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| <b>Title</b>  | <b>Guidance notes for the production of discovery metadata for the Marine Environmental Data and Information Network (MEDIN)</b> |
| <b>MEDIN Discipline</b>                             | Discovery Metadata   |
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**Metadata standards are evolving at an international level and these guidelines are therefore subject to change.**

It is recommended that you use a download of this document from the Marine Environmental Data and Information Network (MEDIN) website ([www.oceannet.org](http://www.oceannet.org)) rather than storing a local copy.

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## MEDIN Elements

|           |  |           |
|-----------|--|-----------|
| <b>1.</b> | <b>Introduction .....</b>  | <b>1</b>  |
| <b>2.</b> | <b>Data Discoverability .....</b>                                | <b>1</b>  |
| <b>3.</b> | <b>Using this document.....</b>                                  | <b>2</b>  |
| <b>4.</b> | <b>Filling in an element.....</b>                                | <b>3</b>  |
| <b>5.</b> | <b>Elements for identifying a resource.....</b>                  | <b>5</b>  |
|           | Element 1 - Resource title (M).....                              | 5         |
|           | Element 2 - Alternative resource title (O).....                  | 6         |
|           | Element 3 - Resource abstract (M).....                           | 7         |
|           | Element 4 - Resource type (M).....                               | 8         |
|           | Element 5 - Resource locator (C).....                            | 9         |
|           | Sub Element 5.1 - Resource locator url (C).....                  | 9         |
|           | Sub Element 5.2 - Resource locator name (O).....                 | 9         |
|           | Element 6 - Unique resource identifier (M).....                  | 10        |
|           | Sub Element 6.1 - Code (M).....                                  | 10        |
|           | Sub Element 6.2 - Code Space (O).....                            | 10        |
|           | Element 7 - Coupled resource (C).....                            | 12        |
|           | Element 8 - Resource language (C).....                           | 13        |
| <b>6.</b> | <b>Elements classifying spatial data and services.....</b>       | <b>14</b> |
|           | Element 9 - Topic category (C).....                              | 14        |
|           | Element 10- Spatial data service type (C).....                   | 15        |
|           | Element 11 - Keywords (M).....                                   | 16        |
|           | Sub Element 11.1 - Keyword value (M).....                        | 17        |
|           | Sub Element 11.2 - Originating controlled vocabulary (M).....    | 17        |
|           | Sub Element 11.2.1 - Thesaurus name (M).....                     | 17        |
|           | Sub Element 11.2.2 - Date type (M).....                          | 17        |
|           | Sub Element 11.2.3 - Date (M).....                               | 17        |
|           | Element 12 - Geographic bounding box (C).....                    | 21        |
|           | Sub element 12.1 - West bounding longitude (M).....              | 21        |
|           | Sub element 12.2 - East bounding longitude (M).....              | 21        |
|           | Sub element 12.3 - North bounding latitude (M).....              | 21        |
|           | Sub element 12.4 - South bounding latitude (M).....              | 21        |
|           | Element 13 - Extent (O).....                                     | 24        |
|           | Sub element 13.2 - Extent name (M).....                          | 24        |
|           | Sub element 13.2 - Originating controlled vocabulary (M).....    | 24        |
|           | Sub element 13.2.1 - Thesaurus name.....                         | 24        |
|           | Sub element 13.2.2 - Date type.....                              | 24        |
|           | Sub element 13.2.3 - Date.....                                   | 24        |
|           | Element 14 - Vertical extent information (O).....                | 27        |
|           | Sub element 14.1 - Minimum Value (M).....                        | 27        |
|           | Sub element 14.2 - Maximum Value (M).....                        | 27        |
|           | Sub element 14.3 - Vertical coordinate reference system (M)..... | 27        |
|           | Element 15 - Spatial reference system (M).....                   | 29        |
|           | Element 16 - Temporal reference (M).....                         | 30        |
|           | Sub element 16.1 - Temporal extent (M).....                      | 30        |
|           | Sub sub element 16.1.1 Begin (M).....                            | 30        |
|           | Sub sub element 16.1.2 End (C).....                              | 30        |
|           | Sub element 16.2 - Date of publication (M).....                  | 30        |
|           | Sub sub element 16.2.1 Date type.....                            | 30        |

|  |           |
|--|-----------|
| Sub sub element 16.2.2 Date.....   | 30        |
| Sub element 16.3 - Date of last revision (C) .....                               | 30        |
| Sub sub element 16.3.1 Date type .....   | 31        |
| Sub sub element 16.3.2 Date.....   | 31        |
| Sub element 16.4 - Date of creation (C) .....                                    | 31        |
| Sub sub element 16.4.1 Date type .....   | 31        |
| Sub sub element 16.4.2 Date.....   | 31        |
| <b>7. Elements describing data quality.....</b>                                  | <b>34</b> |
| Element 17 - Lineage (C) .....   | 34        |
| Element 18 - Spatial resolution (C).....   | 36        |
| Element 19 - Additional information source (O) .....                             | 38        |
| <b>8. Elements relating to data usage.....</b>                                   | <b>39</b> |
| Element 20 - Limitations on public access (M) .....                              | 39        |
| Element 21 - Conditions applying for access and use (M).....                     | 41        |
| Element 22 - Responsible party (M) .....   | 43        |
| Sub element 22.1 - Originator (M) .....  | 43        |
| Sub element 22.2 - Custodian (M) .....   | 43        |
| Sub element 22.3 - Distributor (C) .....   | 43        |
| Sub element 22.4 - Metadata point of contact (M) .....                           | 43        |
| Sub sub element 22.0.1 - Job Position (O but recommended).....                   | 43        |
| Sub sub element 22.0.2 - Organization name (M) .....                             | 43        |
| Sub sub element 22.0.3 - Postal address (O but recommended) .....                | 44        |
| Sub sub element 22.0.4 - Telephone number (O but recommended) .....              | 44        |
| Sub sub element 22.0.5 - Facsimile number (O).....                               | 44        |
| Sub sub element 22.0.6 - Email address (M ) .....                                | 44        |
| Sub sub element 22.0.7 - Responsible party role (M) .....                        | 44        |
| Element 23 - Data format (O) .....   | 49        |
| Element 24 - Frequency of update (C) .....                                       | 50        |
| <b>9. Elements relating to Conformity (C) .....</b>                              | <b>51</b> |
| Element 25 - Conformity.....   | 51        |
| Sub element 25.1 - Specification (C) .....                                       | 51        |
| Sub sub element 25.1.1 - Title (M) .....   | 51        |
| Sub sub element 25.1.2 - Date type (M) .....                                     | 51        |
| Sub sub element 25.1.3 - Date (M) .....  | 51        |
| Sub element 25.2 - Degree of conformity (C) .....                                | 51        |
| Sub element 25.3 - Explanation (C).....  | 51        |
| <b>10. Elements relating to metadata.....</b>                                    | <b>54</b> |
| Element 26 - Metadata date (M) .....   | 55        |
| Element 27 - Metadata standard name (M) .....                                    | 56        |
| Element 28 - Metadata standard version (M).....                                  | 57        |
| Element 29 - Metadata language (M) .....   | 58        |
| Element 30 – Parent ID (O) .....   | 59        |
| <b>Annex A Mapping of MEDIN profile to the ISO 19115 and 19119 standard ....</b> | <b>60</b> |
| <b>Annex B Example xml file .....</b>  | <b>63</b> |
| <b>Annex D ISO Language codelist.....</b>  | <b>74</b> |
| <b>Annex E. ISO Topic category codelist .....</b>                                | <b>75</b> |

**Annex F Inspire Service type codelist .....80**  
**Annex G ISO Restriction codelist.....81**  
**Annex H. ISO Responsible party codelist.....83**  
**Annex I. ISO Frequency of maintenance code list.....85**  
**Annex J. Keywords.....86**

# 1. Introduction

Metadata standards are essential to enable easy discovery, evaluation and use of resources. In most cases within MEDIN the resource will be a dataset however model outputs and services such as web mapping services and data download services are also included. Different sorts of standards are applied for discovering a dataset, service or series (collectively known as resources), evaluating its fitness for purpose and in providing the information required to use it. This standard is one that sets out a specific format to record details of a dataset so that in the future other people can easily discover datasets that may be of use to them. It is therefore termed a 'metadata discovery standard' and this document sets out the format used by the Marine Environmental Data Information Network (MEDIN). All metadata released via the MEDIN portal must comply with a number of international and national metadata standards. The MEDIN metadata schema is based on the ISO 19115 standard, and includes all core INSPIRE metadata elements. It also complies with the UK GEMINI 2.1 metadata standard. The xml produced conforms to the ISO 19139 standard for xml implementation.

This document is designed to assist those creating metadata for MEDIN and provides guidance on how to complete each element. Please refer to the INSPIRE metadata implementing rules, <http://inspire.jrc.ec.europa.eu/> rules and UK GEMINI 2.1 specification <http://www.gigateway.org.uk/metadata/standards.html> for additional information.

In writing this document reference has been made to the technical guidelines for metadata produced by INSPIRE (see guidelines at <http://inspire.jrc.ec.europa.eu/reports.cfm>)<sup>1</sup>.

Metadata standards may change over time. It is recommended that this document is downloaded regularly to ensure the most current version is in use.

## 2. Data Discoverability

It is important that other users of MEDIN can find out how to access the raw data or products by using the information held in this standard. Therefore, where available, links should be provided to web pages and/or contact details of the person who holds the dataset. If there is a direct web link to the dataset or service then it should be stated in Element 5 'Resource Locator'. Further information such as, related documents and links to other portals that may also hold information on the dataset, should be given in Element 19 'Additional Information Source' and the contact details of the person who holds the dataset should be given in Element 22 'Responsible Party'.

Often it is difficult to decide if the data that has been collected constitutes one dataset or many - this is called 'granularity'. It is important to get the level or 'granularity' correct otherwise it is possible to end up with either too many or too few records which makes it difficult for a user to find what they want via a portal. MEDIN has some practical guidance to help you decide:

- the correct level for a dataset is a cruise, survey or a set of repeat observations with a common purpose,
- a dataset usually constitutes a specifically-funded piece of work,
- the dataset should be easily extractable from a database for a 3rd party,
- if you are searching for a dataset using a portal and get the result every time you search by different combinations of time, location and parameter then it is probably too coarse.

---

<sup>1</sup> INSPIRE Metadata Implementing Rules: Technical Guidelines based on EN ISO 19115 and EN ISO 19119, 2009-02-18, Version 1.1, MD\_IR\_and\_ISO\_20090218.

### 3. Using this document

This document outlines the elements that make up the MEDIN discovery metadata standard. It encompasses the INSPIRE standards which specifically covers datasets, series of datasets and services (e.g. web services). In addition MEDIN allows metadata on other data types such as, reports to be created. The elements required for different types of resource are listed below along with guidance about filling in an element.

**If you are preparing metadata about a dataset or series the following fields are relevant:**

- Element 1 - Resource title (M)
- Element 2 - Alternative resource title (O)
- Element 3 - Resource abstract (M)
- Element 4 - Resource type (M)
- Element 5 - Resource locator (C)
- Element 6 - Unique resource identifier (M)
- Element 8 - Resource language (C)
- Element 9 - Topic category (C)
- Element 11 - Keywords (M)
- Element 12 - Geographical bounding box (M)
- Element 13 - Extent (O)
- Element 14 - Vertical extent information (O)
- Element 15 - Spatial reference system (M)
- Element 16 - Temporal reference (M)
- Element 17 - Lineage (M)
- Element 18 - Spatial resolution (C)
- Element 19 - Additional information source (O)
- Element 20 - Limitations on public access (M)
- Element 21 - Conditions applying for access and use (M)
- Element 22 - Responsible party (M)
- Element 23 - Data format (O)
- Element 24 - Frequency of update (M)
- Element 25 - Conformity (C)
- Element 26 - Metadata date (M)
- Element 27 - Metadata standard name (M)
- Element 28 - Metadata standard version (M)
- Element 29 - Metadata language (M)
- Element 30 – Parent ID (O)

If you are preparing metadata about a service the following fields are relevant:

- Element 1 - Resource title (M)
- Element 2 - Alternative resource title (O)
- Element 3 - Resource abstract (M)
- Element 4 - Resource type (M)
- Element 5 - Resource locator (C)
- Element 7 - Coupled resource (C)
- Element 10 - Spatial data service type (C)
- Element 11 - Keywords (M)
- Element 12 - Geographical bounding box (C)
- Element 13 - Extent (O)
- Element 14 - Vertical extent information (O)

- Element 15 - Spatial reference system (C)
- Element 16 - Temporal reference (O)
- Element 19 - Additional information source (O)
- Element 20 - Limitations on public access (M)
- Element 21 - Conditions applying for access and use constraints (M)
- Element 22 - Responsible party (M)
- Element 24 - Frequency of update (C)
- Element 25 - Conformity (C)
- Element 26 - Metadata Date (M)
- Element 27 - Metadata standard name (M)
- Element 28 - Metadata standard version (M)
- Element 29 - Metadata language (M)
- Element 30 – Parent ID (O)

#### 4. Filling in an element

The element descriptions are made up of 8 parts which are outlined below.

a) Element number – **The MEDIN reference number of the element**

b) Element name – **The MEDIN name of the element**

c) and d) Requirement – **One of three codes as specified below:**

Mandatory (M): the element must be filled in under all circumstances.

Conditional (C): the element must be completed if certain conditions are met e.g.

Resource language must be completed if the resource contains textual information.

Optional (O): the element may be filled in if desired.

e) Occurrence – **The number of times an element can occur in the schema, which will be either one or many.**

e) Field type – **The data allowed in a field (as specified below).**

**Free text** - enter text in this field.

**Controlled vocabulary** - you must select an option from a list of values.

**Date or Date/time** - specify a date or a date and time in the format yyyy-mm-dd for dates and hh:mm:ss for times

**Numeric** - enter only numbers into this field.

**Uniform Resource Locator URL (e.g. web address)** - specify a full web address. e.g. <http://www.oceannet.org/ExampleFolder/ExampleSubfolder/Resource.html> there should be no spaces in the address. If there are spaces in an address they should be encoded with '%20' e.g. My Folder.resource.html becomes My%20Folder.resource.html

**g) Description** – A description of the data with links to code list used or websites where vocabularies can be found.

**h) Example(s)** – An example of the element.

An example element layout:

**i) Example xml fragment:**

A fragment of an xml output from an ISO compliant schema. The mapping of MEDIN elements to the ISO 19115 elements can be found in section 8.0 of this document.

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <gmd:citation>
        <gmd:CI_Citation>
          <gmd:title>
            <gco:CharacterString>
              1998-2008 Marine Life Information Network UK
              (MarLIN) Sealive Survey Records
            </gco:CharacterString>
          </gmd:title>
          <!-- ... -->
        </gmd:CI_Citation>
      </gmd:citation>
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

The XML comment tags `<!-- ... -->` indicate that other XML elements have been omitted in order to make the XML fragments clear.

---

## 5. Elements for identifying a resource

### Element 1 - Resource title (M)

**Mandatory element. Only one resource example allowed. Free text.**

The title is used to provide a brief and precise description of the resource which in most cases will be a dataset. The following format is recommended:

'Date' 'Originating organization/programme' 'Location' 'Type of survey'. It is advised that acronyms and abbreviations are reproduced in full. Example: Centre for Environment, Fisheries and Aquaculture Science (Cefas).

#### **Examples**

Example 1: 1992 Centre for Environment, Fisheries and Aquaculture Science (Cefas) North Sea 2m beam trawl survey.

Example 2: 1980-2000 Marine Life Information Network UK (MarLIN) Sealife Survey records.

#### **Example xml fragment:**

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <gmd:citation>
        <gmd:CI_Citation>
          <gmd:title>
            <gco:CharacterString>
1998-2008 Marine Life Information Network UK (MarLIN) Sealife
Survey Records
            </gco:CharacterString>
          </gmd:title>
          <!-- ... -->
        </gmd:CI_Citation>
      </gmd:citation>
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

## Element 2 - Alternative resource title (O)

**Optional element. Multiple alternative resource titles allowed. Free text.**

The alternative title is used to add the names by which the resource (e.g. dataset) may be known and may include short name, other name, acronym or alternative language title.

### **Example**

1980-2000 MarLIN Volunteer Sighting records.

**Example xml fragment (showing title element and alternate title element):**

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <gmd:citation>
        <gmd:CI_Citation>
          <!-- ... -->
          <gmd:alternateTitle>
            <gco:CharacterString>
1998-2008 MarLIN Volunteer Sighting Records
            </gco:CharacterString>
          </gmd:alternateTitle>
          <!-- ... -->
        </gmd:CI_Citation>
      </gmd:citation>
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

## Element 3 - Resource abstract (M)

**Mandatory element. Only one resource abstract allowed. Free text.**

The abstract should provide a clear and brief statement of the content of the resource (e.g. dataset). Include what has been recorded, what form the data takes, what purpose it was collected for, and any limiting information, i.e. limits or caveats on the use and interpretation of the data. Background methodology and quality information should be entered into the Lineage element (element 10). It is recommended that acronyms and abbreviations are reproduced in full. e.g. Centre for Environment, Fisheries and Aquaculture Science (Cefas).

### **Examples**

Example 1: Benthic marine species abundance data from an assessment of the cumulative impacts of aggregate extraction on seabed macro-invertebrate communities. The purpose of this study was to determine whether there was any evidence of a large-scale cumulative impact on benthic macro-invertebrate communities as a result of the multiple sites of aggregate extraction located off Great Yarmouth in the North Sea.

Example 2: As part of the UK Department of Trade and Industry's (DTI's) ongoing sectorial Strategic Environmental Assessment (SEA) programme, a seabed survey programme (SEA2) was undertaken in May/June 2001 for areas in the central and southern North Sea UKCS. This report summarizes the sediment total hydrocarbon and aromatic data generated from the analyses of selected samples from 2 main study areas:

Area 2: the Dogger Bank in the SNS; and

Area 3: the pockmarks in the Fladen Ground vicinity of the central North Sea (CNS).

Example 3: Survey dataset giving port soundings in Great Yarmouth.

Example 4: Conductivity, Temperature, Depth (CTD) grid survey in the Irish Sea undertaken in August 1981. Only temperature profiles due to conductivity sensor malfunction.

### **Example xml fragment:**

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:abstract>
        <gco:CharacterString>
          Sightings of seashore and underwater life collected
          through the MarLIN sealife recording scheme for the
          general public. All records received are verified
          and validated.
        </gco:CharacterString>
      </gmd:abstract>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

## Element 4 - Resource type (M)

**Mandatory element. One occurrence allowed. Controlled vocabulary.**

Identify the type of resource e.g. a dataset using the controlled vocabulary, MD\_ScopeCode from ISO 19115. (See Annex C for code list). The resource type must be a dataset, a series (collection of datasets with a common specification) or a service. In the vast majority of cases for MEDIN the resource type will be a dataset or a series. Further information on the difference between a dataset and a series is available at [http://www.oceannet.org/marine\\_data\\_standards/other\\_marine\\_data\\_standards/consider\\_data\\_set.html](http://www.oceannet.org/marine_data_standards/other_marine_data_standards/consider_data_set.html)

### **Example**

series

### **Example xml fragment:**

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:hierarchyLevel>
    <gmd:MD_ScopeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/Codelist/gmxCodelists.xml#MD_ScopeCod
e" codeListValue="dataset">dataset</gmd:MD_ScopeCode>
  </gmd:hierarchyLevel>
  <!-- ... -->
</gmd:MD_Metadata>
```

## Element 5 - Resource locator (C)

**Conditional element (must be completed if known). Multiple resource locators are allowed. Free text.**

Formerly named online resource. If the resource is available online you must provide a web address (URL) that links to the resource.

### Sub Element 5.1 - Resource locator url (C)

**Conditional element (must be completed if known). URL (web address).**

The URL (web address) including the http://

### Sub Element 5.2 - Resource locator name (O)

**Optional element. Free text.**

The name of the web resource.

#### **Example**

Resource locator url:

<http://www.defra.gov.uk/marine/science/monitoring/merman.htm>

Resource locator name: The Marine Environment National Monitoring and Assessment Database

Example xml fragment:

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:distributionInfo>
    <gmd:MD_Distribution>
      <!-- ISO 19115 Constraints require this element!-->
      <gmd:distributionFormat gco:nilReason="inapplicable"/>
      <gmd:transferOptions>
        <gmd:MD_DigitalTransferOptions>
          <gmd:onLine>
            <gmd:CI_OnlineResource>
              <gmd:linkage>
<gmd:URL>http://www.defra.gov.uk/marine/science/monitoring/merman.
htm</gmd:URL>
                </gmd:linkage>
              </gmd:CI_OnlineResource>
            </gmd:onLine>
          </gmd:MD_DigitalTransferOptions>
        </gmd:transferOptions>
      </gmd:MD_Distribution>
    </gmd:distributionInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

## Element 6 - Unique resource identifier (M)

**Mandatory element (for datasets and series of datasets). One occurrence allowed. Free text.**

A Unique Resource Identifier allows a dataset to be identified by a code. This code is generally assigned by the data owner and commonly consists of the organisation which manages the dataset and a number or code which is used to uniquely identify it within the databases of the organisation. If this code is unique then it is possible for an organisation to identify a dataset that a 3<sup>rd</sup> party may be referring to and also to quickly identify where dataset records may be duplicated in a portal.

The two parts to the element can either be provided separately as a code + a codespace or combined as 1 code. MEDIN recommends the use of code + a codespace as shown in example 1. Preferably the www address of the organisation should be given rather than the organisation acronym or name. *The code and the codespace should not include any spaces.* If you are unable to generate a Unique Identifier Code please contact [enquiries@oceannet.org](mailto:enquiries@oceannet.org) and we will generate a code for you or endeavour to provide a tool to generate your own codes.

### Sub Element 6.1 - Code (M)

**Mandatory sub-element (for datasets and series of datasets). One occurrence allowed. Free text.**

A unique identification code for the resource.

### Sub Element 6.2 - Code Space (O)

**Optional sub-element. One occurrence allowed.**

This sub element is the authority that guarantees that the Sub element 6.1. 'code' given is unique within its management system.

Example 1.

Code: 5639287

Codespace: <http://www.bodc.ac.uk>

Example 2:

Code: <http://www.bodc.ac.uk/5639287>

**Example xml fragment (including code space):**

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <gmd:citation>
        <gmd:CI_Citation>
          <!-- ... -->
          <gmd:identifier>
            <gmd:RS_Identifier>
              <gmd:code>
                <gco:CharacterString>
                  MRMLN00400000002
                </gco:CharacterString>
              </gmd:code>
            </gmd:RS_Identifier>
          </gmd:identifier>
        </gmd:CI_Citation>
      </gmd:citation>
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
</gmd:MD_Metadata>
```

```

        </gmd:code>
        <gmd:codeSpace>
            <gco:CharacterString>
                http://www.dassh.ac.uk
            </gco:CharacterString>
        </gmd:codeSpace>
    </gmd:RS_Identifier>
</gmd:identifier>
<!-- ... -->
</gmd:CI_Citation>
</gmd:citation>
</gmd:MD_DataIdentification>
</gmd:identificationInfo>
<!-- ... -->
</gmd:MD_Metadata>

```

**Example XML fragment (excluding code space):**

```

<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <gmd:citation>
        <gmd:CI_Citation>
          <!-- ... -->
          <gmd:identifier>
            <gmd:MD_Identifier>
              <gmd:code>
                <gco:CharacterString>
                  MRMLN00400000002
                </gco:CharacterString>
              </gmd:code>
            </gmd:MD_Identifier>
          </gmd:identifier>
          <!-- ... -->
        </gmd:CI_Citation>
      </gmd:citation>
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>

```

## Element 7 - Coupled resource (C)

**Conditional element. Mandatory if linkages to the datasets on which the service operates on are available. Multiple coupled resource occurrences allowed.**

An INSPIRE element referring to data services such as a data download or mapping web services. It identifies the data resource(s) used by the service if these are available separately from the service. You should supply the Unique resource identifiers of the relevant datasets (See element 6).

### *Example*

MRMLN0000345

### **Example xml fragment:**

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <srv:SV_ServiceIdentification>
      <!-- ... -->
      <srv:operatesOn
xlink:href="http://www.seazone.com#szsl_dsb_100081" />
    </srv:SV_ServiceIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

## Element 8 - Resource language (C)

**Conditional element. Mandatory when the described resource contains textual information. Multiple resource languages allowed. This element is not required if a service<sup>1</sup> is being described rather than a dataset or series of datasets. Controlled vocabulary, ISO 639-2.**

<sup>1</sup> See Element 4 resource type for definition of a 'service'

Describes the language(s) of any textual information contained within the resource.

Select the relevant 3-letter code(s) from the ISO 639-2 code list of languages. Additional languages may be added to this list if required. A full list of UK language codes is listed in Annex D and a list of recognized languages available online <http://www.loc.gov/standards/iso639-2>.

### **Examples**

Example 1: eng (English)

Example 2: cym (Welsh)

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:language>
        <gmd:LanguageCode
codeList="http://www.loc.gov/standards/iso639-2/php/code_list.php"
codeListValue="eng">English</gmd:LanguageCode>
      </gmd:language>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

## 6. Elements classifying spatial data and services

### Element 9 - Topic category (C)

**Conditional element. Mandatory for datasets and series of datasets. Multiple topic categories are allowed. This element is not required if a service<sup>1</sup> is being described. Controlled vocabulary.**

This element is mandatory for INSPIRE and must be included. This indicates the main theme(s) of the data resource. It is required for INSPIRE compliance. The relevant topic category should be selected from the ISO MD\_TopicCategory list. The full list can be found in Annex E. Within MEDIN the parameter group keywords from the controlled vocabulary P021 available at <http://vocab.ndg.nerc.ac.uk/client/vocabServer.jsp> (included in element 11) are mapped to the ISO Topic Categories so it is possible to generate the topic categories automatically once the keywords from BODC Parameter Discovery Vocabulary (P021) have been selected.

<sup>1</sup> See Element 4 resource type for definition of a 'service'

#### **Examples**

Example 1: biota

Example 2: oceans

Example xml fragment:

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:topicCategory>
        <gmd:MD_TopicCategoryCode>biota</gmd:MD_TopicCategoryCode>
      </gmd:topicCategory>
      <gmd:topicCategory>
        <gmd:MD_TopicCategoryCode>oceans</gmd:MD_TopicCategoryCode>
      </gmd:topicCategory>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

## Element 10- Spatial data service type (C)

**Conditional element. Mandatory if the described resource is a service<sup>1</sup>. One occurrence allowed.**

An element required by INSPIRE for metadata about data services e.g. web services<sup>1</sup>. If a service is being described (from Element 4) it must be assigned a service type from the INSPIRE Service type code list. See Annex F for list.

<sup>1</sup> See Element 4 resource type for definition of a 'service'

### **Example**

Download

### **Example xml fragment:**

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <srv:SV_ServiceIdentification>
      <!-- ... -->
      <srv:serviceType>
        <gco:LocalName>view</gco:LocalName>
      </srv:serviceType>
      <!-- ... -->
    </srv:SV_ServiceIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

## Element 11 - Keywords (M)

**Mandatory element. Multiple keywords allowed. Controlled vocabularies.**

The entry should consist of two sub-elements: the keywords and reference to the controlled vocabulary used as shown in the sub elements below. To allow searching of the dataset, keywords should be chosen from 3 code lists given below and the OAI harvesting keyword. In addition if a service is being described then a keyword defining the category or subcategory of the service using its language neutral name as defined in Part D 4 of the Metadata Implementing Rules should be given.

### INSPIRE keywords

A list of the INSPIRE theme keywords is available in Annex J. This list is also available at [http://www.eionet.europa.eu/gemet/inspire\\_themes](http://www.eionet.europa.eu/gemet/inspire_themes) At least one INSPIRE theme keywords is required for INSPIRE compliance.

### MEDIN Keywords

MEDIN strongly recommends the use of the BODC Parameter Discovery Vocabulary (P021) to provide further ability to search by terms that are more related to the marine domain. This list is available at <http://vocab.ndg.nerc.ac.uk/client/vocabServer.jsp> In particular the parameter groups and codes that are used may be searched through a more user friendly interface which has been built as part of the European funded SeaDataNet project at [http://seadatanet.maris2.nl/v\\_bodc\\_vocab/vocabrelations.aspx](http://seadatanet.maris2.nl/v_bodc_vocab/vocabrelations.aspx)

### Vertical Extent Keywords

A vocabulary of keywords is available to describe the vertical extent of the resource (e.g. dataset). The vocabulary can be downloaded as L131 (Vertical Coordinate Coverages) at <http://vocab.ndg.nerc.ac.uk/client/vocabServer.jsp> and can also be seen in Annex J. These lists are also available through a more user friendly interface at [http://seadatanet.maris2.nl/v\\_bodc\\_vocab/welcome.aspx](http://seadatanet.maris2.nl/v_bodc_vocab/welcome.aspx) <http://vocab.ndg.nerc.ac.uk/client/vocabServer.jsp>

One of the elements '11: vertical extent keyword'; or '14: vertical extent information' must be completed.

### OAI harvesting

If xml files are being collected using the MEDIN OAI harvesting process an additional keyword is required to allow the data discovery service to distinguish MEDIN records from other records such as NERC. The required term to use in the xml fragment is NDGO0001 from the N010 vocab at <http://vocab.ndg.nerc.ac.uk/client/vocabServer.jsp>.

### Other Keywords

Other vocabularies may be used as required as long as they follow the format specified in 11.1 – 11.2.3

### Keywords for services

Define the category or subcategory of the service using its language neutral name as defined in Part D 4 of the Metadata Implementing Rules. The Metadata Implementing Rules can be found at

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:326:0012:01:EN:HTML> and the keyword vocabulary available at <http://inspire->

### **Sub Element 11.1 - Keyword value (M)**

**Mandatory element. Multiple keywords allowed from each vocabulary. Controlled vocabulary.**

Name of the formally registered thesaurus or a similar authoritative source of keywords.

### **Sub Element 11.2 - Originating controlled vocabulary (M)**

**Mandatory element. Multiple controlled vocabularies allowed. Controlled vocabulary.**

The controlled vocabulary from which keywords are derived should be specified in this element.

#### **Sub Element 11.2.1 - Thesaurus name (M)**

**Free text. Title of vocabulary or thesaurus (mandatory).**

#### **Sub Element 11.2.2 - Date type (M)**

**Controlled vocabulary. Select one of the following three values: Creation, Revision or Publication.**

#### **Sub Element 11.2.3 - Date (M)**

**Date format. Date of creation, revision or publication as defined in 11.1.2 Date type.**

#### ***Examples***

keywordValue: Fish taxonomy-related counts

keywordValue: Temperature of the water column

thesaurusName: BODC Parameter Discovery Vocabulary

dateType: revision

date: 2009-10-13

keywordValue: upper\_epipelagic

thesaurusName: SeaDataNet vertical coverage

dateType: Creation

date: 2006-11-15

#### **Example XML fragment (P021):**

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:descriptiveKeywords>
        <gmd:MD_Keywords>
```

```

    <gmd:keyword>
      <gco:CharacterString>
        Fish taxonomy-related counts
      </gco:CharacterString>
    </gmd:keyword>
    <gmd:keyword>
      <gco:CharacterString>
        Temperature of the Water Column
      </gco:CharacterString>
    </gmd:keyword>
    <gmd:thesaurusName>
      <gmd:CI_Citation>
        <gmd:title>
          <gco:CharacterString>
            BODC Parameter Discovery Vocabulary
          </gco:CharacterString>
        </gmd:title>
        <gmd:date>
          <gmd:CI_Date>
            <gmd:date>
              <gco:Date>2009-10-13</gco:Date>
            </gmd:date>
            <gmd:dateType>
              <gmd:CI_DateTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/Codelist/gmxCodetlists.xml#CI_DateType
Code" codeListValue="revision">revision</gmd:CI_DateTypeCode>
              </gmd:dateType>
            </gmd:CI_Date>
          </gmd:date>
        </gmd:CI_Citation>
      </gmd:thesaurusName>
    </gmd:MD_Keywords>
  </gmd:descriptiveKeywords>
  <!-- ... -->
</gmd:MD_DataIdentification>
</gmd:identificationInfo>
<!-- ... -->
</gmd:MD_Metadata>

```

#### Example XML fragment (INSPIRE theme):

```

<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:descriptiveKeywords>
        <gmd:MD_Keywords>
          <gmd:keyword>
            <gco:CharacterString>Hydrography</gco:CharacterString>
          </gmd:keyword>
          <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>
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/Codelist/gmxCodetlists.xml#CI_DateType
Code" codeListValue="publication">publication</gmd:CI_DateTypeCode>
          </gmd:dateType>
        </gmd:CI_Date>
      </gmd:date>
    </gmd:CI_Citation>
  </gmd:thesaurusName>
</gmd:MD_Keywords>
</gmd:descriptiveKeywords>
<!-- ... -->
</gmd:MD_DataIdentification>
</gmd:identificationInfo>
<!-- ... -->
</gmd:MD_Metadata>

```

### Example XML fragment (OAI Harvesting):

```

<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:descriptiveKeywords>
        <gmd:MD_Keywords>
          <gmd:keyword>
            <gmx:Anchor
xlink:href="http://vocab.ndg.nerc.ac.uk/term/N010/0"
xlink:title="NERC OAI Harvesting">NDGO0001</gmx:Anchor>
          </gmd:keyword>
        </gmd:MD_Keywords>
      </gmd:descriptiveKeywords>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>

```

### Example XML fragment (Vertical Extent Keywords)

```

<gmd:MD_Metadata>
  <!-- ... -->

```

```

<gmd:identificationInfo>
  <gmd:MD_DataIdentification>
    <!-- ... -->
    <gmd:extent>
      <gmd:EX_Extent>
        <gmd:geographicElement>
          <gmd:EX_GeographicDescription>
            <!-- ... -->
Extent - by Identifier
          <gmd:geographicIdentifier>
            <gmd:MD_Identifier>
              <gmd:authority>
                <gmd:CI_Citation>
                  <gmd:title>
                    <gco:CharacterString>SeaDataNet vertical
extent keywords</gco:CharacterString>
                  </gmd:title>
                <gmd:date>
                  <gmd:CI_Date>
                    <gmd:date>
                      <gco>Date>2006-11-15</gco>Date>
                    </gmd:date>
                  <gmd:dateType>
                    <gmd:CI_DateTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/Codelist/gmxCodetlists.xml#CI_DateType
Code" codeListValue="creation">creation</gmd:CI_DateTypeCode>
                    </gmd:dateType>
                  </gmd:CI_Date>
                </gmd:date>
              </gmd:CI_Citation>
            </gmd:authority>
          <gmd:code>
            <gco:CharacterString> upper_epipelagic
</gco:CharacterString>
          </gmd:code>
        </gmd:MD_Identifier>
      </gmd:geographicIdentifier>
    </gmd:EX_GeographicDescription>
  </gmd:geographicElement>
  <!-- ... -->
</gmd:extent>
<!-- ... -->
</gmd:EX_Extent>
<!-- ... -->
</gmd:identificationInfo>
</gmd:MD_DataIdentification>
<!-- ... -->
</gmd:MD_Metadata>

```

## Element 12 - Geographic bounding box (C)

**Mandatory element for datasets and conditional for services. One occurrence of each sub-element allowed. Numeric and controlled vocabulary.**

These four sub-elements represent the geographical bounding box of the resource's extent. The co-ordinates of this bounding box should be expressed as decimal degrees longitude and latitude. A minimum of two and a maximum of four decimal places should be provided.

Latitudes between 0 and 90N, and longitudes between 0 and 180E should be expressed as positive numbers, and latitudes between 0 and 90S, and longitudes between 0 and 180W should be expressed as negative numbers. In the event that a single point is being described we recommend using the en-coding shown in the last example.

### Sub element 12.1 - West bounding longitude (M)

**Mandatory element. One occurrence allowed. Numeric decimal (2 - 4 decimal places).**

The western-most limit of the data.

### Sub element 12.2 - East bounding longitude (M)

**Mandatory element. One occurrence allowed. Numeric decimal (2 - 4 decimal places).**

The eastern-most limit of the data.

### Sub element 12.3 - North bounding latitude (M)

**Mandatory element. One occurrence allowed. Numeric decimal (2 - 4 decimal places).**

The northern-most limit of the data.

### Sub element 12.4 - South bounding latitude (M)

**Mandatory element. One occurrence allowed. Numeric decimal (2 - 4 decimal places).**

The southern-most limit of the data.

#### **Example**

westBoundingLongitude: -4.351  
eastBoundingLongitude: -1.348  
northBoundingLatitude: 52.949  
southBoundingLatitude: 52.117

**Example xml fragment (for datasets and series of datasets):**

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
```

```

<!-- ... -->
<gmd:extent>
  <gmd:EX_Extent>
    <gmd:geographicElement>
      <gmd:EX_GeographicBoundingBox>
        <gmd:westBoundLongitude>
          <gco:Decimal>-14.00</gco:Decimal>
        </gmd:westBoundLongitude>
        <gmd:eastBoundLongitude>
          <gco:Decimal>3.80</gco:Decimal>
        </gmd:eastBoundLongitude>
        <gmd:southBoundLatitude>
          <gco:Decimal>48.00</gco:Decimal>
        </gmd:southBoundLatitude>
        <gmd:northBoundLatitude>
          <gco:Decimal>61.00</gco:Decimal>
        </gmd:northBoundLatitude>
      </gmd:EX_GeographicBoundingBox>
    </gmd:geographicElement>
  </gmd:EX_Extent>
</gmd:extent>
<!-- ... -->
</gmd:MD_DataIdentification>
</gmd:identificationInfo>
<!-- ... -->
</gmd:MD_Metadata>

```

### Example XML fragment (for services):

Note that the extent element is in the <http://www.isotc211.org/2005/srv> namespace.

```

<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <srv:SV_ServiceIdentification>
      <!-- ... -->
      <srv:extent>
        <gmd:EX_Extent>
          <gmd:geographicElement>
            <gmd:EX_GeographicBoundingBox>
              <gmd:westBoundLongitude>
                <gco:Decimal>-14.00</gco:Decimal>
              </gmd:westBoundLongitude>
              <gmd:eastBoundLongitude>
                <gco:Decimal>3.80</gco:Decimal>
              </gmd:eastBoundLongitude>
              <gmd:southBoundLatitude>
                <gco:Decimal>48.00</gco:Decimal>
              </gmd:southBoundLatitude>
              <gmd:northBoundLatitude>
                <gco:Decimal>61.00</gco:Decimal>
              </gmd:northBoundLatitude>
            </gmd:EX_GeographicBoundingBox>
          </gmd:geographicElement>
        </gmd:EX_Extent>
      </srv:extent>
    </srv:SV_ServiceIdentification>
  </gmd:identificationInfo>
</gmd:MD_Metadata>

```

```
        </gmd:EX_Extent>
    </srv:extent>
    <!-- ... -->
</srv:SV_ServiceIdentification>
</gmd:identificationInfo>
<!-- ... -->
</gmd:MD_Metadata>
```

**Example xml fragment (for datasets and series of datasets) for description of a single point:**

```
<gmd:EX_GeographicBoundingBox>
  <gmd:westBoundLongitude>
    <gco:Decimal>2.5</gco:Decimal>
  </gmd:westBoundLongitude>
  <gmd:eastBoundLongitude gco:nilReason="inapplicable"/>
  <gmd:southBoundLatitude>
    <gco:Decimal>52.2</gco:Decimal>
  </gmd:southBoundLatitude>
  <gmd:northBoundLatitude gco:nilReason="inapplicable"/>
</gmd:EX_GeographicBoundingBox>
```

## Element 13 - Extent (O)

**Optional element. Numeric and controlled vocabulary. Multiple occurrences of extents allowed.**

Keywords selected from controlled vocabularies to describe the spatial extent of the resource. <http://www.ices.dk/> MEDIN strongly recommends the use of the SeaVox Sea Areas salt and freshwater body gazetter available as vocabulary C191 at <http://vocab.ndg.nerc.ac.uk/client/vocabServer.jsp> which is a managed vocabulary and has a worldwide distribution.

Other vocabularies available including ICES areas and rectangles [www.ices.dk](http://www.ices.dk) , or Charting Progress 2 regions may be used as long as they follow the format specified in 13.1 – 13.2.3.

### Sub element 13.2 - Extent name (M)

**Mandatory element. Multiple extents allowed. Controlled vocabulary.**

Name of the formally registered thesaurus or a similar authoritative source of extents. Derived from a controlled vocabulary held on the MEDIN website.

### Sub element 13.2 - Originating controlled vocabulary (M)

**Mandatory sub-element. Multiple controlled vocabularies allowed. Controlled vocabulary.**

A list of extent vocabularies is available from the MEDIN website [http://www.oceannet.org/marine\\_data\\_standards/other\\_marine\\_data\\_standards/](http://www.oceannet.org/marine_data_standards/other_marine_data_standards/) .

#### Sub element 13.2.1 - Thesaurus name

**Free text.** Title of vocabulary or thesaurus (mandatory).

#### Sub element 13.2.2 - Date type

**Controlled vocabulary.** Select one of the following three values: Creation, Revision or Publication.

#### Sub element 13.2.3 - Date

Date format. Date of creation, revision or publication as defined in 13.1.2 Date type.

#### *Example*

This example includes multiple extents from different vocabularies.

extentName: Scotland  
vocabularyName: ISO3166 Countries  
dateType: Creation  
date: 2005-04-29

extentName: Ices Area IVb  
vocabularyName: ICES Regions  
dateType: Revision  
date: 2006-01-01

extentName: Northern North Sea  
vocabularyName: Charting Progress 2 regions.  
dateType: Revision  
date: 2008-09-01

extentName: North Sea  
thesaurusName: IHO Sea Areas 1952  
dateType: creation  
date: 1952-01-01

### Example xml fragment:

(Can be in either Data\_identification or SV\_Identification)

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:extent>
        <gmd:EX_Extent>
          <gmd:geographicElement>
            <gmd:EX_GeographicDescription>
              <!-- Extent - by Identifier -->
              <gmd:geographicIdentifier>
                <gmd:MD_Identifier>
                  <gmd:authority>
                    <gmd:CI_Citation>
                      <gmd:title>
Regions</gco:CharacterString>
                      </gmd:title>
                      <gmd:date>
                        <gmd:CI_Date>
                          <gmd:date>
                            <gco:Date>2006-01-01</gco:Date>
                          </gmd:date>
                          <gmd:dateType>
                            <gmd:CI_DateTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/Codelist/gmxCodetlists.xml#CI_DateType
Code" codeListValue="revision">revision</gmd:CI_DateTypeCode>
                            </gmd:dateType>
                          </gmd:CI_Date>
                        </gmd:date>
                      </gmd:CI_Citation>
                    </gmd:authority>
                    <gmd:code>
                      <gco:CharacterString>IVc</gco:CharacterString>
                    </gmd:code>
                  </gmd:MD_Identifier>
                </gmd:geographicIdentifier>
```

```
        </gmd:EX_GeographicDescription>
      </gmd:geographicElement>
    </gmd:EX_Extent>
  </gmd:extent>
  <!-- ... -->
</gmd:MD_DataIdentification>
</gmd:identificationInfo>
<!-- ... -->
</gmd:MD_Metadata>
```

## Element 14 - Vertical extent information (O)

**Optional element. This element should only be filled in if the vertical Coordinate Reference System is known. One occurrence allowed. Numeric free text and controlled vocabulary.**

This element should only be filled in if the Coordinate Reference System (CRS) is registered in the 'European Petroleum Survey Group (EPSG) database. <http://info.ogp.org.uk/geodesy/> If you do not have the defined CRS you should complete the vertical extent vocabulary defined in Element 11 – Keywords, to describe the vertical extent of the resource.. One of the elements '11: vertical extent keyword'; or '14: vertical extent information' must be completed.

The vertical extent element has three sub-elements; the minimum vertical extent value, the maximum vertical extent value, and the coordinate reference system. Depth below sea water surface should be a negative number. Depth taken in the intertidal zone above the sea level should be positive. If the dataset covers from the intertidal to the subtidal zone then the sub element 14.1 should be used to record the highest intertidal point and 14.2 the deepest subtidal depth. Although the element itself is optional if it is filled in then its sub-elements are either mandatory or conditional.

### Sub element 14.1 - Minimum Value (M)

Record as positive or negative decimal number. The shallowest depth recorded if subtidal, or if intertidal the lowest point recorded.

### Sub element 14.2 - Maximum Value (M)

Record as positive or negative decimal number. The deepest depth recorded if subtidal, or if intertidal, the highest point recorded.

### Sub element 14.3 - Vertical coordinate reference system (M)

This sub-element defines the vertical coordinate reference system of the minimum and maximum vertical extent values. The vertical coordinate reference system should be included by reference to the EPSG register of geodetic parameters (<http://www.epsg.org/Geodetic.html>). In brief, to find a code click on the OGP Online Registry and if you know the title (eg WGS84) then type this in the 'Name' field and click search. The name, code and further information is displayed. If you are looking for a specific type of reference system such as 'vertical' then click in the 'Type' box, hover over coordinate reference system and click on vertical and then click the search button and all recorded vertical reference systems are shown. If you want to search for a reference system in a particular part of the world (e.g. Northern Ireland Grid) the you may do so by submitting a term to the 'Area' box or fill out the lat and longs then click search. The website also provides a database of the reference systems and web services to access the information. If the vertical coordinate reference system is not known or explicitly defined in the EPSG register then this element should not be completed.

#### **Example**

minimumValue: 42

maximumValue: 94

verticalCoordinateReferenceSystem: <urn:ogc:def:crs:EPSG::5701>

**Example XML fragment (defining vertical CRS by reference):**

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:extent>
        <gmd:EX_Extent>
          <gmd:verticalElement>
            <gmd:EX_VerticalExtent>
              <gmd:minimumValue>
                <gco:Real>42</gco:Real>
              </gmd:minimumValue>
              <gmd:maximumValue>
                <gco:Real>94</gco:Real>
              </gmd:maximumValue>
              <gmd:verticalCRS
                xlink:href="urn:ogc:def:crs:EPSG::5701" />
            </gmd:EX_VerticalExtent>
          </gmd:verticalElement>
        </gmd:EX_Extent>
      </gmd:extent>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

## Element 15 - Spatial reference system (M)

**Mandatory for datasets and series, conditional where relevant to services. One occurrence allowed. Controlled vocabulary.**

Describes the system of spatial referencing (typically a coordinate reference system) used in the resource. This should be derived from the EPSG register of geodetic parameters (<http://www.epsg.org/Geodetic.html>). To find a code click on the OGP Online Registry and if you know the title (eg WGS84) then type this in the 'Name' field and click search. The name, code and further information is displayed. If you are looking for a specific type of reference system such as 'vertical' then click in the 'Type' box, hover over coordinate reference system and click on vertical and then click the search button and all recorded vertical reference systems are shown. If you want to search for a reference system in a particular part of the world (e.g. Northern Ireland Grid) then you may do so by submitting a term to the 'Area' box or fill out the lat and longs then click search. The website also provides a database of the reference systems and web services to access the information.

### **Examples**

Example 1: WGS84 – urn:ogc:def:crs:EPSG::4326

Example 2: National Grid of Great Britain – urn:ogc:def:crs:EPSG::27700

### **Example of ISO compliant xml fragment:**

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:referenceSystemInfo>
    <gmd:MD_ReferenceSystem>
      <gmd:referenceSystemIdentifier>
        <gmd:RS_Identifier>
          <gmd:code>
            <gco:CharacterString>
              urn:ogc:def:crs:EPSG::27700
            </gco:CharacterString>
          </gmd:code>
          <gmd:codeSpace>
            <gco:CharacterString>OGP</gco:CharacterString>
          </gmd:codeSpace>
        </gmd:RS_Identifier>
      </gmd:referenceSystemIdentifier>
    </gmd:MD_ReferenceSystem>
  </gmd:referenceSystemInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

## **Element 16 - Temporal reference (M)**

**Mandatory element for datasets and series; optional for services. One occurrence allowed of each sub element. Date/Time format.**

It is recommended that all known temporal references of the resource are included. The temporal extent of the resource (e.g. the time period over which data were collected), and the date of publication (i.e. the date at which it was made publicly available) are mandatory, the date of last revision and creation date are conditional (i.e. must be completed if known) Only one occurrence for each sub-element is allowed.

### **Sub element 16.1 - Temporal extent (M)**

**Conditional – Mandatory for datasets and series; conditional for services where temporal extent is relevant to the service. One occurrence allowed for each of begin and end. Date or Date/Time format.**

This describes the start and end date of the resource (e.g. dataset). The start date is mandatory and the end date should be provided if known (conditional). It is recommended that a full date including year, month and day is added, but it is accepted that for some historical resources only vague dates (year only, year and month only) are available.

#### **Sub sub element 16.1.1 Begin (M)**

Start of temporal extent.

#### **Sub sub element 16.1.2 End (C)**

End of temporal extent.

date or date and time: yyyy-mm-dd or yyyy-mm-ddThh:mm:ss

### **Sub element 16.2 - Date of publication (M)**

**Mandatory. One occurrence allowed. Date/Time format.**

This describes the publication date of the resource and should be included. If the resource is previously unpublished please use the date that the resource was made publicly available via the MEDIN network. It is recommended that a full date including year, month and day is added, but it is accepted that for some historical resources only vague dates (year only, year and month only) are available.

#### **Sub sub element 16.2.1 Date type**

Indicates temporal extent described (one of the sub elements 16.1-16.4) temporalExtent, creation, publication or revision.

#### **Sub sub element 16.2.2 Date**

Date format.

date or date and time: yyyy-mm-dd or yyyy-mm-ddThh:mm:ss

### **Sub element 16.3 - Date of last revision (C)**

**Conditional. Complete if known. One occurrence allowed. Date/Time format.**

This describes the most recent date that the resource was revised. It is recommended

that a full date including year, month and day is added.

### **Sub sub element 16.3.1 Date type**

Indicates temporal extent described (one of the sub elements 16.1-16.4) temporalExtent, creation, publication or revision.

### **Sub sub element 16.3.2 Date**

Date format.

date or date and time: yyyy-mm-dd or yyyy-mm-ddThh:mm:ss

## **Sub element 16.4 - Date of creation (C)**

**Conditional. Complete if known. One occurrence allowed. Date/Time format.**

This describes the most recent date that the resource was created. It is recommended that a full date including year, month and day is added.

### **Sub sub element 16.4.1 Date type**

Indicates temporal extent described (one of the sub elements 16.1-16.4) temporalExtent, creation, publication or revision.

### **Sub sub element 16.4.2 Date**

Date format.

date or date and time: yyyy-mm-dd or yyyy-mm-ddThh:mm:ss

### **Examples**

Example 1:

dateType: creation

date: 2008-05-12T12:34:09 (date and time provided)

Example 2:

dateType: revision

date:2008-05-12 (full date provided)

Example 3:

dateType: publication

date:1952-06-00 (month and year provided, but no day)

Example 4:

dateType: creation

date: 1899-00-00 (only year provided).

Example 5:

dateType: temporalExtent

date: begin: 1980-01-01 end: 1990-03-01

### **Example XML fragment (temporal extent):**

```
<gmd:MD_Metadata>  
  <!-- ... -->
```

```

<gmd:identificationInfo>
  <gmd:MD_DataIdentification>
    <!-- ... -->
    <gmd:extent>
      <gmd:EX_Extent>
        <gmd:temporalElement>
          <gmd:EX_TemporalExtent>
            <gmd:extent>
              <gml:TimePeriod gml:id="medinMEDIN01">
                <gml:beginPosition>1998-01-
01</gml:beginPosition>
                <gml:endPosition>2008-12-12</gml:endPosition>
              </gml:TimePeriod>
            </gmd:extent>
          </gmd:EX_TemporalExtent>
        </gmd:temporalElement>
      </gmd:EX_Extent>
    </gmd:extent>
    <!-- ... -->
  </gmd:MD_DataIdentification>
</gmd:identificationInfo>
<!-- ... -->
</gmd:MD_Metadata>

```

### Example XML fragment (publication):

```

<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <gmd:citation>
        <gmd:CI_Citation>
          <!-- ... -->
          <gmd:date>
            <gmd:CI_Date>
              <gmd:date>
                <gco:Date>
                  2009-01-07
                </gco:Date>
              </gmd:date>
              <gmd:dateType>
                <gmd:CI_DateTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/Codelist/gmxCodetlists.xml#CI_DateType
Code"
codeListValue="publication">publication</gmd:CI_DateTypeCode>
                </gmd:dateType>
              </gmd:CI_Date>
            </gmd:date>
          <!-- ... -->
        </gmd:CI_Citation>
      </gmd:citation>
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>

```

```
<!-- ... -->  
</gmd:MD_Metadata>
```

## 7. Elements describing data quality

### Element 17 - Lineage (C)

**Mandatory element for datasets or series of datasets. One occurrence allowed. This Element is not required if a service<sup>1</sup> is being described. Free text.**

Lineage includes the background information, history of the sources of data used and can include data quality statements. The lineage element can include information about: source material; data collection methods used; data processing methods used; quality control processes. Please indicate any data collection standards used. Additional information source to record relevant references to the data e.g. reports, articles, website. Apart from describing the process history, the overall quality of the dataset or series should be included in the Lineage metadata element. This statement should contain any quality information required for interoperability and/or valuable for use and evaluation of the dataset or series.

<sup>1</sup> See Element 4 Resource type for definition of a 'service'

#### **Examples**

Example 1: This dataset was collected by the Fisheries Research Services and provided to the British Oceanographic Data Centre for long term archive and management.

Example 2: (no protocols or standards used)- Forty 0.1m<sup>2</sup> Hamon grab samples were collected from across the region, both within and beyond the extraction area, and analyzed for macrofauna and sediment particle size distribution in order to produce a regional description of the status of the seabed environment. Samples were sieved over a 1mm mesh sieve. In addition, the data were analyzed in relation to the area of seabed impacted by dredging over the period 1993-1998. Areas subject to 'direct' impacts were determined through reference to annual electronic records of dredging activity and this information was then used to model the likely extent of areas potentially subject to 'indirect' ecological and geophysical impact.

Example 3: (collected using protocols and standards) - Data was collected using the NMMP data collection, processing and Quality Assurance SOPs and complies with MEDIN data standards.

Example 4: Survey data from MNCR lagoon surveys were used to create a GIS layer of the extent of saline lagoons in the UK that was ground-truthed using 2006-2008 aerial coastal photography obtained from the Environment Agency and site visits to selected locations.

#### **Example xml fragment:**

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:dataQualityInfo>
    <gmd:DQ_DataQuality>
      <!-- Scope - Required by ISO 19115 constraint -->
      <gmd:scope>
        <gmd:DQ_Scope>
          <gmd:level>
            <gmd:MD_ScopeCode
```

```

codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/Codelist/gmxCodelists.xml#MD_ScopeCod
e" codeListValue="dataset">dataset</gmd:MD_ScopeCode>
  </gmd:level>
  </gmd:DQ_Scope>
</gmd:scope>
<!-- Lineage -->
<gmd:lineage>
  <gmd:LI_Lineage>
    <gmd:statement>
      <gco:CharacterString>
        Data derived from records submitted online, by
        telephone, email and paper for the toe MarLIN.
        All co-ordinates plotted locations checked and
        species verified against habitat and known
        distribution. Photographic evidence or expert
        determination required where records was of
        rare species or a species outside its usual
        range.
      </gco:CharacterString>
    </gmd:statement>
  </gmd:LI_Lineage>
</gmd:lineage>
</gmd:DQ_DataQuality>
</gmd:dataQualityInfo>
<!-- ... -->
</gmd:MD_Metadata>

```

## Element 18 - Spatial resolution (C)

**Conditional for datasets and series where a resolution distance can be specified. Multiple occurrences allowed. Numeric (positive whole number) and free text.**

Provides an indication of the spatial resolution of the data. The element has largely been derived for the mapping community and is currently poorly defined however MEDIN recommends that you provide the average distance (i.e. resolution) between sampling locations in meters. For example, if a dataset was composed of a grid of stations which have an average distance between stations of 2 km then 2000 meters should be recorded. In the case of a multibeam survey it should be the average distance between each sounding or 'ping' on the sea bed. For transect data such as an intertidal beach survey or a single beam echo sounder survey the resolution should be taken as the distance between the transect lines.

For single samples and observational data MEDIN recommends using 'not applicable' which may be en-coded as shown in the last example below.

### **Examples**

Example 1:  
distance:10  
units: metres

### **Example XML fragment (Distance):**

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:spatialResolution>
        <gmd:MD_Resolution>
          <gmd:distance>
            <gco:Distance
uom="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_
19139_Schemas/resources/uom/gmxUom.xml#m">500</gco:Distance>
          </gmd:distance>
        </gmd:MD_Resolution>
      </gmd:spatialResolution>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

### **Example XML fragment (equivalent scale)**

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:spatialResolution>
        <gmd:MD_Resolution>
```

```

    <gmd:equivalentScale>
      <gmd:MD_RepresentativeFraction>
        <gmd:denominator>
          <gco:Integer>25000</gco:Integer>
        </gmd:denominator>
      </gmd:MD_RepresentativeFraction>
    </gmd:equivalentScale>
  </gmd:MD_Resolution>
</gmd:spatialResolution>
<!-- ... -->
</gmd:MD_DataIdentification>
</gmd:identificationInfo>
<!-- ... -->
</gmd:MD_Metadata>

```

### Example XML fragment (Distance) 'Not Applicable':

```

<gmd:spatialResolution>
  <gmd:MD_Resolution>
    <gmd:distance gco:nilReason="inapplicable"/>
  </gmd:MD_Resolution>
</gmd:spatialResolution>

```

## Element 19 - Additional information source (O)

**Optional element. Single occurrence allowed. Free text.**

Any references to external information that are considered useful, e.g. project website, report, journal article may be recorded. It should not be used to record additional information about the resource.

### **Examples**

Malthus, T.J., Harries, D.B., Karpouzli, E., Moore, C.G., Lyndon, A.R., Mair, J.M., Foster-Smith, B., Sotheran, I. and Foster-Smith, D. (2006). Biotope mapping of the Sound of Harris, Scotland. Scottish Natural Heritage Commissioned Report No. 212 (ROAME No. F01AC401/2).

<http://www.cefas.co.uk/publications/files/datarep42.pdf>

### **Example XML fragment:**

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:supplementalInformation>
        <gco:CharacterString>
          www.marlin.ac.uk/rml
        </gco:CharacterString>
      </gmd:supplementalInformation>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

## 8. Elements relating to data usage

### Element 20 - Limitations on public access (M)

**Mandatory element. Multiple occurrences allowed. Controlled vocabulary and free text.**

This element describes any restrictions imposed on the resource for security and other reasons using the controlled ISO vocabulary RestrictionCode (See Annex G). If restricted or otherRestrictions is chosen please provide information on any limitations to access of resource and the reasons for them. If there are no limitations on public access, this must be indicated.

#### **Examples**

Example 1:

accessConstraints:

otherRestrictions: No restrictions to public access

Example 2:

accessConstraints:

otherRestrictions: Restricted public access due to sensitive species, only available at 10km resolution.

Example of ISO compliant xml fragment:

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:resourceConstraints>
        <gmd:MD_LegalConstraints>
          <gmd:accessConstraints>
            <gmd:MD_RestrictionCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/Codelist/gmxCodelists.xml#MD_Restrict
ionCode"
codeListValue="otherRestrictions">
              otherRestrictions
            </gmd:MD_RestrictionCode>
          </gmd:accessConstraints>
          <gmd:otherConstraints>
            <gco:CharacterString>
              No limitations
            </gco:CharacterString>
          </gmd:otherConstraints>
        </gmd:MD_LegalConstraints>
      </gmd:resourceConstraints>
      <!-- ... -->
    </gmd:MD_DataIdentification>
```

```
</gmd:identificationInfo>  
<!-- ... -->  
</gmd:MD_Metadata>
```

## Element 21 - Conditions applying for access and use (M)

**Mandatory element. Multiple occurrences allowed. Free text.**

This element describes any restrictions and legal restraints on using the data. Any known constraints such as fees should be identified. If no conditions apply, then “no conditions apply” should be recorded.

### **Examples**

Example 1 - Data is freely available for research or commercial use providing that the originators are acknowledged in any publications produced.

Example 2 - Data is freely available for use in teaching and conservation but permission must be sought for use if the data will be reproduced in full or part or if used in any analyses.

Example 3 - Not suitable for use in navigation.

### **Example XML fragment (using MD\_Constraints):**

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:resourceConstraints>
        <gmd:MD_Constraints>
          <gmd:useLimitation>
            <gco:CharacterString>
              Not suitable for navigation
            </gco:CharacterString>
          </gmd:useLimitation>
        </gmd:MD_Constraints>
      </gmd:resourceConstraints>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

### **Example XML fragment (using MD\_LegalConstraints):**

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:resourceConstraints>
        <gmd:MD_LegalConstraints>
          <gmd:useLimitation>
            <gco:CharacterString>
              Not suitable for navigation
            </gco:CharacterString>
          </gmd:useLimitation>
        </gmd:MD_LegalConstraints>
      </gmd:resourceConstraints>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

```
        <!-- ... -->
    </gmd:MD_LegalConstraints>
</gmd:resourceConstraints>
    <!-- ... -->
</gmd:MD_DataIdentification>
</gmd:identificationInfo>
<!-- ... -->
</gmd:MD_Metadata>
```

## Element 22 - Responsible party (M)

**Mandatory element. Multiple occurrences are allowed for some responsible party roles. Must include minimum of person/organization name and email address. Free text and controlled vocabulary.**

Provides a description of an organization or person who has a role for the dataset or resource. MEDIN mandates that the roles of 'Originator' and 'Custodian' (data holder) and the role of 'Distributor' should be entered if different to the Custodian. The 'Metadata point of contact' is also mandatory. Other types of responsible party may be specified from the controlled vocabulary (see Annex H for codelist) if desired.

If the data has been lodged with a MEDIN approved Data Archive Centre then the DAC should be specified as the Custodian.

### Sub element 22.1 - Originator (M)

**Mandatory element. Multiple occurrences of originators allowed. Must include minimum of person/organization name and email address.**

Person(s) or organization(s) who created the resource.

### Sub element 22.2 - Custodian (M)

**Mandatory element. Multiple occurrences of custodians allowed. Must include minimum of person/organization name and email address.**

Person(s) or organization(s) that accept responsibility for the data and ensures appropriate case and maintenance. If the dataset has been lodged with a Data Archive Centres then this should be entered.

### Sub element 22.3 - Distributor (C)

**Conditional element. Multiple occurrences of originators allowed. Must include minimum of person/organization name and email address.**

Person(s) or organization(s) that distributes the resource.

### Sub element 22.4 - Metadata point of contact (M)

**Mandatory element. One occurrence allowed. Must include minimum of person/organization name and email address.**

Person or organization with responsibility for the creation and maintenance of the metadata for the resource.

The sub sub-elements for describing each responsible party entry are as follows;

#### Sub sub element 22.0.1 - Job Position (O but recommended)

#### Sub sub element 22.0.2 - Organization name (M)

Where an organisation is given this must be taken from the European Directory of Marine Organisations (<http://seadatanet.maris2.nl/edmo/>). In the event that an organisation name is not in that directory then please contact [enquiries@oceannet.org](mailto:enquiries@oceannet.org) who will add it. Where possible an organization should be cited and only when this is impossible should Individual Name be used.

### **Sub sub element 22.0.3 - Postal address (O but recommended)**

### **Sub sub element 22.0.4 - Telephone number (O but recommended)**

Where possible a generic rather than individual telephone number should be used e.g. the organizational switchboard

### **Sub sub element 22.0.5 - Facsimile number (O)**

### **Sub sub element 22.0.6 - Email address (M )**

Where possible a generic rather than a individual email should be used.

### **Sub sub element 22.0.7 - Responsible party role (M)**

See Annex H for full codelist.

### ***Examples***

#### **Data point of contact:**

JobPosition: DASSH Data officer  
OrganizationName DASSH  
PostalAddress: The Laboratory, Citadel Hill, Plymouth PL4 8SR  
TelephoneNumber: 01752 633291  
EmailAddress: [dassh.enquiries@mba.ac.uk](mailto:dassh.enquiries@mba.ac.uk)  
ResponsiblePartyRole: distributor

JobPosition: Marine officer  
OrganizationName Joint Nature Conservation Committee (JNCC)  
PostalAddress: City Road, Peterborough, PE1 1JY,  
TelephoneNumber: 01733 562626  
FacsimileNumber: 01733 555948  
EmailAddress: marine.teamexample@jncc.gov.uk  
ResponsiblePartyRole: pointOfContact

#### **Originator:**

IndividualName: Dr A. Smith,  
OrganizationName: University of Swansea  
ResponsiblePartyRole: Originator

#### **Metadata point of contact:**

IndividualName: Miss Hannah Freeman  
EmailAddress: haee@bodc.ac.uk  
TelephoneNumber: 01517954898  
ResponsiblePartyRole: pointOfContact

#### ***Example XML fragment (Metadata Point of Contact):***

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:contact>
    <gmd:CI_ResponsibleParty>
      <gmd:individualName>
        <gco:CharacterString>Hannah Freeman</gco:CharacterString>
      </gmd:individualName>
```

```

    <gmd:contactInfo>
      <gmd:CI_Contact>
        <gmd:phone>
          <gmd:CI_Telephone>
            <gmd:voice>
              <gco:CharacterString>
                01517954898
              </gco:CharacterString>
            </gmd:voice>
          </gmd:CI_Telephone>
        </gmd:phone>
        <gmd:address>
          <gmd:CI_Address>
            <gmd:electronicMailAddress>
              <gco:CharacterString>haee@bodc.ac.uk</gco:CharacterString>
            </gmd:electronicMailAddress>
          </gmd:CI_Address>
        </gmd:address>
      </gmd:CI_Contact>
    </gmd:contactInfo>
    <gmd:role>
      <gmd:CI_RoleCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/Codelist/gmxCodetlists.xml#CI_RoleCode
" codeListValue="pointOfContact">pointOfContact</gmd:CI_RoleCode>
      </gmd:role>
    </gmd:CI_ResponsibleParty>
  </gmd:contact>
  <!-- ... -->
</gmd:MD_Metadata>

```

### Example XML fragment (Originator):

```

<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:pointOfContact>
        <gmd:CI_ResponsibleParty>
          <gmd:organisationName>
            <gco:CharacterString>DASSH</gco:CharacterString>
          </gmd:organisationName>
          <gmd:positionName>
            <gco:CharacterString>
              DASSH Data Officer
            </gco:CharacterString>
          </gmd:positionName>
          <gmd:contactInfo>
            <gmd:CI_Contact>
              <gmd:phone>
                <gmd:CI_Telephone>
                  <gmd:voice>
                    <gco:CharacterString>

```

```

        01752 633291
        </gco:CharacterString>
    </gmd:voice>
</gmd:CI_Telephone>
</gmd:phone>
<gmd:address>
    <gmd:CI_Address>
        <gmd:deliveryPoint>
            <gco:CharacterString>
                The Laboratory
            </gco:CharacterString>
        </gmd:deliveryPoint>
        <gmd:deliveryPoint>
            <gco:CharacterString>
                Citadel Hill
            </gco:CharacterString>
        </gmd:deliveryPoint>
        <gmd:city>
            <gco:CharacterString>
                Plymouth
            </gco:CharacterString>
        </gmd:city>
        <gmd:postalCode>
            <gco:CharacterString>
                PL4 8SR
            </gco:CharacterString>
        </gmd:postalCode>
        <gmd:country>
            <gco:CharacterString>UK</gco:CharacterString>
        </gmd:country>
        <gmd:electronicMailAddress>
            <gco:CharacterString>
                dassh.enquiries@mba.ac.uk
            </gco:CharacterString>
        </gmd:electronicMailAddress>
    </gmd:CI_Address>
</gmd:address>
</gmd:CI_Contact>
</gmd:contactInfo>
<gmd:role>
    <gmd:CI_RoleCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/Codelist/gmxCodetlists.xml#CI_RoleCode
" codeListValue="originator">originator</gmd:CI_RoleCode>
    </gmd:role>
</gmd:CI_ResponsibleParty>
</gmd:pointOfContact>
<!-- ... -->
</gmd:MD_DataIdentification>
</gmd:identificationInfo>
<!-- ... -->
</gmd:MD_Metadata>

```

## Example XML fragment (Distributor – note encoded in distributionInfo):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <distributionInfo>
    <MD_Distribution>
      <distributionFormat gco:nilReason="inapplicable"
xmlns:gco="http://www.isotc211.org/2005/gco" />
      <distributor>
        <MD_Distributor>
          <distributorContact>
            <CI_ResponsibleParty>
              <organisationName>
                <gco:CharacterString>
SeaZone Solutions Ltd
                </gco:CharacterString>
              </organisationName>
              <contactInfo>
                <CI_Contact>
                  <phone>
                    <CI_Telephone>
                      <voice>
                        <gco:CharacterString>+44 (0) 870 013
0607</gco:CharacterString>
                      </voice>
                      <facsimile>
                        <gco:CharacterString>+44 (0) 870 013
0608</gco:CharacterString>
                      </facsimile>
                    </CI_Telephone>
                  </phone>
                  <address>
                    <CI_Address>
                      <deliveryPoint>
                        <gco:CharacterString>Red Lion
House</gco:CharacterString>
                      </deliveryPoint>
                      <city>
                        <gco:CharacterString>Bentley</gco:CharacterString>
                      </city>
                      <administrativeArea>
                        <gco:CharacterString>Hampshire</gco:CharacterString>
                      </administrativeArea>
                      <postalCode>
                        <gco:CharacterString>GU10 5HY</gco:CharacterString>
                      </postalCode>
                      <country>
                        <gco:CharacterString>
                          United Kingdom
                        </gco:CharacterString>
                      </country>
                      <electronicMailAddress>
                        <gco:CharacterString>
                          info@seazone.com
                        </gco:CharacterString>
                      </electronicMailAddress>
                    </CI_Address>
                  </address>
                </CI_Contact>
              </contactInfo>
            </CI_ResponsibleParty>
          </distributorContact>
        </MD_Distributor>
      </distributor>
    </MD_Distribution>
  </distributionInfo>
</gmd:MD_Metadata>
```

```
        </gco:CharacterString>
    </electronicMailAddress>
</CI_Address>
</address>
</CI_Contact>
</contactInfo>
<role>
    <CI_RoleCode
codeList="./resources/codeList.xml#CI_RoleCode"
codeListValue="pointOfContact">distributor</CI_RoleCode>
    </role>
</CI_ResponsibleParty>
</distributorContact>
</MD_Distributor>
</distributor>
</MD_Distribution>
</distributionInfo>
<!-- ... -->
</gmd:MD_Metadata>
```

## Element 23 - Data format (O)

**Optional element. Multiple data formats are allowed. Controlled vocabulary.**

Indicate the formats in which digital data can be provided for transfer. A controlled vocabulary has been defined for use by MEDIN which is M010 'MEDIN data format categories' available at <http://vocab.ndg.nerc.ac.uk/client/vocabServer.jsp> or which can be seen in Annex K. The term from this controlled vocab should be used for the sub element 'name of format' and 'unknown' used for the sub element version

### Sub Element 23.1 - Name of format (O)

**Optional element. Single occurrence. Controlled vocabulary.**

Give title of term from controlled vocabulary.

### Sub Element 23.2 - Version (O)

**Optional element. Single occurrence. Free Text**

MEDIN recommends using 'unknown'

#### **Example 1**

Database

Unknown

#### **Example XML fragment:**

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:resourceFormat>
        <gmd:MD_Format>
          <gmd:name>
            <gco:CharacterString>
              Geographic Information System
            </gco:CharacterString>
          </gmd:name>
          <gmd:version gco:nilReason="unknown" />
        </gmd:MD_Format>
      </gmd:resourceFormat>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

## Element 24 - Frequency of update (C)

**Mandatory for datasets and series of datasets, Conditional for services where frequency of update is relevant to the service. One occurrence allowed. Controlled vocabulary.**

This describes the frequency that the resource (dataset) is modified or updated and should be included if known. For example if the dataset is from a monitoring programme which samples once per year then the frequency is annually. Select one option from ISO frequency of update codelist (MD\_FrequencyOfUpdate codelist). The full code list is presented in Annex I.

### **Examples**

Example 1: monthly

Example 2: annually

### **Example XML fragment:**

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:resourceMaintenance>
        <gmd:MD_MaintenanceInformation>
          <gmd:maintenanceAndUpdateFrequency>
            <gmd:MD_MaintenanceFrequencyCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/Codelist/gmxCodlists.xml#MD_Maintena
nceFrequencyCode" codeListValue="asNeeded">
              asNeeded
            </gmd:MD_MaintenanceFrequencyCode>
          </gmd:maintenanceAndUpdateFrequency>
        </gmd:MD_MaintenanceInformation>
      </gmd:resourceMaintenance>
      <!-- ... -->
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- ... -->
</gmd:MD_Metadata>
```

## 9. Elements relating to Conformity (C)

### Element 25 - Conformity

This element relates specifies if the dataset being described is conformant with other specifications such as the INSPIRE data specifications or MEDIN data guidelines. There are 3 sub-elements which give the title of the specification, the degree of conformity (if it is or not conformant) and an explanation which gives further details of how conformant it is or any other usefull information for the user.

**Conditional element. Multiple occurences allowed. Required if the resource provider is claiming conformance to INSPIRE.**

#### Sub element 25.1 - Specification (C)

**Conditional element. Single occurrence. Required if the resource provider is claiming conformance to INSPIRE.**

Give the citation of the specification or user requirement against which data resource is evaluated.

##### Sub sub element 25.1.1 - Title (M)

Free text. Title of specification

##### Sub sub element 25.1.2 - Date type (M)

Controlled vocabulary. Type of date (MEDIN recommend use of 'publication' date rather than revision or creation).

##### Sub sub element 25.1.3 - Date (M)

Date format. Date.

#### Sub element 25.2 - Degree of conformity (C)

**Conditional element. Single occurrence. Required if the resource provider is claiming conformance to INSPIRE.**

This element relates to the INSPIRE Directive 1 and indicates whether a resource conforms to a product specification or other INSPIRE thematic specification. The values are as follows:

True  
False

#### Sub element 25.3 - Explanation (C)

**Conditional element. Single occurrence. Required if the resource provider is claiming conformance to INSPIRE. Free Text.**

Meaning of conformance for this degree of conformance result

**Example 1.**

D2.8.1.5 INSPIRE Data Specification on *Addresses* – Guidelines, publication, 2010-04-26  
True  
Only mandatory items included

Example 2.

MEDIN Data Guideline for sediment sampling by grab or core for benthos, publication, 2009-07-29  
True  
All mandatory and conditional items were completed

**Example XML fragment:**

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:dataQualityInfo>
    <gmd:DQ_DataQuality>
      <!-- Scope - Required by ISO 19115 constraint -->
      <gmd:scope>
        <gmd:DQ_Scope>
          <gmd:level>
            <gmd:MD_ScopeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/Codelist/gmxCodelists.xml#MD_ScopeCod
e" codeListValue="dataset">dataset</gmd:MD_ScopeCode>
            </gmd:level>
          </gmd:DQ_Scope>
        </gmd:scope>
      <gmd:report>
        <gmd:DQ_DomainConsistency>
          <gmd:result>
            <gmd:DQ_ConformanceResult >
              <gmd:specification>
                <gmd:CI_Citation>
                  <gmd:title>
                    <gco:CharacterString>
                      INSPIRE Implementing rules laying down
                      technical arrangements for the
                      interoperability and harmonisation of
                      orthoimagery
                    </gco:CharacterString>
                  </gmd:title>
                  <gmd:date>
                    <gmd:CI_Date>
                      <gmd:date>
                        <gco>Date>2011-05-15</gco>Date>
                      </gmd:date>
                      <gmd:dateType>
                        <gmd:CI_DateTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards
/ISO_19139_Schemas/resources/Codelist/gmxCodelists.xml#CI_DateType
Code"
codeListValue="publication">publication</gmd:CI_DateTypeCode>
                        </gmd:dateType>
                      </gmd:CI_Date>
                    </gmd:dateType>
                  </gmd:CI_Citation>
                </gmd:specification>
              </gmd:DQ_ConformanceResult >
            </gmd:result>
          </gmd:DQ_DomainConsistency>
        </gmd:report>
      </gmd:DQ_DataQuality>
    </gmd:dataQualityInfo>
  </gmd:MD_Metadata>
```

```

        </gmd:CI_Date>
    </gmd:date>
    </gmd:CI_Citation>
</gmd:specification>
<gmd:explanation>
    <gco:CharacterString>See the referenced
specification</gco:CharacterString>
</gmd:explanation>
<gmd:pass>
    <gco:Boolean>>true</gco:Boolean>
</gmd:pass>
</gmd:DQ_ConformanceResult>
</gmd:result>
</gmd:DQ_DomainConsistency>
</gmd:report>
<!-- ... -->
</gmd:DQ_DataQuality>
</gmd:dataQualityInfo>
<!-- ... -->
</gmd:MD_Metadata>

```

## 10. Elements relating to metadata

### File Identifier

The file identifier is a code that is encoded in XML that is globally unique and remains with the same metadata record even if the record is edited or transferred between portals or tools. It is not therefore an actual element but part of the xml record. The file identifier can be used to identify and remove duplication of records in a portal if it is harvesting records from a wide range of sources. As such it is not an element of the metadata but is used to uniquely identify the metadata xml record (as opposed to the element Unique Resource Identifier which refers to the dataset, series or service itself).

The file identifier should be created either by the organisation generating metadata or by the tools from which the metadata record is generated. Applications that are used subsequently to edit the metadata shall not change the file identifier. MEDIN recommends the use of a Universally Unique Identifier (UUID, sometimes referred to as a GUID) as the file identifier. It is a system generated 128-bit integer number used to identify resources (e.g. 79557726-b60a-4cf3-a8fd-9799c603d4dc). UUIDs can be generated from a variety of sources including internal PC systems and online resources such as <http://www.guidgenerator.com/online-guid-generator.aspx>

#### Example XML fragment:

```
<gmd:MD_Metadata>
  <gmd:fileIdentifier>
    <gco:CharacterString>79557726-b60a-4cf3-a8fd-
9799c603d4dc</gco:CharacterString>
  </gmd:fileIdentifier>
  <!-- ... -->
</gmd:MD_Metadata>
```

## Element 26 - Metadata date (M)

**Mandatory element. One occurrence allowed. Date format.**

This describes the last date the metadata was updated on. If the metadata has not been updated it should give the date on which it was created. This should be provided as a date in the format:

yyyy-mm-dd

### **Example**

2008-05-12

### **Example XML fragment (Date):**

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:dateStamp>
    <gco:Date>2009-03-01</gco:Date>
  </gmd:dateStamp>
  <!-- ... -->
</gmd:MD_Metadata>
```

### **Example XML fragment (DateTime):**

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:dateStamp>
    <gco:DateTime>2009-01-01T09:09:09</gco:DateTime>
  </gmd:dateStamp>
  <!-- ... -->
</gmd:MD_Metadata>
```

## Element 27 - Metadata standard name (M)

**Mandatory element. One occurrence allowed. Free text.**

Identify the metadata standard used to create the metadata. It is recommended that the term below is used to to comply with this MEDIN standard.

### **Example**

MEDIN Discovery Metadata Standard

### **Example XML fragment:**

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:metadataStandardName>
    <gco:CharacterString>MEDIN Discovery Metadata
Standard</gco:CharacterString>
  </gmd:metadataStandardName>
  <!-- ... -->
</gmd:MD_Metadata>
```

## Element 28 - Metadata standard version (M)

**Mandatory element. One occurrence allowed.**

Identify the version of the metadata standard used to create the metadata. It is recommended that the term below is used to to comply with this MEDIN standard.

### **Example**

2.3.2

**Example of ISO compliant xml fragment:**

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:metadataStandardVersion>
    <gco:CharacterString>Version 2.3</gco:CharacterString>
  </gmd:metadataStandardVersion>
  <!-- ... -->
</gmd:MD_Metadata>
```

## Element 29 - Metadata language (M)

**Mandatory element. One occurrence allowed. Controlled vocabulary.**

Describes the language(s) elements of the metadata.

Select the relevant 3-letter code(s) from the ISO 639-2 code list of languages. Additional languages may be added to this list if required. A full list of UK language codes is listed in Annex D and a list of recognized languages is available online

<http://www.loc.gov/standards/iso639-2>.

### **Examples**

Example 1: (English)

eng

Example 2: (Welsh)

cym

### **Example XML fragment:**

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:language>
    <gmd:LanguageCode
codeList="http://www.loc.gov/standards/iso639-2/php/code_list.php"
codeListValue="eng">English</gmd:LanguageCode>
  </gmd:language>
  <!-- ... -->
</gmd:MD_Metadata>
```

## Element 30 – Parent ID (O)

**Optional element. One occurrence allowed. Free text.**

This field holds the file identifier code of the series metadata record for which the dataset which is being described is part of. Therefore, this element allows links to be made between a dataset and a series (see [http://www.oceannet.org/marine\\_data\\_standards/other\\_marine\\_data\\_standards/consider\\_data\\_set.html](http://www.oceannet.org/marine_data_standards/other_marine_data_standards/consider_data_set.html) for MEDINs definition of these terms). This will then allow the MEDIN portal to be able to find related metadata records. For example, a large multidisciplinary project may be described as a 'series' and each of the themes of work will be described as 'datasets'. Using this field allows the user when viewing the series metadata to ask for the metadata records of all the datasets of each theme. Alternatively, a user may ask for all related records when viewing a dataset.

### **Example**

79557726-b60a-4cf3-a8fd-9799c603d4dc

### **Example XML fragment:**

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:parentIdentifier>
    <gco:CharacterString>79557726-b60a-4cf3-a8fd-
9799c603d4dc</gco:CharacterString>
  </gmd:parentIdentifier>
  <!-- ... -->
</gmd:MD_Metadata>
```

## Annex A Mapping of MEDIN profile to the ISO 19115 and 19119 standard

The following table maps the MEDIN profile elements to the relevant section of the ISO 19115 UML diagrams.

| Name                       | Path to 19115  | Datasets and series | Services etc |
|----------------------------|--|---------------------|--------------|
| Resource title             | MD_Metadata.identificationInfo ><br>MD_DataIdentification.citation ><br>CI_Citation.title  | M                   | M            |
| Alternative resource title | MD_Metadata.identificationInfo ><br>MD_DataIdentification.citation ><br>CI_Citation.alternateTitle   | O                   | O            |
| Resource abstract          | MD_Metadata.identificationInfo ><br>MD_DataIdentification.abstract   | M                   | M            |
| Resource Type              | MD_Metadata.hierarchyLevel   | M                   | M            |
| Resource locator           | MD_Metadata.distributionInfo ><br>MD_DigitalTransferOptions.onLine><br>CI_OnlineResource.linkage   | C                   | C            |
| Unique Resource Identifier | MD_Metadata.identificationInfo ><br>MD_DataIdentification.citation ><br>CI_Citation.identifier   | M                   | O            |
| Coupled resource           | MD_Metadata.identificationInfo ><br>MD_DataIdentification.OperatesOn   | -                   | M            |
| Resource language          | MD_Metadata.identificationInfo ><br>DataIdentification.language  |                     |              |
| Topic category             | MD_Metadata.identificationInfo ><br>MD_DataIdentification.topicCategory  | M                   | -            |
| Spatial data service type  | MD_Metadata.identificationInfo ><br>SV_ServiceIdentification.ServiceType   | -                   | M            |
| Keywords                   | MD_Metadata.identificationInfo ><br>MD_DataIdentification.descriptiveKeywords ><br>MD_keywords.keywords<br>&<br>MD_keywords_thesaurusName ><br>CI_Citation.title<br>CI_Citation.date<br>CI_Citation.datatype | M                   | M            |
| Geographic bounding box    | MD_Metadata.identificationInfo ><br>MD_DataIdentification.extent ><br>EX_Extent ><br>EX_GeographicBoundingBox  | M                   |              |
| Extent                     | MD_Metadata.identificationInfo ><br>MD_DataIdentification.extent >   | M                   |              |

|                                       |  |   |   |
|---------------------------------------|--|---|---|
|                                       | EX_Extent >  |   |   |
| Vertical extent                       | MD_Metadata.identificationInfo ><br>MD_DataIdentification.extent ><br>EX_Extent.verticalElement ><br>EX_VerticalExtent   | C   |   |
| Temporal Reference                    | MD_Metadata.identificationInfo ><br>MD_DataIdentification.extent ><br>EX_Extent.temporalElement ><br>EX_TemporalExtent.extent<br>&<br>MD_Metadata.identificationInfo ><br>MD_DataIdentification.citation ><br>CI_Citation.date ><br>CI_Date.date | C   | C |
| Lineage                               | MD_Metadata.dataQualityInfo ><br>DQ_DataQuality.lineage ><br>LI_Lineage  | M   | - |
| Spatial resolution                    | MD_Metadata.identificationInfo ><br>MD_DataIdentification.spatialResolution ><br>MD_Resolution.distance  | C   | C |
| Additional information source         | MD_Metadata.identificationInfo ><br>MD_DataIdentification.supplementalInformation ><br>CI_Citation   | O   | O |
| INSPIRE conformity                    | MD_Metadata.dataQualityInfo ><br>DQ_DataQuality.report >   | C   | C |
| Limitations on public access          | MD_Metadata.identificationInfo ><br>MD_DataIdentification.ResourceConstraints ><br>MD_LegalConstraints.AccessConstraints ><br>MD_RestrictionCode   | M   |   |
| Conditions applying to access and use | MD_Metadata.identificationInfo ><br>MD_DataIdentification.ResourceConstraints ><br>MD_Constraints.useLimitation  | M   |   |
| Responsible party                     | CI_ResponsibleParty  | M must provide minimum of Originator(s) and pointOfContact(s) |   |
| Data format                           | MD_Metadata.identificationInfo ><br>resourceFormat<br>MD_format.name   | O   | O |

|                           |  |   |   |
|---------------------------|--|---|---|
| Frequency of update       | MD_Metadata.identificationInfo ><br>MD_MaintenanceInformation.maintenanceAndUpdateFrequency ><br>MD_MaintenanceFrequencyCode | M | M |
| Metadata point of contact | MD_Metadata.pointOfContact   | M | M |
| Metadata date stamp       | MD_Metadata.dateStamp  | M | M |
| Metadata language         | MD_Metadata.language   | M | M |
| Metadata standard name    | MD_Metadata.MetadataStandardName   | M | M |
| Metadata standard version | MD_Metadata.MetadataStandardVersion  | M | M |
| Parent ID                 | MD_Metadata.parentIdentifier   | O | O |

## Annex B Example xml file

```
<?xml version="1.0" encoding="utf-8"?>
<gmd:MD_Metadata xmlns:gmd="http://www.isotc211.org/2005/gmd"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:gco="http://www.isotc211.org/2005/gco"
  xmlns:gmx="http://www.isotc211.org/2005/gmx"
  xmlns:gml="http://www.opengis.net/gml/3.2"
  xmlns:xlink="http://www.w3.org/1999/xlink"
  xsi:schemaLocation="http://www.isotc211.org/2005/gmx
  ../XSD_Schemas/ISO_19139_Schemas/gmx/gmx.xsd">
  <gmd:fileIdentifier>
    <gco:CharacterString>ff940020-1aa0-4abb-b9fc-c05c98eee863</gco:CharacterString>
  </gmd:fileIdentifier>
  <!-- Metadata Language -->
  <gmd:language>
    <gmd:LanguageCode codeList="http://www.loc.gov/standards/iso639-2/php/code_list.php"
      codeListValue="eng">English</gmd:LanguageCode>
  </gmd:language>
  <!-- Resource Type -->
  <gmd:hierarchyLevel>
    <gmd:MD_ScopeCode
      codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resources/
      Codelist/gmxCodelists.xml#MD_ScopeCode"
      codeListValue="dataset">dataset</gmd:MD_ScopeCode>
  </gmd:hierarchyLevel>
  <!-- Metadata Point of Contact -->
  <gmd:contact>
    <gmd:CI_ResponsibleParty>
      <gmd:organisationName>
        <gco:CharacterString>SeaZone Solutions Limited</gco:CharacterString>
      </gmd:organisationName>
      <gmd:contactInfo>
        <gmd:CI_Contact>
          <gmd:phone>
            <gmd:CI_Telephone>
              <gmd:voice>
                <gco:CharacterString>0870 013 0607</gco:CharacterString>
              </gmd:voice>
            </gmd:CI_Telephone>
          </gmd:phone>
          <gmd:address>
            <gmd:CI_Address>
              <gmd:electronicMailAddress>
                <gco:CharacterString>info@seazoneltd.ac.uk</gco:CharacterString>
              </gmd:electronicMailAddress>
            </gmd:CI_Address>
          </gmd:address>
        </gmd:CI_Contact>
      </gmd:contactInfo>
      <gmd:role>
```

```

    <gmd:CI_RoleCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resources/
Codelist/gmxCodelists.xml#CI_RoleCode"
    codeListValue="pointOfContact">pointOfContact</gmd:CI_RoleCode>
  </gmd:role>
</gmd:CI_ResponsibleParty>
</gmd:contact>
<!-- Date of Update of Metadata -->
<gmd:dateStamp>
  <gco:Date>2009-05-20</gco:Date>
</gmd:dateStamp>
<!-- Metadata Standard Name -->
<gmd:metadataStandardName>
  <gco:CharacterString>MEDIN Discovery Metadata Standard</gco:CharacterString>
</gmd:metadataStandardName>
<!-- Metadata Standard Version -->
<gmd:metadataStandardVersion>
  <gco:CharacterString>Version 2.3</gco:CharacterString>
</gmd:metadataStandardVersion>
<!-- Spatial Reference System - Recommend using EPSG URN -->
<gmd:referenceSystemInfo>
  <gmd:MD_ReferenceSystem>
    <gmd:referenceSystemIdentifier>
      <gmd:RS_Identifier>
        <gmd:code>
          <gco:CharacterString>urn:ogc:def:crs:EPSG::4326</gco:CharacterString>
        </gmd:code>
        <gmd:codeSpace>
          <gco:CharacterString>OGP</gco:CharacterString>
        </gmd:codeSpace>
      </gmd:RS_Identifier>
    </gmd:referenceSystemIdentifier>
  </gmd:MD_ReferenceSystem>
</gmd:referenceSystemInfo>
<gmd:identificationInfo>
  <gmd:MD_DataIdentification id="szsl_dsb_100081">
    <gmd:citation>
      <gmd:CI_Citation>
        <!-- Resource Title -->
        <gmd:title>
          <gco:CharacterString>Knock Deep Area TE 11 HI995</gco:CharacterString>
        </gmd:title>
        <!-- Alternative Resource Title -->
        <gmd:alternateTitle>
          <gco:CharacterString>SeaZone Digital Survey Bathymetry</gco:CharacterString>
        </gmd:alternateTitle>
        <!-- Temporal Reference Date - Publication -->
        <gmd:date>
          <gmd:CI_Date>
            <gmd:date>
              <gco:Date> 2005-11-16 </gco:Date>
            </gmd:date>

```

```

    <gmd:dateType>
      <gmd:CI_DateTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resources/
Codelist/gmxCodelists.xml#CI_DateTypeCode"
        codeListValue="publication">publication</gmd:CI_DateTypeCode>
      </gmd:dateType>
    </gmd:CI_Date>
  </gmd:date>
  <!-- Unique Resource Identifier -->
  <gmd:identifier>
    <gmd:RS_Identifier>
      <gmd:code>
        <gco:CharacterString>SZ100081</gco:CharacterString>
      </gmd:code>
      <gmd:codeSpace>
        <gco:CharacterString>http://www.seazone.com/dsb</gco:CharacterString>
      </gmd:codeSpace>
    </gmd:RS_Identifier>
  </gmd:identifier>
</gmd:CI_Citation>
</gmd:citation>
<!-- Resource Abstract -->
<gmd:abstract>
  <gco:CharacterString>
    SeaZone Digital Survey Bathymetry (DSB). Survey bathymetry data processed to form a
    dataset providing elevation at discrete points. The elevation and shape of the seabed.
  </gco:CharacterString>
</gmd:abstract>
<!-- Data Point of Contact - Point of Contact -->
<gmd:pointOfContact>
  <gmd:CI_ResponsibleParty>
    <gmd:organisationName>
      <gco:CharacterString>SeaZone Solutions Limited</gco:CharacterString>
    </gmd:organisationName>
    <gmd:contactInfo>
      <gmd:CI_Contact>
        <gmd:phone>
          <gmd:CI_Telephone>
            <gmd:voice>
              <gco:CharacterString>0870 013 0607</gco:CharacterString>
            </gmd:voice>
          </gmd:CI_Telephone>
        </gmd:phone>
        <gmd:address>
          <gmd:CI_Address>
            <gmd:deliveryPoint>
              <gco:CharacterString>Red Lion House</gco:CharacterString>
            </gmd:deliveryPoint>
            <gmd:city>
              <gco:CharacterString>Bentley</gco:CharacterString>
            </gmd:city>
            <gmd:postalCode>

```

```

    <gco:CharacterString>GU10 5HY</gco:CharacterString>
  </gmd:postalCode>
  <gmd:country>
    <gco:CharacterString>UK</gco:CharacterString>
  </gmd:country>
  <gmd:electronicMailAddress>
    <gco:CharacterString>info@seazone.com</gco:CharacterString>
  </gmd:electronicMailAddress>
</gmd:CI_Address>
</gmd:address>
</gmd:CI_Contact>
</gmd:contactInfo>
<gmd:role>
  <gmd:CI_RoleCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resources/
Codelist/gmxCodelists.xml#CI_RoleCode"
    codeListValue="pointOfContact">pointOfContact</gmd:CI_RoleCode>
  </gmd:role>
</gmd:CI_ResponsibleParty>
</gmd:pointOfContact>
<!-- Data Point of Contact - Originator -->
<gmd:pointOfContact>
  <gmd:CI_ResponsibleParty>
    <gmd:organisationName>
      <gco:CharacterString>United Kingdom Hydrographic Office</gco:CharacterString>
    </gmd:organisationName>
    <gmd:contactInfo>
      <gmd:CI_Contact>
        <gmd:phone>
          <gmd:CI_Telephone>
            <gmd:voice>
              <gco:CharacterString>+44 (0) 1823 337900</gco:CharacterString>
            </gmd:voice>
            <gmd:facsimile>
              <gco:CharacterString>+44 (0) 1823 284077</gco:CharacterString>
            </gmd:facsimile>
          </gmd:CI_Telephone>
        </gmd:phone>
        <gmd:address>
          <gmd:CI_Address>
            <gmd:deliveryPoint>
              <gco:CharacterString>Admiralty Way</gco:CharacterString>
            </gmd:deliveryPoint>
            <gmd:city>
              <gco:CharacterString>Taunton</gco:CharacterString>
            </gmd:city>
            <gmd:postalCode>
              <gco:CharacterString>TA1 2DN</gco:CharacterString>
            </gmd:postalCode>
            <gmd:country>
              <gco:CharacterString>UK</gco:CharacterString>
            </gmd:country>

```

```

    <gmd:electronicMailAddress>
      <gco:CharacterString>info@ukho.ac.uk</gco:CharacterString>
    </gmd:electronicMailAddress>
  </gmd:CI_Address>
</gmd:address>
</gmd:CI_Contact>
</gmd:contactInfo>
<gmd:role>
  <gmd:CI_RoleCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resources/
Codelist/gmxCodelists.xml#CI_RoleCode"
    codeListValue="originator">originator</gmd:CI_RoleCode>
  </gmd:role>
</gmd:CI_ResponsibleParty>
</gmd:pointOfContact>
<!-- Frequency of Update -->
<gmd:resourceMaintenance>
  <gmd:MD_MaintenanceInformation>
    <gmd:maintenanceAndUpdateFrequency>
      <gmd:MD_MaintenanceFrequencyCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resources/
Codelist/gmxCodelists.xml#MD_MaintenanceFrequencyCode"
        codeListValue="notPlanned">notPlanned</gmd:MD_MaintenanceFrequencyCode>
      </gmd:maintenanceAndUpdateFrequency>
    </gmd:MD_MaintenanceInformation>
  </gmd:resourceMaintenance>
  <!-- Data Format -->
  <gmd:resourceFormat>
    <gmd:MD_Format>
      <gmd:name>
        <gco:CharacterString>Database</gco:CharacterString>
      </gmd:name>
      <gmd:version gco:nilReason="inapplicable"/>
    </gmd:MD_Format>
  </gmd:resourceFormat>
  <!-- Keyword - Proposal for NERC OAI Harvesting -->
  <gmd:descriptiveKeywords>
    <gmd:MD_Keywords>
      <gmd:keyword>
        <gmx:Anchor xlink:href="http://vocab.ndg.nerc.ac.uk/term/N010/0" xlink:title="NERC OAI
Harvesting">NDGO0001</gmx:Anchor>
      </gmd:keyword>
    </gmd:MD_Keywords>
  </gmd:descriptiveKeywords>
  <!-- Keyword - for datasets claiming to be INSPIRE themes -->
  <gmd:descriptiveKeywords>
    <gmd:MD_Keywords>
      <gmd:keyword>
        <gco:CharacterString>Bathymetry and Elevation</gco:CharacterString>
      </gmd:keyword>
      <gmd:thesaurusName>
        <gmd:CI_Citation>

```

```

    <gmd:title>
      <gco:CharacterString>SeaDataNet P021 parameter discovery
vocabulary</gco:CharacterString>
    </gmd:title>
    <gmd:date>
      <gmd:CI_Date>
        <gmd:date>
          <gco:Date>2009-05-20</gco:Date>
        </gmd:date>
        <gmd:dateType>
          <gmd:CI_DateTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resources/
Codelist/gmxCodelists.xml#CI_DateTypeCode"
          codeListValue="revision">revision</gmd:CI_DateTypeCode>
        </gmd:dateType>
      </gmd:CI_Date>
    </gmd:date>
    </gmd:CI_Citation>
  </gmd:thesaurusName>
</gmd:MD_Keywords>
</gmd:descriptiveKeywords>
<!-- Conditions Applying to Access and Use -->
<gmd:resourceConstraints>
  <gmd:MD_Constraints>
    <gmd:useLimitation>
      <gco:CharacterString>Not suitable for navigation</gco:CharacterString>
    </gmd:useLimitation>
  </gmd:MD_Constraints>
</gmd:resourceConstraints>
<!-- Limitations on Public Access -->
<gmd:resourceConstraints>
  <gmd:MD_LegalConstraints>
    <gmd:accessConstraints>
      <gmd:MD_RestrictionCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resources/
Codelist/gmxCodelists.xml#MD_RestrictionCode"
      codeListValue="license">license</gmd:MD_RestrictionCode>
    </gmd:accessConstraints>
  </gmd:accessConstraints>
  <gmd:MD_RestrictionCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resources/
Codelist/gmxCodelists.xml#MD_RestrictionCode"
  codeListValue="restricted">restricted</gmd:MD_RestrictionCode>
  </gmd:accessConstraints>
  </gmd:MD_LegalConstraints>
</gmd:resourceConstraints>
<!-- Spatial Resolution using distance -->
<gmd:spatialResolution>
  <gmd:MD_Resolution>
    <gmd:distance>
      <gco:Distance
uom="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resources

```

```

/uom/gmxUom.xml#m">5</gco:Distance>
</gmd:distance>
</gmd:MD_Resolution>
</gmd:spatialResolution>
<!-- Resource Language -->
<gmd:language>
  <gmd:LanguageCode codeList="http://www.loc.gov/standards/iso639-2/php/code_list.php"
    codeListValue="eng">English</gmd:LanguageCode>
</gmd:language>
<!-- Topic Category -->
<gmd:topicCategory>
  <gmd:MD_TopicCategoryCode>elevation</gmd:MD_TopicCategoryCode>
</gmd:topicCategory>
<gmd:topicCategory>
  <gmd:MD_TopicCategoryCode>oceans</gmd:MD_TopicCategoryCode>
</gmd:topicCategory>
<gmd:topicCategory>
  <gmd:MD_TopicCategoryCode>imageryBaseMapsEarthCover</gmd:MD_TopicCategoryCode>
</gmd:topicCategory>
<!-- Extent -->
<gmd:extent>
  <gmd:EX_Extent>
    <gmd:geographicElement>
      <gmd:EX_GeographicDescription>
        <!-- Extent - by Identifier -->
        <gmd:geographicIdentifier>
          <gmd:MD_Identifier>
            <gmd:authority>
              <gmd:CI_Citation>
                <gmd:title>
                  <gco:CharacterString>SeaDataNet vertical extent keywords</gco:CharacterString>
                </gmd:title>
                <gmd:date>
                  <gmd:CI_Date>
                    <gmd:date>
                      <gco>Date>2010-01-01</gco>Date>
                    </gmd:date>
                    <gmd:dateType>
                      <gmd:CI_DateTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resou
rces/Codelist/gmxCodelists.xml#CI_DateTypeCode"
codeListValue="revision">revision</gmd:CI_DateTypeCode>
                    </gmd:dateType>
                  </gmd:CI_Date>
                </gmd:date>
              </gmd:CI_Citation>
            </gmd:authority>
          </gmd:code>
          <gco:CharacterString>troposphere</gco:CharacterString>
        </gmd:code>
      </gmd:MD_Identifier>
    </gmd:geographicIdentifier>
  </gmd:EX_Extent>
</gmd:extent>

```

```

</gmd:EX_GeographicDescription>
</gmd:geographicElement>
<gmd:geographicElement>
<gmd:EX_GeographicDescription>
  <!-- Extent - by Identifier -->
  <gmd:geographicIdentifier>
    <gmd:MD_Identifier>
      <gmd:authority>
        <gmd:CI_Citation>
          <gmd:title>
            <gco:CharacterString>ICES Regions</gco:CharacterString>
          </gmd:title>
          <gmd:date>
            <gmd:CI_Date>
              <gmd:date>
                <gco:Date>2006-01-01</gco:Date>
              </gmd:date>
              <gmd:dateType>
                <gmd:CI_DateTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resources/
Codelist/gmxCodelists.xml#CI_DateTypeCode"
                codeListValue="revision">revision</gmd:CI_DateTypeCode>
              </gmd:dateType>
            </gmd:CI_Date>
          </gmd:date>
        </gmd:CI_Citation>
      </gmd:authority>
      <gmd:code>
        <gco:CharacterString>IVc</gco:CharacterString>
      </gmd:code>
    </gmd:MD_Identifier>
  </gmd:geographicIdentifier>
</gmd:EX_GeographicDescription>
</gmd:geographicElement>
<!-- Geographic Bounding Box -->
<gmd:geographicElement>
<gmd:EX_GeographicBoundingBox>
  <gmd:westBoundLongitude>
    <gco:Decimal>1.42</gco:Decimal>
  </gmd:westBoundLongitude>
  <gmd:eastBoundLongitude>
    <gco:Decimal>1.69</gco:Decimal>
  </gmd:eastBoundLongitude>
  <gmd:southBoundLatitude>
    <gco:Decimal>51.57</gco:Decimal>
  </gmd:southBoundLatitude>
  <gmd:northBoundLatitude>
    <gco:Decimal>51.80</gco:Decimal>
  </gmd:northBoundLatitude>
</gmd:EX_GeographicBoundingBox>
</gmd:geographicElement>
<!-- Temporal Extent -->

```

```

<gmd:temporalElement>
<gmd:EX_TemporalExtent>
<gmd:extent>
  <gml:TimePeriod gml:id="medinMEDIN01">
    <gml:beginPosition>2002-05-02</gml:beginPosition>
    <gml:endPosition>2002-05-09</gml:endPosition>
  </gml:TimePeriod>
</gmd:extent>
</gmd:EX_TemporalExtent>
</gmd:temporalElement>
<!-- Vertical Extent - Hard coded Vertical CRS Information -->
<gmd:verticalElement>
<gmd:EX_VerticalExtent>
<gmd:minimumValue>
  <gco:Real>-30.7</gco:Real>
</gmd:minimumValue>
<gmd:maximumValue>
  <gco:Real>1.0</gco:Real>
</gmd:maximumValue>
<gmd:verticalCRS>
  <gml:VerticalCRS gml:id="metadata-crs-001">
    <gml:identifier codeSpace="MEDIN">metadata-crs-001</gml:identifier>
    <gml:name>Chart Datum Height</gml:name>
    <gml:scope>Defines the vertical CRS of the minimum and maximum extent
values.</gml:scope>
  </gml:VerticalCRS>
  <gml:VerticalCS gml:id="metadata-cs-001">
    <gml:identifier codeSpace="MEDIN">metadata-cs-001</gml:identifier>
    <gml:name>Vertical coordinate system orientated up</gml:name>
    <gml:axis>
      <gml:CoordinateSystemAxis gml:id="metadata-axis-001"
uom="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resources/uom/
gmxUom.xml#m">
      <gml:identifier codeSpace="MEDIN">metadata-axis-001</gml:identifier>
      <gml:axisAbbrev>Z</gml:axisAbbrev>
      <gml:axisDirection codeSpace="MEDIN">up</gml:axisDirection>
    </gml:CoordinateSystemAxis>
  </gml:axis>
</gml:VerticalCS>
</gml:verticalCS>
<gml:verticalDatum>
  <gml:VerticalDatum gml:id="metadata-datum-001">
    <gml:identifier codeSpace="MEDIN">metadata-datum-001</gml:identifier>
    <gml:name>Chart Datum</gml:name>
    <gml:scope>Hydrographic survey and charting</gml:scope>
    <gml:anchorDefinition>Approximation of Lowest Astronomical Tide at the local tide
station</gml:anchorDefinition>
  </gml:VerticalDatum>
</gml:verticalDatum>
</gml:VerticalCRS>
</gmd:verticalCRS>

```

```

    </gmd:EX_VerticalExtent>
  </gmd:verticalElement>
</gmd:EX_Extent>
</gmd:extent>
<!-- Additional Information Source-->
<gmd:supplementalInformation>
  <gco:CharacterString>Freeman and Freeman (2008) Scientific Article on Something Amazing,
Journal of Biodiversity and Conservation</gco:CharacterString>
</gmd:supplementalInformation>
</gmd:MD_DataIdentification>
</gmd:identificationInfo>
<!--Resource Locator -->
<gmd:distributionInfo>
  <gmd:MD_Distribution>
<!--The ISO 19115 Constraints require this element!-->
<gmd:distributionFormat gco:nilReason="inapplicable" />
  <gmd:transferOptions>
    <gmd:MD_DigitalTransferOptions>
      <gmd:onLine>
        <gmd:CI_OnlineResource>
          <gmd:linkage>
            <gmd:URL>http://www.oceannet.org</gmd:URL>
          </gmd:linkage>
        </gmd:CI_OnlineResource>
      </gmd:onLine>
    </gmd:MD_DigitalTransferOptions>
  </gmd:transferOptions>
</gmd:MD_Distribution>
</gmd:distributionInfo>
<!-- Lineage -->
  <gmd:dataQualityInfo>
    <gmd:DQ_DataQuality>
      <!-- Scope - Required by ISO 19115 -->
      <gmd:scope>
        <gmd:DQ_Scope>
          <gmd:level>
            <gmd:MD_ScopeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/resources/
Codelist/gmxCodelists.xml#MD_ScopeCode"
      <codeListValue="dataset">dataset</gmd:MD_ScopeCode>
          </gmd:level>
        </gmd:DQ_Scope>
      </gmd:scope>
      <!-- Lineage -->
      <gmd:lineage>
        <gmd:LI_Lineage>
          <gmd:statement>
            <gco:CharacterString>
              Survey platform NP 1016. Horizontal datum of source
              data: World Geodetic System 1984. Vertical datum of source data: Lowest
              Astronomical Tide. Survey type: SINGLE BEAM.
            </gco:CharacterString>

```

</gmd:statement>  
</gmd:LI\_Lineage>  
</gmd:lineage>  
</gmd:DQ\_DataQuality>  
</gmd:dataQualityInfo>  
</gmd:MD\_Metadata>

Annex C. ISO Scope code codelist. For the latest list it is recommended to be accessed directly from the ISO website. Please note that the terms dataset, series and service are only allowed for the UK Location Programme and INSPIRE.

| <b>Code</b> | <b>Name</b> | <b>Description</b>   |
|-------------|-------------|--|
| 005         | dataset     | Information applies to a single dataset.                                     |
| 006         | series      | Information applies to a group of datasets linked by a common specification. |
| 014         | service     | Information applies to a facility to view, download data e.g. web service    |

## Annex D ISO Language codelist

Derived from the ISO 639-2 Codes for Languages. Below are the codes relevant to the UK. Please refer to the on-line resource at [http://www.loc.gov/standards/iso639-2/php/English\\_list.php](http://www.loc.gov/standards/iso639-2/php/English_list.php) for the latest version

|     |  |
|-----|--|
| eng | English  |
| cym | Welsh/Cymru<br>(note do not use<br>the code 'wel') |
| gle | Irish (Gaelic)                                     |
| gla | Scottish (Gaelic)                                  |
| cor | Cornish  |

## Annex E. ISO Topic category codelist

Derived from the ISO 19115/TC 211 Geographic Information/Geomatics Metadata Standard with relevant INSPIRE data themes. Please refer to <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32008R1205:EN:NOT> for the most recent list.

| Code | Name                               | Definition   | INSPIRE Theme  |
|------|------------------------------------|--|--|
| 001  | Farming                            | Rearing of animals or cultivation of plants. For example, resources describing irrigation, aquaculture, herding, and pests and diseases affecting crops and livestock. | This category applies to Directive 2007/2/EC spatial data theme Annex III(9) Agricultural and aquaculture facilities.  |
| 002  | Biota                              | Naturally occurring flora and fauna. For example, resources describing wildlife, biological sciences, ecology, wilderness, sea life, wetlands, and habitats.           | This category applies to the following Directive 2007/2/EC spatial data themes: Annex III(17) Bio-geographical regions, Annex III(18) Habitats and biotopes, Annex III(19) Species distribution. |
| 003  | Boundaries                         | Legal land descriptions.   | This category applies to the following Directive 2007/2/EC spatial data themes: Annex I(4) Administrative units, Annex III(1) Statistical units.   |
| 004  | Climatology/Meteorology/Atmosphere | Atmospheric processes and phenomena. For example, resources describing cloud cover, weather, atmospheric conditions, climate change, and precipitation.                | This category applies to the following Directive 2007/2/EC spatial data themes: Annex III(13) Atmospheric conditions, Annex III(14) Meteorological geographical features.                        |

| <b>Code</b> | <b>Name</b>               | <b>Definition</b>  | <b>INSPIRE Theme</b>   |
|-------------|---------------------------|--|--|
| 005         | Economy                   | Economic activities or employment. For example, resources describing labour, revenue, commerce, industry, tourism and ecotourism, forestry, fisheries, commercial or subsistence hunting, and exploration and exploitation of resources such as minerals, oil, and gas.    | This category applies to the following Directive 2007/2/EC spatial data themes: Annex III(20) Energy resources, Annex III(21) Mineral resources.           |
| 006         | Elevation                 | Height above or below sea level. For example, resources describing altitude, bathymetry, digital elevation models, slope, and products derived from this information.  | This category applies to the following Directive 2007/2/EC spatial data theme: Annex II(1) Elevation.  |
| 007         | Environment               | Environmental resources, protection, and conservation. For example, resources describing pollution, waste storage and treatment, environmental impact assessment, environmental risk, and nature reserves.   | This category applies to the following Directive 2007/2/EC spatial data theme: Annex I(9) Protected sites.   |
| 008         | Geoscientific Information | Earth sciences. For example, resources describing geophysical features and processes, minerals, the composition, structure and origin of the earth's rocks, earthquakes, volcanic activity, landslides, gravity information, soils, permafrost, hydrogeology, and erosion. | This category applies to the following Directive 2007/2/EC spatial data themes: Annex III(3) Soil , Annex II(4) Geology, Annex III(12) Natural risk zones. |
| 009         | Health                    | Health services, human ecology, and safety. For example, resources describing human disease and illness, factors affecting health, hygiene, mental and physical health,  | This category applies to the following Directive 2007/2/EC spatial data theme: Annex III(5)  |

| <b>Code</b> | <b>Name</b>                   | <b>Definition</b>   | <b>INSPIRE Theme</b>   |
|-------------|-------------------------------|---|--|
|             |                               | substance abuse, and health services.   | Human health and safety.   |
| 010         | Imagery/Base Maps/Earth Cover | Base maps. For example, resources describing land cover, topographic maps, and classified and unclassified images.  | This category applies to the following Directive 2007/2/EC spatial data themes: Annex II(3) Orthoimagery, Annex II(2) Land cover.    |
| 011         | Intelligence/Military         | Military bases, structures, and activities. For example, resources describing barracks, training grounds, military transportation, and information collection.  | This category does not apply specifically to any Directive 2007/2/EC spatial data themes.  |
| 012         | Inland Waters                 | Inland water features, drainage systems, and their characteristics. For example, resources describing rivers and glaciers, salt lakes, water use plans, dams, currents, floods, water quality, and hydrographic charts. | This category applies to the following Directive 2007/2/EC spatial data theme: Annex I(8) Hydrography.                               |
| 013         | Location                      | Positional information and services. For example, resources describing addresses, geodetic networks, postal zones and services, control points, and place names.  | This category applies to the following Directive 2007/2/EC spatial data themes: Annex I(3) Geographical names, Annex I(5) Addresses. |
| 014         | Oceans                        | Features and characteristics of salt water bodies excluding inland waters. For example, resources describing tides, tidal waves, coastal information, and   | This category applies to the following Directive 2007/2/EC spatial data themes: Annex III(16)  |

| <b>Code</b> | <b>Name</b>       | <b>Definition</b>  | <b>INSPIRE Theme</b>   |
|-------------|-------------------|--|--|
|             |                   | reefs.   | Sea regions, Annex III(15)<br>Oceanographic geographical features.   |
| 015         | Planning Cadastre | Land use. For example, resources describing zoning maps, cadastral surveys, and land ownership.  | This category applies to the following Directive 2007/2/EC spatial data themes: Annex I(6) Cadastral parcels, Annex III(4) Land use, Annex III(11) Area management/restriction/regulation zones & reporting units. |
| 016         | Society           | Characteristics of societies and cultures. For example, resources describing natural settlements, anthropology, archaeology, education, traditional beliefs, manners and customs, demographic data, crime and justice, recreational areas and activities, social impact assessments, and census information. | This category applies to the following Directive 2007/2/EC spatial data themes: Annex III(10) Population distribution<br>– demography.   |
| 017         | Structure         | Man-made construction. For example, resources describing buildings, museums, churches, factories, housing, monuments, and towers.  | This category applies to the following Directive 2007/2/EC spatial data themes: Annex III(2) Buildings, Annex III(8) Production and industrial facilities, Annex III(7) Environmental monitoring facilities.       |

| <b>Code</b> | <b>Name</b>              | <b>Definition</b>   | <b>INSPIRE Theme</b>   |
|-------------|--------------------------|---|--|
| 018         | Transportation           | Means and aids for conveying people and goods. For example, resources describing roads, airports and airstrips, shipping routes, tunnels, nautical charts, vehicle or vessel location, aeronautical charts, and railways.   | This category applies to the following Directive 2007/2/EC spatial data theme: Annex I(7) Transport networks.                  |
| 019         | Utilities/Communications | Energy, water and waste systems, and communications infrastructure and services. For example, resources describing hydroelectricity, geothermal, solar, and nuclear sources of energy, water purification and distribution, sewage collection and disposal, electricity and gas distribution, data communication, telecommunication, radio, and communication networks. | This category applies to the following Directive 2007/2/EC spatial data theme: Annex III(6) Utility and governmental services. |

## **Annex F Inspire Service type codelist**

Code list from ISO 19119 adapted by INSPIRE for the classification of service types. Please refer to this website for the latest list <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32008R1205:EN:NOT>

Possible values are as follows (in brackets are the language neutral names to be used):

Discovery Service (discovery)

View Service (view)

Download Service (download)

Transformation Service (transformation)

Invoke Spatial Data Service (invoke)

Other Service (other)

## Annex G ISO Restriction codelist

Derived from the ISO 19115/TC 211 Geographic Information/Geomatics Metadata Standard. Please refer to ISO19115 for the most up to date list.

| Code | Name          | Description   |
|------|---------------|---|
| 001  | copyright     | Exclusive right to the publication, production, or sale of the rights to a literary, dramatic, musical, or artistic work, or to the use of a commercial print or label, granted by law for a specified period of time to an author, composer, artist, distributor |
| 002  | patent        | Government has granted exclusive right to make, sell, use or license an invention or discovery.   |
| 003  | patentPending | Produced or sold information awaiting a patent.   |
| 004  | trademark     | A name, symbol, or other device identifying a product, officially registered and legally restricted to the use of the owner or manufacturer.  |
| 005  | licence       | Formal permission to do something.  |

| <b>Code</b> | <b>Name</b>                | <b>Description</b>  |
|-------------|----------------------------|---|
| 006         | intellectualPropertyRights | Rights to financial benefit from and control of distribution of non-tangible property that is a result of creativity. |
| 007         | restricted                 | Withheld from general circulation or disclosure.  |
| 008         | otherRestrictions          | Limitation not listed.  |

## Annex H. ISO Responsible party codelist

Derived from the ISO 19115/TC 211 Geographic Information/Geomatics Metadata Standard. Please refer to ISO19115 for the most up to date list.

| Code | Name                   | Description   |
|------|------------------------|---|
| 001  | resourceProvider       | Party that supplies the resource.   |
| 002  | custodian              | Party that accepts accountability and responsibility for the data and ensures appropriate care and maintenance of the resource. |
| 003  | owner                  | Party that owns the resource.   |
| 004  | user                   | Party who uses the resource.  |
| 005  | distributor            | Party that distributes the resource.  |
| 006  | originator             | Party who created the resource.   |
| 007  | pointOfContact         | Party who can be contacted for acquiring knowledge about or acquisition of the resource.  |
| 008  | principallInvestigator | Key party responsible for gathering information and conducting research.  |
| 009  | processor              | Party who has processed the data in a manner such that the resource has been modified.  |

| <b>Code</b> | <b>Name</b> | <b>Description</b>                |
|-------------|-------------|-----------------------------------|
|             |             |                                   |
| 010         | publisher   | Party who published the resource. |
| 011         | author      | Party who authored the resource.  |

## Annex I. ISO Frequency of maintenance code list

Derived from the ISO 19115/TC 211 Geographic Information/Geomatics Metadata Standard. Please refer to ISO19115 for the most up to date list.

| <b>Code</b> | <b>Name</b> | <b>Description</b>                                       |
|-------------|-------------|--|
| 001         | continual   | Data is repeatedly and frequently updated                |
| 002         | daily       | Data is updated each day                                 |
| 003         | weekly      | Data is updated on a weekly basis                        |
| 004         | fortnightly | Data is updated every two weeks                          |
| 005         | monthly     | Data is updated each month                               |
| 006         | quarterly   | Data is updated every three months                       |
| 007         | biannually  | Data is updated twice each year                          |
| 008         | annually    | Data is updated every year                               |
| 009         | as needed   | Data is updated as deemed necessary                      |
| 010         | irregular   | Data is updated at intervals that are uneven in duration |
| 011         | not planned | There are no plans to update the data                    |
| 012         | unknown     | Frequency of maintenance for the data is not known       |

## Annex J. Keywords

### INSPIRE themes

Please refer to [http://www.eionet.europa.eu/gemet/inspire\\_themes?langcode=en](http://www.eionet.europa.eu/gemet/inspire_themes?langcode=en) for the authoritative and most recent keyword list

Addresses  
Administrative units  
Agricultural and aquaculture facilities  
Area management/restriction/regulation zones and reporting units  
Atmospheric conditions  
Bio-geographical regions  
Buildings  
Cadastral parcels  
Coordinate reference systems  
Elevation  
Energy resources  
Environmental monitoring facilities  
Geographical grid systems  
Geology  
Habitats and biotopes  
Human health and safety  
Hydrography  
Land cover  
Land use  
Meteorological geographical features  
Mineral resources  
Natural risk zones  
Oceanographic geographical features  
Orthoimagery  
Population distribution — demography  
Production and industrial facilities  
Protected sites Sea regions  
Soil Geographical names  
Species distribution

Statistical units  
 Transport networks  
 Utility and governmental services

### BODC Parameter Discovery Vocabulary

Please refer to vocab P021 at <http://vocab.ndg.nerc.ac.uk/client/vocabServer.jsp> and the full and most recent keyword list. Please note that the vocabulary P022 holds depreciated terms from P021, and P02 holds both.

### SeaVox Vertical Coordinate Coverages Keywords

Please refer to vocab L131 at <http://vocab.ndg.nerc.ac.uk/client/vocabServer.jsp> and the most up to date list.

| Keyword             | Definition                 | Modified   |
|---------------------|----------------------------|--|
| abyssopelagic       | abyssopelagic water column | The water column zone of total darkness extending down to the abyssal sea floor. Typically between depths of approximately 4000 metres and 6000 metres.  |
| atmosphere          | atmosphere                 | The envelope of gases surrounding the Earth.   |
| atmosphere_boundary | atmospheric boundary layer | The region of the atmosphere close enough to the Earth's surface for frictional effects of that surface to be significant. Typically not more than 1 km thick.   |
| bathypelagic        | bathypelagic water column  | The water column zone illuminated only by bioluminescent organisms. Typically between depths of approximately 1000 metres and 4000 metres.   |
| benthic_boundary    | benthic boundary layer     | The water column that is significantly influenced by the seabed, which is broader in deep ocean than in shelf seas. Guideline approximation is bottom 10m of oceans and bottom 5% of shelf (<200m) seas. |

|              |                          |   |
|--------------|--------------------------|---|
| core         | core                     | The central zone of the earth largely composed of solid or molten metal alloys, typically from the centre of the Earth to approximately 2900 km below the surface.                |
| crust        | crust                    | The layer of lithified rock between the unconsolidated sediment and the Moho seismic discontinuity. Typically 5-10 km thick beneath oceans and 60-70 km thick beneath continents. |
| epipelagic   | epipelagic water column  | The water column zone in which for clear water there is adequate light for photosynthesis. Typically from the surface down to a depth of approximately 200 metres.                |
| exosphere    | exosphere                | The outermost layer of the atmosphere from which atoms can escape into outer space. Lies above the thermosphere from about 400 km in altitude.                                    |
| hadopelagic  | hadopelagic water column | The zone of the water column occupying ocean trenches, deeper than approximately 6000 metres.   |
| heterosphere | heterosphere             | The region of the atmosphere where the mixing ratio of gases is differentiated by gravity. Lies above the homosphere, from about 100 km in altitude.                              |
| homopause    | homopause                | The boundary region between the homosphere and the heterosphere. Typically at about 100 km.   |
| homosphere   | homosphere               | The region of the atmosphere where gases are fully mixed by diffusion and turbulence. Lies between the surface (0 km) and the base of the heterosphere (at about 100 km).         |

|              |                          |  |
|--------------|--------------------------|--|
| mantle       | mantle                   | The layer of basic (i.e. ferromagnesian) solid rock between the core and the crust. Typically from between 5-70 km below the surface to approximately 2900 km below the surface. |
| mesopause    | mesopause                | The boundary between the mesosphere and the thermosphere characterised by a temperature minimum. Typically lies somewhere between 80 and 90 km.                                  |
| mesopelagic  | mesopelagic water column | The water column zone penetrated by light, but in insufficient quantities for photosynthesis. Typically between depths of approximately 200 metres and 1000 metres.              |
| mesosphere   | mesosphere               | The layer of atmosphere overlying the stratopause characterised by decreasing temperature with height, typically from about 50 to about 80 km                                    |
| sediment     | soil and sediment        | The un lithified sediments that form a layer between the solid crust and either the atmosphere or the water column.  |
| stratopause  | stratopause              | The boundary between the stratosphere and the mesosphere characterised by a temperature maximum. Typically at about 50 km.   |
| stratosphere | stratosphere             | The layer of the atmosphere from the tropopause to a height of approximately 50 km, characterised by increasing temperature with height.   |
| thermopause  | thermopause              | The boundary between the thermosphere and the exosphere. Typically at about 400 km.  |
| thermosphere | thermosphere             | The atmospheric layer extending between heights of approximately 80 km to  |

|                       |                               |  |
|-----------------------|-------------------------------|--|
|                       |                               | approximately 400 km characterised by rising temperature with height and phenomena associated with ionisation. Part of the thermosphere is sometimes termed the ionosphere.  |
| tropopause            | tropopause                    | The boundary between the troposphere and stratosphere, characterized by change in temperature gradient with height from decreasing below to increasing above. May extend over a few km in height. Typically lies somewhere between 10 and 15 km. |
| troposphere           | troposphere                   | The lowest broad layer of the atmosphere characterised by decreasing average temperature with height. Typically from the surface to between 10 and 15 km.  |
| unknown               | unknown                       | The correct value is not known to, and not computable by, the sender of this data. However, a correct value probably exists.   |
| upper_epipelagic      | upper epipelagic water column | The strongly illuminated upper half of the epipelagic zone. Typically from the surface down to a depth of approximately 100 metres.  |
| water_column          | water column                  | The entire body of water between the bed and the atmosphere.   |
| water_column_boundary | water column boundary layer   | The zone of the water column that is significantly influenced by the atmosphere. Typically the top 10m of the water column.  |
| water_column_skin     | water column skin             | The zone a few microns thick at the extreme surface of the water column that is sampled by radiometers.  |

## Annex K MEDIN Data Format vocabulary

Please refer to vocab M010 at <http://vocab.ndg.nerc.ac.uk/client/vocabServer.jspand> for the most up to date list.

|     |                               |  |
|-----|-------------------------------|--|
| DB  | Database                      | Files that are used to store data in database applications such as Oracle or MS Access   |
| DEL | Delimited                     | File formats that are delimited by commas, tabs, semi colons that can be opened using software packages such as MS Excel                             |
| DOC | Documents                     | Files that hold written information such as pdf, doc,  |
| GIS | Geographic Information System | Files that are geographic in scope and can be opened by MapInfo or ESRI  |
| KMX | Google Earth and Oceans       | Files (e.g. kml, kmg) used to display data and images using Google applications Earth and Oceans.  |
| IMG | Image                         | Still image files such as jpeg, tiff, png that may be opened by applications such as PhotoShop   |
| MOV | Movie                         | Files that capture moving images such as avi, mpeg, mov, wmv   |
| NC  | Network Common Data Form      | Binary data files conforming to a set of conventions allowing them to be manipulated through the NetCDF API and tools built using that API           |
| ODV | Ocean Data View               | Delimited files conforming to a set of conventions that allow them to be opened and interrogated using the OCEAN Data View application               |
| TXT | Text or Plaintext             | Files encoded in a character convention, usually ASCII, that need to be handled with a generic text editor such as Vi or Notepad or bespoke software |