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

Document Version	Date	Status	Author(s)	Description
1.0.0	2013-05-22	Creation	Boldrini, Nativi	First implementation
2.0.0	2013-07-17	Revision	Boldrini	Updated sample (license URL, C19 codelist)
3.0.0	2013-10-18	Revision	Boldrini	Examples, schematron
3.0.1	2017-09-19	Revision	Boldrini, Duthie	Bugfix of CSR Schematron schema, to obtain validation against official ISO Schematron 2006 Relax NG Compact schema used by lxml Python library
4.0.0	2019-01-18	Revision	Boldrini	Updated schemas caused by ISO TC211 schemas relocation. Decision has been made to use schemas from OGC, as suggested by INSPIRE technical guidelines. E.g. previous location: http://www.isotc211.org/schemas/2005/gmd/gmd.xsd -> current location: http://schemas.opengis.net/iso/19139/20060504/gmd/gmd.xsd Important: this major change affects only the online version of the schemas
4.0.1	2019-10-16	Revision	Iona	Updated SeaDataNet project information
5.0.0	2020-01-17	Revision	Boldrini, Schaap, Tosello	Fixed pointOfContact cardinality in schematron Fixed geographic extent as mandatory Fixed referenceSystemInfo cardinality in schematron Included as mandatory INSPIRE required elements: spatialRepresentationType, useLimitation, referenceSystemInformation. Modified XML schema location as a workaround for ETF validator. Updated conformance metadata element required by INSPIRE. Fixed elements in documentation and schematron: fileIdentifier, hierarchyLevelName, distributor, transferOptions, distributionFormat.
5.1.0	2020-01-24	Revision	Boldrini, Tosello	Added schematron check on precision of bounding box coordinates (minimum two decimal places required by INSPIRE validator)
5.1.1	2020-02-06	Revision	Boldrini	Fixed schematron check about empty elements
5.2.0	2020-04-10	Revision	Boldrini	Changes to reflect https uptake

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Foreword

This document has been drafted in the context of the EU FP7 SeaDataNet II project and EU H2020 SeaDataCloud project by CNR-IIA. "*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).
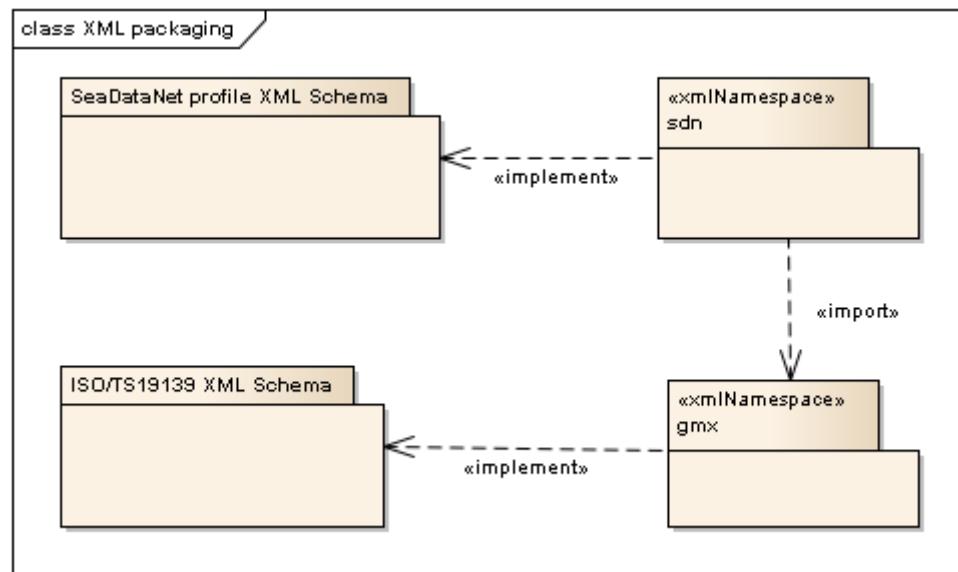
Figure 1 XML Packaging

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_EDMOCode
- 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 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" >
</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 – minimum two decimal places precision is required by INSPIRE
- eastBoundLongitude must be in -180; 180 – minimum two decimal places precision is required by INSPIRE
- southBoundLatitude must be in -90; 90 and less than northBoundLatitude – minimum two decimal places precision
  is required by INSPIRE
- northBoundLatitude must be in -90; 90 and greater than southBoundLatitude – minimum two decimal places
  precision is required by INSPIRE

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. In particular it is required to be present:
  - 1 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'
  - 1 DQ_DataQuality.report.DQ_ConformanceResult with values:
    - specification.CI_Citation.title.CharacterString = '**COMMISSION REGULATION (EU) No 1089/2010 of 23 November 2010 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards interoperability of spatial data sets and services**'
    - specification.CI_Citation.date.CI_Date.date.Date = '2010-12-08'
    - 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.

Schema location attribute

The schema location attribute is a hint for the XML schema validator, including a pointer to the SeaDataNet schemas.

Please note: to support the latest INSPIRE ETF validator also the ISO 19115 schemas should be referenced, at the end of the schemaLocation attribute. Example given:

xsi:schemaLocation="http://www.seadatanet.org http://schemas.seadatanet.org/Standards-Software/Metadata-formats/SDN2_CSR_ISO19139_5.0.0.xsd http://www.isotc211.org/2005/gmd http://schemas.opengis.net/iso/19139/20060504/gmd/gmd.xsd"

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) Implementation example

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

```xml
<?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_5.0.0.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          ../schema/csr-5.0.0.xsd
http://www.isotc211.org/2005/gmd
http://schemas.opengis.net/iso/19139/20060504/gmd/gmd.xsd">

    <gmd:fileIdentifier>
        <gco:CharacterString>urn:SDN:CSR:LOCAL:FI351994800010</gco:CharacterString>
    </gmd:fileIdentifier>
    <gmd:language>
        <gmd:LanguageCode
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#Langu
ageCode" codeListValue="eng" codeSpace="ISOTC211/19115">English</gmd:LanguageCode>
    </gmd:language>
    <gmd:characterSet>
        <gmd:MD_CharacterSetCode
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_Ch
aracterSetCode"                                            codeListValue="utf8"
codeSpace="ISOTC211/19115">utf8</gmd:MD_CharacterSetCode>
    </gmd:characterSet>
    <gmd:hierarchyLevel>
        <gmd:MD_ScopeCode
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_Sc
opeCode"                                                  codeListValue="series"
codeSpace="ISOTC211/19115">series</gmd:MD_ScopeCode>
    </gmd:hierarchyLevel>
    <gmd:hierarchyLevelName>
        <sdn:SDN_HierarchyLevelNameCode
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN
_HierarchyLevelNameCode" codeListValue="CSR" codeSpace="SeaDataNet">Cruise Summary
record</sdn:SDN_HierarchyLevelNameCode>
    </gmd:hierarchyLevelName>
    <gmd:contact>
        <gmd:CI_ResponsibleParty>
            <gmd:organisationName>
                <sdn:SDN_EDMOCode
codeList="https://edmo.seadatanet.org/isocodelists/sdncodelists/edmo-edmerp-
codelists.xml#SDN_EDMOCode"  codeSpace="SeaDataNet"  codeListValue="486">IFREMER  /
IDM/SISMER</sdn:SDN_EDMOCode>
```

```xml
            </gmd:organisationName>
            <gmd:contactInfo>
                <gmd:CI_Contact>
                    <gmd:phone>
                        <gmd:CI_Telephone>
                            <gmd:voice>
                                <gco:CharacterString>+33
(0)2.98.22.49.16</gco:CharacterString>
                            </gmd:voice>
                            <gmd:facsimile>
                                <gco:CharacterString>+33
(0)2.98.22.46.44</gco:CharacterString>
                            </gmd:facsimile>
                        </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="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN
_CountryCode">France</sdn:SDN_CountryCode>
                            </gmd:country>
                            <gmd:electronicMailAddress>

<gco:CharacterString>sismer@ifremer.fr</gco:CharacterString>
                            </gmd:electronicMailAddress>
                        </gmd:CI_Address>
                    </gmd:address>
                    <gmd:onlineResource>
                        <gmd:CI_OnlineResource>
                            <gmd:linkage>
                                <gmd:URL>http://www.ifremer.fr/sismer/</gmd:URL>
                            </gmd:linkage>
                        </gmd:CI_OnlineResource>
                    </gmd:onlineResource>
                </gmd:CI_Contact>
            </gmd:contactInfo>
            <gmd:role>
                <gmd:CI_RoleCode
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_Ro
leCode"                                         codeListValue="pointOfContact"
codeSpace="ISOTC211/19115">pointOfContact</gmd:CI_RoleCode>
            </gmd:role>
        </gmd:CI_ResponsibleParty>
    </gmd:contact>
    <gmd:dateStamp>
```

```xml
            <gco:Date>1995-06-26</gco:Date>
        </gmd:dateStamp>
        <gmd:metadataStandardName>
            <gco:CharacterString>ISO 19115/SeaDataNet profile</gco:CharacterString>
        </gmd:metadataStandardName>
        <gmd:metadataStandardVersion>
            <gco:CharacterString>1.0</gco:CharacterString>
        </gmd:metadataStandardVersion>
        <gmd:referenceSystemInfo>
            <gmd:MD_ReferenceSystem>
                <gmd:referenceSystemIdentifier>
                    <gmd:RS_Identifier>
                        <gmd:authority>
                            <gmd:CI_Citation>
                                <gmd:title>
                                    <gco:CharacterString>SeaDataNet    geographic    co-ordinate
reference frames</gco:CharacterString>
                                </gmd:title>
                                <gmd:alternateTitle>
                                    <gco:CharacterString>L10</gco:CharacterString>
                                </gmd:alternateTitle>
                                <gmd:date>
                                    <gmd:CI_Date>
                                        <gmd:date>
                                            <gco:Date>2007-02-10</gco:Date>
                                        </gmd:date>
                                        <gmd:dateType>
                                            <gmd:CI_DateTypeCode
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_Da
teTypeCode"                                          codeListValue="revision"
codeSpace="ISOTC211/19115">revision</gmd:CI_DateTypeCode>
                                        </gmd:dateType>
                                    </gmd:CI_Date>
                                </gmd:date>
                                <gmd:edition>
                                    <gco:CharacterString>2</gco:CharacterString>
                                </gmd:edition>
                                <gmd:identifier>
                                    <gmd:MD_Identifier>
                                        <gmd:code>

<gco:CharacterString>https://www.seadatanet.org/urnurl/SDN:L10</gco:CharacterString
>
                                        </gmd:code>
                                    </gmd:MD_Identifier>
                                </gmd:identifier>
                            </gmd:CI_Citation>
                        </gmd:authority>
                        <gmd:code>
                            <sdn:SDN_CRSCode
codeList="https://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>
```

```xml
            </gmd:MD_ReferenceSystem>
        </gmd:referenceSystemInfo>
        <gmd:metadataExtensionInfo
            xlink:href="https://schemas.seadatanet.org/Standards-Software/Metadata-
formats/csrExtensionInformation.xml"/>
        <gmd:identificationInfo>
            <sdn:SDN_DataIdentification gco:isoType="MD_DataIdentification_Type">
                <gmd: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>1996-11-04</gco:Date>
                                </gmd:date>
                                <gmd:dateType>
                                    <gmd:CI_DateTypeCode
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_Da
teTypeCode"                                      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>urn:SDN:CSR:LOCAL:FI351994800010</gco:CharacterString>
                                </gmd:code>
                            </gmd:MD_Identifier>
                        </gmd:identifier>
                        <gmd:citedResponsibleParty>
                            <gmd:CI_ResponsibleParty>
                                <gmd:organisationName>
                                    <sdn:SDN_EDMOCode
codeList="https://edmo.seadatanet.org/isocodelists/sdncodelists/edmo-edmerp-
codelists.xml#SDN_EDMOCode"  codeSpace="SeaDataNet"  codeListValue="494">LABORATORY
of OCEANOGRAPHY and CLIMATE (LOCEAN)</sdn:SDN_EDMOCode>
                                </gmd:organisationName>
                                <gmd:contactInfo>
                                    <gmd:CI_Contact>
                                        <gmd:phone>
                                            <gmd:CI_Telephone>
                                                <gmd:voice>
                                                    <gco:CharacterString>+33   (1)   44   27   32
48</gco:CharacterString>
                                                </gmd:voice>
                                                <gmd:facsimile>
                                                    <gco:CharacterString> +33(0)1  44  27  38  05
</gco:CharacterString>
                                                </gmd:facsimile>
```

```xml
                                    </gmd:CI_Telephone>
                                </gmd:phone>
                                <gmd:address>
                                    <gmd:CI_Address>
                                        <gmd:deliveryPoint>
                                            <gco:CharacterString>Université Pierre et Marie
Curie, Case 100, Tour 45-55, 4ème étage, 4 Place Jussieu</gco:CharacterString>
                                        </gmd:deliveryPoint>
                                        <gmd:city>
                                            <gco:CharacterString>Paris                    Cedex
5</gco:CharacterString>
                                        </gmd:city>
                                        <gmd:postalCode>

<gco:CharacterString>75252</gco:CharacterString>
                                        </gmd:postalCode>
                                        <gmd:country>
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codeListValue="FR"
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN
_CountryCode">France</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.locean-
ipsl.upmc.fr/</gmd:URL>
                                        </gmd:linkage>
                                    </gmd:CI_OnlineResource>
                                </gmd:onlineResource>
                            </gmd:CI_Contact>
                        </gmd:contactInfo>
                        <gmd:role>
                            <gmd:CI_RoleCode
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_Ro
leCode"                                        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="https://edmo.seadatanet.org/isocodelists/sdncodelists/edmo-edmerp-
codelists.xml#SDN_EDMOCode"  codeSpace="SeaDataNet"  codeListValue="487">IFREMER  /
OPS/LPO-LABORATORY of PHYSICAL OCEANOGRAPHY</sdn:SDN_EDMOCode>
                        </gmd:organisationName>
                        <gmd:contactInfo>
                            <gmd:CI_Contact>
```

```xml
                                    <gmd:phone>
                                        <gmd:CI_Telephone>
                                            <gmd:voice>
                                                <gco:CharacterString>+33                    (0)2
98.22.42.76</gco:CharacterString>
                                            </gmd:voice>
                                            <gmd:facsimile>
                                                <gco:CharacterString>+33(0)2
98.22.44.96</gco:CharacterString>
                                            </gmd:facsimile>
                                        </gmd:CI_Telephone>
                                    </gmd:phone>
                                    <gmd:address>
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                                            <gmd:deliveryPoint>
                                                <gco:CharacterString>BP70</gco:CharacterString>
                                            </gmd:deliveryPoint>
                                            <gmd:city>

<gco:CharacterString>PLOUZANE</gco:CharacterString>
                                            </gmd:city>
                                            <gmd:postalCode>

<gco:CharacterString>29280</gco:CharacterString>
                                            </gmd:postalCode>
                                            <gmd:country>
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codeListValue="FR"
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_CountryCode">France</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.ifremer.fr/lpo/</gmd:URL>
                                            </gmd:linkage>
                                        </gmd:CI_OnlineResource>
                                    </gmd:onlineResource>
                                </gmd:CI_Contact>
                            </gmd:contactInfo>
                            <gmd:role>
                                <gmd:CI_RoleCode
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_Ro
leCode"                                       codeListValue="originator"
codeSpace="ISOTC211/19115">originator</gmd:CI_RoleCode>
                            </gmd:role>
                        </gmd:CI_ResponsibleParty>
                    </gmd:citedResponsibleParty>
                </gmd:CI_Citation>
            </gmd:citation>
```

```xml
        <gmd:abstract>
            <gco:CharacterString>This series comprises a set of datasets acquired
during the cruise.</gco:CharacterString>
        </gmd:abstract>
        <gmd:purpose>
            <gco:CharacterString>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. </gco:CharacterString>
        </gmd:purpose>
        <gmd:pointOfContact>
            <gmd:CI_ResponsibleParty>
                <gmd:individualName>
                    <gco:CharacterString>Laurent MEMERY</gco:CharacterString>
                </gmd:individualName>
                <gmd:organisationName>
                    <sdn:SDN_EDMOCode
codeList="https://edmo.seadatanet.org/isocodelists/sdncodelists/edmo-edmerp-
codelists.xml#SDN_EDMOCode" codeSpace="SeaDataNet" codeListValue="1046">LABORATORY
OF SCIENCES OF MARINE ENVIRONMENT (LEMAR)</sdn:SDN_EDMOCode>
                </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: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="https://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>
```

```xml
            <gmd:role>
                <gmd:CI_RoleCode
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_RoleCode"                                         codeListValue="pointOfContact"
codeSpace="ISOTC211/19115">pointOfContact</gmd:CI_RoleCode>
            </gmd:role>
        </gmd:CI_ResponsibleParty>
    </gmd:pointOfContact>
    <gmd:graphicOverview>
        <gmd:MD_BrowseGraphic>
            <gmd:fileName>
                <gco:CharacterString>FI351994800010.gml</gco:CharacterString>
            </gmd:fileName>
            <gmd:fileDescription>
                <gco:CharacterString>track chart</gco:CharacterString>
            </gmd:fileDescription>
            <gmd:fileType>
                <gco:CharacterString>GML</gco:CharacterString>
            </gmd:fileType>
        </gmd:MD_BrowseGraphic>
    </gmd:graphicOverview>
    <gmd:descriptiveKeywords>
        <gmd:MD_Keywords>
            <gmd:keyword>
                <gco:CharacterString>Oceanographic                    geographical
features</gco:CharacterString>
            </gmd:keyword>
            <gmd:type>
                <gmd:MD_KeywordTypeCode                        codeSpace="SeaDataNet"
codeList="https://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>
                            <gmd:date>
                                <gco:Date>2008-06-01</gco:Date>
                            </gmd:date>
                            <gmd:dateType>
                                <gmd:CI_DateTypeCode     codeSpace="ISOTC211/19115"
codeList="https://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>
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        <gmd:MD_Keywords>
```

```xml
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                        <sdn:SDN_PortCode  codeSpace="SeaDataNet"  codeListValue="BSH176"
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_PortCode">Recife</sdn:SDN_PortCode>
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                    <gmd:type>
                        <gmd:MD_KeywordTypeCode
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_Ke
ywordTypeCode"                                             codeListValue="departure_place"
codeSpace="SeaDataNet">departure_place</gmd:MD_KeywordTypeCode>
                    </gmd:type>
                    <gmd:thesaurusName>
                        <gmd:CI_Citation>
                            <gmd:title>
                                <gco:CharacterString>Ports Gazetteer</gco:CharacterString>
                            </gmd:title>
                            <gmd:alternateTitle>
                                <gco:CharacterString>C38</gco:CharacterString>
                            </gmd:alternateTitle>
                            <gmd:date>
                                <gmd:CI_Date>
                                    <gmd:date>
                                        <gco:Date>2007-09-20</gco:Date>
                                    </gmd:date>
                                    <gmd:dateType>
                                        <gmd:CI_DateTypeCode
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_Da
teTypeCode"                                             codeListValue="revision"
codeSpace="ISOTC211/19115">revision</gmd:CI_DateTypeCode>
                                    </gmd:dateType>
                                </gmd:CI_Date>
                            </gmd:date>
                            <gmd:edition>
                                <gco:CharacterString>2</gco:CharacterString>
                            </gmd:edition>
                            <gmd:identifier>
                                <gmd:MD_Identifier>
                                    <gmd:code>

<gco:CharacterString>https://www.seadatanet.org/urnurl/SDN:C38</gco:CharacterString
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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_PortCode  codeSpace="SeaDataNet"  codeListValue="BSH185"
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN
_PortCode">Salvador</sdn:SDN_PortCode>
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                    <gmd:type>
```

```xml
                    <gmd:MD_KeywordTypeCode
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_Ke
ywordTypeCode"                                            codeListValue="arrival_place"
codeSpace="SeaDataNet">arrival_place</gmd:MD_KeywordTypeCode>
                </gmd:type>
                <gmd:thesaurusName>
                    <gmd:CI_Citation>
                        <gmd:title>
                            <gco:CharacterString>Ports Gazetteer</gco:CharacterString>
                        </gmd:title>
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                            <gco:CharacterString>C38</gco:CharacterString>
                        </gmd:alternateTitle>
                        <gmd:date>
                            <gmd:CI_Date>
                                <gmd:date>
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                                <gmd:dateType>
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codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_Da
teTypeCode"                                            codeListValue="revision"
codeSpace="ISOTC211/19115">revision</gmd:CI_DateTypeCode>
                                </gmd:dateType>
                            </gmd:CI_Date>
                        </gmd:date>
                        <gmd:edition>
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                                <gmd:code>

<gco:CharacterString>https://www.seadatanet.org/urnurl/SDN:C38</gco:CharacterString
>
                                </gmd:code>
                            </gmd:MD_Identifier>
                        </gmd:identifier>
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                </gmd:thesaurusName>
            </gmd:MD_Keywords>
        </gmd:descriptiveKeywords>
        <gmd:descriptiveKeywords>
            <gmd:MD_Keywords>
                <gmd:keyword>
                    <sdn:SDN_CountryCode  codeSpace="SeaDataNet"  codeListValue="BR"
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN
_CountryCode">Brazil</sdn:SDN_CountryCode>
                </gmd:keyword>
                <gmd:type>
                    <gmd:MD_KeywordTypeCode
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_Ke
ywordTypeCode"                                            codeListValue="departure_country"
codeSpace="SeaDataNet">departure_country</gmd:MD_KeywordTypeCode>
                </gmd:type>
                <gmd:thesaurusName>
```

```xml
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    <gmd:title>
        <gco:CharacterString>International Standards Organisation
countries</gco:CharacterString>
    </gmd:title>
    <gmd:alternateTitle>
        <gco:CharacterString>C32</gco:CharacterString>
    </gmd:alternateTitle>
    <gmd:date>
        <gmd:CI_Date>
            <gmd:date>
                <gco:Date>2007-08-22</gco:Date>
            </gmd:date>
            <gmd:dateType>
                <gmd:CI_DateTypeCode
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_Da
teTypeCode"                                                codeListValue="revision"
codeSpace="ISOTC211/19115">revision</gmd:CI_DateTypeCode>
            </gmd:dateType>
        </gmd:CI_Date>
    </gmd:date>
    <gmd:edition>
        <gco:CharacterString>1</gco:CharacterString>
    </gmd:edition>
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        <gmd:MD_Identifier>
            <gmd:code>

<gco:CharacterString>https://www.seadatanet.org/urnurl/SDN:C32</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_CountryCode  codeSpace="SeaDataNet"  codeListValue="BR"
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN
_CountryCode">Brazil</sdn:SDN_CountryCode>
        </gmd:keyword>
        <gmd:type>
            <gmd:MD_KeywordTypeCode
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_Ke
ywordTypeCode"                                    codeListValue="arrival_country"
codeSpace="SeaDataNet">arrival_country</gmd:MD_KeywordTypeCode>
        </gmd:type>
        <gmd:thesaurusName>
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countries</gco:CharacterString>
                </gmd:title>
```

```xml
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                        </gmd:alternateTitle>
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                            <gmd:CI_Date>
                                <gmd:date>
                                    <gco:Date>2007-08-22</gco:Date>
                                </gmd:date>
                                <gmd:dateType>
                                    <gmd:CI_DateTypeCode
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_Da
teTypeCode"                                             codeListValue="revision"
codeSpace="ISOTC211/19115">revision</gmd:CI_DateTypeCode>
                                </gmd:dateType>
                            </gmd:CI_Date>
                        </gmd:date>
                        <gmd:edition>
                            <gco:CharacterString>1</gco:CharacterString>
                        </gmd:edition>
                        <gmd:identifier>
                            <gmd:MD_Identifier>
                                <gmd:code>

<gco:CharacterString>https://www.seadatanet.org/urnurl/SDN:C32</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_PlatformCode codeSpace="SeaDataNet" codeListValue="3230"
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN
_PlatformCode">MAURICE EWING</sdn:SDN_PlatformCode>
                </gmd:keyword>
                <gmd:type>
                    <gmd:MD_KeywordTypeCode
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_Ke
ywordTypeCode"                                          codeListValue="platform"
codeSpace="SeaDataNet">platform</gmd:MD_KeywordTypeCode>
                </gmd:type>
                <gmd:thesaurusName>
                    <gmd:CI_Citation>
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                            <gco:CharacterString>SeaDataNet Cruise Summary Report ship
metadata</gco:CharacterString>
                        </gmd:title>
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```

```xml
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teTypeCode"                                                    codeListValue="revision"
codeSpace="ISOTC211/19115">revision</gmd:CI_DateTypeCode>
                        </gmd:dateType>
                    </gmd:CI_Date>
                </gmd:date>
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                </gmd:edition>
                <gmd:identifier>
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                        <gmd:code>

<gco:CharacterString>https://www.seadatanet.org/urnurl/SDN:C17</gco:CharacterString
>
                        </gmd:code>
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                </gmd:identifier>
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        </gmd:thesaurusName>
    </gmd:MD_Keywords>
</gmd:descriptiveKeywords>
<gmd:descriptiveKeywords>
    <gmd:MD_Keywords>
        <gmd:keyword>
            <sdn:SDN_PlatformCategoryCode                    codeSpace="SeaDataNet"
codeListValue="31"
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN
_PlatformCategoryCode">research vessel</sdn:SDN_PlatformCategoryCode>
        </gmd:keyword>
        <gmd:type>
            <gmd:MD_KeywordTypeCode
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_Ke
ywordTypeCode"                                            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>
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                        <gmd:dateType>
```

```xml
                        <gmd:CI_DateTypeCode
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teTypeCode"                                                  codeListValue="revision"
codeSpace="ISOTC211/19115">revision</gmd:CI_DateTypeCode>
                    </gmd:dateType>
                </gmd:CI_Date>
            </gmd:date>
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            </gmd:edition>
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                <gmd:MD_Identifier>
                    <gmd:code>

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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="9582"
codeList="https://edmo.seadatanet.org/isocodelists/sdncodelists/edmo-edmerp-
codelists.xml#SDN_EDMERPCode">WOCE            FRANCE            -            HYDROLOGY
{acronym="WOCE"}</sdn:SDN_EDMERPCode>
        </gmd:keyword>
        <gmd:type>
            <gmd:MD_KeywordTypeCode
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_Ke
ywordTypeCode"                                                  codeListValue="project"
codeSpace="SeaDataNet">project</gmd:MD_KeywordTypeCode>
        </gmd:type>
        <gmd:thesaurusName>
            <gmd:CI_Citation>
                <gmd:title>
                    <gco:CharacterString>European    Directory    for    Marine
Environmental Research Projects</gco:CharacterString>
                </gmd:title>
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                    <gco:CharacterString>EDMERP</gco:CharacterString>
                </gmd:alternateTitle>
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codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_Da
teTypeCode"                                                  codeListValue="revision"
codeSpace="ISOTC211/19115">revision</gmd:CI_DateTypeCode>
```

```xml
                    </gmd:dateType>
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            <gmd:identifier>
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<gco:CharacterString>https://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:descriptiveKeywords>
    <gmd:MD_Keywords>
        <gmd:keyword>
            <sdn:SDN_WaterBodyCode  codeSpace="SeaDataNet"  codeListValue="4"
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN
_WaterBodyCode">South Atlantic Ocean</sdn:SDN_WaterBodyCode>
        </gmd:keyword>
        <gmd:type>
            <gmd:MD_KeywordTypeCode
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_Ke
ywordTypeCode"                                     codeListValue="place"
codeSpace="SeaDataNet">place</gmd:MD_KeywordTypeCode>
        </gmd:type>
        <gmd:thesaurusName>
            <gmd:CI_Citation>
                <gmd:title>
                    <gco:CharacterString>SeaDataNet                    Sea
Areas</gco:CharacterString>
                </gmd:title>
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                    <gco:CharacterString>C19</gco:CharacterString>
                </gmd:alternateTitle>
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                        <gmd:date>
                            <gco:Date>2007-03-01</gco:Date>
                        </gmd:date>
                        <gmd:dateType>
                            <gmd:CI_DateTypeCode
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_Da
teTypeCode"                                      codeListValue="revision"
codeSpace="ISOTC211/19115">revision</gmd:CI_DateTypeCode>
                        </gmd:dateType>
                    </gmd:CI_Date>
                </gmd:date>
                <gmd:edition>
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                </gmd:edition>
                <gmd:identifier>
                    <gmd:MD_Identifier>
```

```xml
                    <gmd:code>
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                </gmd:identifier>
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        </gmd:descriptiveKeywords>
        <gmd:descriptiveKeywords>
          <gmd:MD_Keywords>
            <gmd:keyword>
              <sdn:SDN_MarsdenCode codeSpace="SeaDataNet" codeListValue="4"
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN
_MarsdenCode">4</sdn:SDN_MarsdenCode>
            </gmd:keyword>
            <gmd:keyword>
              <sdn:SDN_MarsdenCode codeSpace="SeaDataNet" codeListValue="5"
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN
_MarsdenCode">5</sdn:SDN_MarsdenCode>
            </gmd:keyword>
            <gmd:keyword>
              <sdn:SDN_MarsdenCode codeSpace="SeaDataNet" codeListValue="302"
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN
_MarsdenCode">302</sdn:SDN_MarsdenCode>
            </gmd:keyword>
            <gmd:keyword>
              <sdn:SDN_MarsdenCode codeSpace="SeaDataNet" codeListValue="303"
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN
_MarsdenCode">303</sdn:SDN_MarsdenCode>
            </gmd:keyword>
            <gmd:keyword>
              <sdn:SDN_MarsdenCode codeSpace="SeaDataNet" codeListValue="304"
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN
_MarsdenCode">304</sdn:SDN_MarsdenCode>
            </gmd:keyword>
            <gmd:keyword>
              <sdn:SDN_MarsdenCode codeSpace="SeaDataNet" codeListValue="338"
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN
_MarsdenCode">338</sdn:SDN_MarsdenCode>
            </gmd:keyword>
            <gmd:keyword>
              <sdn:SDN_MarsdenCode codeSpace="SeaDataNet" codeListValue="339"
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_MarsdenCode">339</sdn:SDN_MarsdenCode>
            </gmd:keyword>
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              <sdn:SDN_MarsdenCode codeSpace="SeaDataNet" codeListValue="374"
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN
_MarsdenCode">374</sdn:SDN_MarsdenCode>
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            <gmd:keyword>
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```

```xml
_MarsdenCode">375</sdn:SDN_MarsdenCode>
                    </gmd:keyword>
                    <gmd:keyword>
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codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN
_MarsdenCode">376</sdn:SDN_MarsdenCode>
                    </gmd:keyword>
                    <gmd:type>
                        <gmd:MD_KeywordTypeCode
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_Ke
ywordTypeCode"                                          codeListValue="marsden_square"
codeSpace="SeaDataNet">marsden_square</gmd:MD_KeywordTypeCode>
                    </gmd:type>
                    <gmd:thesaurusName>
                        <gmd:CI_Citation>
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Squares</gco:CharacterString>
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codeSpace="ISOTC211/19115">revision</gmd:CI_DateTypeCode>
                                    </gmd:dateType>
                                </gmd:CI_Date>
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>
                                    </gmd:code>
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                            </gmd:identifier>
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                </gmd:MD_Keywords>
            </gmd:descriptiveKeywords>
            <gmd:descriptiveKeywords>
                <gmd:MD_Keywords>
                    <gmd:keyword>
                        <sdn:SDN_ParameterDiscoveryCode                    codeSpace="SeaDataNet"
codeListValue="TEMP"
```

```xml
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN
_ParameterDiscoveryCode">Temperature                      of                      the                      water
column</sdn:SDN_ParameterDiscoveryCode>
                </gmd:keyword>
                <gmd:keyword>
                    <sdn:SDN_ParameterDiscoveryCode                codeSpace="SeaDataNet"
codeListValue="PSAL"
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN
_ParameterDiscoveryCode">Salinity                      of                      the                      water
column</sdn:SDN_ParameterDiscoveryCode>
                </gmd:keyword>
                <gmd:keyword>
                    <sdn:SDN_ParameterDiscoveryCode                codeSpace="SeaDataNet"
codeListValue="TSED"
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN
_ParameterDiscoveryCode">Concentration  of  suspended  particulate  material  in  the
water column</sdn:SDN_ParameterDiscoveryCode>
                </gmd:keyword>
                <gmd:type>
                    <gmd:MD_KeywordTypeCode
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_Ke
ywordTypeCode"                                                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>
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                                    <gco:Date>2007-09-25</gco:Date>
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                                <gmd:dateType>
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codeSpace="ISOTC211/19115">revision</gmd:CI_DateTypeCode>
                                </gmd:dateType>
                            </gmd:CI_Date>
                        </gmd:date>
                        <gmd:edition>
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                                <gmd:code>

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>
                                </gmd:code>
```

```xml
                </gmd:MD_Identifier>
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            </gmd:CI_Citation>
          </gmd:thesaurusName>
        </gmd:MD_Keywords>
      </gmd:descriptiveKeywords>
      <gmd:descriptiveKeywords>
        <gmd:MD_Keywords>
          <gmd:keyword>
            <sdn:SDN_DeviceCategoryCode                codeSpace="SeaDataNet"
codeListValue="130"
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN
_DeviceCategoryCode">CTD profiler</sdn:SDN_DeviceCategoryCode>
          </gmd:keyword>
          <gmd:keyword>
            <sdn:SDN_DeviceCategoryCode                codeSpace="SeaDataNet"
codeListValue="30"
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN
_DeviceCategoryCode">Water sample collector</sdn:SDN_DeviceCategoryCode>
          </gmd:keyword>
          <gmd:type>
            <gmd:MD_KeywordTypeCode
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_Ke
ywordTypeCode"                                        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>
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teTypeCode"                                            codeListValue="revision"
codeSpace="ISOTC211/19115">revision</gmd:CI_DateTypeCode>
                  </gmd:dateType>
                </gmd:CI_Date>
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              <gmd:identifier>
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<gco:CharacterString>https://www.seadatanet.org/urnurl/SDN:L05</gco:CharacterString
```

```xml
>
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                    </gmd:useLimitation>
                </gmd:MD_Constraints>
            </gmd:resourceConstraints>
            <gmd:resourceConstraints>
                <gmd:MD_LegalConstraints>
                    <gmd:accessConstraints>
                        <gmd:MD_RestrictionCode        codeListValue="otherRestrictions"
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_Re
strictionCode">otherRestrictions</gmd:MD_RestrictionCode>
                    </gmd:accessConstraints>
                    <gmd:otherConstraints>
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xlink:href="https://www.seadatanet.org/urnurl/SDN:L08::UN">Unrestricted</gmx:Anchor
>
                    </gmd:otherConstraints>
                </gmd:MD_LegalConstraints>
            </gmd:resourceConstraints>
            <gmd:resourceConstraints>
                <gmd:MD_LegalConstraints>
                    <gmd:accessConstraints>
                        <gmd:MD_RestrictionCode        codeListValue="otherRestrictions"
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_Re
strictionCode">otherRestrictions</gmd:MD_RestrictionCode>
                    </gmd:accessConstraints>
                    <gmd:otherConstraints>
                        <gmx:Anchor
xlink:href="https://www.seadatanet.org/urnurl/SDN:L08::LS">SeaDataNet
licence</gmx:Anchor>
                    </gmd:otherConstraints>
                </gmd:MD_LegalConstraints>
            </gmd:resourceConstraints>

            <gmd:spatialRepresentationType>
                <gmd:MD_SpatialRepresentationTypeCode
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_Sp
atialRepresentationTypeCode"
codeListValue="vector">vector</gmd:MD_SpatialRepresentationTypeCode>
            </gmd:spatialRepresentationType>
            <gmd:spatialRepresentationType>
                <gmd:MD_SpatialRepresentationTypeCode
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_Sp
atialRepresentationTypeCode"
codeListValue="grid">grid</gmd:MD_SpatialRepresentationTypeCode>
            </gmd:spatialRepresentationType>
```

```xml
<gmd:language>
    <gmd:LanguageCode
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#LanguageCode" codeListValue="eng">English</gmd:LanguageCode>
    </gmd:language>
    <gmd:characterSet>
        <gmd:MD_CharacterSetCode
codeList="https://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>
    <gmd:extent>
        <gmd:EX_Extent>
            <gmd:geographicElement>
                <gmd:EX_GeographicDescription>
                    <gmd:geographicIdentifier>
                        <gmd:MD_Identifier>
                            <gmd:code>
                                <gco:CharacterString>South  Atlantic  Ocean,  Brasil</gco:CharacterString>
                            </gmd:code>
                        </gmd:MD_Identifier>
                    </gmd:geographicIdentifier>
                </gmd:EX_GeographicDescription>
            </gmd:geographicElement>
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                <gmd:EX_GeographicDescription>
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                            <gmd:code>
                                <gco:CharacterString>South  Atlantic  Ocean,  Inter-tropical Area</gco:CharacterString>
                            </gmd:code>
                        </gmd:MD_Identifier>
                    </gmd:geographicIdentifier>
                </gmd:EX_GeographicDescription>
            </gmd:geographicElement>
            <gmd:geographicElement>
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                    </gmd:westBoundLongitude>
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                        <gco:Decimal>-40.00</gco:Decimal>
                    </gmd:eastBoundLongitude>
                    <gmd:southBoundLatitude>
                        <gco:Decimal>-25.00</gco:Decimal>
                    </gmd:southBoundLatitude>
                    <gmd:northBoundLatitude>
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                    </gmd:northBoundLatitude>
                </gmd:EX_GeographicBoundingBox>
```

```xml
                        </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>
                                                <gml:name
codeSpace="https://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="https://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="https://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>
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                                <gmd:extent>
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04T00:00:00Z</gml:beginPosition>
                                        <gml:endPosition>1994-02-13T00:00:00Z</gml:endPosition>
                                    </gml:TimePeriod>
                                </gmd:extent>
                            </gmd:EX_TemporalExtent>
                        </gmd:temporalElement>
                    </gmd:EX_Extent>
                </gmd:extent>
```

```xml
        <!-- 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>
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        <gmd:DQ_Scope>
          <gmd:level>
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codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_Sc
opeCode"                                                         codeListValue="series"
codeSpace="ISOTC211/19115">series</gmd:MD_ScopeCode>
          </gmd:level>
        </gmd:DQ_Scope>
      </gmd:scope>
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            <gmd:DQ_ConformanceResult>
              <gmd:specification>
                <gmd:CI_Citation>
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1205/2008 of 3 December 2008 implementing Directive 2007/2/EC of the European
Parliament and of the Council as regards metadata</gco:CharacterString>
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                      <gmd:dateType>
                        <gmd:CI_DateTypeCode
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_Da
teTypeCode" codeListValue="publication">publication</gmd:CI_DateTypeCode>
                      </gmd:dateType>
```

```
                            </gmd:CI_Date>
                        </gmd:date>
                    </gmd:CI_Citation>
                </gmd:specification>
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                    <gco:CharacterString>See                the                referenced
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                </gmd:explanation>
                <gmd:pass>
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</gmd:report>
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1089/2010 of 23 November 2010 implementing Directive 2007/2/EC of the European
Parliament and of the Council as regards interoperability of spatial data sets and
services</gco:CharacterString>
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codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_Da
teTypeCode" 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
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        </gmd:result>
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</gmd:report>
<gmd:lineage>
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        <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>`
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`                        <gmd:code>`

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`codeList=`**`"https://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_Obje`**
`ctiveTypeCode">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>`
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`                                    <gco:Decimal>`**`-38.00`**`</gco:Decimal>`
`                                </gmd:westBoundLongitude>`
`                                <gmd:eastBoundLongitude>`
`                                    <gco:Decimal>`**`-38.00`**`</gco:Decimal>`
`                                </gmd:eastBoundLongitude>`
`                                <gmd:southBoundLatitude>`
`                                    <gco:Decimal>`**`-20.00`**`</gco:Decimal>`
`                                </gmd:southBoundLatitude>`
`                                <gmd:northBoundLatitude>`
`                                    <gco:Decimal>`**`-20.00`**`</gco:Decimal>`
`                                </gmd:northBoundLatitude>`
`                            </gmd:EX_GeographicBoundingBox>`
`                        </gmd:geographicElement>`
`                    </gmd:EX_Extent>`
`                </gmi:extent>`
`                <gmi:sensingInstrument>`
`                    <gmi:MI_Instrument id=`**`"D01">`**
`                        <gmi:identifier>`
`                            <gmd:MD_Identifier>`
`                                <gmd:code>`
`                                    <gco:CharacterString>`**`D01`**`</gco:CharacterString>`

```xml
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codeListValue="D01"
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN
_DataCategoryCode">Current meters</sdn:SDN_DataCategoryCode>
                          </gmi:type>
                          <gmi:mountedOn>
                              <gmi:MI_Platform>
                                  <gmi:identifier>
                                      <gmd:MD_Identifier>
                                          <gmd:code>

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                                  <gmi:sponsor>
                                      <gmd:CI_ResponsibleParty>
                                          <gmd:individualName>
                                              <gco:CharacterString>Herlé
MERCIER</gco:CharacterString>
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                                          <gmd:organisationName>
                                              <sdn:SDN_EDMOCode
codeList="https://edmo.seadatanet.org/isocodelists/sdncodelists/edmo-edmerp-
codelists.xml#SDN_EDMOCode"  codeSpace="SeaDataNet"  codeListValue="487">IFREMER  /
OPS/LPO-LABORATORY of PHYSICAL OCEANOGRAPHY</sdn:SDN_EDMOCode>
                                          </gmd:organisationName>
                                          <gmd:contactInfo>
                                              <gmd:CI_Contact>
                                                  <gmd:phone>
                                                      <gmd:CI_Telephone>
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                                                              <gco:CharacterString>+33 (0)2 98 22
42 88</gco:CharacterString>
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                                                      </gmd:CI_Telephone>
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```xml
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codeList="https://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>
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                                      </gmd:address>
                                  </gmd:CI_Contact>
                              </gmd:contactInfo>
                              <gmd:role>
                                  <gmd:CI_RoleCode
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_Ro
leCode"                                    codeListValue="principalInvestigator"
codeSpace="ISOTC211/19115">principalInvestigator</gmd:CI_RoleCode>
                              </gmd:role>
                          </gmd:CI_ResponsibleParty>
                      </gmi:sponsor>
                      <gmi:instrument xlink:href="D01"/>
                  </gmi:MI_Platform>
              </gmi:mountedOn>
          </gmi:MI_Instrument>
      </gmi:sensingInstrument>
      <gmi:objectiveOccurrence>
          <gmi:MI_Event id="urn.SDN.CSR.LOCAL.FI351994800010.event.D01">
              <gmi:identifier>
                  <gmd:MD_Identifier>
                      <gmd:code>

<gco:CharacterString>urn.SDN.CSR.LOCAL.FI351994800010.event.D01</gco:CharacterStrin
g>
                      </gmd:code>
                  </gmd:MD_Identifier>
              </gmi:identifier>
              <gmi:trigger>
                  <gmi:MI_TriggerCode                    codeListValue="manual"
codeList="https://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_Trig
gerCode">manual</gmi:MI_TriggerCode>
              </gmi:trigger>
              <gmi:context>
                  <gmi:MI_ContextCode               codeListValue="acquisition"
codeList="https://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_Cont
extCode">acquisition</gmi:MI_ContextCode>
              </gmi:context>
              <gmi:sequence>
                  <gmi:MI_SequenceCode             codeListValue="instantaneous"
codeList="https://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_Sequ
enceCode">instantaneous</gmi:MI_SequenceCode>
              </gmi:sequence>
```

```xml
            <gmi:time>
                <gco:DateTime>1996-11-04T00:00:00Z</gco:DateTime>
            </gmi:time>
        </gmi:MI_Event>
    </gmi:objectiveOccurrence>
</sdn:SDN_Objective>
</gmi:objective>
<gmi:objective>
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        id="urn.SDN.CSR.LOCAL.FI351994800010.objective.H72">
        <gmi:identifier>
            <gmd:MD_Identifier>
                <gmd:code>

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                </gmd:code>
            </gmd:MD_Identifier>
        </gmi:identifier>
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ctiveTypeCode">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>-38.00</gco:Decimal>
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                            <gco:Decimal>-38.00</gco:Decimal>
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                        <gmd:southBoundLatitude>
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            </gmd:EX_Extent>
        </gmi:extent>
        <gmi:sensingInstrument>
            <gmi:MI_Instrument id="H72">
                <gmi:identifier>
                    <gmd:MD_Identifier>
                        <gmd:code>
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                        </gmd:code>
                    </gmd:MD_Identifier>
```

```xml
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_DataCategoryCode">Thermistor chain</sdn:SDN_DataCategoryCode>
                    </gmi:type>
                    <gmi:mountedOn>
                        <gmi:MI_Platform>
                            <gmi:identifier>
                                <gmd:MD_Identifier>
                                    <gmd:code>

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                                    </gmd:code>
                                </gmd:MD_Identifier>
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PHYSICAL OCEANOGRAPHY platform</gco:CharacterString>
                            </gmi:description>
                            <gmi:sponsor>
                                <gmd:CI_ResponsibleParty>
                                    <gmd:individualName>
                                        <gco:CharacterString>Herlé
MERCIER</gco:CharacterString>
                                    </gmd:individualName>
                                    <gmd:organisationName>
                                        <sdn:SDN_EDMOCode
codeList="https://edmo.seadatanet.org/isocodelists/sdncodelists/edmo-edmerp-
codelists.xml#SDN_EDMOCode"  codeSpace="SeaDataNet"  codeListValue="487">IFREMER  /
OPS/LPO-LABORATORY of PHYSICAL OCEANOGRAPHY</sdn:SDN_EDMOCode>
                                    </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>
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                                            </gmd:phone>
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                                                    </gmd:deliveryPoint>
                                                    <gmd:city>

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                                                    </gmd:city>
                                                    <gmd:postalCode>

<gco:CharacterString>29280</gco:CharacterString>
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```xml
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                                                        <gmd:country>
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                                                        </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>
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leCode"                                         codeListValue="principalInvestigator"
codeSpace="ISOTC211/19115">principalInvestigator</gmd:CI_RoleCode>
                                        </gmd:role>
                                    </gmd:CI_ResponsibleParty>
                                </gmi:sponsor>
                                <gmi:instrument xlink:href="H72"/>
                            </gmi:MI_Platform>
                        </gmi:mountedOn>
                    </gmi:MI_Instrument>
                </gmi:sensingInstrument>
                <gmi:objectiveOccurrence>
                    <gmi:MI_Event id="urn.SDN.CSR.LOCAL.FI351994800010.event.H72">
                        <gmi:identifier>
                            <gmd:MD_Identifier>
                                <gmd:code>

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g>
                                </gmd:code>
                            </gmd:MD_Identifier>
                        </gmi:identifier>
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gerCode">manual</gmi:MI_TriggerCode>
                        </gmi:trigger>
                        <gmi:context>
                            <gmi:MI_ContextCode                 codeListValue="acquisition"
codeList="https://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_Cont
extCode">acquisition</gmi:MI_ContextCode>
                        </gmi:context>
                        <gmi:sequence>
                            <gmi:MI_SequenceCode            codeListValue="instantaneous"
codeList="https://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_Sequ
enceCode">instantaneous</gmi:MI_SequenceCode>
                        </gmi:sequence>
                        <gmi:time>
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```

```xml
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            </gmi:objectiveOccurrence>
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    </gmi:objective>
    <gmi:objective>
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                    <gmd:code>

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                    </gmd:code>
                </gmd:MD_Identifier>
            </gmi:identifier>
            <gmi:type>
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codeList="https://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_Obje
ctiveTypeCode">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="H10">
                    <gmi:identifier>
                        <gmd:MD_Identifier>
                            <gmd:code>
                                <gco:CharacterString>H10</gco:CharacterString>
                            </gmd:code>
                        </gmd:MD_Identifier>
                    </gmi:identifier>
                    <gmi:type>
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codeListValue="H10"
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN
_DataCategoryCode">CTD stations</sdn:SDN_DataCategoryCode>
                    </gmi:type>
                    <gmi:mountedOn>
                        <gmi:MI_Platform>
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                                <gmd:MD_Identifier>
                                    <gmd:code>

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                                    </gmd:code>
                                </gmd:MD_Identifier>
                            </gmi:identifier>
                            <gmi:description>
                                <gco:CharacterString>LABORATORY OF SCIENCES OF MARINE
ENVIRONMENT (LEMAR) platform</gco:CharacterString>
                            </gmi:description>
                            <gmi:sponsor>
```

```xml
<gmd:CI_ResponsibleParty>
    <gmd:individualName>
        <gco:CharacterString>Laurent MEMERY</gco:CharacterString>
    </gmd:individualName>
    <gmd:organisationName>
        <sdn:SDN_EDMOCode codeList="https://edmo.seadatanet.org/isocodelists/sdncodelists/edmo-edmerp-codelists.xml#SDN_EDMOCode" codeSpace="SeaDataNet" codeListValue="1046">LABORATORY OF SCIENCES OF MARINE ENVIRONMENT (LEMAR)</sdn:SDN_EDMOCode>
    </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>
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                    <gmd:city>
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                    </gmd:city>
                    <gmd:postalCode>
                        <gco:CharacterString>29280</gco:CharacterString>
                    </gmd:postalCode>
                    <gmd:country>
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                    </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="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_RoleCode" codeListValue="principalInvestigator" codeSpace="ISOTC211/19115">principalInvestigator</gmd:CI_RoleCode>
    </gmd:role>
```

```xml
                    </gmd:CI_ResponsibleParty>
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            </gmi:MI_Instrument>
          </gmi:sensingInstrument>
          <gmi:objectiveOccurrence>
            <gmi:MI_Event id="urn.SDN.CSR.LOCAL.FI351994800010.event.H10">
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                <gmd:MD_Identifier>
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              </gmi:identifier>
              <gmi:trigger>
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gerCode">manual</gmi:MI_TriggerCode>
              </gmi:trigger>
              <gmi:context>
                <gmi:MI_ContextCode            codeListValue="acquisition"
codeList="https://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_Cont
extCode">acquisition</gmi:MI_ContextCode>
              </gmi:context>
              <gmi:sequence>
                <gmi:MI_SequenceCode         codeListValue="instantaneous"
codeList="https://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_Sequ
enceCode">instantaneous</gmi:MI_SequenceCode>
              </gmi:sequence>
              <gmi:time>
                <gco:DateTime>1996-11-04T00:00:00Z</gco:DateTime>
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          </gmi:objectiveOccurrence>
          <sdn:SDN_SamplingActivity>
            <sdn:quantity>44</sdn:quantity>
            <sdn:unit>
              <sdn:SDN_CSRUnitCode                    codeSpace="SeaDataNet"
codeListValue="CSRU001"
codeList="https://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="urn.SDN.CSR.LOCAL.FI351994800010.objective.H09">
          <gmi:identifier>
            <gmd:MD_Identifier>
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```xml
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            <gmi:type>
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            </gmi:type>
            <gmi:function>
                <gco:CharacterString>Water bottle sampling, rosette of 64 bottles</gco:CharacterString>
            </gmi:function>
            <gmi:sensingInstrument>
                <gmi:MI_Instrument id="H09">
                    <gmi:identifier>
                        <gmd:MD_Identifier>
                            <gmd:code>
                                <gco:CharacterString>H09</gco:CharacterString>
                            </gmd:code>
                        </gmd:MD_Identifier>
                    </gmi:identifier>
                    <gmi:type>
                        <sdn:SDN_DataCategoryCode codeSpace="SeaDataNet" codeListValue="H09" codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN_DataCategoryCode">Water bottle stations</sdn:SDN_DataCategoryCode>
                    </gmi:type>
                    <gmi:mountedOn>
                        <gmi:MI_Platform>
                            <gmi:identifier>
                                <gmd:MD_Identifier>
                                    <gmd:code>
                                        <gco:CharacterString>SDN:EDMO::487</gco:CharacterString>
                                    </gmd:code>
                                </gmd:MD_Identifier>
                            </gmi:identifier>
                            <gmi:description>
                                <gco:CharacterString>IFREMER / OPS/LPO-LABORATORY of PHYSICAL OCEANOGRAPHY platform</gco:CharacterString>
                            </gmi:description>
                            <gmi:sponsor>
                                <gmd:CI_ResponsibleParty>
                                    <gmd:individualName>
                                        <gco:CharacterString>Michel ARHAN</gco:CharacterString>
                                    </gmd:individualName>
                                    <gmd:organisationName>
                                        <sdn:SDN_EDMOCode codeList="https://edmo.seadatanet.org/isocodelists/sdncodelists/edmo-edmerp-codelists.xml#SDN_EDMOCode" codeSpace="SeaDataNet" codeListValue="487">IFREMER / OPS/LPO-LABORATORY of PHYSICAL OCEANOGRAPHY</sdn:SDN_EDMOCode>
                                    </gmd:organisationName>
                                    <gmd:contactInfo>
```

```xml
                                    <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>
                                        <gmd:address>
                                            <gmd:CI_Address>
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                                                </gmd:city>
                                                <gmd:postalCode>

<gco:CharacterString>29280</gco:CharacterString>
                                                </gmd:postalCode>
                                                <gmd:country>
                                                    <sdn:SDN_CountryCode
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codeList="https://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>
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                                        </gmd:address>
                                    </gmd:CI_Contact>
                                </gmd:contactInfo>
                                <gmd:role>
                                    <gmd:CI_RoleCode
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_Ro
leCode"                                         codeListValue="principalInvestigator"
codeSpace="ISOTC211/19115">principalInvestigator</gmd:CI_RoleCode>
                                </gmd:role>
                            </gmd:CI_ResponsibleParty>
                        </gmi:sponsor>
                        <gmi:instrument xlink:href="H09"/>
                    </gmi:MI_Platform>
                </gmi:mountedOn>
            </gmi:MI_Instrument>
        </gmi:sensingInstrument>
        <gmi:objectiveOccurrence>
            <gmi:MI_Event id="urn.SDN.CSR.LOCAL.FI351994800010.event.H09">
                <gmi:identifier>
                    <gmd:MD_Identifier>
                        <gmd:code>
```

```xml
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                        </gmd:MD_Identifier>
                    </gmi:identifier>
                    <gmi:trigger>
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codeList="https://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_Trig
gerCode">manual</gmi:MI_TriggerCode>
                    </gmi:trigger>
                    <gmi:context>
                        <gmi:MI_ContextCode            codeListValue="acquisition"
codeList="https://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_Cont
extCode">acquisition</gmi:MI_ContextCode>
                    </gmi:context>
                    <gmi:sequence>
                        <gmi:MI_SequenceCode           codeListValue="instantaneous"
codeList="https://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_Sequ
enceCode">instantaneous</gmi:MI_SequenceCode>
                    </gmi:sequence>
                    <gmi:time>
                        <gco:DateTime>1996-11-04T00:00:00Z</gco:DateTime>
                    </gmi:time>
                </gmi:MI_Event>
            </gmi:objectiveOccurrence>
            <sdn:SDN_SamplingActivity>
                <sdn:quantity>40</sdn:quantity>
                <sdn:unit>
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codeListValue="CSRU001"
codeList="https://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="urn.SDN.CSR.LOCAL.FI351994800010.objective.G74">
            <gmi:identifier>
                <gmd:MD_Identifier>
                    <gmd:code>

<gco:CharacterString>urn.SDN.CSR.LOCAL.FI351994800010.objective.G74</gco:CharacterS
tring>
                    </gmd:code>
                </gmd:MD_Identifier>
            </gmi:identifier>
            <gmi:type>
                <gmi:MI_ObjectiveTypeCode codeListValue="instantaneousCollection"
codeList="https://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_Obje
ctiveTypeCode">instantaneousCollection</gmi:MI_ObjectiveTypeCode>
            </gmi:type>
            <gmi:function>
                <gco:CharacterString> 50 NM multibeam</gco:CharacterString>
            </gmi:function>
```

```xml
<gmi:sensingInstrument>
    <gmi:MI_Instrument id="G74">
        <gmi:identifier>
            <gmd:MD_Identifier>
                <gmd:code>
                    <gco:CharacterString>G74</gco:CharacterString>
                </gmd:code>
            </gmd:MD_Identifier>
        </gmi:identifier>
        <gmi:type>
            <sdn:SDN_DataCategoryCode                codeSpace="SeaDataNet"
codeListValue="G74"
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN
_DataCategoryCode">Multi-beam echosounding</sdn:SDN_DataCategoryCode>
        </gmi:type>
        <gmi:mountedOn>
            <gmi:MI_Platform>
                <gmi:identifier>
                    <gmd:MD_Identifier>
                        <gmd:code>

<gco:CharacterString>SDN:EDMO::1480</gco:CharacterString>
                        </gmd:code>
                    </gmd:MD_Identifier>
                </gmi:identifier>
                <gmi:description>
                    <gco:CharacterString>FPS Economy, Belgian Continental
Shelf platform</gco:CharacterString>
                </gmi:description>
                <gmi:sponsor>
                    <gmd:CI_ResponsibleParty>
                        <gmd:individualName>
                            <gco:CharacterString>                        Koen
Degrendele</gco:CharacterString>
                        </gmd:individualName>
                        <gmd:organisationName>
                            <sdn:SDN_EDMOCode
codeList="https://edmo.seadatanet.org/isocodelists/sdncodelists/edmo-edmerp-
codelists.xml#SDN_EDMOCode"    codeSpace="SeaDataNet"    codeListValue="1480">FPS
Economy, Belgian Continental Shelf</sdn:SDN_EDMOCode>
                        </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>
```

```xml
                                        <gmd:CI_Address>
                                            <gmd:deliveryPoint>
                                                <gco:CharacterString>Boulevard   du
Roi Albert II, 16</gco:CharacterString>
                                            </gmd:deliveryPoint>
                                            <gmd:city>

<gco:CharacterString>Brussels</gco:CharacterString>
                                            </gmd:city>
                                            <gmd:postalCode>
                                                <gco:CharacterString>B-
1000</gco:CharacterString>
                                            </gmd:postalCode>
                                            <gmd:country>
                                                <sdn:SDN_CountryCode
codeSpace="SeaDataNet"                               codeListValue="BE"
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN
_CountryCode">Belgium</sdn:SDN_CountryCode>
                                            </gmd:country>
                                            <gmd:electronicMailAddress>

<gco:CharacterString>philippe.degavre@mineco.fgov.be</gco:CharacterString>
                                            </gmd:electronicMailAddress>
                                        </gmd:CI_Address>
                                    </gmd:address>
                                </gmd:CI_Contact>
                            </gmd:contactInfo>
                            <gmd:role>
                                <gmd:CI_RoleCode
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_Ro
leCode"                               codeListValue="principalInvestigator"
codeSpace="ISOTC211/19115">principalInvestigator</gmd:CI_RoleCode>
                            </gmd:role>
                        </gmd:CI_ResponsibleParty>
                    </gmi:sponsor>
                    <gmi:instrument xlink:href="G74"/>
                </gmi:MI_Platform>
            </gmi:mountedOn>
        </gmi:MI_Instrument>
        </gmi:sensingInstrument>
        <gmi:objectiveOccurrence>
            <gmi:MI_Event id="urn.SDN.CSR.LOCAL.FI351994800010.event.G74">
                <gmi:identifier>
                    <gmd:MD_Identifier>
                        <gmd:code>

<gco:CharacterString>urn.SDN.CSR.LOCAL.FI351994800010.event.G74</gco:CharacterStrin
g>
                        </gmd:code>
                    </gmd:MD_Identifier>
                </gmi:identifier>
                <gmi:trigger>
                    <gmi:MI_TriggerCode                       codeListValue="manual"
codeList="https://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_Trig
gerCode">manual</gmi:MI_TriggerCode>
                </gmi:trigger>
```

```xml
            <gmi:context>
                <gmi:MI_ContextCode                 codeListValue="acquisition"
codeList="https://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_Cont
extCode">acquisition</gmi:MI_ContextCode>
            </gmi:context>
            <gmi:sequence>
                <gmi:MI_SequenceCode            codeListValue="instantaneous"
codeList="https://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_Sequ
enceCode">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>18</sdn:quantity>
        <sdn:unit>
            <sdn:SDN_CSRUnitCode                        codeSpace="SeaDataNet"
codeListValue="CSRU003"
codeList="https://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>
</gmi:objective>
<gmi:objective>
  <sdn:SDN_Objective gco:isoType="MI_Objective_Type"
        id="urn.SDN.CSR.LOCAL.FI351994800010.objective.B90">
    <gmi:identifier>
        <gmd:MD_Identifier>
            <gmd:code>

<gco:CharacterString>urn.SDN.CSR.LOCAL.FI351994800010.objective.B90</gco:CharacterS
tring>
            </gmd:code>
        </gmd:MD_Identifier>
    </gmi:identifier>
    <gmi:type>
        <gmi:MI_ObjectiveTypeCode codeListValue="instantaneousCollection"
codeList="https://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_Obje
ctiveTypeCode">instantaneousCollection</gmi:MI_ObjectiveTypeCode>
    </gmi:type>
    <gmi:function>
        <gco:CharacterString>Psetta               maxima              bio-
measurements</gco:CharacterString>
    </gmi:function>
    <gmi:sensingInstrument>
        <gmi:MI_Instrument id="B90">
            <gmi:identifier>
                <gmd:MD_Identifier>
                    <gmd:code>
                        <gco:CharacterString>B90</gco:CharacterString>
                    </gmd:code>
                </gmd:MD_Identifier>
            </gmi:identifier>
```

```xml
                    <gmi:type>
                        <sdn:SDN_DataCategoryCode          codeSpace="SeaDataNet"
codeListValue="B90"
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN
_DataCategoryCode">Other                            biological/fisheries
measurements</sdn:SDN_DataCategoryCode>
                    </gmi:type>
                    <gmi:mountedOn>
                        <gmi:MI_Platform>
                            <gmi:identifier>
                                <gmd:MD_Identifier>
                                    <gmd:code>

<gco:CharacterString>SDN:EDMO::1478</gco:CharacterString>
                                    </gmd:code>
                                </gmd:MD_Identifier>
                            </gmi:identifier>
                            <gmi:description>
                                <gco:CharacterString>Institute  for  Agricultural  and
Fisheries Research, Animal Sciences Unit - Fisheries platform</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="https://edmo.seadatanet.org/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>
                                                    <gmd:deliveryPoint>
                                                        <gco:CharacterString>Ankerstraat 1
</gco:CharacterString>
                                                    </gmd:deliveryPoint>
                                                    <gmd:city>
```

```xml
<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="https://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="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_Ro
leCode"                                         codeListValue="principalInvestigator"
codeSpace="ISOTC211/19115">principalInvestigator</gmd:CI_RoleCode>
                                </gmd:role>
                            </gmd:CI_ResponsibleParty>
                        </gmi:sponsor>
                        <gmi:instrument xlink:href="B90"/>
                    </gmi:MI_Platform>
                </gmi:mountedOn>
            </gmi:MI_Instrument>
        </gmi:sensingInstrument>
        <gmi:objectiveOccurrence>
            <gmi:MI_Event id="urn.SDN.CSR.LOCAL.FI351994800010.event.B90">
                <gmi:identifier>
                    <gmd:MD_Identifier>
                        <gmd:code>

<gco:CharacterString>urn.SDN.CSR.LOCAL.FI351994800010.event.B90</gco:CharacterStrin
g>
                        </gmd:code>
                    </gmd:MD_Identifier>
                </gmi:identifier>
                <gmi:trigger>
                    <gmi:MI_TriggerCode                         codeListValue="manual"
codeList="https://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_Trig
gerCode">manual</gmi:MI_TriggerCode>
                </gmi:trigger>
                <gmi:context>
                    <gmi:MI_ContextCode                     codeListValue="acquisition"
codeList="https://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_Cont
extCode">acquisition</gmi:MI_ContextCode>
                </gmi:context>
                <gmi:sequence>
                    <gmi:MI_SequenceCode                     codeListValue="instantaneous"
```

```xml
codeList="https://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_Sequ
enceCode">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>7</sdn:quantity>
                    <sdn:unit>
                        <sdn:SDN_CSRUnitCode                          codeSpace="SeaDataNet"
codeListValue="CSRU020"
codeList="https://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>
            <sdn:SDN_Objective gco:isoType="MI_Objective_Type"
                id="urn.SDN.CSR.LOCAL.FI351994800010.objective.B18">
                <gmi:identifier>
                    <gmd:MD_Identifier>
                        <gmd:code>

<gco:CharacterString>urn.SDN.CSR.LOCAL.FI351994800010.objective.B18</gco:CharacterS
tring>
                        </gmd:code>
                    </gmd:MD_Identifier>
                </gmi:identifier>
                <gmi:type>
                    <gmi:MI_ObjectiveTypeCode codeListValue="instantaneousCollection"
codeList="https://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_Obje
ctiveTypeCode">instantaneousCollection</gmi:MI_ObjectiveTypeCode>
                </gmi:type>
                <gmi:function>
                    <gco:CharacterString>macrobenthos         -        Van        Veen
grab</gco:CharacterString>
                </gmi:function>
                <gmi:sensingInstrument>
                    <gmi:MI_Instrument id="B18">
                        <gmi:identifier>
                            <gmd:MD_Identifier>
                                <gmd:code>
                                    <gco:CharacterString>B18</gco:CharacterString>
                                </gmd:code>
                            </gmd:MD_Identifier>
                        </gmi:identifier>
                        <gmi:type>
                            <sdn:SDN_DataCategoryCode           codeSpace="SeaDataNet"
codeListValue="B18"
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/cdicsrCodeList.xml#SDN
_DataCategoryCode">Zoobenthos</sdn:SDN_DataCategoryCode>
                        </gmi:type>
                        <gmi:mountedOn>
```

```xml
                        <gmi:MI_Platform>
                            <gmi:identifier>
                                <gmd:MD_Identifier>
                                    <gmd:code>

<gco:CharacterString>SDN:EDMO::1478</gco:CharacterString>
                                    </gmd:code>
                                </gmd:MD_Identifier>
                            </gmi:identifier>
                            <gmi:description>
                                <gco:CharacterString>Institute for Agricultural and
Fisheries Research, Animal Sciences Unit - Fisheries platform</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="https://edmo.seadatanet.org/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>
                                                    <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
```

```xml
codeSpace="SeaDataNet"                                                    codeListValue="BE"
codeList="https://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="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_Ro
leCode"                                     codeListValue="principalInvestigator"
codeSpace="ISOTC211/19115">principalInvestigator</gmd:CI_RoleCode>
                            </gmd:role>
                        </gmd:CI_ResponsibleParty>
                    </gmi:sponsor>
                    <gmi:instrument xlink:href="B18"/>
                </gmi:MI_Platform>
            </gmi:mountedOn>
        </gmi:MI_Instrument>
    </gmi:sensingInstrument>
    <gmi:objectiveOccurrence>
        <gmi:MI_Event id="urn.SDN.CSR.LOCAL.FI351994800010.event.B18">
            <gmi:identifier>
                <gmd:MD_Identifier>
                    <gmd:code>

<gco:CharacterString>urn.SDN.CSR.LOCAL.FI351994800010.event.B18</gco:CharacterStrin
g>
                    </gmd:code>
                </gmd:MD_Identifier>
            </gmi:identifier>
            <gmi:trigger>
                <gmi:MI_TriggerCode                           codeListValue="manual"
codeList="https://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_Trig
gerCode">manual</gmi:MI_TriggerCode>
            </gmi:trigger>
            <gmi:context>
                <gmi:MI_ContextCode                       codeListValue="acquisition"
codeList="https://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_Cont
extCode">acquisition</gmi:MI_ContextCode>
            </gmi:context>
            <gmi:sequence>
                <gmi:MI_SequenceCode                    codeListValue="instantaneous"
codeList="https://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_Sequ
enceCode">instantaneous</gmi:MI_SequenceCode>
            </gmi:sequence>
            <gmi:time>
                <gco:DateTime>2011-10-07T00:00:00</gco:DateTime>
            </gmi:time>
        </gmi:MI_Event>
    </gmi:objectiveOccurrence>
```

```xml
            <sdn:SDN_SamplingActivity>
                <sdn:quantity>349</sdn:quantity>
                <sdn:unit>
                    <sdn:SDN_CSRUnitCode                           codeSpace="SeaDataNet"
codeListValue="CSRU006"
codeList="https://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   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. </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>1996-11-04</gco:Date>
                            </gmd:date>
                            <gmd:dateType>
                                <gmd:CI_DateTypeCode
codeList="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#CI_Da
teTypeCode"                                              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="https://vocab.nerc.ac.uk/isoCodelists/sdnCodelists/gmxCodeLists.xml#MD_Pr
ogressCode">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="https://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_Trig
gerCode">manual</gmi:MI_TriggerCode>
                            </gmi:trigger>
                            <gmi:context>
                                <gmi:MI_ContextCode              codeListValue="wayPoint"
codeList="https://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_Cont
extCode">wayPoint</gmi:MI_ContextCode>
                            </gmi:context>
                            <gmi:sequence>
                                <gmi:MI_SequenceCode             codeListValue="start"
codeList="https://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_Sequ
enceCode">start</gmi:MI_SequenceCode>
                            </gmi:sequence>
                            <gmi:time>
                                <gco:DateTime>1994-01-04T00:00:00Z</gco:DateTime>
                            </gmi:time>
                        </gmi:MI_Event>
                    </gmi:significantEvent>
                    <gmi:significantEvent
xlink:href="urn.SDN.CSR.LOCAL.FI351994800010.event.D01"/>
                    <gmi:significantEvent
xlink:href="urn.SDN.CSR.LOCAL.FI351994800010.event.H72"/>
                    <gmi:significantEvent
xlink:href="urn.SDN.CSR.LOCAL.FI351994800010.event.H10"/>
                    <gmi:significantEvent
xlink:href="urn.SDN.CSR.LOCAL.FI351994800010.event.H09"/>
                    <gmi:significantEvent
xlink:href="urn.SDN.CSR.LOCAL.FI351994800010.event.G74"/>
                    <gmi:significantEvent
xlink:href="urn.SDN.CSR.LOCAL.FI351994800010.event.B90"/>
                    <gmi:significantEvent
xlink:href="urn.SDN.CSR.LOCAL.FI351994800010.event.B18"/>
                    <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="https://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_Trig
gerCode">manual</gmi:MI_TriggerCode>
                            </gmi:trigger>
                            <gmi:context>
                                <gmi:MI_ContextCode              codeListValue="wayPoint"
codeList="https://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_Cont
extCode">wayPoint</gmi:MI_ContextCode>
                            </gmi:context>
                            <gmi:sequence>
                                <gmi:MI_SequenceCode              codeListValue="end"
codeList="https://www.isotc211.org/2005/resources/Codelist/gmiCodelists.xml#MI_Sequ
```

```
enceCode">end</gmi:MI_SequenceCode>
                    </gmi:sequence>
                    <gmi:time>
                        <gco:DateTime>1994-02-13T00:00:00Z</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