

# SeaDataNet CSR metadata profile of ISO 19115-2 – XML encoding

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

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1.0.0		2013-05-22	First version	Boldrini, Nativi	First implementation
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3.0.0		2013-10-18	Revised draft	Boldrini	Examples, schematron

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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

**Cruise Summary Reports** (CSR = former ROSCOPs) are the usual means in SeaDataNet for reporting on cruises or field experiments at sea. Traditionally, it is the Chief Scientist's obligation to submit a CSR to his/her National Oceanographic Data Centre (NODC) not later than two weeks after the cruise. This provides a first level inventory of measurements and samples collected at sea. Information such as the ship track, objectives of the cruise and principal investigators contacts are also included among other metadata elements tested to be useful in by the marine community practice.

Currently, the Cruise Summary Reports directory covers cruises from 1873 till today from more than 2.000 research vessels: a total of nearly 40.000 cruises, in all European waters and global oceans. This also includes historic CSRs from European countries, that have been loaded from the ICES database from 1960 onwards.

The Reports have been compiled over time and encoded using a XML schema derived from ISO 19115 DTD. Nowadays the ISO 19139 Schema is mature and widely adopted; it is as well part of the EU INSPIRE Directive Implementing Rules. Therefore an analysis for upgrading the CSR metadata profile and its encoding to ensure ISO and INSPIRE compliance is currently being performed by CNR, with support of MARIS, IFREMER, BODC. The experience acquired for the drafting of the CDI metadata profile is being used as a solid guidance. As a result of the standardization, interoperability with international initiatives and communities, such as OGC, INSPIRE and GEOSS is foreseen, as well as a wider, international outreach of SeaDataNet products.

Products of the CSR standardization effort include a new (ISO 19115-2 based) metadata profile documentation for the CSR data model (adding also a number of missing elements and corrections to the legacy CSR model) and a new encoding documentation which defines and details the XML encoding implementation for this metadata profile, based on the XML schema defined in ISO 19139:2006 TS plus additional definitions and Schematron rules.

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 CSR 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 CSR profile is defined in this section. The SeaDataNet *sdn* namespace is presented: it implements the SeaDataNet CSR 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) and *gmi* from the schema implementing the second part of ISO 19115-2. 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).

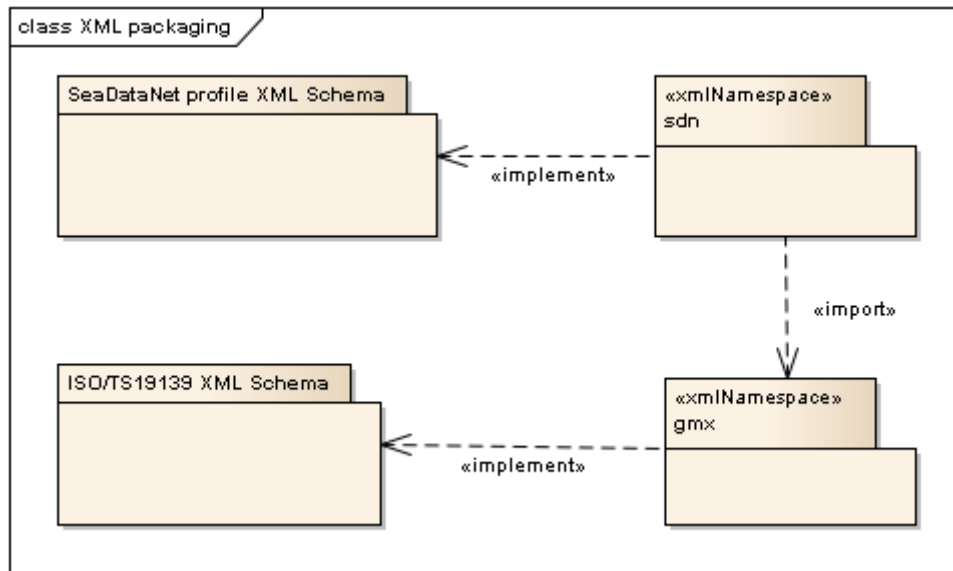


Figure 1 XML Packaging

### 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\_CountryCode
- SDN\_CRSCode
- SDN\_DeviceCategoryCode
- SDN\_EDMERPCode
- SDN\_EDMOCCode
- SDN\_EDMEDCode
- SDN\_FormatNameCode
- SDN\_HierarchyLevelNameCode
- SDN\_MarsdenCode
- SDN\_ParameterDiscoveryCode
- SDN\_PlatformCode
- SDN\_PlatformCategoryCode
- SDN\_PortCode
- SDN\_CSRUnitCode
- SDN\_WaterBodyCode

Moreover, it imports the *gmX.xsd* and *gmi.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 element. 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, publications): 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" >  
</sdin: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.

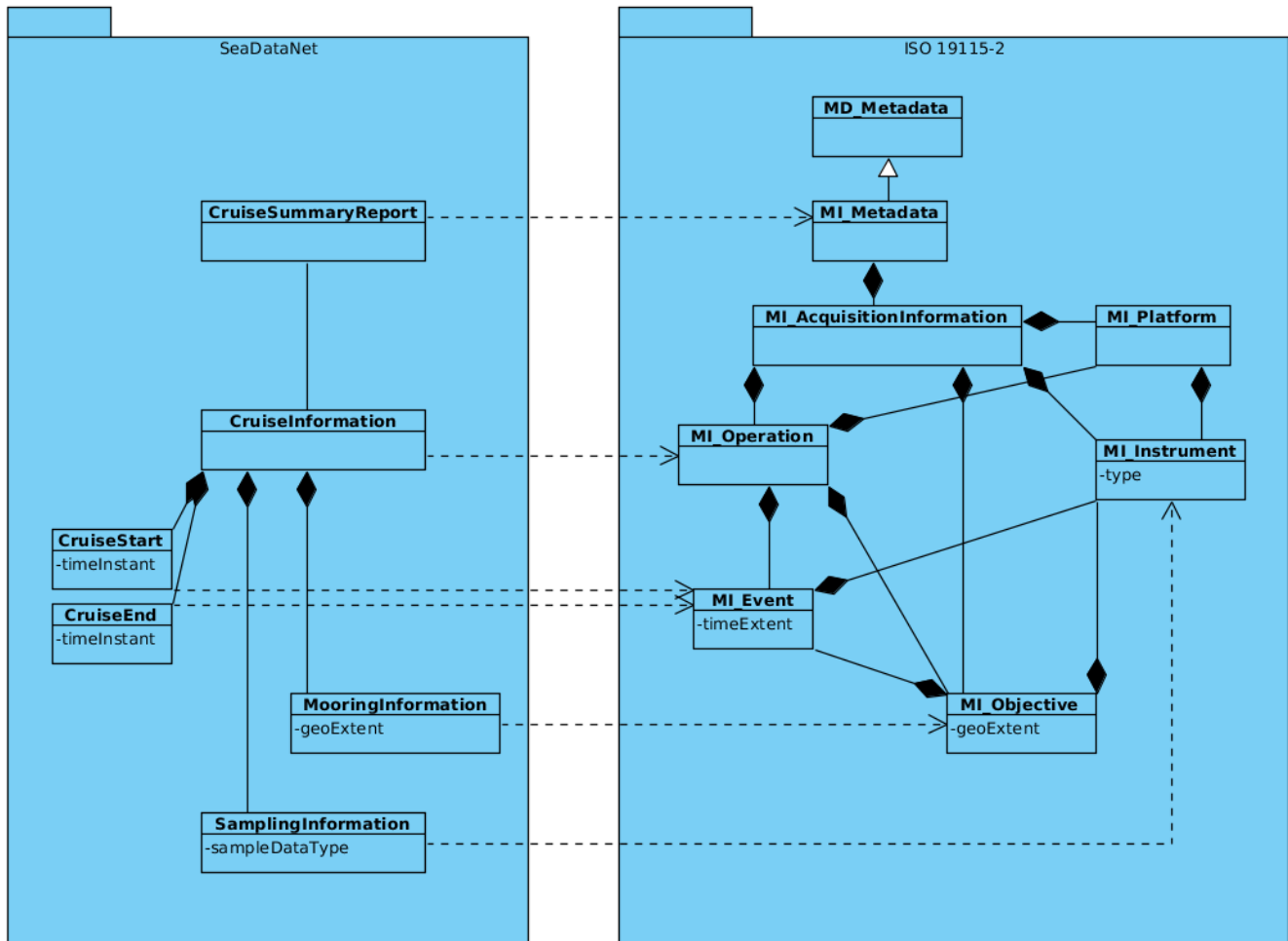
Minimum conformance with this Technical Specification requires that geographic metadata instance (XML) documents can be validated without error against:

- 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 CSR metadata encoding

Following the encoding of (the legacy) CSR metadata format is shown. Almost all the information content stored in this format can be accommodated in the new format subject of this documentation.

The following picture shows how legacy CSR concepts are mapped to the new ISO 19115-2 based CSR data model.



```
<?xml version="1.0" encoding="UTF-8"?>
<!-- CSR mapping to ISO-19115, SDN_V1.3 -->
<Metadata xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="CSR_sdn_v1.3.xsd">
<!-- CSR Identifier: The CSR Collating Centre (= CSR creator) gives a local CSR
identifier, provided as SDN:CSR:LOCAL:local identifier.-->
<!-- The CSR Authority (BSH Web Service) will store both the local identifier and a
central CSR identifier. -->
<!-- The local identifier must be identical to Cruise-ID given by the Data Centre
(resAltTitle tag) -->
<!-- The local identifier will be used to recognise updates for CSR records, that already
are present in the central CSR Directory.-->
```



```
<mdFileID>SDN:CSR:LOCAL:FI351994800010</mdFileID>
<!-- Metadata language is english and charset is utf-8 (mandatory) -->
<!-- Metadata describe a series and in the SeaDataNet CSR format -->
<!-- These are constant character strings -->
  <mdLang>
    <languageCode value="en"/>
  </mdLang>
  <mdChar>
    <CharSetCd value="utf8"/>
  </mdChar>
  <mdHrLv>
    <ScopeCd value="series"/>
  </mdHrLv>
  <mdHrLvName SDNIdent="SDN:L231:1:CSR">Cruise Summary record</mdHrLvName>
<!-- Collating centre = Responsible for the CSR XML production -->
<!-- Use EDMO code; All other information is retrieved from EDMO (via EDMO web service or
local copy) and not typed again -->
<!-- It is provided for ISO compliancy and human reading of the CDI XML. For missing info,
tags are left out -->
<!-- SDN:EDMO is described using MetaData Extension Information -->
  <mdContact>
    <rpOrgName SDNIdent="SDN:EDMO::486">IFREMER /
IDM/SISMER</rpOrgName>
    <rpCntInfo>
      <cntPhone>
        <voiceNum>+33 (0)2.98.22.49.16</voiceNum>
        <faxNum>+33 (0)2.98.22.46.44</faxNum>
      </cntPhone>
      <cntAddress>
        <delPoint>BP 70</delPoint>
        <city>PLOUZANE</city>
        <adminArea>Brittany</adminArea>
        <postCode>29280</postCode>
        <country>France</country>
        <eMailAdd>sismer@ifremer.fr</eMailAdd>
      </cntAddress>
      <cntOnLineRes>
        <linkage>http://www.ifremer.fr/sismer/</linkage>
      </cntOnLineRes>
    </rpCntInfo>
    <role>
      <RoleCd value="author"/>
    </role>
  </mdContact>
<!-- Creation Date of the metadata on the cruise -->
  <mdDateSt>1995-06-26T16:08:33</mdDateSt>
<!-- Definition of external resources to be linked with CSR : Vocabularies, European
```



Directories (see guidelines) -->

```
<mdExtInfo>
```

```
<!-- Description of "SDN:EDMO" URN : European Directory of Marine Organisations -->
```

```
<!-- EDMO is continuously managed (no version handling)-->
```

```
<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>
```

```
<!-- Description of "SDN:L081" URN : SeaDataNet Data Access Restriction Policies -->
```

```
<!-- Vocab server, list L081, Version 1 -->
```

```
<extEleInfo>
```

```
<extEleName>SDN:L081:1:</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>2006-12-06T06:43:45</refDate>
```

```
<refDateType>
```

```
<DateTypCd value="revision"/>
```

```
</refDateType>
```

```
</resRefDate>
```

```
<resEd>1</resEd>
```

```
<citId>http://www.seadatanet.org/urnurl/</citId>
```

```
</extEleSrc>
```

```
</extEleInfo>
```

```
<!-- Description of "SDN:L231" URN : SeaDataNet metadata entities -->
```



```
<!-- Vocab server, list L231, Version 1 -->
```

```
<extEleInfo>  
  <extEleName>SDN:L231:1:</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>2007-09-15T02:00:03</refDate>  
      <refDateType>  
        <DateTypCd value="revision"/>  
      </refDateType>  
    </resRefDate>  
    <resEd>1</resEd>  
    <citId>http://www.seadatanet.org/urnurl/</citId>  
  </extEleSrc>  
</extEleInfo>
```

```
<!-- Description of "SDN:C77" URN : seadatanet cruise summary report data categories -->
```

```
<!-- Vocab server, list C77, Version 0 -->
```

```
<extEleInfo>  
  <extEleName>SDN:C77:0:</extEleName>  
  <extEleDef>http://www.seadatanet.org/urnurl/</extEleDef>  
  <eleDatatype>  
    <DatatypeCd value="codelist"/>  
  </eleDatatype>  
  <extEleParEnt>SeaDataNet</extEleParEnt>  
  <extEleSrc>  
    <resTitle>seadatanet cruise summary report data  
categories</resTitle>  
    <resAltTitle>C77</resAltTitle>  
    <resRefDate>  
      <refDate>2007-03-01T08:16:13</refDate>  
      <refDateType>  
        <DateTypCd value="revision"/>  
      </refDateType>  
    </resRefDate>  
    <resEd>0</resEd>  
    <citId>http://www.seadatanet.org/urnurl/</citId>  
  </extEleSrc>  
</extEleInfo>  
</mdExtInfo>  
<!-- Cruise Name -->  
  <dataIdInfo>
```





```
<idCitation>
  <resTitle>CITHER 2 LEG 1</resTitle>
<!-- Cruise Id given by Data Centre -->
  <resAltTitle>FI35199480010</resAltTitle>
<!-- Metadata Revision Date -->
  <resRefDate>
    <refDate>1996-11-04</refDate>
    <refDateType>
      <DateTypCd value="revision"/>
    </refDateType>
  </resRefDate>
<!-- Chief scientist(s) of the cruise -->
<!-- The first block of XML tags concerns the personal address details of the first Chief
Scientist at his/her present organisation -->
<!-- That organisation is referred to using an EDMO code -->
<!-- The second block of XML tags concerns the Organisation responsible of the cruise,
whereby all details come from EDMO -->
<!-- This organisation can be different of the actual organisation of the chief scientist
-->
<!-- These 2 blocks can be repeated for the second Chief Scientist etc -->
<!-- In this example there are 2 chief scientists and 2 responsible organisations -->
<!-- the actual organisation of the first chief scientists is different from the
organisation responsible -->
<!-- of the cruise, for the second chief scientist the 2 organisations are the same -->
<!-- SDN:EDMO is described using MetaData Extension Information (see guidelines) -->
  <citRespParty>
    <rpIndName>Laurent MEMERY</rpIndName>
    <rpOrgName SDNIdent="SDN:EDMO::1046">LABORATORY OF SCIENCES OF
MARINE ENVIRONMENT (LEMAR)</rpOrgName>
    <rpCntInfo>
      <cntPhone>
        <voiceNum>+33 (0)2 98 49 88 97</voiceNum>
      </cntPhone>
      <cntAddress>
        <delPoint>IUEM,Technopole Brest Iroise,Place
Nicolas Copernic</delPoint>
        <city>PLOUZANE</city>
        <postCode>29280</postCode>
        <country>France</country>
        <eMailAdd>Laurent.Memery@univ-brest.fr</eMailAdd>
      </cntAddress>
    </rpCntInfo>
    <role>
      <RoleCd value="pointOfContact"/>
    </role>
  </citRespParty>
  <citRespParty>
```



```

                                                                 <rpOrgName
SDNIdent="SDN:EDMO::494">LABORATORY of OCEANOGRAPHY and CLIMATE (LOCEAN)</rpOrgName>
  <rpCntInfo>
    <cntPhone>
      <voiceNum>+33 (1) 44 27 32 48</voiceNum>
      <faxNum> +33(0)1 44 27 38 05 </faxNum>
    </cntPhone>
    <cntAddress>
      <delPoint>Université Pierre et Marie Curie, Case
100, Tour 45-55, 4ème étage, 4 Place Jussieu</delPoint>
      <city>Paris Cedex 5</city>
      <postCode>75252</postCode>
      <country>France</country>
    </cntAddress>
    <cntOnLineRes>
      <linkage>http://www.locean-ipsl.upmc.fr/</linkage>
    </cntOnLineRes>
  </rpCntInfo>
  <role>
    <RoleCd value="originator"/>
  </role>
</citRespParty>
<citRespParty>
  <rpIndName>Michel ARHAN</rpIndName>
  <rpOrgName SDNIdent="SDN:EDMO::487">IFREMER / OPS/LPO-LABORATORY
of PHYSICAL OCEANOGRAPHY</rpOrgName>
  <rpCntInfo>
    <cntPhone>
      <voiceNum>+33 (0)2 98 22 42 85</voiceNum>
    </cntPhone>
    <cntAddress>
      <delPoint>BP70</delPoint>
      <city>PLOUZANE</city>
      <adminArea>Brittany</adminArea>
      <postCode>29280</postCode>
      <country>France</country>
      <eMailAdd>Michel.Arhan@ifremer.fr</eMailAdd>
    </cntAddress>
  </rpCntInfo>
  <role>
    <RoleCd value="pointOfContact"/>
  </role>
</citRespParty>
<citRespParty>
                                                                 <rpOrgName
SDNIdent="SDN:EDMO::487">IFREMER / OPS/LPO-LABORATORY of PHYSICAL OCEANOGRAPHY</rpOrgName>
  <rpCntInfo>
```



```
<cntPhone>
  <voiceNum>+33 (0)2 98.22.42.76</voiceNum>
  <faxNum>+33(0)2 98.22.44.96</faxNum>
</cntPhone>
<cntAddress>
  <delPoint>BP70</delPoint>
  <city>PLOUZANE</city>
  <adminArea>Brittany</adminArea>
  <postCode>29280</postCode>
  <country>France</country>
</cntAddress>
<cntOnLineRes>
  <linkage>http://www.ifremer.fr/lpo/</linkage>
</cntOnLineRes>
</rpCntInfo>
<role>
  <RoleCd value="originator"/>
</role>
</citRespParty>
</idCitation>
<!-- Purpose of Cruise -->
  <idPurp>This is an example provided to describe SeaDataNet XML V1 for CSR.
The included information is provided only to illustrate the XML structure and all
possibilities. </idPurp>
<!-- Track chart, file type may be GML (vector track chart) or GIF, PNG, JPEG, PDF (raster
track chart); Can also provide a URL to a graph -->
  <graphOver>
    <bgFileName>FI35199480010.gml</bgFileName>
    <bgFileDesc>track chart</bgFileDesc>
    <bgFileType>GML</bgFileType>
  </graphOver>
<!-- Port of Departure -->
<!-- Used thesaurus is described (Vocab server, list C381) (see guidelines) -->
  <descKeys>
    <keyword SDNIdent="SDN:C381:2:BSH176">Recife</keyword>
    <keyTyp>
      <KeyTypCd value="departure_place"/>
    </keyTyp>
    <thesaName>
      <resTitle>Ports Gazetteer</resTitle>
      <resAltTitle>C381</resAltTitle>
      <resRefDate>
        <refDate>2007-09-20T02:00:02</refDate>
        <refDateType>
          <DateTypCd value="revision"/>
        </refDateType>
      </resRefDate>
    </thesaName>
  </descKeys>

```



```
        <resEd>2</resEd>
        <citId>http://www.seadatanet.org/urnurl/</citId>
    </thesaName>
</descKeys>
<!-- Port of Arrival -->
<!-- Used thesaurus is described (Vocab server, list C381) (see guidelines) -->
    <descKeys>
        <keyword SDIdent="SDN:C381:2:BSH185">Salvador</keyword>
        <keyTyp>
            <KeyTypCd value="arrival_place"/>
        </keyTyp>
        <thesaName>
            <resTitle>Ports Gazetteer</resTitle>
            <resAltTitle>C381</resAltTitle>
            <resRefDate>
                <refDate>2007-09-20T02:00:02</refDate>
                <refDateType>
                    <DateTypCd value="revision"/>
                </refDateType>
            </resRefDate>
            <resEd>2</resEd>
            <citId>http://www.seadatanet.org/urnurl/</citId>
        </thesaName>
    </descKeys>
<!-- Country of Departure -->
<!-- Used thesaurus is described (Vocab server, list C320) (see guidelines) -->
    <descKeys>
        <keyword SDIdent="SDN:C320:1:BR">Brazil</keyword>
        <keyTyp>
            <KeyTypCd value="departure_country"/>
        </keyTyp>
        <thesaName>
            <resTitle>International Standards Organisation
countries</resTitle>
            <resAltTitle>C320</resAltTitle>
            <resRefDate>
                <refDate>2007-08-22T16:37:58</refDate>
                <refDateType>
                    <DateTypCd value="revision"/>
                </refDateType>
            </resRefDate>
            <resEd>1</resEd>
            <citId>http://www.seadatanet.org/urnurl/</citId>
        </thesaName>
    </descKeys>
<!-- Country of Arrival -->
<!-- Used thesaurus is described (Vocab server, list C320) (see guidelines) -->
```



```
<descKeys>
  <keyword SDNIdent="SDN:C320:1:BR">Brazil</keyword>
  <keyTyp>
    <KeyTypCd value="arrival_country"/>
  </keyTyp>
  <thesaName>
    <resTitle>International Standards Organisation
countries</resTitle>
    <resAltTitle>C320</resAltTitle>
    <resRefDate>
      <refDate>2007-08-22T16:37:58</refDate>
      <refDateType>
        <DateTypCd value="revision"/>
      </refDateType>
    </resRefDate>
    <resEd>1</resEd>
    <citId>http://www.seadatanet.org/urnurl/</citId>
  </thesaName>
</descKeys>
<!-- ICES Ship code and Ship name -->
<!-- Used thesaurus is described (Vocab server, list C174 (UNDER DEVELOPMENT) (see
guidelines) -->
  <descKeys>
    <keyword SDNIdent="SDN:C174:0:3230">MAURICE EWING</keyword>
    <keyTyp>
      <KeyTypCd value="platform"/>
    </keyTyp>
    <thesaName>
      <resTitle>SeaDataNet Cruise Summary Report ship
metadata</resTitle>
      <resAltTitle>C174</resAltTitle>
      <resRefDate>
        <refDate>2007-05-14T15:45:00</refDate>
        <refDateType>
          <DateTypCd value="revision"/>
        </refDateType>
      </resRefDate>
      <resEd>0</resEd>
      <citId>http://www.seadatanet.org/urnurl/</citId>
    </thesaName>
  </descKeys>
<!-- Platform class -->
<!-- Used thesaurus is described (Vocab server, list L061) (see guidelines) -->
  <descKeys>
    <keyword SDNIdent="SDN:L061:4:31">research vessel</keyword>
    <keyTyp>
      <KeyTypCd value="platform_class"/>
    </keyTyp>
  </descKeys>
```



```
</keyTyp>
<thesaName>
  <resTitle>SeaDataNet Platform Classes</resTitle>
  <resAltTitle>L061</resAltTitle>
  <resRefDate>
    <refDate>2007-01-13T06:42:58</refDate>
    <refDateType>
      <DateTypCd value="revision"/>
    </refDateType>
  </resRefDate>
  <resEd>4</resEd>
  <citId>http://www.seadatanet.org/urnurl/</citId>
</thesaName>
</descKeys>
<!-- Project -->
<!-- Used thesaurus (EDMERP) is described (see guidelines), EDMERP is continuously managed
(no version handling)-->
  <descKeys>
    <keyword SDNIdent="SDN:EDMERP::14015009">WOCE FRANCE - HYDROLOGY
{acronym="WOCE"}</keyword>
    <keyTyp>
      <KeyTypCd value="project"/>
    </keyTyp>
    <thesaName>
      <resTitle>European Directory for 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>
<!-- General Ocean Areas -->
<!-- Used thesaurus (Vocab server, List C16) is described (see guidelines) -->
  <descKeys>
    <keyword SDNIdent="SDN:C16:0:32">South Atlantic Ocean</keyword>
    <keyTyp>
      <KeyTypCd value="place"/>
    </keyTyp>
    <thesaName>
      <resTitle>SeaDataNet Sea Areas</resTitle>
      <resAltTitle>C16</resAltTitle>
```



```
<resRefDate>
  <refDate>2007-03-01T12:00:00</refDate>
  <refDateType>
    <DateTypCd value="revision"/>
  </refDateType>
</resRefDate>
<resEd>0</resEd>
<citId>http://www.seadatanet.org/urnurl/</citId>
</thesaName>
</descKeys>
<!-- Geographic coverage : Marsden squares -->
<!-- Used thesaurus (Vocab server, List C371) is described (cf guidelines) -->
<descKeys>
  <keyword SDNIdent="SDN:C371:1:4">4</keyword>
  <keyword SDNIdent="SDN:C371:1:5">5</keyword>
  <keyword SDNIdent="SDN:C371:1:302">302</keyword>
  <keyword SDNIdent="SDN:C371:1:303">303</keyword>
  <keyword SDNIdent="SDN:C371:1:304">304</keyword>
  <keyword SDNIdent="SDN:C371:1:338">338</keyword>
  <keyword SDNIdent="SDN:C371:1:339">339</keyword>
  <keyword SDNIdent="SDN:C371:1:374">374</keyword>
  <keyword SDNIdent="SDN:C371:1:375">375</keyword>
  <keyword SDNIdent="SDN:C371:1:376">376</keyword>
  <keyTyp>
    <KeyTypCd value="marsden_square"/>
  </keyTyp>
</thesaName>
  <resTitle>Ten-degree Marsden Squares</resTitle>
  <resAltTitle>C371</resAltTitle>
  <resRefDate>
    <refDate>2007-08-03T02:00:02</refDate>
    <refDateType>
      <DateTypCd value="revision"/>
    </refDateType>
  </resRefDate>
  <resEd>1</resEd>
  <citId>http://www.seadatanet.org/urnurl/</citId>
</thesaName>
</descKeys>
<!-- Additional information about Parameters measured during the cruise -->
<!-- Used thesaurus (Vocab server, List P021) is described (see guidelines) -->
<descKeys>
  <keyword SDNIdent="SDN:P021:19:TEMP">Temperature of the water
column</keyword>
  <keyword SDNIdent="SDN:P021:19:PSAL">Salinity of the water
column</keyword>
  <keyword SDNIdent="SDN:P021:19:TSED">Concentration of suspended
```



```
particulate material in the water column</keyword>
  <keyTyp>
    <KeyTypCd value="parameter"/>
  </keyTyp>
  <thesaName>
    <resTitle>BODC Parameter Discovery Vocabulary</resTitle>
    <resAltTitle>P021</resAltTitle>
    <resRefDate>
      <refDate>2007-09-25T02:00:02</refDate>
      <refDateType>
        <DateTypCd value="revision"/>
      </refDateType>
    </resRefDate>
    <resEd>19</resEd>
    <citId>http://www.seadatanet.org/urnurl/</citId>
  </thesaName>
</descKeys>
<!-- Additional information about Instruments used during the cruise-->
<!-- Used thesaurus (Vocab list L05 is described (cf guidelines) -->
  <descKeys>
    <keyword SDNIdent="SDN:L05:0:130">CTD profiler</keyword>
    <keyword SDNIdent="SDN:L05:0:30">Water sample collector</keyword>
    <keyTyp>
      <KeyTypCd value="instrument"/>
    </keyTyp>
    <thesaName>
      <resTitle>SeaDataNet device categories</resTitle>
      <resAltTitle>L05</resAltTitle>
      <resRefDate>
        <refDate>2007-03-01T08:16:13</refDate>
        <refDateType>
          <DateTypCd value="revision"/>
        </refDateType>
      </resRefDate>
      <resEd>0</resEd>
      <citId>http://www.seadatanet.org/urnurl/</citId>
    </thesaName>
  </descKeys>
<!-- Availability using "SeaDataNet Data Access Restriction Policies" (Vocab server, List L081) -->
<!-- SDN:L081 is described using MetaData Extension Information (see guidelines) -->
  <resConst>
    <LegConsts>
      <accessConsts
SDNIdent="SDN:L081:1:UN">Unrestricted</accessConsts>
    </LegConsts>
  </resConst>
```





```
<!-- Mandatory for ISO 19115 compliancy -->
  <dataLang>
    <languageCode value="en"/>
  </dataLang>
  <tpCat>
    <TopicCatCd value="oceans"/>
  </tpCat>
<!-- Temporal coverage -->
  <dataExt>
<!-- Cruise start date, cruise end date-->
<!-- One and only one (Cruise start date, cruise end date) is mandatory -->
    <tempEle>
      <TempExtent>
        <exTemp>
          <TM_GeometricPrimitive>
            <TM_Period>
              <begin>1994-01-04</begin>
              <end>1994-02-13</end>
            </TM_Period>
          </TM_GeometricPrimitive>
        </exTemp>
      </TempExtent>
    </tempEle>
  </dataExt>
<!-- Geographical coverage -->
<!-- Specific Area descriptions (free text) -->
<!-- Several Area descriptions may be provided -->
<!-- No explicit link between textual area description and bounding boxes -->
  <dataExt>
    <geoEle>
      <geoId>
        <identCode>South Atlantic Ocean, Brasil </identCode>
      </geoId>
    </geoEle>
    <geoEle>
      <geoId>
        <identCode>South Atlantic Ocean, Inter-tropical
Area</identCode>
      </geoId>
    </geoEle>
  </dataExt>
<!-- Geographical coverage -->
<!-- Bounding Box -->
<!-- Several Bounding Box may be provided (at least one) -->
<!-- No explicit link between textual area description and bounding boxes -->
  <dataExt>
    <geoEle>
```



```
<GeoBndBox>
  <westBL>-50</westBL>
  <eastBL>-40</eastBL>
  <southBL>-25</southBL>
  <northBL>10</northBL>
</GeoBndBox>
</geoEle>
</dataExt>
</dataIdInfo>
<!-- Descriptions of MOORINGS -->
<!-- First mooring, first sensor category, another dataIdInfo tag with AscTypeCd
"largerWorkCitation", InitTypCd="platform" -->
<!-- As many occurrences as needed, one occurrence per mooring per sensor -->
<!-- For each mooring also the (present) personal details of the Principal Investigator
(PI) is included -->
  <dataIdInfo>
    <idCitation>
<!-- Mooring Sensor - Seadatanet cruise summary report data categories -->
      <resTitle SDNIdent="SDN:C77:0:D01">Current meters</resTitle>
<!-- Reference date of the mooring -->
      <resRefDate>
        <refDate>1996-11-04</refDate>
        <refDateType>
          <DateTypCd value="revision"/>
        </refDateType>
      </resRefDate>
<!-- Mooring PI for the current Sensor category -->
      <citRespParty>
        <rpIndName>Herlé MERCIER</rpIndName>
        <rpOrgName SDNIdent="SDN:EDMO::487">IFREMER / OPS/LPO-LABORATORY
of PHYSICAL OCEANOGRAPHY</rpOrgName>
        <rpCntInfo>
          <cntPhone>
            <voiceNum>+33 (0)2 98 22 42 88</voiceNum>
          </cntPhone>
          <cntAddress>
            <delPoint>BP70</delPoint>
            <city>PLOUZANE</city>
            <adminArea>Brittany</adminArea>
            <postCode>29280</postCode>
            <country>France</country>
            <eMailAdd>Herle.Mercier@ifremer.fr</eMailAdd>
          </cntAddress>
        </rpCntInfo>
      </role>
      <RoleCd value="principalInvestigator"/>
    </role>
  </dataIdInfo>
</dataExt>
</dataIdInfo>
```



```
        </citRespParty>
    </idCitation>
    <idAbs>Mooring on the Atlantic Ridge, Romanche Canyon, current meters</idAbs>
<!-- The following indicates that it concerns a mooring PLATFORM -->
    <aggrInfo>
        <assocType>
            <AscTypeCd value="largerWorkCitation"/>
        </assocType>
        <initType>
            <InitTypCd value="platform"/>
        </initType>
    </aggrInfo>
<!-- ISO 19115 mandatory fields, constant character strings -->
    <dataLang>
        <languageCode value="en"/>
    </dataLang>
    <tpCat>
        <TopicCatCd value="oceans"/>
    </tpCat>
<!-- Mooring location (Longitude first (X coordinate), latitude last (Y coordinate) -->
    <dataExt>
        <geoEle>
            <BoundPoly>
                <polygon>
                    <GM_Point>
                        <coordinates>-38,-20</coordinates>
                    </GM_Point>
                </polygon>
            </BoundPoly>
        </geoEle>
    </dataExt>
</dataIdInfo>
<!-- First mooring, second sensor category, another dataIdInfo tag with AscTypeCd
"largerWorkCitation", InitTypCd="operation" -->
<!-- The (present) personal details of the Principal Investigator (PI) are included -->
    <dataIdInfo>
        <idCitation>
            <resTitle SDNIdent="SDN:C77:0:H72">Thermistor chain</resTitle>
            <resRefDate>
                <refDate>1996-11-04</refDate>
                <refDateType>
                    <DateTypCd value="revision"/>
                </refDateType>
            </resRefDate>
            <citRespParty>
                <rpIndName>Herlé MERCIER</rpIndName>
                <rpOrgName SDNIdent="SDN:EDMO::487">IFREMER / OPS/LPO-LABORATORY
```



```
of PHYSICAL OCEANOGRAPHY</rpOrgName>
  <rpCntInfo>
    <cntPhone>
      <voiceNum>+33 (0)2 98 22 42 88</voiceNum>
    </cntPhone>
    <cntAddress>
      <delPoint>BP70</delPoint>
      <city>PLOUZANE</city>
      <adminArea>Brittany</adminArea>
      <postCode>29280</postCode>
      <country>France</country>
      <eMailAdd>Herle.Mercier@ifremer.fr</eMailAdd>
    </cntAddress>
  </rpCntInfo>
  <role>
    <RoleCd value="principalInvestigator"/>
  </role>
</citRespParty>
</idCitation>
<idAbs>Mooring on the Atlantic Ridge, Romanche Canyon, thermistor
chain</idAbs>
  <aggrInfo>
    <assocType>
      <AscTypeCd value="largerWorkCitation"/>
    </assocType>
    <initType>
      <InitTypCd value="platform"/>
    </initType>
  </aggrInfo>
  <dataLang>
    <languageCode value="en"/>
  </dataLang>
  <tpCat>
    <TopicCatCd value="oceans"/>
  </tpCat>
  <dataExt>
    <geoEle>
      <BoundPoly>
        <polygon>
          <GM_Point>
            <coordinates>-38,-20</coordinates>
          </GM_Point>
        </polygon>
      </BoundPoly>
    </geoEle>
  </dataExt>
</dataIdInfo>
```



```
<!-- Descriptions of SAMPLES -->
<!-- First sample category, another dataIdInfo tag with AscTypeCd "largerWorkCitation",
InitTypCd="operation" -->
<!-- Per sample category the (present) personal details of the Principal Investigator (PI)
are included -->
<!-- As many occurrences as needed, one occurrence per sample per data type -->
    <dataIdInfo>
        <idCitation>
<!-- Sample data type (ROSCOP Category) -->
            <resTitle SDNIdent="SDN:C77:0:H10">CTD stations</resTitle>
<!-- Reference date of the sampling -->
            <resRefDate>
                <refDate>1996-11-04</refDate>
                <refDateType>
                    <DateTypCd value="revision"/>
                </refDateType>
            </resRefDate>
<!-- Personal details of the PI of this sample category -->
            <citRespParty>
                <rpIndName>Laurent MEMERY</rpIndName>
                <rpOrgName SDNIdent="SDN:EDMO::1046">LABORATORY OF SCIENCES OF
MARINE ENVIRONMENT (LEMAR)</rpOrgName>
                <rpCntInfo>
                    <cntPhone>
                        <voiceNum>+33 (0)2 98 49 88 97</voiceNum>
                    </cntPhone>
                    <cntAddress>
                        <delPoint>IUEM,Technopole Brest Iroise,Place
Nicolas Copernic</delPoint>
                        <city>PLOUZANE</city>
                        <postCode>29280</postCode>
                        <country>France</country>
                        <eMailAdd>Laurent.Memery@univ-brest.fr</eMailAdd>
                    </cntAddress>
                </rpCntInfo>
                <role>
                    <RoleCd value="principalInvestigator"/>
                </role>
            </citRespParty>
        </idCitation>
        <idAbs>Neil Brown CTD casts, up to 6000m</idAbs>
<!-- ROSCOP sample quantification units (Measurement Countings) -->
<!-- Used thesaurus (Vocab server, List L181 (UNDER DEVELOPMENT)) is described (see
guidelines) -->
            <descKeys>
                <keyword SDNIdent="SDN:L181:0:CSRU001">number of stations</keyword>
            </descKeys>
```



```
        <KeyTypCd value="counting_unit"/>
    </keyTyp>
    <thesaName>
        <resTitle>seadatanet cruise summary report quantification
units</resTitle>
        <resAltTitle>L181</resAltTitle>
        <resRefDate>
            <refDate>2007-06-29T13:23:00</refDate>
            <refDateType>
                <DateTypCd value="revision"/>
            </refDateType>
        </resRefDate>
        <resEd>0</resEd>
        <citId>http://www.seadatanet.org/urnurl/</citId>
    </thesaName>
</descKeys>
<!-- The following tags indicate that it concerns a sampling OPERATION -->
    <aggrInfo>
        <assocType>
            <AscTypeCd value="largerWorkCitation"/>
        </assocType>
        <initType>
            <InitTypCd value="operation"/>
        </initType>
    </aggrInfo>
<!-- ISO 19115 mandatory fields, constant character strings -->
    <dataLang>
        <languageCode value="en"/>
    </dataLang>
    <tpCat>
        <TopicCatCd value="oceans"/>
    </tpCat>
<!-- Number of collected samples of defined data type during the cruise -->
    <suppInfo>44</suppInfo>
</dataIdInfo>
<!-- Second sample category, another dataIdInfo tag with AscTypeCd "largerWorkCitation",
InitTypCd="operation" -->
<!-- As many occurrences as needed, one occurrence per sample per data type -->
    <dataIdInfo>
        <idCitation>
            <resTitle SDNIdent="SDN:C77:0:H09">Water bottle stations</resTitle>
            <resRefDate>
                <refDate>1996-11-04</refDate>
                <refDateType>
                    <DateTypCd value="revision"/>
                </refDateType>
            </resRefDate>
```



```
<citRespParty>
  <rpIndName>Michel ARHAN</rpIndName>
  <rpOrgName SDNIdent="SDN:EDMO::487">IFREMER / OPS/LPO-LABORATORY
of PHYSICAL OCEANOGRAPHY</rpOrgName>
  <rpCntInfo>
    <cntPhone>
      <voiceNum>+33 (0)2 98 22 42 85</voiceNum>
    </cntPhone>
    <cntAddress>
      <delPoint>BP70</delPoint>
      <city>PLOUZANE</city>
      <adminArea>Brittany</adminArea>
      <postCode>29280</postCode>
      <country>France</country>
      <eMailAdd>Michel.Arhan@ifremer.fr</eMailAdd>
    </cntAddress>
  </rpCntInfo>
  <role>
    <RoleCd value="principalInvestigator"/>
  </role>
</citRespParty>
</idCitation>
<idAbs>Water bottle sampling, rosette of 64 bottles</idAbs>
<descKeys>
  <keyword SDNIdent="SDN:L181:0:CSRU001">number of stations</keyword>
  <keyTyp>
    <KeyTypCd value="counting_unit"/>
  </keyTyp>
  <thesaName>
    <resTitle>seadatanet cruise summary report quantification
units</resTitle>
    <resAltTitle>L181</resAltTitle>
    <resRefDate>
      <refDate>2007-06-29T13:23:00</refDate>
      <refDateType>
        <DateTypCd value="revision"/>
      </refDateType>
    </resRefDate>
    <resEd>0</resEd>
    <citId>http://www.seadatanet.org/urnurl/</citId>
  </thesaName>
</descKeys>
<aggrInfo>
  <assocType>
    <AscTypeCd value="largerWorkCitation"/>
  </assocType>
  <initType>
```



```
        <InitTypCd value="operation"/>
    </initType>
</aggrInfo>
<dataLang>
    <languageCode value="en"/>
</dataLang>
<tpCat>
    <TopicCatCd value="oceans"/>
</tpCat>
<suppInfo>40</suppInfo>
</dataIdInfo>
</Metadata>
```



## Annex C (informative) Implementation example

The following XML instance document is a valid document instance of the SeaDataNet CSR profile.

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- this file has been created using MIKADO version 3.3 -->
<?xml-model href="http://schemas.seadatanet.org/Standards-Software/Metadata-
formats/SDN2_CSR_ISO19139_3.0.0.sch" type="application/xml"
schematypens="http://purl.oclc.org/dsdl/schematron"?>
  <gmi:MI_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_CSR_ISO19139_3.0.0.xsd" >
    <gmd:fileIdentifier>
      <gco:CharacterString>urn:SDN:CSR:LOCAL:FI351994800010</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_CharacterSetCod
e" 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="series" codeSpace="ISOTC211/19115" >series</gmd:MD_ScopeCode>
    </gmd:hierarchyLevel>
    <gmd:hierarchyLevelName>
```



```
<sdn:SDN_HierarchyLevelNameCode
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_HierarchyLevel
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  <gmd:EX_BoundingPolygon>
    <gmd:polygon>
```



```
<gml:MultiCurve                                gml:id="mc01"                                >
  <gml:curveMember>
    <gml:LineString                              gml:id="ls001"                              >
      <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="ls002"                              >
      <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 59.400296</gml:posList>
    </gml:LineString>
  </gml:curveMember>
  <gml:curveMember>
    <gml:LineString                              gml:id="ls003"                              >
      <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 59.400296 -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="mik3.3"                              >
        <gml:beginPosition>1994-01-04T00:00:00</gml:beginPosition>
        <gml:endPosition>1994-02-13T00:00:00</gml:endPosition>
```



```
        </gml:TimePeriod>
    </gmd:extent>
    </gmd:EX_TemporalExtent>
</gmd:temporalElement>
</gmd:EX_Extent>
</gmd:extent>
<sdn:additionalDocumentation
xlink:href="http://seadatanet.maris2.nl/isocodelists/sdncodelists/publications-
Codelists.xml#SDN_PUBCode_151"
></sdn:additionalDocumentation>
    </sdn:SDN_DataIdentification>
</gmd:identificationInfo>
<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="series"          codeSpace="ISOTC211/19115"          >series</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" codeSpace="ISOTC211/19115" >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>
<gmi:acquisitionInformation>
  <gmi:MI_AcquisitionInformation>
    <gmi:objective>

```



```

<sdn:SDN_Objective gco:isoType="MI_Objective_Type" id="objective-instrument-1-D01-
487"
  <gmi:identifier>
    <gmd:MD_Identifier>
      <gmd:code>
        <gco:CharacterString>objective-instrument-1-D01-487</gco:CharacterString>
      </gmd:code>
    </gmd:MD_Identifier>
  </gmi:identifier>
  <gmi:type>
    <gmi:MI_ObjectiveTypeCode codeListValue="persistentView"
codeList="http://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_ObjectiveTypeCod
e"
    >persistentView</gmi:MI_ObjectiveTypeCode>
  </gmi:type>
  <gmi:function>
    <gco:CharacterString>Mooring on the Atlantic Ridge, Romanche Canyon, current
meters</gco:CharacterString>
  </gmi:function>
  <gmi:extent>
    <gmd:EX_Extent>
      <gmd:geographicElement>
        <gmd:EX_GeographicBoundingBox>
          <gmd:westBoundLongitude>
            <gco:Decimal>-38</gco:Decimal>
          </gmd:westBoundLongitude>
          <gmd:eastBoundLongitude>
            <gco:Decimal>-38</gco:Decimal>
          </gmd:eastBoundLongitude>
          <gmd:southBoundLatitude>
            <gco:Decimal>-20</gco:Decimal>
          </gmd:southBoundLatitude>
          <gmd:northBoundLatitude>
            <gco:Decimal>-20</gco:Decimal>
          </gmd:northBoundLatitude>
        </gmd:EX_GeographicBoundingBox>

```



```

    </gmd:geographicElement>
  </gmd:EX_Extent>
</gmi:extent>
<gmi:sensingInstrument>
  <gmi:MI_Instrument id="instrument-1-D01-487" >
    <gmi:identifier>
      <gmd:MD_Identifier>
        <gmd:code>
          <gco:CharacterString>instrument-1-D01-487</gco:CharacterString>
        </gmd:code>
      </gmd:MD_Identifier>
    </gmi:identifier>
    <gmi:type>
      <sdn:SDN_DataCategoryCode codeSpace="SeaDataNet" codeListValue="D01"
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_DataCategoryC
ode" >Current meters</sdn:SDN_DataCategoryCode>
    </gmi:type>
    <gmi:mountedOn>
      <gmi:MI_Platform>
        <gmi:identifier>
          <gmd:MD_Identifier>
            <gmd:code>
              <gco:CharacterString>D01/487</gco:CharacterString>
            </gmd:code>
          </gmd:MD_Identifier>
        </gmi:identifier>
        <gmi:description>
          <gco:CharacterString>Current meters, conducted by LABORATORY of
PHYSICAL OCEANOGRAPHY (LPO) UMR 6523 CNRS-IFREMER-IRD-
UBO</gco:CharacterString>
        </gmi:description>
        <gmi:sponsor>
          <gmd:CI_ResponsibleParty>
            <gmd:individualName>
              <gco:CharacterString>Herlé MERCIER</gco:CharacterString>

```



```

</gmd:individualName>
<gmd:organisationName>
  <sdn:SDN_EDMOCCode

```

```

codeList="http://seadatanet.maris2.nl/isocodelists/sdncodelists/edmo-edmerp-
Codelists.xml#SDN_EDMOCCode" codeSpace="SeaDataNet" codeListValue="487"
>LABORATORY of PHYSICAL OCEANOGRAPHY (LPO) UMR 6523 CNRS-IFREMER-IRD-
UBO</sdn:SDN_EDMOCCode>

```

```

</gmd:organisationName>
<gmd:contactInfo>
  <gmd:CI_Contact>
    <gmd:phone>
      <gmd:CI_Telephone>
        <gmd:voice>
          <gco:CharacterString>+33 (0)2 98 22 42 88</gco:CharacterString>
        </gmd:voice>
      </gmd:CI_Telephone>
    </gmd:phone>
    <gmd:address>
      <gmd:CI_Address>
        <gmd:deliveryPoint>
          <gco:CharacterString>BP 70</gco:CharacterString>
        </gmd:deliveryPoint>
        <gmd:city>
          <gco:CharacterString>PLOUZANE</gco:CharacterString>
        </gmd:city>
        <gmd:postalCode>
          <gco:CharacterString>29280</gco:CharacterString>
        </gmd:postalCode>
        <gmd:country>
          <sdn:SDN_CountryCode codeSpace="SeaDataNet"

```

```

codeListValue="FR"
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_CountryCode"
>France</sdn:SDN_CountryCode>
  </gmd:country>
  <gmd:electronicMailAddress>

```



```
<gco:CharacterString>Herle.Mercier@ifremer.fr</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="principalInvestigator" codeSpace="ISOTC211/19115"
>principalInvestigator</gmd:CI_RoleCode>
    </gmd:role>
    </gmd:CI_ResponsibleParty>
    </gmi:sponsor>
    <gmi:instrument xlink:href="instrument-1-D01-487" />
    </gmi:MI_Platform>
    </gmi:mountedOn>
    </gmi:MI_Instrument>
    </gmi:sensingInstrument>
    <gmi:objectiveOccurrence>
    <gmi:MI_Event id="event-instrument-1-D01-487" >
    <gmi:identifier>
    <gmd:MD_Identifier>
    <gmd:code>
    <gco:CharacterString>event-instrument-1-D01-487</gco:CharacterString>
    </gmd:code>
    </gmd:MD_Identifier>
    </gmi:identifier>
    <gmi:trigger>
    <gmi:MI_TriggerCode codeListValue="manual"
codeList="http://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_TriggerCode"
>manual</gmi:MI_TriggerCode>
    </gmi:trigger>
    <gmi:context>
```

```

    <gmi:MI_ContextCode                                codeListValue="acquisition"
codeList="http://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_ContextCode"
>acquisition</gmi:MI_ContextCode>
    </gmi:context>
    <gmi:sequence>
    <gmi:MI_SequenceCode                                codeListValue="instantaneous"
codeList="http://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_SequenceCode"
>instantaneous</gmi:MI_SequenceCode>
    </gmi:sequence>
    <gmi:time>
    <gco:DateTime>1996-11-04T00:00:00</gco:DateTime>
    </gmi:time>
    </gmi:MI_Event>
    </gmi:objectiveOccurrence>
    </sdn:SDN_Objective>
</gmi:objective>
<gmi:objective>
    <sdn:SDN_Objective gco:isoType="MI_Objective_Type" id="objective-instrument-2-H72-
487"
    >
    <gmi:identifier>
    <gmd:MD_Identifier>
    <gmd:code>
    <gco:CharacterString>objective-instrument-2-H72-487</gco:CharacterString>
    </gmd:code>
    </gmd:MD_Identifier>
    </gmi:identifier>
    <gmi:type>
    <gmi:MI_ObjectiveTypeCode                                codeListValue="persistentView"
codeList="http://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_ObjectiveTypeCod
e"
    >persistentView</gmi:MI_ObjectiveTypeCode>
    </gmi:type>
    <gmi:function>
    <gco:CharacterString>Mooring on the Atlantic Ridge, Romanche Canyon, thermistor
chain</gco:CharacterString>
    </gmi:function>

```



```
<gmi:extent>
  <gmd:EX_Extent>
    <gmd:geographicElement>
      <gmd:EX_GeographicBoundingBox>
        <gmd:westBoundLongitude>
          <gco:Decimal>-38</gco:Decimal>
        </gmd:westBoundLongitude>
        <gmd:eastBoundLongitude>
          <gco:Decimal>-38</gco:Decimal>
        </gmd:eastBoundLongitude>
        <gmd:southBoundLatitude>
          <gco:Decimal>-20</gco:Decimal>
        </gmd:southBoundLatitude>
        <gmd:northBoundLatitude>
          <gco:Decimal>-20</gco:Decimal>
        </gmd:northBoundLatitude>
      </gmd:EX_GeographicBoundingBox>
    </gmd:geographicElement>
  </gmd:EX_Extent>
</gmi:extent>
<gmi:sensingInstrument>
  <gmi:MI_Instrument id="instrument-2-H72-487" >
    <gmi:identifier>
      <gmd:MD_Identifier>
        <gmd:code>
          <gco:CharacterString>instrument-2-H72-487</gco:CharacterString>
        </gmd:code>
      </gmd:MD_Identifier>
    </gmi:identifier>
    <gmi:type>
      <sdn:SDN_DataCategoryCode codeSpace="SeaDataNet" codeListValue="H72"
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_DataCategoryC
ode" >Subsurface temperature measurements</sdn:SDN_DataCategoryCode>
    </gmi:type>
    <gmi:mountedOn>
```





```
<gmi:MI_Platform>
  <gmi:identifier>
    <gmd:MD_Identifier>
      <gmd:code>
        <gco:CharacterString>H72/487</gco:CharacterString>
      </gmd:code>
    </gmd:MD_Identifier>
  </gmi:identifier>
  <gmi:description>
    <gco:CharacterString>Subsurface temperature measurements, conducted by
LABORATORY of PHYSICAL OCEANOGRAPHY (LPO) UMR 6523 CNRS-IFREMER-IRD-
UBO</gco:CharacterString>
  </gmi:description>
  <gmi:sponsor>
    <gmd:CI_ResponsibleParty>
      <gmd:individualName>
        <gco:CharacterString>Herlé                MERCIER</gco:CharacterString>
      </gmd:individualName>
      <gmd:organisationName>
        <sdn:SDN_EDMOCCode
codeList="http://seadatanet.maris2.nl/isocodelists/sdncodelists/edmo-edmerp-
Codelists.xml#SDN_EDMOCCode"          codeSpace="SeaDataNet"          codeListValue="487"
>LABORATORY of PHYSICAL OCEANOGRAPHY (LPO) UMR 6523 CNRS-IFREMER-IRD-
UBO</sdn:SDN_EDMOCCode>
      </gmd:organisationName>
      <gmd:contactInfo>
        <gmd:CI_Contact>
          <gmd:phone>
            <gmd:CI_Telephone>
              <gmd:voice>
                <gco:CharacterString>+33 (0)2 98 22 42 88</gco:CharacterString>
              </gmd:voice>
            </gmd:CI_Telephone>
          </gmd:phone>
          <gmd:address>
```



```
<gmd:CI_Address>
  <gmd:deliveryPoint>
    <gco:CharacterString>BP                                70</gco:CharacterString>
  </gmd:deliveryPoint>
  <gmd:city>
    <gco:CharacterString>PLOUZANE</gco:CharacterString>
  </gmd:city>
  <gmd:postalCode>
    <gco:CharacterString>29280</gco:CharacterString>
  </gmd:postalCode>
  <gmd:country>
    <sdn:SDN_CountryCode                                codeSpace="SeaDataNet"
codeListValue="FR"
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_CountryCode"
>France</sdn:SDN_CountryCode>
  </gmd:country>
  <gmd:electronicMailAddress>

<gco:CharacterString>Herle.Mercier@ifremer.fr</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="principalInvestigator"                    codeSpace="ISOTC211/19115"
>principalInvestigator</gmd:CI_RoleCode>
  </gmd:role>
  </gmd:CI_ResponsibleParty>
  </gmi:sponsor>
  <gmi:instrument                                xlink:href="instrument-2-H72-487"
  </gmi:MI_Platform>
  </gmi:mountedOn>
```



```
</gmi:MI_Instrument>
</gmi:sensingInstrument>
<gmi:objectiveOccurrence>
  <gmi:MI_Event id="event-instrument-2-H72-487" >
    <gmi:identifier>
      <gmd:MD_Identifier>
        <gmd:code>
          <gco:CharacterString>event-instrument-2-H72-487</gco:CharacterString>
        </gmd:code>
      </gmd:MD_Identifier>
    </gmi:identifier>
    <gmi:trigger>
      <gmi:MI_TriggerCode codeListValue="manual"
codeList="http://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_TriggerCode"
>manual</gmi:MI_TriggerCode>
    </gmi:trigger>
    <gmi:context>
      <gmi:MI_ContextCode codeListValue="acquisition"
codeList="http://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_ContextCode"
>acquisition</gmi:MI_ContextCode>
    </gmi:context>
    <gmi:sequence>
      <gmi:MI_SequenceCode codeListValue="instantaneous"
codeList="http://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_SequenceCode"
>instantaneous</gmi:MI_SequenceCode>
    </gmi:sequence>
    <gmi:time>
      <gco:DateTime>1996-11-04T00:00:00</gco:DateTime>
    </gmi:time>
  </gmi:MI_Event>
</gmi:objectiveOccurrence>
</sdn:SDN_Objective>
</gmi:objective>
<gmi:objective>
  <sdn:SDN_Objective gco:isoType="MI_Objective_Type" id="objective-instrument-3-H10-
```



1046"

>

```
<gmi:identifier>
  <gmd:MD_Identifier>
    <gmd:code>
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    </gmd:code>
  </gmd:MD_Identifier>
</gmi:identifier>
<gmi:type>
  <gmi:MI_ObjectiveTypeCode codeListValue="instantaneousCollection"
codeList="http://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_ObjectiveTypeCod
e"
  >instantaneousCollection</gmi:MI_ObjectiveTypeCode>
</gmi:type>
<gmi:function>
  <gco:CharacterString>Neil Brown CTD casts, up to 6000m</gco:CharacterString>
</gmi:function>
<gmi:sensingInstrument>
  <gmi:MI_Instrument id="instrument-3-H10-1046"
  >
    <gmi:identifier>
      <gmd:MD_Identifier>
        <gmd:code>
          <gco:CharacterString>instrument-3-H10-1046</gco:CharacterString>
        </gmd:code>
      </gmd:MD_Identifier>
    </gmi:identifier>
    <gmi:type>
      <sdn:SDN_DataCategoryCode codeSpace="SeaDataNet" codeListValue="H10"
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_DataCategoryC
ode"
      >CTD stations</sdn:SDN_DataCategoryCode>
    </gmi:type>
    <gmi:mountedOn>
      <gmi:MI_Platform>
        <gmi:identifier>
          <gmd:MD_Identifier>
            <gmd:code>
```



```

        <gco:CharacterString>H10/1046</gco:CharacterString>
    </gmd:code>
</gmd:MD_Identifier>
</gmi:identifier>
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    <gco:CharacterString>CTD stations, conducted by LABORATORY OF
SCIENCES OF MARINE ENVIRONMENT (LEMAR)</gco:CharacterString>
</gmi:description>
<gmi:sponsor>
    <gmd:CI_ResponsibleParty>
        <gmd:individualName>
            <gco:CharacterString>Laurent MEMERY</gco:CharacterString>
        </gmd:individualName>
        <gmd:organisationName>
            <sdn:SDN_EDMOCCode
codeList="http://seadatanet.maris2.nl/isocodelists/sdncodelists/edmo-edmerp-
Codelists.xml#SDN_EDMOCCode" codeSpace="SeaDataNet" codeListValue="1046"
>LABORATORY OF SCIENCES OF MARINE ENVIRONMENT
(LEMAR)</sdn:SDN_EDMOCCode>
        </gmd:organisationName>
        <gmd:contactInfo>
            <gmd:CI_Contact>
                <gmd:phone>
                    <gmd:CI_Telephone>
                        <gmd:voice>
                            <gco:CharacterString>+33 (0)2 98 49 88 97</gco:CharacterString>
                        </gmd:voice>
                    </gmd:CI_Telephone>
                </gmd:phone>
                <gmd:address>
                    <gmd:CI_Address>
                        <gmd:deliveryPoint>
                            <gco:CharacterString>IUEM,Technopole Brest Iroise,Place Nicolas
Copernic
                            </gco:CharacterString>
                        </gmd:deliveryPoint>
                    </gmd:CI_Address>
                </gmd:address>
            </gmd:CI_Contact>
        </gmd:contactInfo>
    </gmd:CI_ResponsibleParty>
</gmi:sponsor>

```



```

<gmd:city>
  <gco:CharacterString>PLOUZANE</gco:CharacterString>
</gmd:city>
<gmd:postalCode>
  <gco:CharacterString>29280</gco:CharacterString>
</gmd:postalCode>
<gmd:country>
  <sdn:SDN_CountryCode
codeSpace="SeaDataNet"

```

codeListValue="FR"

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

>France</sdn:SDN\_CountryCode>

```

</gmd:country>
<gmd:electronicMailAddress>
  <gco:CharacterString>Laurent.Memery@univ-

```

brest.fr</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="principalInvestigator"

codeSpace="ISOTC211/19115"

>principalInvestigator</gmd:CI\_RoleCode>

```

</gmd:role>
</gmd:CI_ResponsibleParty>
</gmi:sponsor>
<gmi:instrument
  xlink:href="instrument-3-H10-1046"
  />
</gmi:MI_Platform>
</gmi:mountedOn>
</gmi:MI_Instrument>
</gmi:sensingInstrument>
<gmi:objectiveOccurrence>
  <gmi:MI_Event
    id="event-instrument-3-H10-1046"
  >

```

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```


```

```


```

```


```



```
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  <gmd:MD_Identifier>
    <gmd:code>
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  </gmd:MD_Identifier>
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  <gmi:MI_TriggerCode codeListValue="manual"
codeList="http://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_TriggerCode"
>manual</gmi:MI_TriggerCode>
</gmi:trigger>
<gmi:context>
  <gmi:MI_ContextCode codeListValue="acquisition"
codeList="http://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_ContextCode"
>acquisition</gmi:MI_ContextCode>
</gmi:context>
<gmi:sequence>
  <gmi:MI_SequenceCode codeListValue="instantaneous"
codeList="http://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_SequenceCode"
>instantaneous</gmi:MI_SequenceCode>
</gmi:sequence>
<gmi:time>
  <gco:DateTime>1996-11-04T00:00:00</gco:DateTime>
</gmi:time>
</gmi:MI_Event>
</gmi:objectiveOccurrence>
<sdn:SDN_SamplingActivity>
  <sdn:quantity>44</sdn:quantity>
  <sdn:unit>
    <sdn:SDN_CSRUnitCode codeSpace="SeaDataNet" codeListValue="CSRU001"
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_CSRUnitCode"
>number of stations</sdn:SDN_CSRUnitCode>
  </sdn:unit>
</sdn:SDN_SamplingActivity>
```

```

    </sdn:SDN_Objective>
</gmi:objective>
<gmi:objective>
  <sdn:SDN_Objective gco:isoType="MI_Objective_Type" id="objective-instrument-4-H09-
487"
    <gmi:identifier>
      <gmd:MD_Identifier>
        <gmd:code>
          <gco:CharacterString>objective-instrument-4-H09-487</gco:CharacterString>
        </gmd:code>
      </gmd:MD_Identifier>
    </gmi:identifier>
    <gmi:type>
      <gmi:MI_ObjectiveTypeCode codeListValue="instantaneousCollection"
codeList="http://www.iso211.org/2005/resources/Codelist/gmiCodelists.xml#MI_ObjectiveTypeCod
e"
        >instantaneousCollection</gmi:MI_ObjectiveTypeCode>
    </gmi:type>
    <gmi:function>
      <gco:CharacterString>Water bottle sampling, rosette of 64 bottles</gco:CharacterString>
    </gmi:function>
    <gmi:sensingInstrument>
      <gmi:MI_Instrument id="instrument-4-H09-487"
        <gmi:identifier>
          <gmd:MD_Identifier>
            <gmd:code>
              <gco:CharacterString>instrument-4-H09-487</gco:CharacterString>
            </gmd:code>
          </gmd:MD_Identifier>
        </gmi:identifier>
        <gmi:type>
          <sdn:SDN_DataCategoryCode codeSpace="SeaDataNet" codeListValue="H09"
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_DataCategoryC
ode"
            >Water bottle stations</sdn:SDN_DataCategoryCode>
        </gmi:type>
        <gmi:mountedOn>

```





```

<gmi:MI_Platform>
  <gmi:identifier>
    <gmd:MD_Identifier>
      <gmd:code>
        <gco:CharacterString>H09/487</gco:CharacterString>
      </gmd:code>
    </gmd:MD_Identifier>
  </gmi:identifier>
  <gmi:description>
    <gco:CharacterString>Water bottle stations, conducted by LABORATORY of
PHYSICAL OCEANOGRAPHY (LPO) UMR 6523 CNRS-IFREMER-IRD-
UBO</gco:CharacterString>
  </gmi:description>
  <gmi:sponsor>
    <gmd:CI_ResponsibleParty>
      <gmd:individualName>
        <gco:CharacterString>Michel ARHAN</gco:CharacterString>
      </gmd:individualName>
      <gmd:organisationName>
        <sdn:SDN_EDMOCCode
codeList="http://seadatanet.maris2.nl/isocodelists/sdncodelists/edmo-edmerp-
Codelists.xml#SDN_EDMOCCode" codeSpace="SeaDataNet" codeListValue="487"
>LABORATORY of PHYSICAL OCEANOGRAPHY (LPO) UMR 6523 CNRS-IFREMER-IRD-
UBO</sdn:SDN_EDMOCCode>
      </gmd:organisationName>
      <gmd:contactInfo>
        <gmd:CI_Contact>
          <gmd:phone>
            <gmd:CI_Telephone>
              <gmd:voice>
                <gco:CharacterString>+33 (0)2 98 22 42 85</gco:CharacterString>
              </gmd:voice>
            </gmd:CI_Telephone>
          </gmd:phone>
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```



```
<gmd:CI_Address>
  <gmd:deliveryPoint>
    <gco:CharacterString>BP                                70</gco:CharacterString>
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    <gco:CharacterString>29280</gco:CharacterString>
  </gmd:postalCode>
  <gmd:country>
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codeListValue="FR"
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_CountryCode"
>France</sdn:SDN_CountryCode>
  </gmd:country>
  <gmd:electronicMailAddress>

<gco:CharacterString>Michel.Arhan@ifremer.fr</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="principalInvestigator"                    codeSpace="ISOTC211/19115"
>principalInvestigator</gmd:CI_RoleCode>
  </gmd:role>
  </gmd:CI_ResponsibleParty>
  </gmi:sponsor>
  <gmi:instrument                                xlink:href="instrument-4-H09-487"
  </gmi:MI_Platform>
  </gmi:mountedOn>
```



```
</gmi:MI_Instrument>
</gmi:sensingInstrument>
<gmi:objectiveOccurrence>
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      <gmd:MD_Identifier>
        <gmd:code>
          <gco:CharacterString>event-instrument-4-H09-487</gco:CharacterString>
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    </gmi:identifier>
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codeList="http://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_TriggerCode"
>manual</gmi:MI_TriggerCode>
    </gmi:trigger>
    <gmi:context>
      <gmi:MI_ContextCode codeListValue="acquisition"
codeList="http://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_ContextCode"
>acquisition</gmi:MI_ContextCode>
    </gmi:context>
    <gmi:sequence>
      <gmi:MI_SequenceCode codeListValue="instantaneous"
codeList="http://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_SequenceCode"
>instantaneous</gmi:MI_SequenceCode>
    </gmi:sequence>
    <gmi:time>
      <gco:DateTime>1996-11-04T00:00:00</gco:DateTime>
    </gmi:time>
  </gmi:MI_Event>
</gmi:objectiveOccurrence>
<sdn:SDN_SamplingActivity>
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  <sdn:unit>
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```

```

codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicrsCodeList.xml#SDN_CSRUnitCode"
>number                of                stations</sdn:SDN_CSRUnitCode>
    </sdn:unit>
  </sdn:SDN_SamplingActivity>
</sdn:SDN_Objective>
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1480"
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      <gmd:MD_Identifier>
        <gmd:code>
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        </gmd:code>
      </gmd:MD_Identifier>
    </gmi:identifier>
    <gmi:type>
      <gmi:MI_ObjectiveTypeCode codeListValue="instantaneousCollection"
codeList="http://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_ObjectiveTypeCod
e"
        >instantaneousCollection</gmi:MI_ObjectiveTypeCode>
    </gmi:type>
    <gmi:function>
      <gco:CharacterString> 50      NM      multibeam</gco:CharacterString>
    </gmi:function>
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      <gmi:MI_Instrument id="instrument-5-G74-1480"
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            </gmd:code>
          </gmd:MD_Identifier>
        </gmi:identifier>
        <gmi:type>
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```



codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN\_DataCategoryCode" >Multi-beam echosounding</sdn:SDN\_DataCategoryCode>

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<gmi:mountedOn>

<gmi:MI\_Platform>

<gmi:identifier>

<gmd:MD\_Identifier>

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</gmd:code>

</gmd:MD\_Identifier>

</gmi:identifier>

<gmi:description>

<gco:CharacterString>Multi-beam echosounding, conducted by FPS Economy,  
Belgian Continental Shelf</gco:CharacterString>

</gmi:description>

<gmi:sponsor>

<gmd:CI\_ResponsibleParty>

<gmd:individualName>

<gco:CharacterString> Koen Degrendele</gco:CharacterString>

</gmd:individualName>

<gmd:organisationName>

<sdn:SDN\_EDMOCCode

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

Codelists.xml#SDN\_EDMOCCode" codeSpace="SeaDataNet" codeListValue="1480" >FPS Economy,  
Belgian Continental Shelf</sdn:SDN\_EDMOCCode>

</gmd:organisationName>

<gmd:contactInfo>

<gmd:CI\_Contact>

<gmd:phone>

<gmd:CI\_Telephone>

<gmd:voice>

<gco:CharacterString>+32 (0)2 277 72 53</gco:CharacterString>

</gmd:voice>

<gmd:facsimile>



```

        <gco:CharacterString>+32 (0)2 277 54 13</gco:CharacterString>
    </gmd:facsimile>
</gmd:CI_Telephone>
</gmd:phone>
<gmd:address>
    <gmd:CI_Address>
        <gmd:deliveryPoint>
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16</gco:CharacterString>
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        </gmd:city>
        <gmd:postalCode>
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        </gmd:postalCode>
        <gmd:country>
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codeListValue="BE"
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_CountryCode"
>Belgium</sdn:SDN_CountryCode>
        </gmd:country>
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<gco:CharacterString>philippe.degavre@mineco.fgov.be</gco:CharacterString>
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    </gmd:CI_Address>
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</gmd:CI_Contact>
</gmd:contactInfo>
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codeListValue="principalInvestigator" codeSpace="ISOTC211/19115"
>principalInvestigator</gmd:CI_RoleCode>

```



```
        </gmd:role>
        </gmd:CI_ResponsibleParty>
        </gmi:sponsor>
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        </gmi:mountedOn>
        </gmi:MI_Instrument>
    </gmi:sensingInstrument>
    <gmi:objectiveOccurrence>
        <gmi:MI_Event          id="event-instrument-5-G74-1480"          >
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                    </gmd:code>
                </gmd:MD_Identifier>
            </gmi:identifier>
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                codeList="http://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_TriggerCode"
            >manual</gmi:MI_TriggerCode>
            </gmi:trigger>
            <gmi:context>
                <gmi:MI_ContextCode          codeListValue="acquisition"
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            >acquisition</gmi:MI_ContextCode>
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```

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codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_CSRUnitCode"
>activity duration in hours</sdn:SDN_CSRUnitCode>
    </sdn:unit>
  </sdn:SDN_SamplingActivity>
</sdn:SDN_Objective>
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1478"
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      <gmd:MD_Identifier>
        <gmd:code>
          <gco:CharacterString>objective-instrument-6-B90-1478</gco:CharacterString>
        </gmd:code>
      </gmd:MD_Identifier>
    </gmi:identifier>
    <gmi:type>
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e"
      >instantaneousCollection</gmi:MI_ObjectiveTypeCode>
    </gmi:type>
    <gmi:function>
      <gco:CharacterString>Psetta maxima bio-measurements</gco:CharacterString>
    </gmi:function>
    <gmi:sensingInstrument>
      <gmi:MI_Instrument id="instrument-6-B90-1478"
        <gmi:identifier>
          <gmd:MD_Identifier>
            <gmd:code>

```





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<gco:CharacterString>instrument-6-B90-1478</gco:CharacterString>
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</gmi:identifier>
<gmi:type>
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codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_DataCategoryC
ode" >Other biological/fisheries measurements</sdn:SDN_DataCategoryCode>
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  <gmi:MI_Platform>
    <gmi:identifier>
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        </gmd:code>
      </gmd:MD_Identifier>
    </gmi:identifier>
    <gmi:description>
      <gco:CharacterString>Other biological/fisheries measurements, conducted by
Institute for Agricultural and Fisheries Research, Animal Sciences Unit -
Fisheries</gco:CharacterString>
    </gmi:description>
    <gmi:sponsor>
      <gmd:CI_ResponsibleParty>
        <gmd:individualName>
          <gco:CharacterString>Dr Kris Hostens</gco:CharacterString>
        </gmd:individualName>
        <gmd:organisationName>
          <sdn:SDN_EDMOCODE
codeList="http://seadatanet.maris2.nl/isocodelists/sdncodelists/edmo-edmerp-
Codelists.xml#SDN_EDMOCODE" codeSpace="SeaDataNet" codeListValue="1478" >Institute for
Agricultural and Fisheries Research, Animal Sciences Unit - Fisheries</sdn:SDN_EDMOCODE>
        </gmd:organisationName>
        <gmd:contactInfo>
```



```
<gmd:CI_Contact>
  <gmd:phone>
    <gmd:CI_Telephone>
      <gmd:voice>
        <gco:CharacterString>+32 59 569 848</gco:CharacterString>
      </gmd:voice>
      <gmd:facsimile>
        <gco:CharacterString>+32 59 33 06 29</gco:CharacterString>
      </gmd:facsimile>
    </gmd:CI_Telephone>
  </gmd:phone>
  <gmd:address>
    <gmd:CI_Address>
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        <gco:CharacterString>Ankerstraat 1 </gco:CharacterString>
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      </gmd:city>
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codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_CountryCode"
>Belgium</sdn:SDN_CountryCode>
      </gmd:country>
    <gmd:electronicMailAddress>
      <gco:CharacterString>kris.hostens@ilvo.vlaanderen.be</gco:CharacterString>
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</gmd:CI_Contact>
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```

    </gmd:contactInfo>
    <gmd:role>
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codeListValue="principalInvestigator" codeSpace="ISOTC211/19115"
>principalInvestigator</gmd:CI_RoleCode>
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    </gmd:CI_ResponsibleParty>
    </gmi:sponsor>
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    </gmi:mountedOn>
    </gmi:MI_Instrument>
    </gmi:sensingInstrument>
    <gmi:objectiveOccurrence>
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    </gmi:identifier>
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codeList="http://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_TriggerCode"
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    </gmi:trigger>
    <gmi:context>
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codeList="http://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_ContextCode"
>acquisition</gmi:MI_ContextCode>
    </gmi:context>
    <gmi:sequence>
    <gmi:MI_SequenceCode codeListValue="instantaneous"

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```

codeList="http://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_SequenceCode"
>instantaneous</gmi:MI_SequenceCode>
  </gmi:sequence>
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  </gmi:time>
</gmi:MI_Event>
</gmi:objectiveOccurrence>
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  <sdn:unit>
    <sdn:SDN_CSRUnitCode codeSpace="SeaDataNet" codeListValue="CSRU020"
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_CSRUnitCode"
>number of specimens</sdn:SDN_CSRUnitCode>
  </sdn:unit>
</sdn:SDN_SamplingActivity>
</sdn:SDN_Objective>
</gmi:objective>
<gmi:objective>
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1478"
  >
    <gmi:identifier>
      <gmd:MD_Identifier>
        <gmd:code>
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        </gmd:code>
      </gmd:MD_Identifier>
    </gmi:identifier>
    <gmi:type>
      <gmi:MI_ObjectiveTypeCode codeListValue="instantaneousCollection"
codeList="http://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_ObjectiveTypeCod
e"
      >instantaneousCollection</gmi:MI_ObjectiveTypeCode>
    </gmi:type>
    <gmi:function>
      <gco:CharacterString>macrobenthos - Van Veen grab</gco:CharacterString>

```



```

</gmi:function>
<gmi:sensingInstrument>
  <gmi:MI_Instrument id="instrument-7-B18-1478" >
    <gmi:identifier>
      <gmd:MD_Identifier>
        <gmd:code>
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        </gmd:code>
      </gmd:MD_Identifier>
    </gmi:identifier>
    <gmi:type>
      <sdn:SDN_DataCategoryCode codeSpace="SeaDataNet" codeListValue="B18"
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_DataCategoryC
ode" >Zoobenthos</sdn:SDN_DataCategoryCode>
    </gmi:type>
    <gmi:mountedOn>
      <gmi:MI_Platform>
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            </gmd:code>
          </gmd:MD_Identifier>
        </gmi:identifier>
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Fisheries Research, Animal Sciences Unit - Fisheries</gco:CharacterString>
        </gmi:description>
        <gmi:sponsor>
          <gmd:CI_ResponsibleParty>
            <gmd:individualName>
              <gco:CharacterString>Dr Kris Hostens</gco:CharacterString>
            </gmd:individualName>
            <gmd:organisationName>
              <sdn:SDN_EDMOCCode

```



```

codeList="http://seadatanet.maris2.nl/isocodelists/sdncodelists/edmo-edmerp-
Codelists.xml#SDN_EDMOCODE" codeSpace="SeaDataNet" codeListValue="1478" >Institute for
Agricultural and Fisheries Research, Animal Sciences Unit - Fisheries</sdn:SDN_EDMOCODE>
  </gmd:organisationName>
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    <gmd:CI_Contact>
      <gmd:phone>
        <gmd:CI_Telephone>
          <gmd:voice>
            <gco:CharacterString>+32 59 34 22 50</gco:CharacterString>
          </gmd:voice>
          <gmd:facsimile>
            <gco:CharacterString>+32 59 33 06 29</gco:CharacterString>
          </gmd:facsimile>
        </gmd:CI_Telephone>
      </gmd:phone>
      <gmd:address>
        <gmd:CI_Address>
          <gmd:deliveryPoint>
            <gco:CharacterString>Ankerstraat 1 </gco:CharacterString>
          </gmd:deliveryPoint>
          <gmd:city>
            <gco:CharacterString>Oostende</gco:CharacterString>
          </gmd:city>
          <gmd:postalCode>
            <gco:CharacterString>8400</gco:CharacterString>
          </gmd:postalCode>
          <gmd:country>
            <sdn:SDN_CountryCode codeSpace="SeaDataNet"
codeListValue="BE"
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_CountryCode"
>Belgium</sdn:SDN_CountryCode>
          </gmd:country>
          <gmd:electronicMailAddress>

```



```

<gco:CharacterString>kris.hostens@ilvo.vlaanderen.be</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="principalInvestigator" codeSpace="ISOTC211/19115"
>principalInvestigator</gmd:CI_RoleCode>
  </gmd:role>
</gmd:CI_ResponsibleParty>
</gmi:sponsor>
  <gmi:instrument xlink:href="instrument-7-B18-1478" />
</gmi:MI_Platform>
</gmi:mountedOn>
</gmi:MI_Instrument>
</gmi:sensingInstrument>
<gmi:objectiveOccurrence>
  <gmi:MI_Event id="event-instrument-7-B18-1478" >
    <gmi:identifier>
      <gmd:MD_Identifier>
        <gmd:code>
          <gco:CharacterString>event-instrument-7-B18-1478</gco:CharacterString>
        </gmd:code>
      </gmd:MD_Identifier>
    </gmi:identifier>
    <gmi:trigger>
      <gmi:MI_TriggerCode codeListValue="manual"
codeList="http://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_TriggerCode"
>manual</gmi:MI_TriggerCode>
    </gmi:trigger>
    <gmi:context>
      <gmi:MI_ContextCode codeListValue="acquisition"

```

`codeList="http://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_ContextCode"`

`>acquisition</gmi:MI_ContextCode>`

`</gmi:context>`

`<gmi:sequence>`

`<gmi:MI_SequenceCode codeListValue="instantaneous"`

`codeList="http://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_SequenceCode"`

`>instantaneous</gmi:MI_SequenceCode>`

`</gmi:sequence>`

`<gmi:time>`

`<gco:DateTime>2011-10-07T00:00:00</gco:DateTime>`

`</gmi:time>`

`</gmi:MI_Event>`

`</gmi:objectiveOccurrence>`

`<sdn:SDN_SamplingActivity>`

`<sdn:quantity>349</sdn:quantity>`

`<sdn:unit>`

`<sdn:SDN_CSRUnitCode codeSpace="SeaDataNet" codeListValue="CSRU006"`

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

`>number of samples</sdn:SDN_CSRUnitCode>`

`</sdn:unit>`

`</sdn:SDN_SamplingActivity>`

`</sdn:SDN_Objective>`

`</gmi:objective>`

`<gmi:operation>`

`<gmi:MI_Operation id="urn.SDN.CSR.LOCAL.FI351994800010" >`

`<gmi:description>`

`<gco:CharacterString>This series comprises a set of datasets acquired during the cruise.</gco:CharacterString>`

`</gmi:description>`

`<gmi:citation>`

`<gmd:CI_Citation>`

`<gmd:title>`

`<gco:CharacterString>CITHER 2 LEG 1</gco:CharacterString>`

`</gmd:title>`

`<gmd:alternateTitle>`





```
<gco:CharacterString>FI351994800010</gco:CharacterString>
</gmd:alternateTitle>
<gmd:date>
  <gmd:CI_Date>
    <gmd:date>
      <gco:Date>2013-04-16</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>
</gmi:citation>
<gmi:status>
  <gmd:MD_ProgressCode                                codeListValue="completed"
codeList="http://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_ProgressCode"
>completed</gmd:MD_ProgressCode>
</gmi:status>
<gmi:significantEvent>
  <gmi:MI_Event>
    <gmi:identifier>
      <gmd:MD_Identifier>
        <gmd:code>
          <gco:CharacterString>cruise-start</gco:CharacterString>
        </gmd:code>
      </gmd:MD_Identifier>
    </gmi:identifier>
    <gmi:trigger>
      <gmi:MI_TriggerCode                                codeListValue="manual"
codeList="http://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_TriggerCode"
>manual</gmi:MI_TriggerCode>
    </gmi:trigger>
```



```
<gmi:context>
  <gmi:MI_ContextCode codeListValue="wayPoint"
codeList="http://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_ContextCode"
>wayPoint</gmi:MI_ContextCode>
</gmi:context>
<gmi:sequence>
  <gmi:MI_SequenceCode codeListValue="start"
codeList="http://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_SequenceCode"
>start</gmi:MI_SequenceCode>
  </gmi:sequence>
  <gmi:time>
    <gco:DateTime>1994-01-04T00:00:00</gco:DateTime>
  </gmi:time>
  </gmi:MI_Event>
</gmi:significantEvent>
<gmi:significantEvent xlink:href="event-instrument-1-D01-487" ></gmi:significantEvent>
<gmi:significantEvent xlink:href="event-instrument-2-H72-487" ></gmi:significantEvent>
<gmi:significantEvent xlink:href="event-instrument-3-H10-1046"
></gmi:significantEvent>
<gmi:significantEvent xlink:href="event-instrument-4-H09-487" ></gmi:significantEvent>
<gmi:significantEvent xlink:href="event-instrument-5-G74-1480"
></gmi:significantEvent>
<gmi:significantEvent xlink:href="event-instrument-6-B90-1478"
></gmi:significantEvent>
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></gmi:significantEvent>
<gmi:significantEvent>
  <gmi:MI_Event>
    <gmi:identifier>
      <gmd:MD_Identifier>
        <gmd:code>
          <gco:CharacterString>cruise-end</gco:CharacterString>
        </gmd:code>
      </gmd:MD_Identifier>
    </gmi:identifier>
```



```
<gmi:trigger>
  <gmi:MI_TriggerCode codeListValue="manual"
codeList="http://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_TriggerCode"
>manual</gmi:MI_TriggerCode>
</gmi:trigger>
<gmi:context>
  <gmi:MI_ContextCode codeListValue="wayPoint"
codeList="http://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_ContextCode"
>wayPoint</gmi:MI_ContextCode>
</gmi:context>
<gmi:sequence>
  <gmi:MI_SequenceCode codeListValue="end"
codeList="http://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_SequenceCode"
>end</gmi:MI_SequenceCode>
</gmi:sequence>
<gmi:time>
  <gco:DateTime>1994-02-13T00:00:00</gco:DateTime>
</gmi:time>
</gmi:MI_Event>
</gmi:significantEvent>
</gmi:MI_Operation>
</gmi:operation>
</gmi:MI_AcquisitionInformation>
</gmi:acquisitionInformation>
</gmi:MI_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 19115-2:2009, Geographic information — Metadata — Part 2: Extensions for imagery and gridded data
- 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