <aggrDSName>
    <resTitle>My Cruise</resTitle>
    <resAltTitle>CRUISE01</resAltTitle>
    <resRefDate>
      <refDate>2009-06-01</refDate>
      <refDateType>
        <DateTypCd value="revision"/>
      </refDateType>
    </resRefDate>
```

```xml
        </aggrDSName>
        <assocType>
          <AscTypeCd value="largerWorkCitation"/>
        </assocType>
        <initType>
          <InitTypCd value="campaign"/>
        </initType>
      </aggrInfo>
      <aggrInfo>
        <aggrDSName>
          <resTitle>My Station</resTitle>
          <resAltTitle>STATION01</resAltTitle>
          <resRefDate>
            <refDate>2009-05-15</refDate>
            <refDateType>
              <DateTypCd value="revision"/>
            </refDateType>
          </resRefDate>
        </aggrDSName>
        <assocType>
          <AscTypeCd value="source"/>
        </assocType>
        <initType>
          <InitTypCd value="operation"/>
        </initType>
      </aggrInfo>
      <dataScale>
        <scaleDist>
          <value>
            <Decimal>5</Decimal>
          </value>
          <uom>
            <UomTime>
              <uomName SDNIdent="SDN:L031:3:6">week to sub-month</uomName>
              <conversionToISOstandarUnit/>
            </UomTime>
          </uom>
        </scaleDist>
      </dataScale>
      <dataLang>
        <languageCode value="en"/>
      </dataLang>
      <tpCat>
        <TopicCatCd value="oceans"/>
      </tpCat>
      <dataExt>
        <geoEle>
          <GeoBndBox>
            <westBL>-68.548849</westBL>
            <eastBL>-49.007153</eastBL>
            <southBL>59.400296</southBL>
            <northBL>73.889864</northBL>
          </GeoBndBox>
        </geoEle>
        <geoEle>
          <GeoBndBox>
```

```xml
            <westBL>106.574831</westBL>
            <eastBL>114.842479</eastBL>
            <southBL>5.916728</southBL>
            <northBL>17.636232</northBL>
          </GeoBndBox>
        </geoEle>
        <geoEle>
          <GeoBndBox>
            <westBL>-80.198605</westBL>
            <eastBL>-70.052045</eastBL>
            <southBL>-57.079131</southBL>
            <northBL>-36.777203</northBL>
          </GeoBndBox>
        </geoEle>
        <geoEle>
          <BoundPoly>
            <polygon>
              <gml:MultiCurve gml:id="mc01">
                <gml:curveMember>
                  <gml:LineString gml:id="ls01">
                    <gml:description>This is line 1</gml:description>
                    <gml:name codeSpace="http://www.seadatanet.org/urnurl/">line1</gml:name>
                    <gml:posList>-68.548849 73.889864 -61.408617 72.824456 -58.026401
                      68.136664 -56.523193 62.38344 -49.007153 59.400296</gml:posList>
                  </gml:LineString>
                </gml:curveMember>
                <gml:curveMember>
                  <gml:LineString gml:id="ls02">
                    <gml:description>This is line 2</gml:description>
                    <gml:name codeSpace="http://www.seadatanet.org/urnurl/">line2</gml:name>
                    <gml:posList>112.963503 17.636232 114.842479 14.866168 114.842479
                      11.030688 111.084463 8.473704 106.574831 5.916728</gml:posList>
                  </gml:LineString>
                </gml:curveMember>
                <gml:curveMember>
                  <gml:LineString gml:id="ls03">
                    <gml:description>This is line 3</gml:description>
                    <gml:name codeSpace="http://www.seadatanet.org/urnurl/">line3</gml:name>
                    <gml:posList>-76.816333 -36.777203 -77.192141 -43.722611 -80.198605
                      -47.195299 -78.319565 -50.400867 -74.561741 -54.674947 -70.052045
                      -57.079131</gml:posList>
                  </gml:LineString>
                </gml:curveMember>
              </gml:MultiCurve>
            </polygon>
          </BoundPoly>
        </geoEle>
      </dataExt>
      <dataExt>
        <tempEle>
          <TempExtent>
            <exTemp>
              <TM_GeometricPrimitive>
                <TM_Period>
                  <begin>2009-01-01T00:00:00</begin>
                  <end>2009-06-24T17:36:01</end>
```

```
                </TM_Period>
              </TM_GeometricPrimitive>
            </exTemp>
          </TempExtent>
        </tempEle>
      </dataExt>
      <dataExt>
        <vertEle>
          <vertMinVal>0</vertMinVal>
          <vertMaxVal>100</vertMaxVal>
          <vertUoM>
            <uomName>metres</uomName>
            <conversionToISOstandarUnit/>
          </vertUoM>
          <vertDatum>
            <datumId>
              <identAuth>
                <resTitle>Vertical Co-ordinate Reference System Origins</resTitle>
                <resAltTitle>L111</resAltTitle>
                <resRefDate>
                  <refDate>2009-04-29T01:00:03</refDate>
                  <refDateType>
                    <DateTypCd value="revision"/>
                  </refDateType>
                </resRefDate>
                <resEd>6</resEd>
                <citId>http://www.seadatanet.org/urnurl/</citId>
              </identAuth>
              <identCode SDNIdent="SDN:L111:6:D08">sea level</identCode>
            </datumId>
          </vertDatum>
          <vertLimit>150</vertLimit>
        </vertEle>
      </dataExt>
    </dataIdInfo>
    <distInfo>
      <distributor>
        <distorCont>
          <rpOrgName SDNIdent="SDN:EDMO::631">WL/Delft Hydraulics</rpOrgName>
          <rpCntInfo>
            <cntPhone>
              <voiceNum>+31 15 2858585</voiceNum>
              <faxNum>+31 15 2858582</faxNum>
            </cntPhone>
            <cntAddress>
              <delPoint>Rotterdamseweg 185</delPoint>
              <city>Delft</city>
              <adminArea/>
              <postCode>2629 HD</postCode>
              <country>Netherlands</country>
              <eMailAdd>info@wldelft.nl</eMailAdd>
            </cntAddress>
            <cntOnLineRes>
              <linkage>http://www.wldelft.nl</linkage>
            </cntOnLineRes>
          </rpCntInfo>
```

```
          <role>
            <RoleCd value="distributor"/>
          </role>
        </distorCont>
        <distorFormat>
          <formatName SDNIdent="SDN:L241:1:ODV">Ocean Data View ASCII input</formatName>
          <formatVer>0.3</formatVer>
        </distorFormat>
        <distorFormat>
          <formatName SDNIdent="SDN:L241:1:MEDATLAS">MEDATLAS ASCII</formatName>
          <formatVer>1</formatVer>
        </distorFormat>
      </distributor>
      <distTranOps>
        <transSize>123</transSize>
        <onLineSrc>
          <linkage>http://www.sdn-taskmanager.org/</linkage>
          <protocol>HTTP-DOWNLOAD</protocol>
          <orDesc>DBTEST</orDesc>
          <orFunct>
            <OnFunctCd value="downloadRegistration"/>
          </orFunct>
        </onLineSrc>
      </distTranOps>
      <distTranOps>
        <onLineSrc>
          <linkage>http://example.com/wms?</linkage>
          <protocol>urn:ogc:serviceType:WebMapService:1.1.1:http</protocol>
          <orDesc>WMS example url</orDesc>
          <orFunct>
            <OnFunctCd value="URL"/>
          </orFunct>
        </onLineSrc>
      </distTranOps>
    </distInfo>
</Metadata>
```

For each element being left out from the new encoding an explanation is following provided:

## References to SDN lists

```
  <mdHrLvName SDNIdent="SDN:L231:3:CDI">Common Data Index record</mdHrLvName>
```

SDN list code 231 is lost in the new encoding:

```
    <gmd:hierarchyLevelName>
          <sdn:SDN_HierarchyLevelNameCode
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList#SDN_HierarchyLevelNameCode"
                      codeListValue="CDI"
                      codeSpace="SeaDataNet">Common Data Index
record</sdn:SDN_HierarchyLevelNameCode>
        </gmd:hierarchyLevelName>
```

However the new element SDN_HierarchyLevelNameCode is used, it points to the new ISO version of the original SDN list.

Other lists codes references are skipped, just like the 231 code above. Among them:

- the SDN EDMO list, replaced by the SDN_EDMOCode code list

- the SDN L101 list, replaced by the SDN_CRSCode code list

- the SDN P021 list, replaced by the SDN_ParameterDiscoveryCode code list

- the SDN L05 list, replaced by the SDN_DeviceCategoryCode code list

- the SDN L061 list, replaced by the SDN_PlatformCategoryCode code list

- the SDN EDMERP list, replaced by the SDN_EDMERPCode code list

- the SDN EDMED list, replaced by the SDN_EDMEDCode code list

- the SDN 241 list, replaced by the SDN_FormatNameCode code list

## Metadata contact role

```
<mdContact>
  <role>
    <RoleCd value="author"/>
  </role>
</mdContact>
```
Metadata 'author' role code is changed to 'pointOfContact' for INSPIRE compliance
(As for INSPIRE constraint SC16: The value of MD_Metadata.contact.CI_ResponsibleParty.role.CI_RoleCode shall be pointOfContact.). ISO version:

```
<gmd:role>
  <gmd:CI_RoleCode
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_RoleCode"
            codeListValue="pointOfContact"
            codeSpace="ISOTC211/19115">pointOfContact</gmd:CI_RoleCode>
</gmd:role>
```

## Time information in date stamps

```
<mdDateSt>2010-04-23T16:52:01</mdDateSt>
```

Time information is lost for the date stamp. ISO version:

```
<gmd:dateStamp>
  <gco:Date>2010-04-23</gco:Date>
</gmd:dateStamp>
```

Also other date references are affected. E.g. :

```
<refDate>2007-02-10T06:45:02</refDate>
```

## Dimension resolution unit of measure

```
<Distance>
  <value>
    <Decimal>50</Decimal>
  </value>
  <uomName SDNIdent="SDN:P061:21:ULAA">metres</uomName>
</Distance>
```

"metres" is lost (however the information is implicit in the 'ULAA' code itself). ISO version:

```
<gmd:resolution>
  <gco:Measure uom="http://www.seadatanet.org/urnurl/SDN:P06::ULAA">50</gco:Measure>
</gmd:resolution>
```

## Metadata extension information

Metadata extension information is used in the legacy CDI format to encode references to the SDN lists. This information has been completely removed, and replaced by a online pointer to the new profile definitions (including new code lists).

```
<mdExtInfo>
  <extEleInfo>
    <extEleName>SDN:EDMO::</extEleName>
    <extEleDef>http://www.seadatanet.org/urnurl/</extEleDef>
    <eleDatatype>
      <DatatypeCd value="codelist"/>
    </eleDatatype>
    <extEleParEnt>SeaDataNet</extEleParEnt>
    <extEleSrc>
      <resTitle>European Directory of Marine Organisations</resTitle>
      <resAltTitle>EDMO</resAltTitle>
      <resRefDate>
        <refDate/>
        <refDateType>
          <DateTypCd value="revision"/>
        </refDateType>
      </resRefDate>
      <resEd/>
      <citId>http://www.seadatanet.org/urnurl/</citId>
    </extEleSrc>
  </extEleInfo>

      … et cetera
```

In the new format we have:

```
<gmd:metadataExtensionInfo>
  <gmd:MD_MetadataExtensionInformation>
    <gmd:extensionOnLineResource>
      <gmd:CI_OnlineResource>
        <gmd:linkage>
          <gmd:URL>http://www.seadatanet.org/Standards-Software/Metadata-formats</gmd:URL>
```

```xml
      </gmd:linkage>
      <gmd:name>
        <gco:CharacterString>SeaDataNet ISO 19139 Profile for CDI Metadata</gco:CharacterString>
      </gmd:name>
    </gmd:CI_OnlineResource>
  </gmd:extensionOnLineResource>
  …
  </gmd:MD_MetadataExtensionInformation>
</gmd:metadataExtensionInfo>
```

# Time units list reference

The refence to time units list for the temporal resolution of updates is lost, as well as the discrete temporal resolutions:

```xml
<UomTime>
  <uomName SDNIdent="SDN:L031:3:6">week to sub-month</uomName>
  <conversionToISOstandarUnit/>
</UomTime>
```

This information can be translated in the new encoding as this:

```xml
<gmd:spatialResolution>
  <gmd:MD_Resolution>
    <gmd:distance>
      <gco:Distance uom="http://www.seadatanet.org/urnurl/SDN:P06::UTAA">15</gco:Distance>
    </gmd:distance>
  </gmd:MD_Resolution>

</gmd:spatialResolution>
```

A mapping from the original discrete temporal resolutions is as in the table below and can be used to convert from the legacy discrete temporal resolution in case no temporal resolution value is given:

| Input (legacy) resolution | Output Value | Output Unit | Output Unit (meaning) |
|---|---|---|---|
| Indeterminate | 0 | Not applicable | Not applicable |
| Sub-second | .5 | http://www.seadatanet.org/urnurl/SDN:P06::UTBB | Seconds |
| Year to sub-decade | 5 | http://www.seadatanet.org/urnurl/SDN:P06::UYRS | Years |
| Decadal | 10 | http://www.seadatanet.org/urnurl/SDN:P06::UYRS | Years |
| Second to sub-minute | 30 | http://www.seadatanet.org/urnurl/SDN:P06::UTBB | Seconds |
| Minute to sub-hour | 30 | http://www.seadatanet.org/urnurl/SDN:P06::UMIN | Minutes |
| Hour to sub-day | 12 | http://www.seadatanet.org/urnurl/SDN:P06::UHOR | Hours |
| Day to sub-week | 3.5 | http://www.seadatanet.org/urnurl/SDN:P06::UTAA | Days |
| Week to sub-month | 15 | http://www.seadatanet.org/urnurl/SDN:P06::UTAA | Days |
| Month to sub-year | 1 | http://www.seadatanet.org/urnurl/SDN:P06::UYRS | Years |

However, if the legacy discrete temporal resolution included a temporal value, this is to be taken into account. E.g. Source (legacy) update period:

```xml
<dataScale>
  <scaleDist>
    <value>
      <Decimal>5</Decimal>
```

```
        </value>
        <uom>
          <UomTime>
            <uomName SDNIdent="SDN:L031:3:6" >week to sub-month</uomName>
            <conversionToISOstandarUnit></conversionToISOstandarUnit>
          </UomTime>
        </uom>
      </scaleDist>
   </dataScale>
```

The above legacy encoding can be translated as:

```
        <gmd:MD_Resolution>
          <gmd:distance>
            <gco:Distance uom="http://www.seadatanet.org/urnurl/SDN:P06::UTAA">35</gco:Distance>
          </gmd:distance>
        </gmd:MD_Resolution>
```

(5 weeks x 7 days = 35 days)

## Vertical datum information

Title, edition and date of revision of the vertical datum thesaurus are lost in the new encoding. The online reference, instead, is maintained.

```
      <vertDatum>
        <datumId>
          <identAuth>
            <resTitle>Vertical Co-ordinate Reference System Origins</resTitle>
            <resAltTitle>L111</resAltTitle>
            <resRefDate>
              <refDate>2009-04-29T01:00:03</refDate>
              <refDateType>
                <DateTypCd value="revision"/>
              </refDateType>
            </resRefDate>
            <resEd>6</resEd>
            <citId>http://www.seadatanet.org/urnurl/</citId>
          </identAuth>
          <identCode SDNIdent="SDN:L111:6:D08">sea level</identCode>
        </datumId>
      </vertDatum>
```

# Annex C (informative) Implementation example

The following XML instance document is a valid document instance of the SeaDataNet profile, containing also the additional documentation information, as well as the EDMED reference.

```xml
<?xml version="1.0" encoding="UTF-8"?>
<?xml-model href="http://schemas.seadatanet.org/Standards-Software/Metadata-formats/SDN2_CDI_ISO19139_10.0.0.sch" type="application/xml"
schematypens="http://purl.oclc.org/dsdl/schematron"?>
  <gmd:MD_Metadata xmlns:gmd="http://www.isotc211.org/2005/gmd"
  xmlns:gmi="http://www.isotc211.org/2005/gmi" xmlns:srv="http://www.isotc211.org/2005/srv"
  xmlns:gco="http://www.isotc211.org/2005/gco" xmlns:gts="http://www.isotc211.org/2005/gts"
  xmlns:gmx="http://www.isotc211.org/2005/gmx" xmlns:xlink="http://www.w3.org/1999/xlink"
  xmlns:sdn="http://www.seadatanet.org" xmlns:gml="http://www.opengis.net/gml"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://www.seadatanet.org http://schemas.seadatanet.org/Standards-Software/Metadata-formats/SDN2_CDI_ISO19139_10.0.0.xsd">
        <gmd:fileIdentifier>
          <gco:CharacterString>urn:SDN:CDI:LOCAL:MARIS-TEST</gco:CharacterString>
        </gmd:fileIdentifier>
        <gmd:language>
          <gmd:LanguageCode
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#LanguageCode"
                  codeListValue="eng"
                  codeSpace="ISOTC211/19115">English</gmd:LanguageCode>
        </gmd:language>
        <gmd:characterSet>
          <gmd:MD_CharacterSetCode
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_CharacterSetCode"
                  codeListValue="utf8"
                  codeSpace="ISOTC211/19115">utf8</gmd:MD_CharacterSetCode>
        </gmd:characterSet>
        <gmd:hierarchyLevel>
          <gmd:MD_ScopeCode
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_ScopeCode"
                  codeListValue="dataset"
                  codeSpace="ISOTC211/19115">dataset</gmd:MD_ScopeCode>
```

```
</gmd:hierarchyLevel>

<gmd:hierarchyLevelName>

  <sdn:SDN_HierarchyLevelNameCode

codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_HierarchyLevelNameCode"

                      codeListValue="CDI"

                      codeSpace="SeaDataNet">Common Data Index

record</sdn:SDN_HierarchyLevelNameCode>

</gmd:hierarchyLevelName>

<gmd:contact>

  <gmd:CI_ResponsibleParty>

    <gmd:organisationName>

      <sdn:SDN_EDMOCode codeList="http://seadatanet.maris2.nl/isocodelists/sdncodelists/edmo-edmerp-

Codelists.xml#SDN_EDMOCode"

                  codeSpace="SeaDataNet"

                  codeListValue="1">University of Birmingham, Department of Geological

Sciences</sdn:SDN_EDMOCode>

    </gmd:organisationName>

    <gmd:contactInfo>

      <gmd:CI_Contact>

        <gmd:address>

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              <gco:CharacterString>School of Earth Sciences  Edgbaston </gco:CharacterString>

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            <gmd:postalCode>

              <gco:CharacterString>B15 2TT</gco:CharacterString>

            </gmd:postalCode>

            <gmd:country>

              <sdn:SDN_CountryCode codeSpace="SeaDataNet"

                      codeListValue="GB"


codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_CountryCode">United
```

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Kingdom</sdn:SDN_CountryCode>
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          </gmd:address>
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            <gmd:CI_OnlineResource>
              <gmd:linkage>
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            </gmd:CI_OnlineResource>
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      </gmd:contactInfo>
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        <gmd:CI_RoleCode
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                codeListValue="pointOfContact"
                codeSpace="ISOTC211/19115">pointOfContact</gmd:CI_RoleCode>
      </gmd:role>
    </gmd:CI_ResponsibleParty>
  </gmd:contact>
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  </gmd:dateStamp>
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  </gmd:metadataStandardName>
  <gmd:metadataStandardVersion>
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  </gmd:metadataStandardVersion>
  <gmd:spatialRepresentationInfo>
    <gmd:MD_VectorSpatialRepresentation>
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```xml
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    <gmd:geometricObjectType>
      <gmd:MD_GeometricObjectTypeCode
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_GeometricObjectTypeCode"
        codeListValue="curve"
        codeSpace="ISOTC211/19115">curve</gmd:MD_GeometricObjectTypeCode>
    </gmd:geometricObjectType>
  </gmd:MD_GeometricObjects>
</gmd:geometricObjects>
</gmd:MD_VectorSpatialRepresentation>
</gmd:spatialRepresentationInfo>
<gmd:spatialRepresentationInfo>
  <gmd:MD_GridSpatialRepresentation>
    <gmd:numberOfDimensions>
      <gco:Integer>3</gco:Integer>
    </gmd:numberOfDimensions>
    <gmd:axisDimensionProperties>
      <gmd:MD_Dimension>
        <gmd:dimensionName>
          <gmd:MD_DimensionNameTypeCode
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_DimensionNameTypeCode"
            codeListValue="vertical"
            codeSpace="ISOTC211/19115">vertical</gmd:MD_DimensionNameTypeCode>
        </gmd:dimensionName>
        <gmd:dimensionSize>
          <gco:Integer>1</gco:Integer>
        </gmd:dimensionSize>
        <gmd:resolution>
          <gco:Measure uom="http://www.seadatanet.org/urnurl/SDN:P06::UTHZ">20</gco:Measure>
        </gmd:resolution>
      </gmd:MD_Dimension>
    </gmd:axisDimensionProperties>
    <gmd:axisDimensionProperties>
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```

```xml
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codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_DimensionNameTypeCode"
    codeListValue="track"
    codeSpace="ISOTC211/19115">track</gmd:MD_DimensionNameTypeCode>
</gmd:dimensionName>
<gmd:dimensionSize>
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</gmd:resolution>
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</gmd:axisDimensionProperties>
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codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_DimensionNameTypeCode"
    codeListValue="time"
    codeSpace="ISOTC211/19115">time</gmd:MD_DimensionNameTypeCode>
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</gmd:resolution>
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</gmd:axisDimensionProperties>
<gmd:cellGeometry>
  <gmd:MD_CellGeometryCode
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_CellGeometryCode"
    codeListValue="point"
    codeSpace="ISOTC211/19115">point</gmd:MD_CellGeometryCode>
```

```
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  </gmd:spatialRepresentationInfo>
  <gmd:referenceSystemInfo>
    <gmd:MD_ReferenceSystem>
      <gmd:referenceSystemIdentifier>
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          <gmd:authority>
            <gmd:CI_Citation>
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              </gmd:title>
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                <gco:CharacterString>L10</gco:CharacterString>
              </gmd:alternateTitle>
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codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_DateTypeCode"
                          codeListValue="revision"
                          codeSpace="ISOTC211/19115">revision</gmd:CI_DateTypeCode>
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        </gmd:authority>
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codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_CRSCode"
                    codeListValue="4326"
                    codeSpace="SeaDataNet">World Geodetic System 84</sdn:SDN_CRSCode>
        </gmd:code>
      </gmd:RS_Identifier>
    </gmd:referenceSystemIdentifier>
  </gmd:MD_ReferenceSystem>
</gmd:referenceSystemInfo>
<gmd:metadataExtensionInfo xlink:href="http://schemas.seadatanet.org/Standards-Software/Metadata-
formats/cdiExtensionInformation.xml"/>
<gmd:identificationInfo>
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    <gmd:citation>
      <gmd:CI_Citation>
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        <gmd:alternateTitle>
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        </gmd:alternateTitle>
        <gmd:date>
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                       codeListValue="revision"
                       codeSpace="ISOTC211/19115">revision</gmd:CI_DateTypeCode>
            </gmd:dateType>
          </gmd:CI_Date>
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            <gmd:code>
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            </gmd:code>
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        </gmd:identifier>
        <gmd:citedResponsibleParty>
          <gmd:CI_ResponsibleParty>
            <gmd:organisationName>
              <sdn:SDN_EDMOCode codeList="http://seadatanet.maris2.nl/isocodelists/sdncodelists/edmo-edmerp-
Codelists.xml#SDN_EDMOCode"
                       codeSpace="SeaDataNet"
                       codeListValue="18">Scott Polar Research Institute (SPRI)</sdn:SDN_EDMOCode>
            </gmd:organisationName>
            <gmd:contactInfo>
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                    <gmd:deliveryPoint>
                      <gco:CharacterString>University of Cambridge Lensfield Road</gco:CharacterString>
                    </gmd:deliveryPoint>
                    <gmd:city>
                      <gco:CharacterString>Cambridge</gco:CharacterString>
                    </gmd:city>
                    <gmd:postalCode>
                      <gco:CharacterString>CB2 1ER</gco:CharacterString>
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```xml
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          <sdn:SDN_CountryCode codeSpace="SeaDataNet"
                    codeListValue="GB"

codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_CountryCode">United
Kingdom</sdn:SDN_CountryCode>
        </gmd:country>
        <gmd:electronicMailAddress>
          <gco:CharacterString>sdn-userdesk@seadatanet.org</gco:CharacterString>
        </gmd:electronicMailAddress>
       </gmd:CI_Address>
      </gmd:address>
      <gmd:onlineResource>
        <gmd:CI_OnlineResource>
         <gmd:linkage>
           <gmd:URL>http://www.spri.cam.ac.uk/</gmd:URL>
         </gmd:linkage>
        </gmd:CI_OnlineResource>
       </gmd:onlineResource>
      </gmd:CI_Contact>
     </gmd:contactInfo>
     <gmd:role>
      <gmd:CI_RoleCode
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_RoleCode"
                codeListValue="originator"
                codeSpace="ISOTC211/19115">originator</gmd:CI_RoleCode>
     </gmd:role>
    </gmd:CI_ResponsibleParty>
   </gmd:citedResponsibleParty>
   <gmd:citedResponsibleParty>
    <gmd:CI_ResponsibleParty>
     <gmd:organisationName>
      <sdn:SDN_EDMOCode codeList="http://seadatanet.maris2.nl/isocodelists/sdncodelists/edmo-edmerp-
Codelists.xml#SDN_EDMOCode"
```

```xml
                    codeSpace="SeaDataNet"
                    codeListValue="70">Midland and Scottish Resources Plc</sdn:SDN_EDMOCode>
          </gmd:organisationName>
          <gmd:contactInfo>
            <gmd:CI_Contact>
              <gmd:address>
                <gmd:CI_Address>
                  <gmd:deliveryPoint>
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                  </gmd:deliveryPoint>
                  <gmd:city>
                    <gco:CharacterString>Aberdeen</gco:CharacterString>
                  </gmd:city>
                  <gmd:postalCode>
                    <gco:CharacterString>AB12 3LG</gco:CharacterString>
                  </gmd:postalCode>
                  <gmd:country>
                    <sdn:SDN_CountryCode codeSpace="SeaDataNet"
                            codeListValue="GB"

codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_CountryCode">United
Kingdom</sdn:SDN_CountryCode>
                  </gmd:country>
                  <gmd:electronicMailAddress>
                    <gco:CharacterString>sdn-userdesk@seadatanet.org</gco:CharacterString>
                  </gmd:electronicMailAddress>
                </gmd:CI_Address>
              </gmd:address>
            </gmd:CI_Contact>
          </gmd:contactInfo>
          <gmd:role>
            <gmd:CI_RoleCode
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_RoleCode"
                    codeListValue="originator"
                    codeSpace="ISOTC211/19115">originator</gmd:CI_RoleCode>
```

```xml
        </gmd:role>
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    </gmd:citedResponsibleParty>
    <gmd:citedResponsibleParty>
      <gmd:CI_ResponsibleParty>
        <gmd:organisationName>
          <sdn:SDN_EDMOCode codeList="http://seadatanet.maris2.nl/isocodelists/sdncodelists/edmo-edmerp-
Codelists.xml#SDN_EDMOCode"
                            codeSpace="SeaDataNet"
                            codeListValue="181">County Administration of Vasterbotten</sdn:SDN_EDMOCode>
        </gmd:organisationName>
        <gmd:contactInfo>
          <gmd:CI_Contact>
            <gmd:phone>
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                <gmd:voice>
                  <gco:CharacterString>+46-(0)90-10 72 56</gco:CharacterString>
                </gmd:voice>
                <gmd:facsimile>
                  <gco:CharacterString>+46-(0)90-10 71 00</gco:CharacterString>
                </gmd:facsimile>
              </gmd:CI_Telephone>
            </gmd:phone>
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              <gmd:CI_Address>
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                </gmd:deliveryPoint>
                <gmd:city>
                  <gco:CharacterString>Umea</gco:CharacterString>
                </gmd:city>
                <gmd:postalCode>
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                <gmd:country>
```

```xml
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codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_CountryCode">Sweden</sdn:SDN_
CountryCode>
              </gmd:country>
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                <gco:CharacterString>jan.albertsson@ac.lst.se</gco:CharacterString>
              </gmd:electronicMailAddress>
            </gmd:CI_Address>
          </gmd:address>
          <gmd:onlineResource>
            <gmd:CI_OnlineResource>
              <gmd:linkage>
                <gmd:URL>http://www.ac.lst.se</gmd:URL>
              </gmd:linkage>
            </gmd:CI_OnlineResource>
          </gmd:onlineResource>
        </gmd:CI_Contact>
      </gmd:contactInfo>
      <gmd:role>
        <gmd:CI_RoleCode
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_RoleCode"
                     codeListValue="originator"
                     codeSpace="ISOTC211/19115">originator</gmd:CI_RoleCode>
      </gmd:role>
    </gmd:CI_ResponsibleParty>
  </gmd:citedResponsibleParty>
  <gmd:citedResponsibleParty>
    <gmd:CI_ResponsibleParty>
      <gmd:organisationName>
        <sdn:SDN_EDMOCode codeList="http://seadatanet.maris2.nl/isocodelists/sdncodelists/edmo-edmerp-
Codelists.xml#SDN_EDMOCode"
                     codeSpace="SeaDataNet"
                     codeListValue="354">Puertos del Estado. Departamento de Clima
```

Maritimo</sdn:SDN_EDMOCode>
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                    <gmd:contactInfo>
                        <gmd:CI_Contact>
                            <gmd:phone>
                                <gmd:CI_Telephone>
                                    <gmd:voice>
                                        <gco:CharacterString>+34 915 245500</gco:CharacterString>
                                    </gmd:voice>
                                    <gmd:facsimile>
                                        <gco:CharacterString>+34 915 245501</gco:CharacterString>
                                    </gmd:facsimile>
                                </gmd:CI_Telephone>
                            </gmd:phone>
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                                <gmd:CI_Address>
                                    <gmd:deliveryPoint>
                                        <gco:CharacterString>Av. del Partenon 10</gco:CharacterString>
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                                        <gco:CharacterString>Madrid</gco:CharacterString>
                                    </gmd:city>
                                    <gmd:postalCode>
                                        <gco:CharacterString>28042</gco:CharacterString>
                                    </gmd:postalCode>
                                    <gmd:country>
                                        <sdn:SDN_CountryCode codeSpace="SeaDataNet"
                                                codeListValue="ES"

codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_CountryCode">Spain</sdn:SDN_CountryCode>
                                    </gmd:country>
                                    <gmd:electronicMailAddress>
                                        <gco:CharacterString>obdulio@puertos.es</gco:CharacterString>
                                    </gmd:electronicMailAddress>

```xml
            </gmd:CI_Address>
          </gmd:address>
          <gmd:onlineResource>
            <gmd:CI_OnlineResource>
              <gmd:linkage>
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            </gmd:CI_OnlineResource>
          </gmd:onlineResource>
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      </gmd:contactInfo>
      <gmd:role>
        <gmd:CI_RoleCode
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_RoleCode"
                          codeListValue="originator"
                          codeSpace="ISOTC211/19115">originator</gmd:CI_RoleCode>
      </gmd:role>
    </gmd:CI_ResponsibleParty>
  </gmd:citedResponsibleParty>
  <gmd:citedResponsibleParty>
    <gmd:CI_ResponsibleParty>
      <gmd:organisationName>
        <sdn:SDN_EDMOCode codeList="http://seadatanet.maris2.nl/isocodelists/sdncodelists/edmo-edmerp-
Codelists.xml#SDN_EDMOCode"
                          codeSpace="SeaDataNet"
                          codeListValue="464">Fisheries Laboratory, Faroe Islands</sdn:SDN_EDMOCode>
      </gmd:organisationName>
      <gmd:contactInfo>
        <gmd:CI_Contact>
          <gmd:phone>
            <gmd:CI_Telephone>
              <gmd:voice>
                <gco:CharacterString>(+298) 35 39 00</gco:CharacterString>
              </gmd:voice>
              <gmd:facsimile>
```

```xml
              <gco:CharacterString>(+298) 35 39 01</gco:CharacterString>
            </gmd:facsimile>
          </gmd:CI_Telephone>
        </gmd:phone>
        <gmd:address>
          <gmd:CI_Address>
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            </gmd:deliveryPoint>
            <gmd:city>
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            </gmd:city>
            <gmd:postalCode>
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            </gmd:postalCode>
            <gmd:country>
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                        codeListValue="DK"

codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_CountryCode">Denmark</sdn:SDN_CountryCode>
            </gmd:country>
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          </gmd:CI_Address>
        </gmd:address>
        <gmd:onlineResource>
          <gmd:CI_OnlineResource>
            <gmd:linkage>
              <gmd:URL>http://www.frs.fo/default.asp</gmd:URL>
            </gmd:linkage>
          </gmd:CI_OnlineResource>
        </gmd:onlineResource>
      </gmd:CI_Contact>
```

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        </gmd:contactInfo>
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                        codeListValue="originator"
                        codeSpace="ISOTC211/19115">originator</gmd:CI_RoleCode>
        </gmd:role>
      </gmd:CI_ResponsibleParty>
    </gmd:citedResponsibleParty>
  </gmd:CI_Citation>
</gmd:citation>
<gmd:abstract>
  <gco:CharacterString>This record is meant for test purposes.  It contains a value for every field and multiple
values whereever possible.</gco:CharacterString>
</gmd:abstract>
<gmd:pointOfContact>
  <gmd:CI_ResponsibleParty>
    <gmd:organisationName>
      <sdn:SDN_EDMOCode codeList="http://seadatanet.maris2.nl/isocodelists/sdncodelists/edmo-edmerp-
Codelists.xml#SDN_EDMOCode"
                        codeSpace="SeaDataNet"
                        codeListValue="634">Marine Information Service (MARIS)</sdn:SDN_EDMOCode>
    </gmd:organisationName>
    <gmd:contactInfo>
      <gmd:CI_Contact>
        <gmd:phone>
          <gmd:CI_Telephone>
            <gmd:voice>
              <gco:CharacterString>+31 70 3004710</gco:CharacterString>
            </gmd:voice>
            <gmd:facsimile>
              <gco:CharacterString>+31 70 3903546</gco:CharacterString>
            </gmd:facsimile>
          </gmd:CI_Telephone>
        </gmd:phone>
```

```xml
<gmd:address>
  <gmd:CI_Address>
    <gmd:deliveryPoint>
      <gco:CharacterString>Koningin Julianalaan 345A</gco:CharacterString>
    </gmd:deliveryPoint>
    <gmd:city>
      <gco:CharacterString>Voorburg</gco:CharacterString>
    </gmd:city>
    <gmd:postalCode>
      <gco:CharacterString>2273JJ</gco:CharacterString>
    </gmd:postalCode>
    <gmd:country>
      <sdn:SDN_CountryCode codeSpace="SeaDataNet"
                    codeListValue="NL"

codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_CountryCode">Netherlands</sdn:SDN_CountryCode>
    </gmd:country>
    <gmd:electronicMailAddress>
      <gco:CharacterString>maris@xs4all.nl</gco:CharacterString>
    </gmd:electronicMailAddress>
  </gmd:CI_Address>
</gmd:address>
<gmd:onlineResource>
  <gmd:CI_OnlineResource>
    <gmd:linkage>
      <gmd:URL>http://www.maris.nl</gmd:URL>
    </gmd:linkage>
  </gmd:CI_OnlineResource>
</gmd:onlineResource>
</gmd:CI_Contact>
</gmd:contactInfo>
<gmd:role>
  <gmd:CI_RoleCode
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_RoleCode"
```

```xml
                    codeListValue="custodian"
                    codeSpace="ISOTC211/19115">custodian</gmd:CI_RoleCode>
          </gmd:role>
        </gmd:CI_ResponsibleParty>
      </gmd:pointOfContact>
      <gmd:resourceMaintenance>
        <gmd:MD_MaintenanceInformation>
          <gmd:maintenanceAndUpdateFrequency>
            <gmd:MD_MaintenanceFrequencyCode
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_MaintenanceFrequencyCode"
                              codeListValue="continual">continual</gmd:MD_MaintenanceFrequencyCode>
          </gmd:maintenanceAndUpdateFrequency>
          <gmd:userDefinedMaintenanceFrequency>
            <gts:TM_PeriodDuration>P35D</gts:TM_PeriodDuration>
          </gmd:userDefinedMaintenanceFrequency>
        </gmd:MD_MaintenanceInformation>
      </gmd:resourceMaintenance>
      <gmd:descriptiveKeywords>
        <gmd:MD_Keywords>
          <gmd:keyword>
            <gco:CharacterString>Oceanographic geographical features</gco:CharacterString>
          </gmd:keyword>
          <gmd:type>
            <gmd:MD_KeywordTypeCode codeSpace="SeaDataNet"

codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_KeywordTypeCode"
                              codeListValue="theme">theme</gmd:MD_KeywordTypeCode>
          </gmd:type>
          <gmd:thesaurusName>
            <gmd:CI_Citation>
              <gmd:title>
                <gco:CharacterString>GEMET - INSPIRE themes, version 1.0</gco:CharacterString>
              </gmd:title>
              <gmd:date>
                <gmd:CI_Date>
```

```xml
                    <gmd:date>
                      <gco:Date>2008-06-01</gco:Date>
                    </gmd:date>
                    <gmd:dateType>
                      <gmd:CI_DateTypeCode codeSpace="ISOTC211/19115"
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_DateTypeCode"
                        codeListValue="publication">publication</gmd:CI_DateTypeCode>
                    </gmd:dateType>
                  </gmd:CI_Date>
                </gmd:date>
              </gmd:CI_Citation>
            </gmd:thesaurusName>
          </gmd:MD_Keywords>
        </gmd:descriptiveKeywords>
        <gmd:descriptiveKeywords>
          <gmd:MD_Keywords>
            <gmd:keyword>
              <sdn:SDN_ParameterDiscoveryCode codeSpace="SeaDataNet"
                        codeListValue="ATVS"
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_ParameterDiscoveryCode">Atmosp
heric visibility and transparency</sdn:SDN_ParameterDiscoveryCode>
            </gmd:keyword>
            <gmd:keyword>
              <sdn:SDN_ParameterDiscoveryCode codeSpace="SeaDataNet"
                        codeListValue="AMON"
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_ParameterDiscoveryCode">Ammon
ium concentration parameters in the water column</sdn:SDN_ParameterDiscoveryCode>
            </gmd:keyword>
            <gmd:keyword>
              <sdn:SDN_ParameterDiscoveryCode codeSpace="SeaDataNet"
                        codeListValue="CHUM"
```

```
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_ParameterDiscoveryCode">Atmospheric humidity</sdn:SDN_ParameterDiscoveryCode>
                </gmd:keyword>
                <gmd:type>
                  <gmd:MD_KeywordTypeCode
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_KeywordTypeCode"
                        codeListValue="parameter"
                        codeSpace="SeaDataNet">parameter</gmd:MD_KeywordTypeCode>
                </gmd:type>
                <gmd:thesaurusName>
                  <gmd:CI_Citation>
                    <gmd:title>
                      <gco:CharacterString>BODC Parameter Discovery Vocabulary</gco:CharacterString>
                    </gmd:title>
                    <gmd:alternateTitle>
                      <gco:CharacterString>P02</gco:CharacterString>
                    </gmd:alternateTitle>
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                          <gco:Date>2009-06-05</gco:Date>
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codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_DateTypeCode"
                                codeListValue="revision"
                                codeSpace="ISOTC211/19115">revision</gmd:CI_DateTypeCode>
                        </gmd:dateType>
                      </gmd:CI_Date>
                    </gmd:date>
                    <gmd:edition>
                      <gco:CharacterString>41</gco:CharacterString>
                    </gmd:edition>
                    <gmd:identifier>
                      <gmd:MD_Identifier>
```

```
                    <gmd:code>

                        <gco:CharacterString>http://www.seadatanet.org/urnurl/SDN:P02</gco:CharacterString>

                    </gmd:code>

                </gmd:MD_Identifier>

            </gmd:identifier>

        </gmd:CI_Citation>

    </gmd:thesaurusName>

  </gmd:MD_Keywords>

</gmd:descriptiveKeywords>

<gmd:descriptiveKeywords>

  <gmd:MD_Keywords>

    <gmd:keyword>

      <sdn:SDN_DeviceCategoryCode codeSpace="SeaDataNet"

                    codeListValue="13"


codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_DeviceCategoryCode">aerosol

samplers</sdn:SDN_DeviceCategoryCode>

      </gmd:keyword>

      <gmd:keyword>

        <sdn:SDN_DeviceCategoryCode codeSpace="SeaDataNet"

                    codeListValue="POS04"


codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_DeviceCategoryCode">Differential

Global Positioning System receivers</sdn:SDN_DeviceCategoryCode>

      </gmd:keyword>

      <gmd:type>

        <gmd:MD_KeywordTypeCode
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_KeywordTypeCode"

                    codeListValue="instrument"

                    codeSpace="SeaDataNet">instrument</gmd:MD_KeywordTypeCode>

      </gmd:type>

      <gmd:thesaurusName>

        <gmd:CI_Citation>

          <gmd:title>

            <gco:CharacterString>SeaDataNet device categories</gco:CharacterString>
```

```
          </gmd:title>
          <gmd:alternateTitle>
            <gco:CharacterString>L05</gco:CharacterString>
          </gmd:alternateTitle>
          <gmd:date>
            <gmd:CI_Date>
              <gmd:date>
                <gco:Date>2008-01-11</gco:Date>
              </gmd:date>
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                <gmd:CI_DateTypeCode
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_DateTypeCode"
                          codeListValue="revision"
                          codeSpace="ISOTC211/19115">revision</gmd:CI_DateTypeCode>
              </gmd:dateType>
            </gmd:CI_Date>
          </gmd:date>
          <gmd:edition>
            <gco:CharacterString>4</gco:CharacterString>
          </gmd:edition>
          <gmd:identifier>
            <gmd:MD_Identifier>
              <gmd:code>
                <gco:CharacterString>http://www.seadatanet.org/urnurl/SDN:L05</gco:CharacterString>
              </gmd:code>
            </gmd:MD_Identifier>
          </gmd:identifier>
        </gmd:CI_Citation>
      </gmd:thesaurusName>
    </gmd:MD_Keywords>
  </gmd:descriptiveKeywords>
  <gmd:descriptiveKeywords>
    <gmd:MD_Keywords>
      <gmd:keyword>
        <sdn:SDN_PlatformCategoryCode codeSpace="SeaDataNet"
```

```
                    codeListValue="75"

codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_PlatformCategoryCode">cetacean</
sdn:SDN_PlatformCategoryCode>
          </gmd:keyword>
          <gmd:type>
            <gmd:MD_KeywordTypeCode
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_KeywordTypeCode"
                    codeListValue="platform_class"
                    codeSpace="SeaDataNet">platform_class</gmd:MD_KeywordTypeCode>
          </gmd:type>
          <gmd:thesaurusName>
            <gmd:CI_Citation>
              <gmd:title>
                <gco:CharacterString>SeaDataNet Platform Classes</gco:CharacterString>
              </gmd:title>
              <gmd:alternateTitle>
                <gco:CharacterString>L06</gco:CharacterString>
              </gmd:alternateTitle>
              <gmd:date>
                <gmd:CI_Date>
                  <gmd:date>
                    <gco:Date>2008-12-05</gco:Date>
                  </gmd:date>
                  <gmd:dateType>
                    <gmd:CI_DateTypeCode
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_DateTypeCode"
                        codeListValue="revision"
                        codeSpace="ISOTC211/19115">revision</gmd:CI_DateTypeCode>
                  </gmd:dateType>
                </gmd:CI_Date>
              </gmd:date>
              <gmd:edition>
                <gco:CharacterString>7</gco:CharacterString>
              </gmd:edition>
```

```xml
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              </gmd:code>
            </gmd:MD_Identifier>
          </gmd:identifier>
        </gmd:CI_Citation>
      </gmd:thesaurusName>
    </gmd:MD_Keywords>
  </gmd:descriptiveKeywords>
  <gmd:descriptiveKeywords>
    <gmd:MD_Keywords>
      <gmd:keyword>
        <sdn:SDN_EDMERPCode codeSpace="SeaDataNet"
                 codeListValue="8857"
                 codeList="http://seadatanet.maris2.nl/isocodelists/sdncodelists/edmo-edmerp-
Codelists.xml#SDN_EDMERPCode">Integrated Ocean Drilling Program (IODP) - Artic expedition (ACEX)
{acronym="IODP" organisation="Natural Environment Research Council (NERC)" country="United
Kingdom"}</sdn:SDN_EDMERPCode>
      </gmd:keyword>
      <gmd:keyword>
        <sdn:SDN_EDMERPCode codeSpace="SeaDataNet"
                 codeListValue="8889"
                 codeList="http://seadatanet.maris2.nl/isocodelists/sdncodelists/edmo-edmerp-
Codelists.xml#SDN_EDMERPCode">National Coastal Data Co-ordinator {acronym="" organisation="Department for
Environment, Food and Rural Affairs (DEFRA)" country="United Kingdom"}</sdn:SDN_EDMERPCode>
      </gmd:keyword>
      <gmd:keyword>
        <sdn:SDN_EDMERPCode codeSpace="SeaDataNet"
                 codeListValue="7576"
                 codeList="http://seadatanet.maris2.nl/isocodelists/sdncodelists/edmo-edmerp-
Codelists.xml#SDN_EDMERPCode">GEOWARN - Geo-spatial warning system Nisyros volcano (Greece). An emergency
case study. {acronym="GEOWARN" organisation="Hellenic Centre for Marine Research, Institute of Oceanography
(HCMR/IO)" country="Greece"}</sdn:SDN_EDMERPCode>
```

```
            </gmd:keyword>
            <gmd:type>
              <gmd:MD_KeywordTypeCode
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_KeywordTypeCode"
                           codeListValue="project"
                           codeSpace="SeaDataNet">project</gmd:MD_KeywordTypeCode>
            </gmd:type>
            <gmd:thesaurusName>
              <gmd:CI_Citation>
                <gmd:title>
                  <gco:CharacterString>European Directory of Marine Environmental Research
Projects</gco:CharacterString>
                </gmd:title>
                <gmd:alternateTitle>
                  <gco:CharacterString>EDMERP</gco:CharacterString>
                </gmd:alternateTitle>
                <gmd:date>
                  <gmd:CI_Date>
                    <gmd:date>
                      <gco:Date>2013-05-03+02:00</gco:Date>
                    </gmd:date>
                    <gmd:dateType>
                      <gmd:CI_DateTypeCode
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_DateTypeCode"
                           codeListValue="revision"
                           codeSpace="ISOTC211/19115">revision</gmd:CI_DateTypeCode>
                    </gmd:dateType>
                  </gmd:CI_Date>
                </gmd:date>
                <gmd:identifier>
                  <gmd:MD_Identifier>
                    <gmd:code>
                      <gco:CharacterString>http://www.seadatanet.org/urnurl/SDN:EDMERP</gco:CharacterString>
                    </gmd:code>
                  </gmd:MD_Identifier>
```

```
                                </gmd:identifier>

                          </gmd:CI_Citation>

                       </gmd:thesaurusName>

                  </gmd:MD_Keywords>

              </gmd:descriptiveKeywords>

              <gmd:resourceConstraints>

                  <gmd:MD_Constraints>

                      <gmd:useLimitation>

                          <gco:CharacterString>Not applicable</gco:CharacterString>

                      </gmd:useLimitation>

                  </gmd:MD_Constraints>

              </gmd:resourceConstraints>

              <gmd:resourceConstraints>

                  <gmd:MD_LegalConstraints>

                      <gmd:accessConstraints>

                          <gmd:MD_RestrictionCode codeListValue="otherRestrictions"


codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_RestrictionCode">otherRestrictions</

gmd:MD_RestrictionCode>

                      </gmd:accessConstraints>

                      <gmd:otherConstraints>

                          <gmx:Anchor xlink:href="http://www.seadatanet.org/urnurl/SDN:L08::LS">SeaDataNet

licence</gmx:Anchor>

                      </gmd:otherConstraints>

                  </gmd:MD_LegalConstraints>

              </gmd:resourceConstraints>

              <gmd:resourceConstraints>

                  <gmd:MD_LegalConstraints>

                      <gmd:accessConstraints>

                          <gmd:MD_RestrictionCode codeListValue="otherRestrictions"


codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_RestrictionCode">otherRestrictions</

gmd:MD_RestrictionCode>

                      </gmd:accessConstraints>

                      <gmd:otherConstraints>
```

```
                <gmx:Anchor xlink:href="http://www.seadatanet.org/urnurl/SDN:L08::LI">licence</gmx:Anchor>
              </gmd:otherConstraints>
            </gmd:MD_LegalConstraints>
          </gmd:resourceConstraints>
          <gmd:resourceConstraints>
            <gmd:MD_LegalConstraints>
              <gmd:accessConstraints>
                <gmd:MD_RestrictionCode codeListValue="otherRestrictions"

codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_RestrictionCode">otherRestrictions</
gmd:MD_RestrictionCode>
              </gmd:accessConstraints>
              <gmd:otherConstraints>
                <gmx:Anchor xlink:href="http://www.seadatanet.org/urnurl/SDN:L08::LS">SeaDataNet
licence</gmx:Anchor>
              </gmd:otherConstraints>
            </gmd:MD_LegalConstraints>
          </gmd:resourceConstraints>
          <gmd:aggregationInfo>
            <gmd:MD_AggregateInformation>
              <gmd:aggregateDataSetName>
                <gmd:CI_Citation>
                  <gmd:title>
                    <gco:CharacterString>My Cruise</gco:CharacterString>
                  </gmd:title>
                  <gmd:alternateTitle>
                    <gco:CharacterString>CRUISE01</gco:CharacterString>
                  </gmd:alternateTitle>
                  <gmd:date>
                    <gmd:CI_Date>
                      <gmd:date>
                        <gco:Date>2009-06-01</gco:Date>
                      </gmd:date>
                      <gmd:dateType>
                        <gmd:CI_DateTypeCode
```

```
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_DateTypeCode"
                                    codeListValue="revision"
                                    codeSpace="ISOTC211/19115">revision</gmd:CI_DateTypeCode>
                </gmd:dateType>
              </gmd:CI_Date>
            </gmd:date>
          </gmd:CI_Citation>
        </gmd:aggregateDataSetName>
        <gmd:aggregateDataSetIdentifier>
          <gmd:MD_Identifier>
            <gmd:code>
              <sdn:SDN_CSRCode codeListValue="20127023"

codeList="http://seadata.bsh.de/isoCodelists/sdnCodelists/csrCodeList.xml#SDN_CSRCode "
                                codeSpace="SeaDataNet">James Cook (740H)</sdn:SDN_CSRCode >
            </gmd:code>
          </gmd:MD_Identifier>
        </gmd: aggregateDataSetIdentifier >
        <gmd:associationType>
          <gmd:DS_AssociationTypeCode codeListValue="largerWorkCitation"

codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#DS_AssociationTypeCode"
                                codeSpace="ISOTC211/19115">largerWorkCitation</gmd:DS_AssociationTypeCode>
        </gmd:associationType>
        <gmd:initiativeType>
          <gmd:DS_InitiativeTypeCode codeListValue="campaign"

codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#DS_InitiativeTypeCode"
                                codeSpace="ISOTC211/19115">campaign</gmd:DS_InitiativeTypeCode>
        </gmd:initiativeType>
      </gmd:MD_AggregateInformation>
    </gmd:aggregationInfo>
    <gmd:aggregationInfo>
      <gmd:MD_AggregateInformation>
        <gmd:aggregateDataSetName>
```

```xml
<gmd:CI_Citation>
  <gmd:title>
    <gco:CharacterString>My Station</gco:CharacterString>
  </gmd:title>
  <gmd:alternateTitle>
    <gco:CharacterString>STATION01</gco:CharacterString>
  </gmd:alternateTitle>
  <gmd:date>
    <gmd:CI_Date>
      <gmd:date>
        <gco:Date>2009-05-15</gco:Date>
      </gmd:date>
      <gmd:dateType>
        <gmd:CI_DateTypeCode
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_DateTypeCode"
                             codeListValue="revision"
                             codeSpace="ISOTC211/19115">revision</gmd:CI_DateTypeCode>
      </gmd:dateType>
    </gmd:CI_Date>
  </gmd:date>
</gmd:CI_Citation>
</gmd:aggregateDataSetName>
<gmd:associationType>
  <gmd:DS_AssociationTypeCode codeListValue="source"

codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#DS_AssociationTypeCode"
                              codeSpace="ISOTC211/19115">source</gmd:DS_AssociationTypeCode>
</gmd:associationType>
<gmd:initiativeType>
  <gmd:DS_InitiativeTypeCode codeListValue="operation"

codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#DS_InitiativeTypeCode"
                             codeSpace="ISOTC211/19115">operation</gmd:DS_InitiativeTypeCode>
</gmd:initiativeType>
</gmd:MD_AggregateInformation>
```

```xml
        </gmd:aggregationInfo>
        <gmd:aggregationInfo>
          <gmd:MD_AggregateInformation>
            <gmd:aggregateDataSetIdentifier>
              <gmd:MD_Identifier>
                <gmd:code>
                  <sdn:SDN_EDMEDCode codeListValue="973"
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/edmedCodeList.xml#SDN_EDMEDCode"
codeSpace="SeaDataNet">(CIPS/ICWB) SEA - an extensive multidisciplinary Belgian survey of the eastern half of
Southern Bight of North Sea (1971-75)</sdn:SDN_EDMEDCode>
                </gmd:code>
              </gmd:MD_Identifier>
            </gmd:aggregateDataSetIdentifier>
            <gmd:associationType>
              <gmd:DS_AssociationTypeCode codeListValue="largerWorkCitation"

codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#DS_AssociationTypeCode"
                codeSpace="ISOTC211/19115">largerWorkCitation</gmd:DS_AssociationTypeCode>
            </gmd:associationType>
            <gmd:initiativeType>
              <gmd:DS_InitiativeTypeCode codeListValue="campaign"

codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#DS_InitiativeTypeCode"
                codeSpace="ISOTC211/19115">campaign</gmd:DS_InitiativeTypeCode>
            </gmd:initiativeType>
          </gmd:MD_AggregateInformation>
        </gmd:aggregationInfo>
        <gmd:spatialResolution>
          <gmd:MD_Resolution>
            <gmd:distance>
              <gco:Distance uom="http://www.seadatanet.org/urnurl/SDN:P06::ULAA">50</gco:Distance>
            </gmd:distance>
          </gmd:MD_Resolution>
        </gmd:spatialResolution>
        <gmd:language>
```

```
                    <gmd:LanguageCode
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#LanguageCode"
                         codeListValue="eng">English</gmd:LanguageCode>
          </gmd:language>
          <gmd:characterSet>
            <gmd:MD_CharacterSetCode
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_CharacterSetCode"
                         codeListValue="utf8"
                         codeSpace="ISOTC211/19115">utf8</gmd:MD_CharacterSetCode>
          </gmd:characterSet>
          <gmd:topicCategory>
            <gmd:MD_TopicCategoryCode>oceans</gmd:MD_TopicCategoryCode>
          </gmd:topicCategory>
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            <gmd:EX_Extent>
              <gmd:geographicElement>
                <gmd:EX_GeographicBoundingBox>
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                  </gmd:westBoundLongitude>
                  <gmd:eastBoundLongitude>
                    <gco:Decimal>-49.007153</gco:Decimal>
                  </gmd:eastBoundLongitude>
                  <gmd:southBoundLatitude>
                    <gco:Decimal>59.400296</gco:Decimal>
                  </gmd:southBoundLatitude>
                  <gmd:northBoundLatitude>
                    <gco:Decimal>73.889864</gco:Decimal>
                  </gmd:northBoundLatitude>
                </gmd:EX_GeographicBoundingBox>
              </gmd:geographicElement>
              <gmd:geographicElement>
                <gmd:EX_GeographicBoundingBox>
                  <gmd:westBoundLongitude>
                    <gco:Decimal>106.574831</gco:Decimal>
```

```
      </gmd:westBoundLongitude>
      <gmd:eastBoundLongitude>
        <gco:Decimal>114.842479</gco:Decimal>
      </gmd:eastBoundLongitude>
      <gmd:southBoundLatitude>
        <gco:Decimal>5.916728</gco:Decimal>
      </gmd:southBoundLatitude>
      <gmd:northBoundLatitude>
        <gco:Decimal>17.636232</gco:Decimal>
      </gmd:northBoundLatitude>
    </gmd:EX_GeographicBoundingBox>
  </gmd:geographicElement>
  <gmd:geographicElement>
    <gmd:EX_GeographicBoundingBox>
      <gmd:westBoundLongitude>
        <gco:Decimal>-80.198605</gco:Decimal>
      </gmd:westBoundLongitude>
      <gmd:eastBoundLongitude>
        <gco:Decimal>-70.052045</gco:Decimal>
      </gmd:eastBoundLongitude>
      <gmd:southBoundLatitude>
        <gco:Decimal>-57.079131</gco:Decimal>
      </gmd:southBoundLatitude>
      <gmd:northBoundLatitude>
        <gco:Decimal>-36.777203</gco:Decimal>
      </gmd:northBoundLatitude>
    </gmd:EX_GeographicBoundingBox>
  </gmd:geographicElement>
  <gmd:geographicElement>
    <gmd:EX_BoundingPolygon>
      <gmd:polygon>
        <gml:MultiCurve gml:id="mc01">
          <gml:curveMember>
            <gml:LineString gml:id="ls01">
              <gml:description>This is line 1</gml:description>
```

```xml
        <gml:name codeSpace="http://www.seadatanet.org/urnurl/">line1</gml:name>
        <gml:posList>-68.548849 73.889864 -61.408617 72.824456 -58.026401 68.136664 -56.523193
62.38344 -49.007153 59.400296</gml:posList>
      </gml:LineString>
    </gml:curveMember>
    <gml:curveMember>
      <gml:LineString gml:id="ls02">
        <gml:description>This is line 2</gml:description>
        <gml:name codeSpace="http://www.seadatanet.org/urnurl/">line2</gml:name>
        <gml:posList>112.963503 17.636232 114.842479 14.866168 114.842479 11.030688 111.084463
8.473704 106.574831 5.916728</gml:posList>
      </gml:LineString>
    </gml:curveMember>
    <gml:curveMember>
      <gml:LineString gml:id="ls03">
        <gml:description>This is line 3</gml:description>
        <gml:name codeSpace="http://www.seadatanet.org/urnurl/">line3</gml:name>
        <gml:posList>-76.816333 -36.777203 -77.192141 -43.722611 -80.198605 -47.195299 -
78.319565 -50.400867 -74.561741 -54.674947 -70.052045 -57.079131</gml:posList>
      </gml:LineString>
    </gml:curveMember>
  </gml:MultiCurve>
</gmd:polygon>
                </gmd:EX_BoundingPolygon>
              </gmd:geographicElement>
              <gmd:temporalElement>
                <gmd:EX_TemporalExtent>
                  <gmd:extent>
                    <gml:TimePeriod gml:id="d1e1208">
                      <gml:beginPosition>2009-01-01T00:00:00</gml:beginPosition>
                      <gml:endPosition>2009-06-24T17:36:01</gml:endPosition>
                    </gml:TimePeriod>
                  </gmd:extent>
                </gmd:EX_TemporalExtent>
              </gmd:temporalElement>
```

```xml
<gmd:verticalElement>
  <gmd:EX_VerticalExtent>
    <gmd:minimumValue>
      <gco:Real>0</gco:Real>
    </gmd:minimumValue>
    <gmd:maximumValue>
      <gco:Real>100</gco:Real>
    </gmd:maximumValue>
    <gmd:verticalCRS>
      <gml:VerticalCRS gml:id="vertical-crs-01">
        <gml:identifier codeSpace="SeaDataNet">vertical-crs-id-01</gml:identifier>
        <gml:scope>not known</gml:scope>
        <gml:verticalCS>
          <gml:VerticalCS gml:id="vertical-cs-01">
            <gml:identifier codeSpace="SeaDataNet">vertical-cs-id-01</gml:identifier>
            <gml:axis>
              <gml:CoordinateSystemAxis gml:id="coordsys-axis" gml:uom="metres">
                <gml:identifier codeSpace="SeaDataNet">coordsys-axis0id</gml:identifier>
                <gml:axisAbbrev>Z</gml:axisAbbrev>
                <gml:axisDirection codeSpace="">up</gml:axisDirection>
                <gml:maximumValue>150</gml:maximumValue>
              </gml:CoordinateSystemAxis>
            </gml:axis>
          </gml:VerticalCS>
        </gml:verticalCS>
        <gml:verticalDatum>
          <gml:VerticalDatum gml:id="vertical-datum">
            <gml:identifier
codeSpace="SeaDataNet">http://www.seadatanet.org/urnurl/SDN:L11::D08</gml:identifier>
            <gml:name>sea level</gml:name>
            <gml:scope>not known</gml:scope>
          </gml:VerticalDatum>
        </gml:verticalDatum>
      </gml:VerticalCRS>
    </gmd:verticalCRS>
```

```
                    </gmd:EX_VerticalExtent>
                  </gmd:verticalElement>
                </gmd:EX_Extent>
              </gmd:extent>
              <!-- The referenced publication is described in the SeaDataNet citations catalogue  -->
              <sdn:additionalDocumentation xlink:href="http://seadatanet.maris2.nl/isocodelists/sdncodelists/publications-
Codelists.xml#SDN_PUBCode_151 ">
              </sdn:additionalDocumentation>
            </sdn:SDN_DataIdentification>
          </gmd:identificationInfo>
          <gmd:distributionInfo>
            <gmd:MD_Distribution>
              <gmd:distributionFormat>
                <gmd:MD_Format>
                  <gmd:name>
                    <sdn:SDN_FormatNameCode codeSpace="SeaDatanet"
                              codeListValue="ODV"

codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_FormatNameCode">Ocean Data
View ASCII input</sdn:SDN_FormatNameCode>
                  </gmd:name>
                  <gmd:version>
                    <gco:CharacterString>0.3</gco:CharacterString>
                  </gmd:version>
                </gmd:MD_Format>
              </gmd:distributionFormat>
              <gmd:distributionFormat>
                <gmd:MD_Format>
                  <gmd:name>
                    <sdn:SDN_FormatNameCode codeSpace="SeaDatanet"
                              codeListValue="MEDATLAS"

codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_FormatNameCode">MEDATLAS
ASCII</sdn:SDN_FormatNameCode>
                  </gmd:name>
```

```xml
          <gmd:version>
            <gco:CharacterString>1</gco:CharacterString>
          </gmd:version>
        </gmd:MD_Format>
      </gmd:distributionFormat>
      <gmd:distributor>
        <gmd:MD_Distributor>
          <gmd:distributorContact>
            <gmd:CI_ResponsibleParty>
              <gmd:organisationName>
                <sdn:SDN_EDMOCode codeList="http://seadatanet.maris2.nl/isocodelists/sdncodelists/edmo-edmerp-
Codelists.xml#SDN_EDMOCode"
                     codeSpace="SeaDataNet"
                     codeListValue="631">WL/Delft Hydraulics</sdn:SDN_EDMOCode>
              </gmd:organisationName>
              <gmd:contactInfo>
                <gmd:CI_Contact>
                  <gmd:phone>
                    <gmd:CI_Telephone>
                      <gmd:voice>
                        <gco:CharacterString>+31 15 2858585</gco:CharacterString>
                      </gmd:voice>
                      <gmd:facsimile>
                        <gco:CharacterString>+31 15 2858582</gco:CharacterString>
                      </gmd:facsimile>
                    </gmd:CI_Telephone>
                  </gmd:phone>
                  <gmd:address>
                    <gmd:CI_Address>
                      <gmd:deliveryPoint>
                        <gco:CharacterString>Rotterdamseweg 185</gco:CharacterString>
                      </gmd:deliveryPoint>
                      <gmd:city>
                        <gco:CharacterString>Delft</gco:CharacterString>
                      </gmd:city>
```

```xml
                    <gmd:postalCode>
                       <gco:CharacterString>2629 HD</gco:CharacterString>
                    </gmd:postalCode>
                    <gmd:country>
                       <sdn:SDN_CountryCode codeSpace="SeaDataNet"
                                  codeListValue="NL"

codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_CountryCode">Netherlands</sdn:S
DN_CountryCode>
                    </gmd:country>
                    <gmd:electronicMailAddress>
                       <gco:CharacterString>info@wldelft.nl</gco:CharacterString>
                    </gmd:electronicMailAddress>
                  </gmd:CI_Address>
                </gmd:address>
                <gmd:onlineResource>
                  <gmd:CI_OnlineResource>
                    <gmd:linkage>
                       <gmd:URL>http://www.wldelft.nl</gmd:URL>
                    </gmd:linkage>
                  </gmd:CI_OnlineResource>
                </gmd:onlineResource>
              </gmd:CI_Contact>
            </gmd:contactInfo>
            <gmd:role>
              <gmd:CI_RoleCode
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_RoleCode"
                    codeListValue="distributor"
                    codeSpace="ISOTC211/19115">distributor</gmd:CI_RoleCode>
            </gmd:role>
          </gmd:CI_ResponsibleParty>
        </gmd:distributorContact>
      </gmd:MD_Distributor>
    </gmd:distributor>
    <gmd:transferOptions>
```

```xml
<gmd:MD_DigitalTransferOptions>
  <gmd:transferSize>
    <gco:Real>123</gco:Real>
  </gmd:transferSize>
  <gmd:onLine>
    <gmd:CI_OnlineResource>
      <gmd:linkage>
        <gmd:URL>http://www.sdn-taskmanager.org/</gmd:URL>
      </gmd:linkage>
      <gmd:protocol>
        <gco:CharacterString>HTTP-DOWNLOAD</gco:CharacterString>
      </gmd:protocol>
      <gmd:description>
        <gco:CharacterString>DBTEST</gco:CharacterString>
      </gmd:description>
      <gmd:function>
        <gmd:CI_OnLineFunctionCode
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_OnLineFunctionCode"
                    codeListValue="downloadRegistration"
                    codeSpace="SeaDataNet">manual interaction with an on-line system by registered
users following successful authentication and authorisation</gmd:CI_OnLineFunctionCode>
      </gmd:function>
    </gmd:CI_OnlineResource>
  </gmd:onLine>
</gmd:MD_DigitalTransferOptions>
</gmd:transferOptions>
<gmd:transferOptions>
  <gmd:MD_DigitalTransferOptions>
    <gmd:onLine>
      <gmd:CI_OnlineResource>
        <gmd:linkage>
          <gmd:URL>http://example.com/wms?</gmd:URL>
        </gmd:linkage>
        <gmd:protocol>
          <gco:CharacterString>urn:ogc:serviceType:WebMapService:1.1.1:HTTP</gco:CharacterString>
```

```
                </gmd:protocol>
                <gmd:description>
                   <gco:CharacterString>WMS example url</gco:CharacterString>
                </gmd:description>
                <gmd:function>
                   <gmd:CI_OnLineFunctionCode
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_OnLineFunctionCode"
                              codeListValue="downloadUrl"
                              codeSpace="SeaDataNet">direct access through the given URL endpoint using a
specific web protocol</gmd:CI_OnLineFunctionCode>
                </gmd:function>
              </gmd:CI_OnlineResource>
            </gmd:onLine>
          </gmd:MD_DigitalTransferOptions>
        </gmd:transferOptions>
      </gmd:MD_Distribution>
    </gmd:distributionInfo>
    <gmd:dataQualityInfo>
      <gmd:DQ_DataQuality>
        <gmd:scope>
          <gmd:DQ_Scope>
            <gmd:level>
              <gmd:MD_ScopeCode
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_ScopeCode"
                      codeListValue="dataset"
                      codeSpace="ISOTC211/19115">dataset</gmd:MD_ScopeCode>
            </gmd:level>
          </gmd:DQ_Scope>
        </gmd:scope>
        <gmd:report>
          <gmd:DQ_DomainConsistency>
            <gmd:result>
              <gmd:DQ_ConformanceResult>
                <gmd:specification>
                  <gmd:CI_Citation>
```

```
                    <gmd:title>
                        <gco:CharacterString>COMMISSION REGULATION (EC) No 1205/2008 of 3 December 2008
implementing Directive 2007/2/EC of the European Parliament and of the Council as regards
metadata</gco:CharacterString>
                    </gmd:title>
                    <gmd:date>
                      <gmd:CI_Date>
                        <gmd:date>
                          <gco:Date>2008-12-04</gco:Date>
                        </gmd:date>
                        <gmd:dateType>
                          <gmd:CI_DateTypeCode
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_DateTypeCode"
                                  codeListValue="publication">publication</gmd:CI_DateTypeCode>
                        </gmd:dateType>
                      </gmd:CI_Date>
                    </gmd:date>
                  </gmd:CI_Citation>
                </gmd:specification>
                <gmd:explanation>
                  <gco:CharacterString>See the referenced specification</gco:CharacterString>
                </gmd:explanation>
                <gmd:pass>
                  <gco:Boolean>true</gco:Boolean>
                </gmd:pass>
              </gmd:DQ_ConformanceResult>
            </gmd:result>
          </gmd:DQ_DomainConsistency>
        </gmd:report>
      <gmd:report>
        <gmd:DQ_DomainConsistency>
          <gmd:result>
            <gmd:DQ_ConformanceResult>
              <gmd:specification>
                <gmd:CI_Citation>
```

```
              <gmd:title>
                 <gco:CharacterString>Additional QC method report 1</gco:CharacterString>
              </gmd:title>
              <gmd:date>
                 <gmd:CI_Date>
                    <gmd:date>
                       <gco:Date>2012-12-04</gco:Date>
                    </gmd:date>
                    <gmd:dateType>
                       <gmd:CI_DateTypeCode
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_DateTypeCode"
                          codeListValue="publication">publication</gmd:CI_DateTypeCode>
                    </gmd:dateType>
                 </gmd:CI_Date>
              </gmd:date>
           </gmd:CI_Citation>
        </gmd:specification>
        <gmd:explanation>
           <gco:CharacterString>See the referenced specification</gco:CharacterString>
        </gmd:explanation>
        <gmd:pass>
           <gco:Boolean>true</gco:Boolean>
        </gmd:pass>
     </gmd:DQ_ConformanceResult>
   </gmd:result>
 </gmd:DQ_DomainConsistency>
</gmd:report>
<gmd:report>
 <gmd:DQ_DomainConsistency>
   <gmd:result>
     <gmd:DQ_ConformanceResult>
        <gmd:specification>
           <gmd:CI_Citation>
              <gmd:title>
                 <gco:CharacterString>Additional QC method report 2</gco:CharacterString>
```

```
                </gmd:title>
                <gmd:date>
                  <gmd:CI_Date>
                    <gmd:date>
                      <gco:Date>2012-12-04</gco:Date>
                    </gmd:date>
                    <gmd:dateType>
                      <gmd:CI_DateTypeCode
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_DateTypeCode"
                          codeListValue="publication">publication</gmd:CI_DateTypeCode>
                    </gmd:dateType>
                  </gmd:CI_Date>
                </gmd:date>
              </gmd:CI_Citation>
            </gmd:specification>
            <gmd:explanation>
              <gco:CharacterString>See the referenced specification</gco:CharacterString>
            </gmd:explanation>
            <gmd:pass>
              <gco:Boolean>true</gco:Boolean>
            </gmd:pass>
          </gmd:DQ_ConformanceResult>
        </gmd:result>
      </gmd:DQ_DomainConsistency>
    </gmd:report>
    <gmd:lineage>
      <gmd:LI_Lineage>
        <gmd:statement>
          <gco:CharacterString>The data centres apply standard data quality control procedures on all data that the
centres manage. Ask the data centre for details.</gco:CharacterString>
        </gmd:statement>
      </gmd:LI_Lineage>
    </gmd:lineage>
  </gmd:DQ_DataQuality>
</gmd:dataQualityInfo>
```

</gmd:MD_Metadata>

## Normative references

— ISO/TS 19139:2006, Geographic information – Metadata – XML schema implementation, in particular Annex A.3

— ISO 19115:2003, Geographic information – Metadata

— ISO 19115:2003/Cor 1:2006, Geographic information – Metadata, Corrigendum

— ISO 19106:2004, Geographic information – Profiles

— INSPIRE Metadata Implementing Rules: Technical Guidelines based on EN ISO 19115 and EN ISO 19119