Guidance notes for the production of discovery metadata for the Marine Environmental Data and Information Network (MEDIN)

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) rather than storing a local copy. A log of changes will be available on the website.

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MEDIN Elements

Table of contents

1.0 Introduction

Metadata standards are essential to enable easy discovery, evaluation and use of resources. Different sorts of standards are applied to metadata meant for discovering a resource, evaluating its fitness for purpose and in providing the information required to use a resource. 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 2.3 metadata standard. The xml produced should conform 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 2.3 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)[1].

Metadata standards may change over time. It is recommended that this document is downloaded regularly to ensure the most current version is in use. The latest version controlled copies can be accessed from http://www.oceannet.org/marine_data_standards/medin_approved_standards/documents/

1.1. Ensuring that a dataset or service will be easily discovered and used

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 are provided to web pages and/or contact details of the person who holds the dataset are given. If there is a direct 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’.

1.2 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

[1] 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.

types of resource are listed below along with guidance about filling in an element.

If you are preparing metadata about a dataset, a series or a report (nonGeographic Dataset) 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 (M)
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 (M)
Element 19 - Additional information source (O)
Element 20 - Limitations on public access (M)
Element 21 - Conditions for access and use constraints (M)
Element 22 - Responsible party (M)
Element 23 - Data format (O)
Element 24 - Frequency of update (M)
Element 25 - INSPIRE conformity (C)
Element 26 - Date of update of metadata (M)
Element 27 - Metadata standard name (M)
Element 28 - Metadata standard version (M)
Element 29 - Metadata language (M)

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 (C)
Element 14 - Vertical extent information (O)
Element 15 - Spatial reference system (C)
Element 16 - Temporal reference (M)
Element 19 - Additional information source (O)
Element 20 - Limitations on public access (M)
Element 21 - Conditions for access and use constraints (M)
Element 22 - Responsible party (M)

Element 24 - Frequency of update (C)
Element 25 - INSPIRE conformity (C)
Element 26 - Date of update of metadata (M)
Element 27 - Metadata standard name (M)
Element 28 - Metadata standard version (M)
Element 29 - Metadata language (M)

1.3 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.

Example Element description

a) Element 100 – b) Resource Example c)(M)

d) Mandatory element. e) Only one resource title allowed. f) Free text.

g) Each element listed in this document has accompanying text which describes its purpose and how to fill it in.

h) Examples

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

i) 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>
```

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

2.0 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 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 a 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. 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 southern 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 three main study areas:

Area 1: the major sandbanks off the coast of Norfolk and Lincolnshire in the Southern North Sea (SNS);

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 2 for code list). In order to comply with INSPIRE the resource type must be a dataset, a series (collection of datasets with a common specification) or a service.

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. 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.

Element 5.1 - Resource locator url (C)

Conditional element. URL (web address).

The URL (web address).

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 distributionFormat -->
      <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.

Provide a code uniquely identifying the resource. You should also specify a code space. If you wish to be INSPIRE conformant

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. The code should be preceded with the country code (Annex X) if you wish to be INSPIRE conformant.

6.2 - Code Space (O)

Optional sub-element. One occurrence allowed. URL (web address).

A name space associated with the code.

Examples

Example 1:

code: MRMLN0010000006B

Example 2:

code: eng_0036527495
codeSpace: http://www.example.eu

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: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 the datasets a 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[1] is being described rather than a dataset or series of datasets. Controlled vocabulary.

[1] 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 3 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>
```

3.0 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[1] is being described. Controlled vocabulary.

This element is mandatory for INSPIRE and must be included, however, MEDIN will use the Keywords as these are more valuable to allow users to search for datasets. 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 4.

[1] 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[1]. One occurrence allowed.

An element required by INSPIRE for metadata about data services e.g. web services[1]. 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 5 for list.

[1] 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. To allow searching of the dataset keywords should be chosen from 2 code lists. **At least one of the INSPIRE data themes should be referenced in order to comply with INSPIRE regulations.**

INSPIRE keywords

A list of the INSPIRE theme keywords is available in Annex 9. This list is also available at http://www.eionet.europa.eu/gemet/inspire_themes At least one INSPIRE theme keywords is required for INSPIRE compliance.

MEDIN Keywords

MEDIN recommends the use of the SeaDataNet Parameter Discovery Vocabulary to provide further ability to search by terms that are more related to the marine domain. These lists are 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

Vertical extent keywords

An optional list of keywords is available to describe the resources vertical extent. A list of the keywords is available in Annex 9: This list is also available at: These lists are available 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

OAI harvesting

If xml files are being collected using the MEDIN OAI harvesting process an additional NERC keyword is required.

11.1 - 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.

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.

11.2.1 - Thesaurus name (M)

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

11.2.2 - Date type (M)

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

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: SeaDataNet p021
dateType: Creation
date: 2003-06-10

keywordValue: upper_epipelagic
thesaurusName: SeaDataNet vertical coverage
dateType: Creation
date: 2006-11-15

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/gmxCodelists.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>
```

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 and should be kept as small as possible. 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.

12.1 - West bounding longitude (M)

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

The western-most limit of the data.

12.2 - East bounding longitude (M)

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

The eastern-most limit of the data.

12.3 - North bounding latitude (M)

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

The northern-most limit of the data.

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>
```

Element 13 - Extent (M)

Mandatory element for datasets and conditional for services. Numeric and controlled vocabulary.

Multiple occurrences of extents allowed. Controlled vocabulary.

Keywords selected from controlled vocabularies to describe the spatial extent of the resource. A number of controlled vocabularies can be used including ISO 3166: higher level area in the United Kingdom, ICES areas and rectangles www.ices.dk , or IHO S53 sea

areas. Other vocabularies may be used if required as long as they follow the format specified in 13.1 – 13.2.3

13.1 - 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/ . Extents can include ISO 3166 countries, IHO S53 Sea areas, JNCC Regional Seas, and ICES area and rectangles.

13.1.1 - Vocabulary name

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

13.1.2 - Date type

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

13.1.3 - Date

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

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.

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>
                        <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_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 a properly defined vertical Coordinate Reference System has been used. One occurrence allowed. Numeric free text and controlled vocabulary.

This element should only be filled in if a properly defined Co ordinate Reference System has been used. See for example http://info.ogp.org.uk/geodesy/. If you do not have the defined CRS you may use the vertical extent vocabulary defined in Element 8 – Keywords, to describe the vertical extent of the resource if desired.

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 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.

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.

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.

14.3 - Vertical coordinate reference system (C)

This sub-element defines the vertical coordinate reference system of the minimum and maximum vertical extent values. The vertical coordinate reference system of the vertical extent is not necessarily the same as the vertical coordinate reference system to which vertical coordinates in the data are referenced. The vertical coordinate reference system should be included by reference to a register for example, the EPSG register of geodetic parameters (http://www.epsg.org/Geodetic.html). If the vertical coordinate reference system is not known or explicitly defined in a publically available register then this element should not be filled in.

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 element. 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 a controlled vocabulary. The EPSG register of geodetic parameters (http://www.epsg.org/Geodetic.html) is recommended.

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. At least one of the sub-elements must be included. One occurrence allowed of each sub element. Date/Time format.

It is recommended that all known temporal references of the resource are included, but you must include at least one of the following elements.

16.1 - Temporal extent (C)

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

This describes the start and end date of the resource e.g. survey, and should be included where known. You should include both a start and end date. 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. This element must be included if you wish to comply with the UK GEMINI 2.3 standard.

16.1.1 Begin

Start of temporal extent.

16.1.2 End

End of temporal extent.

16.2 - Date of publication (M)

Mandatory element. 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.

16.2.1 Date type

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

16.2.2 Date

Date format.

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

16.3 - Date of last revision (C)

Conditional element. 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.

16.3.1 Date type

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

16.3.2 Date

Date format.

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

16.4 - Date of creation (C)

Conditional element. 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.

16.4.1 Date type

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

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="ID1">
                  <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/gmxCodelists.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>
```

4.0 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[1] 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.

[1] 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^2 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)

Mandatory element for datasets and series of datasets. Multiple occurrences allowed. Numeric (positive whole number) and free text.

Provides an indication of the resolution of the data; i.e. how accurate the spatial positions are likely to be. An approximate value may be given.

Spatial resolution may be presented as a distance measurement, in which case the units must be provided, or an equivalent scale. The equivalent scale is presented as a positive integer and only the denominator is encoded (e.g. 1:50,000 is encoded as 50000).

GEMINI2 mandates the use of a distance measurement to express the spatial resolution. The units must be metres.

Examples

Example 1:
distance:10
units: metres

Example 2:
equivalent scale: 50000

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>
```

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 of ISO compliant 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>
```

5.0 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 6). 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, 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 for access and use constraints (M)

Mandatory element. Multiple occurrences allowed. Free text.

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

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 the organization or person responsible for the resource. Responsible party roles are defined in Annex 7. It is mandatory to specify three types of responsible party;

Originator, **Data point of contact** and **Metadata point of contact.** Only Organisation or Individual name is required for Originator.

Please indicate where a Data Archive Centre is the Distributor or Metadata Point of Contact.

In addition, other types of responsible party may be specified from the controlled vocabulary (see Annex 7 for codelist) if desired.

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

22.0.1 - Job Position (O but recommended)

22.0.2 - Organization name or Individual name (M)

Where possible an organization should be cited and only when this is impossible should Individual Name be used.

22.0.3 - Postal address (O but recommended)

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

22.0.5 - Facsimile number (O)

22.0.6 - Email address (C)

Mandatory for Metadata and data points of contact, optional for Originator. Where possible a generic rather than a individual email should be used.

22.0.7 - Responsible party role (M)

See Annex 7 for full codelist.

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) with intellectual property rights over the resource.

22.2 - Data point of contact (M)

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

Person(s) or organization(s) that can be contacted about the data. This is used in preference to distributor to comply with INSPIRE and can include both data originators and Data Archive Centres.

22.3 - Metadata point of contact (M)

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

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

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
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@jnncc.gov.uk
ResponsiblePartyRole: pointOfContact

Originator

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

Metadata point of contact:

IndividualName: Mr John Howard
EmailAddress: j.howard@btinterneti.com
TelephoneNumber: 02345 432567
ResponsiblePartyRole: pointOfContact

Example XML fragment (Metadata Point of Contact):

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:contact>
    <gmd:CI_ResponsibleParty>
      <gmd:organisationName>
        <gco:CharacterString>
          DASSH Data Archive Centre
        </gco:CharacterString>
```

```
      </gmd:organisationName>
      <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: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>
  <!-- ... -->
</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/gmxCodelists.xml#CI_RoleCode
" codeListValue="originator">originator</gmd:CI_RoleCode>
            </gmd:role>
          </gmd:CI_ResponsibleParty>
        </gmd:pointOfContact>
        <!-- ... -->
      </gmd:MD_DataIdentification>
    </gmd:identificationInfo>
    <!-- ... -->
</gmd:MD_Metadata>
```

Element 23 - Data format (O)

Optional element. Multiple data formats are allowed. Free text but controlled vocabulary recommended.

Indicate the formats in which digital data can be provided for transfer. In addition the

version of the format must be provided. However, not all formats are explicitly versioned. This can be indicated in the encoding by use of the inapplicable statement in the xml (see example below). See http://www.oceannet.org/marine_data_standards/other_marine_data_standards/ for a recommended list of terms.

Examples

ESRI Shapefile

Comma Separated Value (CSV) file

Tiff image files

MPEG video files

Example XML fragment:

```
<gmd:MD_Metadata>
  <!-- ... -->
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <!-- ... -->
      <gmd:resourceFormat>
        <gmd:MD_Format>
          <gmd:name>
            <gco:CharacterString>
              ESRI Shapefile
            </gco:CharacterString>
          </gmd:name>
          <gmd:version gco:nilReason="inapplicable"/>
        </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. One occurrence allowed. Controlled vocabulary.

This describes the frequency that the resource is modified or updated and should be included if known. Select one option from ISO frequency of update codelist (MD_FrequencyOfUpdate codelist). The full code list is presented in Annex 8.

Examples

Example 1: monthly
Example 2: annually

Example of ISO compliant 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/gmxCodelists.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>
```

6.0 Elements relating to INSPIRE conformance

Element 25 - INSPIRE conformity

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

Element 25.1 - Degree of conformity (C)

Conditional element. Single occurrence allowed. 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

Element 25.2 - Specification (C)

Conditional element. Multiple occurrences allowed. Required if the resource provider is claiming conformance to INSPIRE. Controlled vocabulary.

If the resource is intended to conform to the INSPIRE thematic data specification, cite the data or thematic specifications that it conforms to using this element.

25.2.1 - Title (M)

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

25.2.2 - Date type (M)

Controlled vocabulary. Select Publication.

25.2.3 - Date (M)

Date format. Date of publication.

Example

INSPIRE DATA SPECIFICATIONS NOT YET RELEASED

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: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>
```

Elements relating to metadata

Element 26 - Date of update of metadata (M)

Mandatory element. One occurence allowed. Date format.

This describes the last date the metadata was updated on. 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 occurence 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 occurence 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

2.3.1

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 3 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 of ISO compliant 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>
```

7.0 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 > MD_DataIdentification.citation > CI_Citation.title	M	M
Alternative resource title	MD_Metadata.identificationInfo > MD_DataIdentification.citation > CI_Citation.alternateTitle	O	O
Resource abstract	MD_Metadata.identificationInfo > MD_DataIdentification.abstract	M	M
Resource Type	MD_Metadata.hierarchyLevel	M	M
Resource locator	MD_Metadata.distributionInfo > MD_DigitalTransferOptions.onLine> CI_OnlineResource.linkage	C	C
Unique Resource Identifier	MD_Metadata.identificationInfo > MD_DataIdentification.citation > CI_Citation.identifier	M	O
Coupled resource	MD_Metadata.identificationInfo > MD_DataIdentification.OperatesOn	-	M
Resource language	MD_Metadata.identificationInfo > DataIdentification.language		
Topic	MD_Metadata.identificationInfo >	M	-

category	MD_DataIdentification.topicCategory		
Spatial data service type	MD_Metadata.identificationInfo > SV_ServiceIdentification.ServiceType	-	M
Keywords	MD_Metadata.identificationInfo > MD_DataIdentification.descriptiveKeywords > MD_keywords.keywords & MD_keywords_thesaurusName > CI_Citation.title CI_Citation.date CI_Citation.datetype	M	M
Geographic bounding box	MD_Metadata.identificationInfo > MD_DataIdentification.extent > EX_Extent > EX_GeographicBoundingBox	M	
Extent	MD_Metadata.identificationInfo > MD_DataIdentification.extent > EX_Extent >	M	
Vertical extent	MD_Metadata.identificationInfo > MD_DataIdentification.extent > EX_Extent.verticalElement > EX_VerticalExtent	C	
Temporal Reference	MD_Metadata.identificationInfo > MD_DataIdentification.extent > EX_Extent.temporalElement > EX_TemporalExtent.extent & MD_Metadata.identificationInfo > MD_DataIdentification.citation > CI_Citation.date > CI_Date.date	C	C
Lineage	MD_Metadata.dataQualityInfo > DQ_DataQuality.lineage > LI_Lineage	M	-
Spatial resolution	MD_Metadata.identificationInfo > MD_DataIdentification.spatialResolution > MD_Resolution.distance	C	C
Additional information source	MD_Metadata.identificationInfo > MD_DataIdentification.supplementalInformation > CI_Citation	O	O
INSPIRE conformity	MD_Metadata.dataQualityInfo > DQ_DataQuality.report >	C	C
Limitations on public	MD_Metadata.identificationInfo > MD_DataIdentification.ResourceConstrain	M	

access	ts > MD_LegalConstraints.AccessConstraints > MD_RestrictionCode		
Conditions applying to access and use	MD_Metadata.identificationInfo > MD_DataIdentification.ResourceConstraints > MD_Constraints.useLimitation	M	
Responsible party	CI_ResponsibleParty	M must provide minimum of Originator(s) and pointOfContact(s)	
Data format	MD_Metadata.identificationInfo > resourceFormat MD_format.name	O	O
Frequency of update	MD_Metadata.identificationInfo > MD_MaintainenceInformation.maintenanceAndUpdateFrequency > 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 standa1rd version	MD_Metadata. MetadataStandardVersion	M	M

8.0 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: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>100081</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: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>
      Comma separated text. Longitude (Decimal Degrees), Latitude
      (Decimal Degrees), Elevation (Metres, positive up)
     </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>BathyDep</gco:CharacterString>
    </gmd:keyword>
    <gmd:thesaurusName>
     <gmd:CI_Citation>
      <gmd:title>
       <gco:CharacterString>SeaDataNet BODC Vocabulary (P011)</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 representative fraction -->
  <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>
  <!-- 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>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="ID1">
         <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:verticalCS>
           <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>
   </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
  <!-- 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 1 – Mapping between MEDIN, INSPIRE and UK GEMINI 2.3 Standards.

MEDIN (Datasets, series, reports)	MEDIN (Services)	INSPIRE	UK GEMINI
Element 1 - Resource title (M)	Element 1 - Resource title (M)	Part B 1.1 Resource Title (M)	1 - Title (M)
Element 2 - Alternative resource title (O)	Element 2 - Alternative resource title (O)		2 - Alternative title (O)
Element 3 - Resource abstract (M)	Element 3 - Resource abstract (M)	Part B 1.2 Resource abstract (M)	4 - Abstract (M)
Element 4 - Resource type (M)	Element 4 - Resource type (M)	Part B 1.3 Resource Type (M)	39 - Resource type (M)
Element 5 - Resource locator (C)	Element 5 - Resource locator (C)	Part B 1.4 Resource locator (C)	19 - Resource locator (C)
Element 6 - Unique resource identifier (M)		Part B 1.5 Unique resource identifier (M)	36 - Unique resource identifier (M)
	Element 7 - Coupled resource (C)	Part B 1.6 Coupled resource (C)	38 - Coupled resource (C)
Element 8 - Resource language (C)		Part B 1.7 Resource language (C)	3 - Dataset language (C)
Element 9 - Topic category (C)		Part B 2.1 Topic category (M)	5 - Topic category (C)
	Element 10 - Spatial data service type (C)	Part B 2.2 Spatial data service type (M)	37 - Spatial data service type (C)
Element 11 - Keywords (M)	Element 11 - Keywords (M)	Part B 3.1 Keyword value (M)	6 - Keyword (M)
Element 11 - Keywords (M)/Originating controlled vocabulary (M)		Part B 3.2 Originating controlled vocabulary.(C)	40 - Originating controlled vocabulary (C)
Element 12 - Geographical bounding box (M)	Element 12 - Geographical bounding box (M)	Part B 4.1 Geographic bounding box (M + C)	11/14 - West bounding longitude, East bounding longitude, North bounding latitude, South bounding latitude (M)
Element 13 - Extent (M)	Element 13 - Extent (M)		15 - Extent (M)
Element 13.1 - Extent (M)/ Originating controlled vocabulary (M)	Element 13.1 - Extent (M)/ Originating controlled vocabulary (M)		
Element 14 - Vertical extent information (O)	Element 14 - Vertical extent information (O)	-	16 - Vertical extent information (C)
Element 15 - Spatial reference system (M)	Element 15 - Spatial reference system (M)	-	17 - Spatial reference system (M)
Element 16 - Temporal reference (M)	Element 16.1 - Temporal reference (M)/ Temporal extent (C)	Part B 5.1 Temporal Extent (C)	7 - Date (C)
Element 16.2 - Temporal reference (M)/ Date of publication (C)	Element 16.2 - Temporal reference (M)/ Date of publication (C)	Part B 5.2 Date of publication (C)	8 - Dataset reference date (M)
Element 16.3 - Temporal reference (M)/ Date of last revision (C)	Element 16.3 - Temporal reference (M)/ Date of last revision (C)	Part B 5.3 Date of revision (C)	

Element 16.4 - Temporal reference (M)/ Date of Creation (C)	Element 16.4 - Temporal reference (M)/ Date of Creation(C)	Part B 5.4 Date of creation (C)	
Element 17 - Lineage (M)		Part B 6.1 Lineage (M)	10 - Lineage (M)
Element 18 - Spatial resolution (M)		Part B 6.2 Spatial resolution (C)	18 - Spatial resolution (M)
Element 19 - Additional information source (O)	Element 19 - Additional information source (O)	-	27 - Additional information source (O)
Element 20 - Limitations on public access (M)	Element 20 - Limitations on public access (M)	Part B 8.2 Limitations on public access (M)	25 - Limitations on public access (M)
Element 21 - Conditions for access and use constraints (M)	Element 21 - Conditions for access and use constraints (M)	Part B 8.1 Condition applying to access and use (M)	26 - Access and use constraints (M)
Element 22.0.7 - Responsible party (M)/ Responsible party role (M)	Element 22.0.7 - Responsible party (M)/ Responsible party role (M)	Part B 9.2 Responsible party role (M)	23 - Responsible organisation (M)
Element 22.3 - Responsible party (M)/ Metadata point of contact (M)	Element 22.3 - Responsible party (M)/ Metadata point of contact (M)	Part B 10.1 Metadata point of contact (M)	35 - Metadata point of contact (M)
Element 22.2 - Responsible party (M)/ Data point of contact (M)	Element 22.2 - Responsible party (M)/ Data point of contact (M)		23 - Responsible organisation (M)
Element 23 - Data format (O)		-	21 - Data format (O)
Element 24 - Frequency of update (C)	Element 24 - Frequency of update (C)		24 - Frequency of update (M)
Element 25 - INSPIRE conformity (C)	Element 25.1 - INSPIRE conformity (C)/ Degree of conformity	Part B 7.2 Degree (M)	41 - Conformity (C)
Element 25.2 - INSPIRE conformity (C)/ Specification	Element 25.2 - INSPIRE conformity (C)/ Specification	Part B 7.1 Specification (M)	42 - Specification (C)
Element 26 - Date of update of metadata (M)	Element 26 - Date of update of metadata (M)	Part B 10.2 Metadata date (M)	30 - Date of update of metadata (M)
Element 27 - Metadata standard name (M)	Element 27 - Metadata standard name (M)		
Element 28 - Metadata standard version (M)	Element 28 - Metadata standard version (M)		
Element 29 - Metadata language (M)	Element 29 - Metadata language (M)	Part B 10.3 Metadata language (M)	33 - Metadata language (C)

Annex 2 - ISO Scope code codelist

Derived from the ISO 19115/TC 211 Geographic Information/Geomatics Metadata Standard.

Code	Name	Description
001	attribute	Information applies to the attribute value
002	attributeType	Information applies to the characteristic of the feature
003	collectionHardware	Information applies to the collection hardware class
004	collectionSession	Information applies to the collection session
005	dataset	Information applies to a single dataset.
006	series	Information applies to a group of datasets linked by a common specification.
007	nonGeographicDataset	Information applies to the non geographic dataset.
008	dimensionGroup	Information applies to a dimension group
009	feature	Information applies to a feature
010	featureType	Information applies to a feature type
011	propertyType	Information applies to a property type
012	fieldSession	Information applies to a field session
013	software	Information applies to a computer program or routine
014	service	Information applies to a facility to view, download data e.g. web service
015	model	Information applies to a copy or imitation of an existing or hypothetical object
016	tile	Information applies to a tile, a spatial subset of geographic information

Annex 3 - ISO Language codelist

Derived from the ISO 639-2 Codes for Languages. Below are a number of codes relevant to the UK.

eng	English
cym	Welsh/Cymru (note do not use the code 'wel')

gle	Irish (Gaelic)
gla	Scottish (Gaelic)
cor	Cornish

More information on this code list: http://www.loc.gov/standards/iso639-2/php/English_list.php.

Annex 4 - ISO Topic category codelist

Derived from the ISO 19115/TC 211 Geographic Information/Geomatics Metadata Standard with relevant INSPIRE data themes see http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32008R1205:EN:NOT for more information.

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.

Code	Name	Definition	INSPIRE Theme
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, substance abuse, and health services.	This category applies to the following Directive 2007/2/EC spatial data theme: Annex III(5) Human health and safety.

Code	Name	Definition	INSPIRE Theme
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 reefs.	This category applies to the following Directive 2007/2/EC spatial data themes: Annex III(16) Sea regions, Annex III(15) Oceanographic geographical features.

Code	Name	Definition	INSPIRE Theme
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 – 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.
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/Communicatio	Energy, water and waste systems, and communications	This category applies to the

Code	Name	Definition	INSPIRE Theme
	ns	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.	following Directive 2007/2/EC spatial data theme: Annex III(6) Utility and governmental services.

Annex 5 – Inspire Service type codelist

Code list from ISO 19119 adapted by INSPIRE for the classification of service types. See INSPIRE for more information http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32008R1205:EN:NOT.

Code	Name
1	Discovery
2	View
3	Download
4	Transformation
5	Invoke Spatial Data
6	Other

Annex 6 - ISO Restriction codelist

Derived from the ISO 19115/TC 211 Geographic Information/Geomatics Metadata Standard.

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.
006	intellectualPropertyRights	Rights to financial benefit from and control of distribution of non-tangible property that is a result of creativity.

Code	Name	Description
007	restricted	Withheld from general circulation or disclosure.
008	otherRestrictions	Limitation not listed.

Annex 7 - ISO Responsible party codelist

Derived from the ISO 19115/TC 211 Geographic Information/Geomatics Metadata Standard.

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.

Code	Name	Description
008	principalInvestigator	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.
010	publisher	Party who published the resource.
011	author	Party who authored the resource.

Annex 8 - ISO Frequency of maintenance code list

Derived from the ISO 19115/TC 211 Geographic Information/Geomatics Metadata Standard

Code	Name	Description
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 9 – Keywords

INSPIRE themes

See http://www.eionet.europa.eu/gemet/inspire_themes?langcode=en for the 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

SeaDataNet parameter vocabulary

See www.oceannet.org/keywords/P021.html for the full keyword list

Vertical extent keywords

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 stratospause characterised by decreasing temperature with height, typically from about 50 to about 80 km
sediment	soil and sediment	The unlithified 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 avearage 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.