

# Guidance for Creating WMO Core Metadata Profile 1.3

# World Meteorological Organization

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# Chapter 1. Introduction

Metadata records play a very important role in the WIS by providing the information that will allow WIS users to discover, access and retrieve products. Metadata records have to adhere to standards (such as standard vocabularies and schemas) to ensure product definition homogeneity and make systems interoperable. There are a number of metadata standards that address the needs of meteorological and hydrological communities. The WIS discovery metadata standard (for dataset discovery catalogues) is called WMO Core Metadata Profile 1.3 (WCMP 1.3). It is a profile of the International Organization for Standardization (ISO) 19115:2003 metadata standard (*ISO 19115:2003 Geographic information - Metadata*), with its associated ISO 19139 XML mapping. ISO 19115 is a complex standard, thus both organizational and subject expertise may be required to create high-quality ISO 19115 metadata records that clearly describe an object in the context in which it is used.

This part of the Guide is intended for metadata authors and product or infrastructure specialists who create WCMP 1.3 metadata records for making their datasets discoverable within the WIS catalogue(s). It will also assist those who wish to create high-quality WIS metadata records for data that will be ingested and distributed by a GISC.

The WCMP templates and relevant documentation listed below should be used together with the guidance information provided in this part of the Guide, which also contains a set of recommendations to be followed in order to provide the right level and granularity of product information in the WCMP metadata records:

- WCMP 1.3 Template XML records: Template records containing placeholders (to be replaced with information related to the specific product described by the WIS discovery metadata record) are available from <http://wis.wmo.int/MD-Templates>. A valid example of an XML record, with field content (to be replaced) is also available there;
- WIS Wiki Page on WIS discovery metadata: [http://wis.wmo.int/MD\\_Index](http://wis.wmo.int/MD_Index);
- WCMP documentation: Part 1: <http://wis.wmo.int/WCMPpart1>; Part 2: <http://wis.wmo.int/WCMPPart2>;
- Additional guidance WCMP documentation: [http://wis.wmo.int/MD\\_Index](http://wis.wmo.int/MD_Index) or <http://wis.wmo.int/WIS-Manual> (for a summary of changes);
- Additional examples of WCMP metadata (for particular product types): <https://wis.wmo.int/MD-Examples>.

[1] <https://community.wmo.int/governance/commission-membership/commission-observation-infrastructures-and-information-systems-infcom/commission-infrastructure-officers/infcom-management-group/standing-committee-information-management-and-technology-sc-int/expert-team-metadata-0>

[2] <https://community.wmo.int/governance/commission-membership/commission-observation-infrastructures-and-information-systems-infcom/commission-infrastructure-national-representatives/infcom-management-group/standing-committee-information-management-and-technology-sc-int/et-metadata>

[3] <https://community.wmo.int/governance/commission-membership/commission-observation-infrastructures-and-information-systems-infcom/commission-infrastructure-officers/infcom-management-group/standing-committee-information-management-and-technology-sc-int>

[4] <https://community.wmo.int/governance/commission-membership/infcom>

# Chapter 2. WIS Discovery Metadata

## 2.1. Presentation of the WMO Core Metadata Profile

The WCMP 1.3, while sometimes referred to as “discovery” metadata, is also aimed at providing catalogue users with sufficient information for them to decide on the suitability of the data and at providing access to or details on how to access the data. Some of the information contained in a WCMP metadata record is vital for optimizing the searching functionality offered by the WIS product catalogues. In the WIS, users typically need to search one of the catalogues for discovering and accessing products.

A discovery metadata record has to contain the following information to help users understand a product: what, when, where, who and how. A summary is provided below, and details are provided in section 5.8.1.

### 2.1.1. Product information

**What:** This is the product content which is mainly defined by the product title and the product abstract fields, though additional fields can be used. The information in the title and abstract is very important because the Product Title and Abstract are indexed by any product catalogue and are thus searchable. In addition, the title and part of the abstract are presented to users in the search results of each WIS catalogue; so good content here can enhance users' efficiency as they follow the sequence search, view search results, and decide.

**When:** This is the temporal coverage of the dataset or product, and is captured in the temporal extent section of the metadata record. It is possible to describe ongoing, finite, or rolling-window datasets.

**Where:** This is the geospatial extent of the dataset, describing which geographical area(s) the product covers, over the Earth or atmosphere. It can be the whole Earth, a region or a specific place. In the WCMP, for geographical data, the metadata record must contain at least one bounding box with latitude and longitude coordinates, but that information can also be enhanced by using geographical identifiers for geographical regions, features (such as coastlines) and the like.

**Who:** The contact details of the organization responsible for the product, of the organization responsible for the metadata, and (optionally) the name of the party that should be cited when referencing the data. It is possible, but not necessary, for the same party to be responsible for both the product and metadata.

**How - Data access and use:** This consists of the distribution information, but also includes the data policy (the terms and conditions for accessing the product). Where possible, the distribution section provides a URL linking to a data access service. The data access service might require registration and might offer subselects or subsamples of the product. Users wishing to access information that has the WMOAdditional data policy (shown in “resourceConstraints”) must be registered with their regional GISC. Data with a WMOEssential or NoLimitation data policy can be accessed without restriction. Users wishing to set up a subscription (see Use Case B.5 in Appendix B) must register regardless of the type of information they require.

### **2.1.2. Necessary technical information related to WIS**

Section 5.8.2 defines the information required to have a functioning, distributed WIS infrastructure. This includes, for instance, the WIS unique identifier for each metadata record.

## **2.2. WMO Core Metadata Profile and International Organization for Standardization standard**

The WCMP 1.3 is a customization, also called a profile, of the more generic ISO 19115 discovery metadata standard. It allows the meteorological community to better define meteorological products (terrestrial, Earth observations, numerical weather prediction model outputs). The ISO 19115 structure is detailed and complex because it was designed to accommodate a wide range of information resources with different characteristics. The WCMP, as well as providing more targeted searching, aims to remove the need to understand some of the intricacies of ISO 19115. This Guide sets out to simplify the knowledge needed by users who are starting to create WCMP 1.3 metadata records.

## **2.3. WMO Core Metadata Profile granularity and scope**

One difficulty, when creating a metadata record, is to understand what level of detail of a dataset should be described in the record for a particular product. Some products of the same type are continuously produced for an extended period, such as those from a satellite mission, or as model forecast outputs. Creating a new metadata record for each individual satellite instrument measurement granule (produced every three minutes) or for each forecast run (produced three times a day) would make the content of WIS catalogues grow at an extremely fast rate, and the thousands of new metadata records would contain the same information, except for the measurement time. This would drastically hinder the ability of users to find information when searching the catalogue.

To solve that problem, the creation of one metadata record for an entire collection of similar products is generally recommended, provided that effective searching and other WIS infrastructure needs are not compromised. A collection of products that might be considered similar is a set of products where only one or two dimensions vary (such as time and geographical position) but the products still come from the same measurement instrument or station.

An example of this approach is the EUMETSAT Meteosat Second Generation (MSG) Seviri Level 1.5 dataset which includes all the Level 1.5 radiances over the entire MSG mission with a global coverage and is described by one unique metadata record. The user discovering this product collection, via the WIS portals, is redirected to a EUMETSAT service offering subsampling capacities for selecting the required time period and geographic region.

That said, it is up to the data provider to decide what constitutes a valid collection. Additional guidance on choosing the granularity criteria for collection metadata records can be found in the annex to this Part.

# Chapter 3. WIS Product Categories

Two categories of information (and corresponding transport protocols) are used in WIS catalogues:

## 3.1. Routinely distributed information (GTS-delivered information)

This is mainly, but not exclusively, traditional WMO bulletins.

This category is governed by the set of regulations described in the Manual on the Global Telecommunication System (WMO-No. 386). It includes the bulletin header (abbreviated header line) which identifies a bulletin like ISMS01 AMMC, and a file naming convention.

Metadata records for GTS bulletin datasets need to follow a set of additional rules and require an understanding of the GTS regulations. Non-bulletin files can also be distributed via the GTS.

The most notable feature is the store-and-forward delivery mechanism for bulletins and other data on the GTS. This is the reason why there may be no URL for a bulletin - once a bulletin is delivered, it is not retained for later reference.

Today, GISCs serve bulletins issued in the past 24 hours, but the common practice is still that a metadata record for bulletins does not include the access URL(s). Global Information System Centres do, however, add links to search results pointing to information that is in their cache.

## 3.2. Information that is not routinely distributed (non-GTS-delivered information)

This can include both data stored as files and data as services.

This category includes datasets that are described and searchable in the WIS catalogues but are served by different responsible organizations, via their own infrastructure and data access services. WCMP 1.3 metadata records for this second category have to follow a minimum set of rules to be compliant with the standard. This is a subset of the rules that apply to routinely distributed information.

Typically, these metadata records include a URL for access to the data.

This part of the Guide provides extensive support for creating the different parts of a metadata record, for both non-GTS and GTS-delivered datasets. When necessary, an additional section for creating metadata records for GTS bulletins has been added in each information category (for example, the product information abstract).

# Chapter 4. Compliance with Additional Metadata Standards

This part of the Guide provides information to help create metadata records that comply with WCMP 1.3. This profile is based on ISO 19115 which provides two profiling mechanisms:

- a. A more constrained use of ISO 19115 (either by recommending use of fewer fields, making an optional element mandatory, or constraining the expected content of a field) to suit the needs of a particular community;
- b. In addition to (a), the possibility of defining additional non-ISO 19115 fields (and field content) to be added to any record. Examples of type (a) ISO 19115 profiles, in addition to the WCMP, include the Infrastructure for Spatial Information in the European Community (INSPIRE) Metadata Profile, the North American Profile, the Australian and New Zealand Information Council (ANZLIC) Metadata Profile and UK GEMINI. An example of (b) is the Marine Community Profile. For more information see also <http://www.dcc.ac.uk/resources/metadata-standards/iso-19115>.

Each ISO 19115 profile defines specific rules that should be met. For example, to comply with the INSPIRE metadata profile, the additional requirements to be met include the provision of one keyword from the general environmental multilingual thesaurus (GEMET), a lineage statement and a statement of conformance with European Commission Regulation (EC) No. 1205/2008.

The content of a WCMP 1.3 metadata record, defined according to this part of the Guide, can be extended so that the record also supports additional profiles (such as INSPIRE or ANZLIC). In such a case, the metadata author is required to implement any additional requirements specified in the corresponding profile documentation. The extended WCMP 1.3 metadata record can still be published in the WIS.



# Chapter 5. WMO Core Metadata Profile - Validation Tools

Metadata publishers are required to ensure that created metadata records conform to relevant technical specifications. For example, XML documents need to be well-formed, validated against the schema, and compliant with other requirements imposed by the specifications.

A set of ISO and WCMP validation tools can be used to ensure that a created WCMP record is correctly formatted (syntactically and semantically) and can be ingested by a GISC.

In most cases, a metadata author will validate a metadata record using a validation tool. That tool may be either a web service or locally installed software. Usually, metadata records to be validated may be stored either locally or at a URL accessible to the validation tool.

Online validation services can automatically evaluate the content of the metadata in terms of completeness, accuracy and conformance. Some validation tools, such as the one developed by the National Oceanic and Atmospheric Administration (NOAA) (<http://www.ngdc.noaa.gov/docucomp/recordServices>) may give a score based on different aspects, including content and quality of metadata.

It is recommended to test the metadata with one of the available tools. It is also always possible to seek assistance from your principal GISC.

Below is a list of web services and tools used to validate WCMP 1.3 and ISO 19115/19139 metadata records.

## 5.1. WCMP 1.3 validation services and tools:

1. NOAA's WMO validation service: <https://www.ngdc.noaa.gov/docucomp/validationServicesWmo>; GeoNetwork-ANZMEST, with WCMP validation tool: <https://sourceforge.net/projects/anzmest/files/bom-releases/>. This directory contains the Australian Bureau of Meteorology releases of ANZMEST 2.10.x (based on GeoNetwork), which include the WCMP 1.3 editing and validation tool. For instructions on running the software and validation tool, see the WIS Wiki page on validation tools below;
2. WIS Wiki page on validation tools: <http://wis.wmo.int/MD-Validate>.

## 5.2. ISO 19115/19139 validation services and tools:

1. NOAA ISO validation page: <https://www.ngdc.noaa.gov/docucomp/recordServices>;
2. GeoNetwork-ANZMEST – BOM branch: <https://sourceforge.net/projects/anzmest/files/bom-releases/> (includes 19115:2006, 19115:INSPIRE).

# Chapter 6. Principles of Metadata Management in the WIS

The Global Information System Centres are responsible for the management of metadata. According to the WMO Technical Regulations, each GISC shall:

1. Provide a comprehensive metadata catalogue with discovery services for all information provided by NCs or DCPCs across the WIS;
2. Support the Search and Retrieve via URL (SRU) protocol;
3. Ensure the synchronization of metadata among GISCs, using the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH);
4. Support user's identification and authorization, including in terms of metadata maintenance;
5. Provide metadata publishing facilities using uploading/harvesting metadata publishing or online metadata editing tools to allow metadata authors to create metadata records.

How to publish metadata

1. Metadata could be published at DCPC or GISC level;
2. Find out which GISC you belong to (i.e. which is your principal GISC). The official reference for WIS centres (GISCs and affiliated DCPCs and NCs, and their areas of responsibility) is the Manual on WIS, Appendix B. The list of GISCs and related links is also available online on the WMO portal at <http://wis.wmo.int/WIScentresDb>. The procedure for metadata management (account creation and editing facilities) may vary from one centre to another, but will usually be via the GISC portal (at least as a first point of contact);
3. Proceed to register with your principal GISC (this could be done online, depending on the capabilities and policies of the GISC) after which you will be assigned a username and a role;
4. Publish your metadata via your principal GISC. In order to publish your metadata records, use the appropriate method among those allowed by the GISC (import/insert metadata or harvest metadata using OAI-PMH).

Note: For a limited number of records, it is also possible to use the online editing services of a GISC.

For more comprehensive information regarding the WIS and publishing metadata on the WIS, please consult the Manual on WIS (<https://wis.wmo.int/WIS-Manual>).

# **Chapter 7. GENERATING METADATA RECORDS COMPLIANT WITH THE WMO CORE METADATA PROFILE**

This part of the Guide is intended to help product specialists create WIS metadata records that are compliant with the WCMP 1.3. It provides practical guidance on key information needed in WCMP metadata creation (such as describing how and where to insert the necessary product information into a template record, and the WIS specific information required in the XML metadata record), while abstracting (as much as possible) the WCMP standard, the ISO 19115 standard and its XML mapping (ISO 19139).

Section 5.8 below defines a set of recommendations for adding each individual piece of information regarding a product (for example, title, abstract, party responsible for the product, access to the product).

Although metadata authors will not normally need to work with XML directly because the GISC provides form-based editing tools, this part of the Guide uses an approach based on an XML template. A metadata author who needs to work directly with XML should use a copy of the template XML record(s) (see section 5.1) in conjunction with this part of the Guide, especially section 5.8.

The template-based approach allows a person without any knowledge of ISO 19115 to create an XML WCMP metadata record populated with the key information needed to make the record easily searchable and accessible within a WIS portal.

The template files can also be used as the foundation for building a Web-based editing tool where the user completes a web form, and the content is used to overwrite the placeholders and create the final WCMP 1.3 compliant metadata record. Such tools are provided by the GISCs.

# Chapter 8. Necessary Information to Create a Metadata Record Compliant with the WMO Core Metadata Profile

This section describes the information needed to build a meaningful metadata record. For each individual component, the following elements are provided:

1. Template value: The template XML record's placeholder value that is to be replaced;
2. Information: A summary of the type of information (from the metadata creator) that should replace the placeholder;
3. Necessity: Whether the component is mandatory, conditionally mandatory, highly recommended or optional, within WCMP 1.3;
4. XPath: Its location within the WCMP XML metadata record;
5. An example of XML for that component, with content instead of placeholders.

The metadata creator should, when reading the documentation, open the relevant metadata template record and find the placeholder(s) to be replaced by the relevant product information.

For each component, this part of the Guide describes what is generally required for a product, followed, where relevant, by details of what is required in a WCMP record for GTS bulletin-specific metadata.

## 8.1. Product information

### 8.1.1. Product title

*Table 1. Product title*

Template value	ADD-PRODUCT-TITLE*M, ADD-ALTERNATE-TITLE*O
Information	Product name
Necessity	Mandatory for WCMP 1.3
Category	Product information
XPath	<code>/gmd:MD_Metadata/gmd:identificationInfo/*/gmd:citation/*/gmd:title/*/text()</code> (line 45 in annex)

The product title and the product abstract are the two most relevant elements in the WCMP metadata record, in the context of WIS metadata catalogues, as they appear in search results and on the product description page. They assist users searching for relevant products and should, therefore, focus on the product's key characteristics.

The title should be as specific about the product as possible. If the product contains only one

parameter, for instance, this can be stated in the title. However, if the product contains many parameters, the title should be more general and the parameters should be listed elsewhere in the metadata record (the abstract and/or the keywords). The title of a satellite product containing one main data parameter will typically describe that parameter and from which instrument or instrument type it originates, for instance, "AMSR-2 Sea Surface Temperature" or "SLSTR L1B radiances and brightness temperatures".

Below is an example:

```
<gmd:identificationInfo>
  <gmd:MD_DataIdentification>
    <gmd:citation>
      <gmd:CI_Citation>
        <gmd:title>
          <gco:CharacterString>AMSR-2 Sea Surface
Temperature</gco:CharacterString>
        </gmd:title>
        <gmd:alternateTitle>
          <gco:CharacterString>
            AMSR-2 Sea Surface Temperature SST
          </gco:CharacterString>
        </gmd:alternateTitle>
        . . . . .
      </gmd:CI_Citation>
    </gmd:citation>
    . . . . .
  </gmd:MD_DataIdentification>
</gmd:identificationInfo>
```

#### 8.1.1.1. Title for GTS bulletins

The title for a GTS bulletin should also aim to be specific about the product, describing as much as possible the type of observation and including the bulletin code or identifier and original distributor (for example, EREH RSMC Erehwon).

For instance:

```
<gmd:identificationInfo>
  <gmd:MD_DataIdentification>
    <gmd:citation>
      <gmd:CI_Citation>
        <gmd:title>
          <gco:CharacterString>Sea level observations data [SZPS01] for the South
Pacific area. CREX encoded. Every 3 minutes or as required (available from AMMC).
        </gco:CharacterString>
        </gmd:title> ...
      </gmd:CI_Citation>
    </gmd:citation>
  </gmd:MD_DataIdentification>
</gmd:identificationInfo>
```

## 8.1.2. Product abstract

Table 2. Product abstract

Template value	ADD-PRODUCT-ABSTRACT*M
Information	Abstract describing the product
Necessity	Mandatory for WCMP 1.3
Category	Product information
XPath	/gmd:MD_Metadata/gmd:identificationInfo/*/gmd:abstract/*/text() (line 45 in annex)

The product abstract is important in the context of WIS catalogues, as it is part of the product information that is presented in the search results page. It should describe aspects that the data producer judges as important and that will help potential users understand the key characteristics and nature of the product, thus enabling them to quickly assess the suitability of that product for their needs.

In order to have a more coherent and homogeneous set of product descriptions on the WIS, it is recommended to use the structure of abstract described below. Product abstracts that have a similar structure will help users who are comparing related and different data products.

The product abstract should complement the title by more accurately explaining the content of the product, and should provide further detail, where appropriate, describing the product and in particular the source of the data (such as the instrument type or model when applicable), the coverage, the production frequency (hourly, every 3 minutes, etc.), the data processing level (near real time, derived, quality controlled), the available formats and the data access services when relevant.

Below are typical abstracts and titles for:

- A numerical weather prediction (NWP) product:
  - Title: Copernicus Atmosphere Service MACC-IFS near-real-time 5-day forecast of global black carbon aerosol concentration;
  - Abstract: This service provides pre-operational daily forecasts (up to 5 days) of global black carbon aerosol, using the IFS-LMD aerosol model. The product contains black carbon aerosol mixing ratios at 60 model levels. There are two forecasts per day, with base times of 00:00 UTC (5 day forecast) and 12:00 UTC (1-day forecast). Forecast steps are available at 3 hourly intervals and the spatial resolution is 0.75x0.75 degree. The forecast fields are generated in GRIB.
- A satellite observation product:
  - Title: IASI Atmospheric Temperature, Water Vapour and Surface Skin Temperature–Metop;
  - Abstract: The Atmospheric Temperature, Water Vapour and Surface Skin Temperature (TWT) product contains the vertical profiles of atmospheric temperature and humidity, with a vertical sampling at 101 pressure levels, and surface skin temperature. The vertical profiles are retrieved from the IASI sounder measurements (IASI L1C product) together with

collocated microwave measurements (AMSU & MHS 1B) when available. The main objective of the Infrared Atmospheric Sounding Interferometer (IASI) is to provide high resolution atmospheric emission spectra to derive temperature and humidity profiles with high spectral and vertical resolution and accuracy. Additionally, it is used for the determination of trace gases, as well as land and sea surface temperature, emissivity and cloud properties. The products are provided at the single IASI footprint resolution (which is about 12 km with a spatial sampling of about 25 km at Nadir). The quality and yield of the vertical profiles retrieved in cloudy instantaneous fields of view (IFOVs) are strongly related to the cloud properties in the IASI Cloud Parameter (CLP) product and the availability of collocated microwave measurements.

More examples of metadata titles and abstracts can be found in the WIS Wiki at <http://wis.wmo.int/MD-Examples>.

- GTS bulletin
  - Title: SMPS02 SYNOP reports (pressure, temperature and wind) – South Pacific area; available from NZKL (WELLINGTON/KELBURN) at 00, 06, 12 and 18 UTC;
  - Abstract: This bulletin dispatches synoptic data (pressure, temperature and wind) every 6 hours, starting at 0000 UTC. The bulletin includes reports from the following stations: 91823 (NIUE AERO AWS) and 91962 (PITCAIRN ISLAND AWS).
  - Data type: Surface data - Main synoptic hour - South Pacific area.
  - Actual data parameters sent include: pressure, pressure reduced to mean sea level, 3-hour pressure change, characteristic of pressure change (increasing or decreasing), temperature (dry-bulb and dewpoint), wind direction and wind speed.
  - Format: FM 12 (SYNOP - Report of surface observation from a fixed land station (see the Manual on Codes (WMO-No. 306)).
  - The SMPS02 TTAAii Data Designators decode as:
    - T1 (S): Surface data;
    - T2 (M): Main synoptic hour;
    - A1A2 (PS): South Pacific area.
    - (See the Manual on the Global Telecommunication System (WMO-No. 386), Attachment II.5.)

### 8.1.3. Metadata responsible party

Table 3. Metadata responsible party

Template value	ADD METADATA CONTACT ORGANISATION NAME*M; ADD ADDRESS STREET*O; ADD CITY*O; ADD REGION*O; ADD POSTCODE*O; ADD COUNTRY*O; ADD EMAIL ADDRESS*HR; ADD ORGANISATION WEBSITE*O.
Information	Party responsible for the created metadata record

Necessity	Mandatory for WCMP 1.3
Category	Administrative information
XPath	/gmd:MD_Metadata/gmd:contact/gmd:CI_Responsibl eParty

This element describes the contact details (address, telephone, email) of the party responsible for the metadata. For example:



```

<gmd:MD_Metadata>
  ... ..
  <gmd:contact>
    <gmd:CI_ResponsibleParty>
      <gmd:organisationName>
        <gco:CharacterString>EUMETSAT</gco:CharacterString>
      </gmd:organisationName>
      <gmd:contactInfo>
        <gmd:CI_Contact>
          <gmd:address>
            <gmd:CI_Address>
              <gmd:deliveryPoint>
                <gco:CharacterString>EUMETSAT Allee
1</gco:CharacterString>
              </gmd:deliveryPoint>
              <gmd:city>
                <gco:CharacterString>Darmstadt</gco:CharacterString>
              </gmd:city>
              <gmd:administrativeArea>
                <gco:CharacterString>Hessen</gco:CharacterString>
              </gmd:administrativeArea>
              <gmd:postalCode>
                <gco:CharacterString>64295</gco:CharacterString>
              </gmd:postalCode>
              <gmd:country>
                <gco:CharacterString>Germany</gco:CharacterString>
              </gmd:country>
              <gmd:electronicMailAddress>
                <gco:CharacterString>ops@eumetsat.int</gco:CharacterString>
              </gmd:electronicMailAddress>
            </gmd:CI_Address>
          </gmd:address>
          <gmd:onlineResource>
            <gmd:CI_OnlineResource>
              <gmd:linkage>
                <gmd:URL>http://www.eumetsat.int</gmd:URL>
              </gmd:linkage>
            </gmd:CI_OnlineResource>
          </gmd:onlineResource>
        </gmd:CI_Contact>
      </gmd:contactInfo>
      <gmd:role>
        <gmd:CI_RoleCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/r
esources/Codelist/gmxCodeLists.xml#MD_ScopeCode"
codeListValue="pointOfContact">pointOfContact</gmd:CI_RoleCode>
        </gmd:role>
      </gmd:CI_ResponsibleParty>
    </gmd:contact>
  </gmd:contact>

```

## 8.1.4. Product responsible party

Table 4. Product responsible party

Template value	ADD PRODUCT RESPONSIBLE PARTY ORGANISATION SHORTNAME*M, ADD PRODUCT RESPONSIBLE PARTY EMAIL*HR
Information	Organization responsible for the product described in the metadata record
Necessity	Mandatory for WCMP 1.3
Category	Product information
XPath	/gmd:MD_Metadata/gmd:identificationInfo/*/gmd: pointOfContact/gmd:CI_ResponsibleParty

This element contains the contact details of the organization responsible for the product. At least a name and an e-mail address are required, and the role should be “pointOfContact”.

```

<gmd:MD_Metadata>
  ... ..
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <gmd:citation>
        .. ..
      </gmd:citation>
      .. ..
      <gmd:pointOfContact>
        <gmd:CI_ResponsibleParty>
          <gmd:organisationName>
            <gco:CharacterString>EUMETSAT</gco:CharacterString>
          </gmd:organisationName>
          <gmd:contactInfo>
            <gmd:CI_Contact>
              <gmd:address>
                <gmd:CI_Address>
                  <gmd:country>
                    <gco:CharacterString>Germany</gco:CharacterString>
                  </gmd:country>
                  <gmd:electronicMailAddress>

<gco:CharacterString>ops@eumetsat.int</gco:CharacterString>
                    </gmd:electronicMailAddress>
                </gmd:CI_Address>
              </gmd:address>
            <gmd:onlineResource>
              <gmd:CI_OnlineResource>
                <gmd:linkage>
                  <gmd:URL>http://www.eumetsat.int</gmd:URL>
                </gmd:linkage>
              </gmd:CI_OnlineResource>
            </gmd:onlineResource>
          </gmd:CI_Contact>
        </gmd:contactInfo>
        <gmd:role>
          <gmd:CI_RoleCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/
resources/Codelist/gmxCodelists.xml#MD_ScopeCode" codeListValue="pointOfContact">
pointOfContact</gmd:CI_RoleCode>
          </gmd:role>
        </gmd:CI_ResponsibleParty>
      </gmd:pointOfContact>
    </gmd:identificationInfo>
  </gmd:MD_DataIdentification>
</gmd:MD_Metadata>

```

### 8.1.5. Temporal extent

Table 5. Temporal extent

Template value	ADD TEMPORAL INFORMATION*HR, ADD TEMPORAL INFORMATION startDate*HR, ADD TEMPORAL INFORMATION endDate*HR
Information	Time period to which the product applies
Necessity	Optional for WCMP 1.3
Category	Product information
XPath	/gmd:MD_Metadata/gmd:identificationInfo/*/gmd:extent/*/gmd:temporalElement/*/gmd:extent/

This element describes the period of time to which the product applies. Where the product has a clear start and end date, and where the entire set of data is available, the specific start date and end date should both contain a date or date and time. The date information is constructed as YYYY-MM-DD, while the date and time information is constructed as YYYY-MM-DDTHH:MM:SSZ (for UTC time) as in 2016 04 17T13:42:54Z. In the examples below, the start and end dates are indicated as beginPosition and endPosition. Here are some examples of temporal extents whose meaning is described in the following paragraphs:

*Table 6. Example temporal extents*

[DateX] to [DateY]	e.g.: beginPosition:2005-10-01 endPosition:2014-10-20
[DateX] to [now]	e.g.: beginPosition:2005-10-01 endPosition:now
[Now] plus [period]	e.g.: beginPosition:now endPosition:after duration:P1M (+1 month)

Where it is not possible to accurately capture the time period in the TemporalExtent (using the start date, end date and duration), record details that are as close as possible, and then explain the period in words, using the description field.

*Table 7. Example temporal extents*

[DateX] to [DateY]	e.g.: beginPosition:2005-10-01 endPosition:2014-10-20
--------------------	---

The following example shows a dataset with a known start date and a known end date:

```

<gmd:temporalElement>
  <gmd:EX_TemporalExtent id="boundingTemporalExtent">
    <gmd:extent>
      <gml:TimePeriod gml:id="boundingTemporalExtentPeriod">
        <gml:beginPosition>2005-10-01</gml:beginPosition>
        <gml:endPosition>2014-10-20</gml:endPosition>
      </gml:TimePeriod>
    </gmd:extent>
  </gmd:EX_TemporalExtent>
</gmd:temporalElement>

```

Table 8. Example temporal extents

[DateX] to [now]	e.g.: beginPosition:2005-10-01 endPosition:now
------------------	--

It is also possible to describe an ongoing dataset with a known start date, but no known end date. In that case, the endPosition should contain the attribute `indeterminatePosition="now"`. For instance, where a dataset is from 2005-10-01 onwards, it would be encoded as follows:

```

<gmd:temporalElement>
  <gmd:EX_TemporalExtent id="temporalExtent">
    <gmd:extent>
      <gml:TimePeriod gml:id="boundingTemporalExtentPeriod">
        <gml:beginPosition>2005-10-01</gml:beginPosition>
        <gml:endPosition indeterminatePosition="now"/>
      </gml:TimePeriod>
    </gmd:extent>
  </gmd:EX_TemporalExtent>
</gmd:temporalElement>

```

The EX\_TemporalExtent options for a TimePeriod hence include beginPosition, endPosition and duration, e.g.:

1. `<gml:beginPosition> .. ... </gml:beginPosition>`
2. `<gml:endPosition> .. ... </gml:endPosition>`
3. `<gml:duration> .. ... </gml:duration>`

For a TimePeriod, the begin and end positions must always be included whereas duration is optional.

The encoding of duration `[(- or +) PnYnMnDtnhnmns]` allows the expression of time intervals such as: a number of years (nY), and/or months (nM), and/or days (nD), or hours (nh), or minutes (nm), or seconds (ns), where “n” represents a number.

For example, a duration of 4 hours is expressed as `P0Y0M0DT4h0m0s` or `PT4h`.

Note that duration can be expressed using either the long form (e.g.: `P0Y5M0DT0h0m0s`) or the

short form, but the latter must include “T” for intervals of hours, minutes or seconds (e.g.: P5M is 5 months, PT5m is 5 minutes).

For more information on encoding of duration, see the Durations segment at [https://en.wikipedia.org/wiki/ISO\\_8601](https://en.wikipedia.org/wiki/ISO_8601);

*Table 9. Example temporal extents*

[Now] plus [period]	e.g.: beginPosition:now endPosition:after duration:P0Y0M7DT0h0m0s (+7 days)
---------------------	--

For a dataset that is ongoing (that is, new data are continuously produced) but for which only the latest file is available (that is, data is only ever available for a rolling window of time), the TemporalExtent should reflect the period covered by the available data, in this case, the period covered by the latest file.

For instance, where only the latest file is ever available, and the latest file is a forecast for the next 7 days, it would be encoded as follows:

```
<gmd:temporalElement>
  <gmd:EX_TemporalExtent>
    <gmd:extent>
      <gml:TimePeriod>
        <gml:description>Next 7 days only</gml:description>
        <gml:beginPosition indeterminatePosition="now"/>
        <gml:endPosition indeterminatePosition="after"/>
        <gml:duration>P7D</gml:duration>
      </gml:TimePeriod>
    </gmd:extent>
  </gmd:EX_TemporalExtent>
</gmd:temporalElement>
```

## 8.1.6. Geographical information

*Table 10. Geographical information*

Template value	(ADD-GEOSPATIAL-INFORMATION*C), ADD BBOX VALUE WEST*M MW, ADD BBOX VALUE EAST*M MW, ADD BBOX VALUE SOUTH*M MW, ADD BBOX VALUE NORTH*M MW
Information	Geographical coverage of the product, as a bounding box latitude and longitude
Necessity	Conditional. It is mandatory for WCMP 1.3, if the data is geographical
Category	Product information

XPath	/gmd:MD_Metadata/gmd:identificationInfo/*/gmd:extent/*/gmd:geographicElement/gmd:EX_GeographicBoundingBox///text() [having 4 elements]
-------	--

The geographical area covered by the product is described as a bounding box with latitude and longitude in decimal degrees.

The following example shows the XML for bounding box information of a dataset:

```
<gmd:geographicElement>
  <gmd:EX_GeographicBoundingBox id="boundingGeographicBoundingBox">
    <gmd:westBoundLongitude>
      <gco:Decimal>-180</gco:Decimal>
    </gmd:westBoundLongitude>
    <gmd:eastBoundLongitude>
      <gco:Decimal>180</gco:Decimal>
    </gmd:eastBoundLongitude>
    <gmd:southBoundLatitude>
      <gco:Decimal>-90</gco:Decimal>
    </gmd:southBoundLatitude>
    <gmd:northBoundLatitude>
      <gco:Decimal>90</gco:Decimal>
    </gmd:northBoundLatitude>
  </gmd:EX_GeographicBoundingBox>
</gmd:geographicElement>
```

Bounding boxes that cross the 180 degree meridian can be differentiated from bounding boxes that do not, using the following rules: . In a dataset that does not cross the 180 degree meridian, the westernmost longitude shall always be less than the easternmost longitude; . Conversely, if a bounding box crosses the 180 degree meridian, the westernmost longitude shall be greater than the easternmost longitude. Other constraints on geographical bounding boxes: . Geographical points shall be designated with the northernmost and southernmost latitudes equal, and with the westernmost and easternmost longitudes equal; . Except for a geographical point, the total longitudinal span shall be greater than zero and less than or equal to 360 degrees; . The northernmost latitude shall always be greater than or equal to the southernmost latitude; . Longitude and latitude shall be recorded in a coordinate reference system that has the same axes, units and prime meridian as WGS84.

### 8.1.7. Geographic identifier

Table 11. Geographic identifier

Template value	(ADD GEOGRAPHIC IDENTIFIER INFORMATION*O), ADD GEOGRAPHIC IDENTIFIER THESAURUS NAME*O, ADD GEOGRAPHIC IDENTIFIER CODE*C MW
----------------	--

Information	Geographic identifier indicating the zone covered on earth by the product
Necessity	Optional
Category	Product information
XPath	<code>/gmd:MD_Metadata/gmd:identificationInfo/*/gmd:extent/*/gmd:geographicElement/*/gmd:geographicIdentifier/gmd:MD_Identifier/code/*/text()</code>

The optional geographic identifier indicates the area covered by the product. It can be used when the identifier is a well-known name (within a targeted user community), a codified acronym for an area (such as a region), or a feature (such as a water storage or coastline section). If the `geographicIdentifier` block is used, a code must be provided.

The `geographicIdentifier` can be expressed in two ways:

1. With just the `geographicIdentifier` code and a link to the related codelist (authority):

```
<gmd:extent>
  <gmd:EX_Extent id="geographicExtent">
    <gmd:geographicElement>
      <gmd:EX_GeographicDescription id="SouthAustralia__allGensRegister">
        <gmd:geographicIdentifier>
          <gmd:MD_Identifier>
            <gmd:code>
              <gco:CharacterString>
                South Australia (SA)
                (http://find.ga.gov.au/FIND/profileinfo/anzlic-
allgens.xml#SA)
              </gco:CharacterString>
            </gmd:code>
          </gmd:MD_Identifier>
        </gmd:geographicIdentifier>
      </gmd:EX_GeographicDescription>
    </gmd:geographicElement>
  </gmd:EX_Extent>
</gmd:extent>
```

1. With the `geographicIdentifier` code, as well as a link to the related codelist, using a `CI _ Citation` group:



```

<gmd:extent>
  <gmd:EX_Extent id="geographicExtent">
    <gmd:geographicElement>
      <gmd:EX_GeographicDescription id="SouthAustralia__allGensRegister">
        <gmd:geographicIdentifier>
          <gmd:MD_Identifier>
            <gmd:authority>
              <gmd:CI_Citation>
                <gmd:title>
                  <gco:CharacterString>
                    ANZLIC Geographic Extent Name Register
                    (http://find.ga.gov.au/FIND/profileinfo/anzlic-allgens.xml)
                  </gco:CharacterString>
                </gmd:title>
                <gmd:alternateTitle>
                  <gco:CharacterString>
                    ANZLIC AllGens / subcategory: anzlic-sla_2001edition
                  </gco:CharacterString>
                </gmd:alternateTitle>
                <gmd:date>
                  <gmd:CI_Date>
                    <gmd:date>
                      <gco>Date>2011-10-25</gco>Date>
                    </gmd:date>
                    <gmd:dateType>
                      <gmd:CI_DateTypeCode
codeList="http://www.isotc211.org/2005/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>South Australia (SA)
              (http://find.ga.gov.au/FIND/profileinfo/anzlic-
allgens.xml#SA)
            </gco:CharacterString>
          </gmd:code>
        </gmd:MD_Identifier>
      </gmd:geographicIdentifier>
    </gmd:EX_GeographicDescription>
  </gmd:geographicElement>
</gmd:EX_Extent>
</gmd:extent>

```

#### 8.1.7.1. Station identifiers for GTS bulletins

In WIS metadata records, references to stations for a GTS bulletin should point to WIGOS station

identifiers (available through the Observing Systems Capability Analysis and Review tool (OSCAR)/Surface) and should be provided as keywords (see section 5.8.1.8.3).

### 8.1.8. Descriptive keywords

Descriptive keywords are additional “controlled” terms which further classify (thus increasing searching accuracy for) the products. The following general rules apply for keywords in a WCMP record: . Terms from the same keyword thesaurus/codelist and of the same KeywordTypeCode shall be grouped into a single instance of the <gmd:descriptiveKeywords> class; . All WCMP metadata records shall have at least one WMO\_CategoryCode keyword, and the related KeywordTypeCode will be “theme”; . All WCMP records for GTS data must contain a keyword from the WMO\_DistributionScopeCode codelist and must be accompanied by the KeywordTypeCode “dataCentre”; . A WCMP metadata record describing data for global exchange via the WIS shall indicate the scope of distribution using the keyword “GlobalExchange” of type “dataCentre”; . Where data concern WMO stations, the related WIGOS station identifiers should be recorded as keywords(see 5.8.1.8.3); . Any data parameter term added as a keyword should be accompanied by the KeywordTypeCode “dataParam”.

#### 8.1.8.1. WMO\_CategoryCode keyword

Table 12. WMO\_CategoryCode keyword

Template value	WCMP-WMO-CATEGORY-CODE*M
Information	One or more WMO_CategoryCode keywords for classifying the product
Necessity	Mandatory for WCMP 1.3
Category	Product information
XPath	<ul style="list-style-type: none"> <li>• <code>/gmd:MD_Metadata/gmd:identificationInfo/*/gmd:descriptiveKeywords/*/gmd:keyword/*/text()</code></li> <li>• <code>/gmd:MD_Metadata/gmd:identificationInfo/*/gmd:descriptiveKeywords/*/gmd:type/*/codeListValue="theme"</code></li> <li>• <code>/gmd:MD_Metadata/gmd:identificationInfo/*/gmd:descriptiveKeywords/*/gmd:thesaurusName/*/gmd:title/*/text()="WMO_CategoryCode"</code></li> </ul>

Any WCMP metadata record shall have at least one WMO\_CategoryCode keyword, and the related KeywordTypeCode will be “theme”.

The WMO\_CategoryCode list of terms is occasionally revised. For the latest list of terms, see: [http://wis.wmo.int/2012/codelists/WMOCodeLists.xml#WMO\\_CategoryCode](http://wis.wmo.int/2012/codelists/WMOCodeLists.xml#WMO_CategoryCode).

At the time of writing, the WMO\_CategoryCode list of terms includes:

Table 13. WMO\_CategoryCode list of terms

<b>WMO_CategoryCode</b>	<b>Term</b>
WMO_CategoryCode_weatherObservations	weatherObservations
WMO_CategoryCode_weatherForecasts	weatherForecasts
WMO_CategoryCode_meteorology	Meteorology
WMO_CategoryCode_hydrology	Hydrology
WMO_CategoryCode_climatology	Climatology
WMO_CategoryCode_landMeteorologyClimate	landMeteorologyClimate
WMO_CategoryCode_synopticMeteorology	synopticMeteorology
WMO_CategoryCode_marineMeteorology	marineMeteorology
WMO_CategoryCode_agriculturalMeteorology	agriculturalMeteorology
WMO_CategoryCode_aerology	Aerology
WMO_CategoryCode_marineAerology	marineAerology
WMO_CategoryCode_oceanography	Oceanography
WMO_CategoryCode_landHydrology	landHydrology
WMO_CategoryCode_rocketSounding	rocketSounding
WMO_CategoryCode_pollution	Pollution
WMO_CategoryCode_waterPollution	waterPollution
WMO_CategoryCode_landWaterPollution	landWaterPollution
WMO_CategoryCode_seaPollution	seaPollution
WMO_CategoryCode_landPollution	landPollution
WMO_CategoryCode_airPollution	airPollution
WMO_CategoryCode_glaciology	Glaciology
WMO_CategoryCode_actinometry	Actinometry
WMO_CategoryCode_satelliteObservation	satelliteObservation
WMO_CategoryCode_airplaneObservation	airplaneObservation
WMO_CategoryCode_observationPlatform	observationPlatform
WMO_CategoryCode_spaceWeather	spaceWeather
WMO_CategoryCode_atmosphericComposition	atmosphericComposition
WMO_CategoryCode_radiation	radiation

The example below, for a satellite product, uses the terms “satelliteObservation” and “meteorology” as keywords from the WMO\_CategoryCode thesaurus/codelist:

```

<gmd:descriptiveKeywords>
  <gmd:MD_Keywords>
    <gmd:keyword>
      <gco:CharacterString>satelliteObservation</gco:CharacterString>
    </gmd:keyword>
    <gmd:keyword>
      <gco:CharacterString>meteorology</gco:CharacterString>
    </gmd:keyword>
    <gmd:type>
      <MD_KeywordTypeCode xmlns="http://www.isotc211.org/2005/gmd" codeListValue="theme"
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/r
esources/Codelist/gmxCodelists.xml#MD_KeywordTypeCode">Theme</MD_KeywordTypeCode>
    </gmd:type>
    <gmd:thesaurusName>
      <gmd:CI_Citation>
        <gmd:title>
          <gco:CharacterString>WMO_CategoryCode</gco:CharacterString>
        </gmd:title>
        <gmd:date>
          <gmd:CI_Date>
            <gmd:date>
              <gco>Date>2016-04-01</gco>Date>
            </gmd:date>
            <gmd:dateType>
              <gmd:CI_DateTypeCode codeListValue="publication"
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/r
esources/Codelist/gmxCodelists.xml#CI_DateTypeCode"/>
            </gmd:dateType>
          </gmd:CI_Date>
        </gmd:date>
      </gmd:CI_Citation>
    </gmd:thesaurusName>
  </gmd:MD_Keywords>
</gmd:descriptiveKeywords>

```

#### 8.1.8.2. WMO\_DistributionScopeCode keywords

Table 14. WMO\_DistributionScopeCode keywords

Template value	ADD-DISTRIBUTION-SCOPE*C
Information	Scope of distribution of data within the WIS
Necessity	Conditional. Mandatory for WCMP 1.3 for GTS data
Category	Product information

XPath	<ul style="list-style-type: none"> <li>• <code>/gmd:MD_Metadata/gmd:identificationInfo/*/gmd:descriptiveKeywords/*/gmd:keyword/*/text()</code></li> <li>• <code>/gmd:MD_Metadata/gmd:identificationInfo/*/gmd:descriptiveKeywords/*/gmd:type/*/codeListValue="dataCentre"</code></li> <li>• <code>/gmd:MD_Metadata/gmd:identificationInfo/*/gmd:descriptiveKeywords/*/gmd:thesaurusName/*/gmd:title/*/text()="WMO_DistributionScopeCode"</code></li> </ul>
-------	--

Any WCMP record for GTS data must contain a WMO\_DistributionScopeCode keyword. The scope of distribution for data within WIS shall be expressed with a term from the WMO \_DistributionScopeCode vocabulary, using the KeywordTypeCode “datacentre”. The keyword will be one of the following terms from the WMO\_DistributionScopeCode vocabulary (a metadata record may not contain more than one of these keywords):

1. GlobalExchange
2. RegionalExchange
3. OriginatingCentre

The requirements for a WIS Discovery Metadata record describing products for global exchange via the WIS are more stringent. Such a record shall contain, in the “resourceConstraints” section, the keyword “GlobalExchange” from the WMO\_DistributionScopeCode thesaurus (codelist), with KeywordTypeCode “dataCentre”; it must also include a term from both the WMO\_DataLicenseCode and WMO\_GTSProductCategoryCode thesauri (see section 5.8.1.10 for details).

The GTS is the part of the WIS concerned with rapid, near-real-time information exchange. The Global Information System Centres are required to retain at least 24h of information exchanged globally using the GTS.

A keyword from the WMO\_DistributionScopeCode codelist is used to indicate whether the product described by a metadata record is or is not delivered via the GTS and GISCs, and, within the GTS, whether it is exchanged globally or regionally:

1. Metadata marked “GlobalExchange” or “RegionalExchange” describe product delivered via the GTS. Products are transmitted from an originating NC or DCPC to the principal GISC, distributed to all (or some) GISCs, then placed on the GISC caches;
2. Metadata marked “RegionalExchange” describe products that, while transmitted on the GTS, might be simply exchanged between two WMO Members (by bilateral agreement). Some examples are regional warnings or voluminous NWP products;
3. The metadata marked “OriginatingCentre” indicate non-GTS products and include, for instance, products delivered to users from a DCPC.

Below is an example for globally exchanged GTS products:

```

<gmd:descriptiveKeywords>
  <gmd:MD_Keywords>
    <gmd:keyword>
      <gco:CharacterString>GlobalExchange</gco:CharacterString>
    </gmd:keyword>
    <gmd:type>
      <gmd:MD_KeywordTypeCode
codeList="http://wis.wmo.int/2012/codelists/WMOCodeLists.xml#MD_KeywordTypeCode"
codeListValue="dataCentre">dataCentre</gmd:MD_KeywordTypeCode>
      </gmd:type>
    <gmd:thesaurusName>
      <gmd:CI_Citation>
        <gmd:title>
          <gco:CharacterString>WMO_DistributionScopeCode
[http://wis.wmo.int/2012/codelists/WMOCodeLists.xml]</gco:CharacterString>
        </gmd:title>
        <gmd:date>
          <gmd:CI_Date>
            <gmd:date>
              <gco>Date>2012-06-27</gco>Date>
            </gmd:date>
            <gmd:dateType>
              <gmd:CI_DateTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/r
esources/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>

```

### 8.1.8.3. WIGOS Station Identifier keywords

Table 15. WIGOS Station Identifier keywords

Template value	ADD WIGOS STATION IDENTIFIER CODE*O; ADD WIGOS STN ID CODE AUTHORITY*O
Information	Where a product includes data from stations that have been assigned a WIGOS station identifier, include this as a keyword
Necessity	Optional for WCMP 1.3
Category	Product information

XPath	<ol style="list-style-type: none"> <li>1. <code>/gmd:MD_Metadata/gmd:identificationInfo/*/gmd:descriptiveKeywords/*/gmd:keyword/*/text()</code></li> <li>2. <code>/gmd:MD_Metadata/gmd:identificationInfo/*/gmd:descriptiveKeywords/*/gmd:type/*/@code ListValue="place"</code></li> <li>3. <code>/gmd:MD_Metadata/gmd:identificationInfo/*/gmd:descriptiveKeywords/*/gmd:thesaurusName/*/gmd:title/*/text()="WMO WIGOS Station Identifiers"</code></li> </ol>
-------	--

Whereas metadata records previously included WMO station numbers as keywords, the WIGOS Station Identifier should now be used. The related KeywordTypeCode should be “place”.

Below is an example including WIGOS station identifiers as keywords:

```

<gmd:descriptiveKeywords>
  <gmd:MD_Keywords>
    <gmd:keyword>
      <gco:CharacterString>
        0-20000-0-94287; CAIRNS AERO [http://data.wmo.int/wigosid=0-20000-0-94287]
      </gco:CharacterString>
    </gmd:keyword>
    <gmd:keyword>
      <gco:CharacterString>
        0-20000-0-94374; ROCKHAMPTON AERO [http://data.wmo.int/wigosid=0-20000-0-94374]
      </gco:CharacterString>
    </gmd:keyword>
    <gmd:keyword>
      <gco:CharacterString>
        0-20000-0-94294; TOWNSVILLE AERO [http://data.wmo.int/wigosid=0-20000-0-94294]
      </gco:CharacterString>
    </gmd:keyword>
    <gmd:type>
      <gmd:MD_KeywordTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/r
esources/codelist/gmxCodeLists.xml#MD_KeywordTypeCode"
codeListValue="place"></gmd:MD_KeywordTypeCode>
    </gmd:type>
    <gmd:thesaurusName>
      <gmd:CI_Citation>
        <gmd:title>
          <gco:CharacterString>WMO WIGOS Station
Identifiers</gco:CharacterString>
        </gmd:title>
        <gmd:date>
          <gmd:CI_Date>
            <gmd:date>
              <gco>Date>2016-06-25</gco>Date>
            </gmd:date>
            <gmd:dateType>
              <gmd:CI_DateTypeCode
codeList="http://www.isotc211.org/2005/resources/CodeList/gmxCodeLists.xml#CI_DateType
Code" codeListValue="revision">revision</gmd:CI_DateTypeCode>
            </gmd:dateType>
            </gmd:CI_Date>
          </gmd:date>
        </gmd:CI_Citation>
      </gmd:thesaurusName>
    </gmd:MD_Keywords>
  </gmd:descriptiveKeywords>

```



#### 8.1.8.4. Data parameters

Table 16. Data parameters

Template value	ADD-DATA-PARAMETER*O
Information	Data parameter keywords for classifying the product
Necessity	Optional for WCMP 1.3
Category	Product information
XPath	<ol style="list-style-type: none"><li>1. <code>/gmd:MD_Metadata/gmd:identificationInfo/*/gmd:descriptiveKeywords/*/gmd:keyword/*/text()</code></li><li>2. <code>/gmd:MD_Metadata/gmd:identificationInfo/*/gmd:descriptiveKeywords/*/gmd:type/*/code ListValue="dataParam"</code></li></ol>

Where feasible, a list of the data parameters may be added as keywords. These should be added under a separate “descriptiveKeywords” block and should use the KeywordTypeCode “dataParam”.

Below is an example of a data parameter as a keyword:

```

<gmd:descriptiveKeywords>
  <gmd:MD_Keywords>
    <gmd:keyword>
      <gco:CharacterString>Dewpoint temperature</gco:CharacterString>
    </gmd:keyword>
    <gmd:type>
      <gmd:MD_KeywordTypeCode
codeList="http://wis.wmo.int/2012/codelists/WMOCodeLists#MD_KeywordTypeCode"
codeListValue="dataParam">dataParam</ gmd:MD_KeywordTypeCode>
      </gmd:type>
    <gmd:thesaurusName>
      <gmd:CI_Citation>
        <gmd:title>
          <gco:CharacterString>WMO Grib2 parameter list
http://codes.wmo.int/grib2/codeflag/4.2/ </gco:CharacterString>
        </gmd:title>
        <gmd:date>
          <gmd:CI_Date>
            <gmd:date>
              <gco:Date>2016-06-25</gco:Date>
            </gmd:date>
            <gmd:dateType>
              <gmd:CI_DateTypeCode
codeList="http://www.isotc211.org/2005/resources/Codelist/gmxCodeLists.xml#CI_DateType
Code" codeListValue="revision">revision</gmd:CI_DateTypeCode>
              </gmd:dateType>
            </gmd:CI_Date>
          </gmd:date>
        </gmd:CI_Citation>
      </gmd:thesaurusName>
    </gmd:MD_Keywords>
  </gmd:descriptiveKeywords>

```

### 8.1.9. Product sample visualization URL

Table 17. Product sample visualization URL

Template value	ADD-PRODUCT-IMAGERY-URL*O
Information	URL to a sample data visualization
Necessity	Optional for WCMP 1.3, but used by WIS portal to display products
Category	Product information
XPath	<code>/gmd:MD_Metadata/gmd:identificationInfo/*/gmd:graphicOverview/*/gmd:fileName/*/text()</code>

The addition of a link to the product visualization is suggested, when possible. The display of related linked images can make the product more attractive for end users.

Below is an example based on EUMETSAT Seviri Level 1.5:

```
<gmd:graphicOverview>
  <gmd:MD_BrowseGraphic>
    <gmd:fileName>

<gco:CharacterString>http://navigator.eumetsat.int:80/smartEditor/preview/msg-level-1-
5.jpg</gco:CharacterString>
    </gmd:fileName>
    <gmd:fileDescription>
      <gco:CharacterString>preview</gco:CharacterString>
    </gmd:fileDescription>
    <gmd:fileType>
      <gco:CharacterString>jpg</gco:CharacterString>
    </gmd:fileType>
  </gmd:MD_BrowseGraphic>
</gmd:graphicOverview>
```

### 8.1.10. Data policy information

Table 18. Data policy information

Template value	ADD-DATA-POLICY-CODE*C
Information	Data usage and access limitations
Necessity	Mandatory for WCMP 1.3, for data intended for global exchange on the GTS. Otherwise, highly recommended, since the absence of a policy can result in users assuming that there are no limitations on data use. To avoid uncertainty, where there are no limitations, use the data policy “NoLimitation”.
Category	Product information
XPath	<ol style="list-style-type: none"> <li>1. <code>/gmd:MD_Metadata/gmd:identificationInfo/*/gmd:resourceConstraints/gmd:MD_LegalConstraints//gmd:otherConstraints/*/text()=WMO_DataLicenseCode</code></li> <li>2. <code>/gmd:MD_Metadata/gmd:identificationInfo/*/gmd:resourceConstraints/gmd:MD_LegalConstraints//gmd:otherConstraints/*/text()=WMO_GTSProductCategoryCode</code></li> </ol>

The data policy category is used to specify the conditions under which the data products can be accessed and used. Completing the data policy section of a WCMP metadata record is dependent on the type of product, the data policy and the ways in which the product is being distributed. For those reasons, and to minimize the complexity of this section, three representative examples are discussed:

1. Non-GTS product, with a policy of no constraints on use or distribution;
2. Non-GTS product, with a policy applicable in the WMO context;
3. GTS product intended for global exchange.

For more comprehensive information, please refer to the documentation on WCMP contained in the Manual on WIS.

When adding the data policy information, two different parts of the metadata record have to be filled:

1. resourceConstraints, which contains the data policy information;
2. Scope of distribution, using one of the following terms: “GlobalExchange”, “RegionalExchange” or “OriginatingCentre” (to be inserted as a keyword, as explained in Section 5.8.1.8.2).

Each of the three examples below shows the resourceConstraints part of the information that is to be added to the metadata record.

Within the “resourceConstraints” section, the DataLicenseCode term is added into an “otherConstraints” field and an explanation of the data policy is typically given in an additional “otherConstraints” field:

```
/gmd:MD_Metadata/gmd:identificationInfo/*/gmd:resourceConstraints/gmd:MD_LegalConstraints/gmd:otherConstraints/*/text()
```

Allowable terms from the DataLicenseCode codelist include: “WMOAdditional”, “WMOEssential”, “WMOOther” or “NoLimitation”. All of these terms are defined at [http://wis.wmo.int/2012/codelists/WMOCodeLists.xml#WMO\\_DataLicenseCode](http://wis.wmo.int/2012/codelists/WMOCodeLists.xml#WMO_DataLicenseCode).

Example 1: Non-GTS product with a policy of no constraints on use or distribution

Publicly available datasets are those for which there are no limitations on distribution or use.

The “useLimitation” field in the “resourceConstraints” block should contain “No conditions apply”, and an “otherConstraints” field should contain the phrase “NoLimitation”.

```

<!-- Example of publicly available, unrestricted data -->
<gmd:resourceConstraints>
  <gmd:MD_LegalConstraints>
    <!-- add useLimitation with ..No conditions apply.. -->
    <gmd:useLimitation>
      <gco:CharacterString>No conditions apply</gco:CharacterString>
    </gmd:useLimitation>
    <gmd:useConstraints>
      <!-- Restriction code have to point to WMOCodeLists.xml -->
    </gmd:useConstraints>
    <gmd:MD_RestrictionCode
      codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/r
        esources/Codelist/gmxCodeLists.xml#MD_RestrictionCode"
      codeListValue="otherRestrictions">otherRestrictions</gmd:MD_RestrictionCode>
    </gmd:MD_RestrictionCode>
    <!-- otherConstraints with ..NoLimitation.. -->
    <gmd:otherConstraints>
      <gco:CharacterString>NoLimitation</gco:CharacterString>
    </gmd:otherConstraints>
  </gmd:MD_LegalConstraints>
</gmd:resourceConstraints>

```

In addition, the scope of distribution should ideally be stated as a keyword, and for non-GTS products it should be “OriginatingCentre”.

```

<!-- Scope of distribution for non GTS products: OriginatingCentre -->
<gmd:descriptiveKeywords>
  <gmd:MD_Keywords>
    <gmd:keyword>
      <!-- keyword OriginatingCentre applies for DCPC Data -->
      <gco:CharacterString>OriginatingCentre</gco:CharacterString>
    </gmd:keyword>
    <gmd:type>
      <gmd:MD_KeywordTypeCode
        codeList="http://wis.wmo.int/2012/codelists/WMOCodeLists.xml#MD_DistributionScopeCode"
        codeListValue="dataCentre">dataCentre</gmd:MD_KeywordTypeCode>
      </gmd:MD_KeywordTypeCode>
    </gmd:type>
    <gmd:thesaurusName>
      <gmd:CI_Citation>
        <gmd:title>
          <gco:CharacterString>WMO_DistributionScopeCode, WMOCodeLists dictionary
            Version 1.3
            [http://wis.wmo.int/2012/codelists/WMOCodeLists.xml#WMO_DistributionScopeCode]</gco:Ch
              aracterString>
          </gmd:title>
        </gmd:CI_Citation>
      </gmd:thesaurusName>
    </gmd:MD_Keywords>
  </gmd:descriptiveKeywords>
  .. .. .. etc (see Section 5.8.1.8.2 for full details)

```

Example 2: Non-GTS product with a policy applicable in the WMO context

This example describes a product that is not distributed on the GTS and has a single data policy applicable in the WMO context. Note that policies that are applicable in the WMO context, and therefore flagged in an “otherConstraints” field with the term “WMOOther”, will be presented by the GISCs to users when they discover the data. Global Information System Centres have no obligation to show the other data policies.

A term from the WMO\_DataLicenseCode codelist (available at [http://wis.wmo.int/2012/codelists/WMOCodeLists.xml#WMO\\_DataLicenseCode](http://wis.wmo.int/2012/codelists/WMOCodeLists.xml#WMO_DataLicenseCode)) should be added to an “otherConstraints” field.

Note: The data policy term “WMOOther” can also be used for data that is delivered via the GTS.

```

<gmd:resourceConstraints>
  <gmd:MD_LegalConstraints>
    <!-- Add useLimitation to indicate the limitations of usage for the data -->
    <gmd:useLimitation>
      <gco:CharacterString>Disclaimer - While every effort has been made to ensure
that these data are accurate and reliable within the limits of the current state of
the art, OrganisationX cannot assume liability for any damages caused by any errors or
omissions in the data, nor as a result of the failure of the data to function on a
particular system. OrganisationX makes no warranty, expressed or implied, nor does the
fact of distribution constitute such a warranty.
      </gco:CharacterString>
    </gmd:useLimitation>
    <gmd:accessConstraints>
<gmd:MD_RestrictionCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/r
esources/Codelist/gmxCodelists.xml#MD_RestrictionCode"
codeListValue="copyright">copyright</gmd:MD_RestrictionCode>
    </gmd:accessConstraints>
    <gmd:accessConstraints>
      <gmd:MD_RestrictionCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/r
esources/Codelist/gmxCodelists.xml#MD_RestrictionCode"
codeListValue="otherRestrictions">otherRestrictions</gmd:MD_RestrictionCode>
    </gmd:accessConstraints>
    <gmd:useConstraints>
      <gmd:MD_RestrictionCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/r
esources/Codelist/gmxCodelists.xml#MD_RestrictionCode"
codeListValue="copyright">copyright</gmd:MD_RestrictionCode>
    </gmd:useConstraints>
    <gmd:useConstraints>
      <gmd:MD_RestrictionCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/r
esources/Codelist/gmxCodelists.xml#MD_RestrictionCode"
codeListValue="otherRestrictions">otherRestrictions</gmd:MD_RestrictionCode>
    </gmd:useConstraints>
    <!-- Add WMOOther, to signal that the policy is applicable in the WMO Context
-->
    <gmd:otherConstraints>
      <gco:CharacterString>WMOOther
Ordnance Survey Open Data License [https://www.ordnancesurvey.co.uk/docs/licences/os-opendata-licence.pdf]
      </gco:CharacterString>
    </gmd:otherConstraints>
  </gmd:MD_LegalConstraints>
</gmd:resourceConstraints>

```

The scope of distribution should, ideally, be added as a keyword using the term “OriginatingCentre”.

Please refer to the encoding of scope of distribution, provided under Example 1 above or in section 5.8.1.8.2.

### Example 3: GTS data intended for global exchange

This example describes data distributed via the GTS and available from the cache at a GISC. For data delivered via the GTS, the data policy term to be added to the “otherConstraints” field can only be “WMOAdditional” or “WMOEssential” – both of these terms are defined at [http://wis.wmo.int/2012/codelists/WMOCodeLists.xml#WMO\\_DataLicenseCode](http://wis.wmo.int/2012/codelists/WMOCodeLists.xml#WMO_DataLicenseCode).

In the example below, the code used is “WMOEssential”.

WMO policies for data and products (licence conditions) are defined by Resolution 40 (Cg-XII), Resolution 25 (Cg-XIII) and Resolution 60 (Cg-17). Data and products exchanged on a free and unrestricted basis are marked as “WMOEssential”; data classed as “WMOAdditional” have restrictions on commercial activities. Operational meteorological information for aviation is not included in these resolutions but is controlled by the International Civil Aviation Organization (ICAO); this information is an example of “WMOOther” data.

Only one term from the WMO\_DataLicenseCode codelist may be used within a metadata record. As well as assigning one of these terms, it is expected, where the term used is “WMOOther” or “WMOAdditional”, that further clarification of the licence constraints will also be provided (either directly in the metadata record or else via a URL).

For data circulating on the GTS, “WMOAdditional” is used to qualify products under the WMOAdditional data policy; “WMOEssential” is used for products made available under the WMOEssential data policy; and “WMOOther” can be used (where applicable) for other products, regardless of whether the data is being delivered via the GTS, GISC or otherwise.

Where data is for global exchange on the GTS (which is signified by the WMO \_ DistributionScopeCode keyword), both a WMO\_DataLicenseCode and a WMO \_ GTSPriorityCode term must be provided, under “resourceConstraints”. The terms from the WMO\_GTSPriorityCode codelist to be used are: “GTSPriority1”, “GTSPriority2”, “GTSPriority3” and “GTSPriority4”.

Below is the “resourceConstraints” element for a WMOEssential GTS product intended for global exchange:



```

<!-- Data intended for WMOEssential data intended for Global exchange -->
<gmd:resourceConstraints>
  <gmd:MD_LegalConstraints>
    <gmd:useLimitation>
      <gco:CharacterString>Data is near realtime, and is not quality controlled.
License conditions apply, as indicated below</gco:CharacterString>
    </gmd:useLimitation>
    <!-- MD_RestrictionCode to be "otherRestrictions" -->
    <gmd:accessConstraints>
<gmd:MD_RestrictionCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/r
esources/Codelist/gmxCodelists.xml#MD_RestrictionCode"
codeListValue="copyright">copyright</gmd:MD_RestrictionCode>
    </gmd:accessConstraints>
    <gmd:accessConstraints>
      <gmd:MD_RestrictionCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/r
esources/Codelist/gmxCodelists.xml#MD_RestrictionCode"
codeListValue="otherRestrictions">otherRestrictions</gmd:MD_RestrictionCode>
    </gmd:accessConstraints>
    <gmd:useConstraints>
      <gmd:MD_RestrictionCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/r
esources/Codelist/gmxCodelists.xml#MD_RestrictionCode"
codeListValue="copyright">copyright</gmd:MD_RestrictionCode>
    </gmd:useConstraints>
    <gmd:useConstraints>
      <gmd:MD_RestrictionCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/r
esources/Codelist/gmxCodelists.xml#MD_RestrictionCode"
codeListValue="otherRestrictions">otherRestrictions</gmd:MD_RestrictionCode>
    </gmd:useConstraints>
    <!-- Add WMO Data policy and GTSPriority -->
    <gmd:otherConstraints>
      <gco:CharacterString>WMOEssential A definition of "WMOEssential" is available
at: http://wis.wmo.int/2012/codelists/WMOCodeLists.xml#WMO_DataLicenseCode
</gco:CharacterString>
    </gmd:otherConstraints>
    <gmd:otherConstraints>
      <gco:CharacterString>GTSPriority2</gco:CharacterString>
    </gmd:otherConstraints>
  </gmd:MD_LegalConstraints>
</gmd:resourceConstraints>

```

In addition, the scope of distribution of data marked as “GlobalExchange” has to be added as a keyword (with KeywordTypeCode “dataCentre”).

```

<!-- keyword for stating the scope of distribution: Global Exchange -->
<gmd:descriptiveKeywords>
  <gmd:MD_Keywords>
    <gmd:keyword>
      <gco:CharacterString>GlobalExchange</gco:CharacterString>
    </gmd:keyword>
    <gmd:type>
      <gmd:MD_KeywordTypeCode
codeList="http://wis.wmo.int/2012/codelists/WMOCodeLists.xml#MD_DistributionScopeCode"
      codeListValue="dataCentre">dataCentre</gmd:MD_KeywordTypeCode>
    </gmd:type>
    .. .. etc (see section 5.8.1.8.2 for full example)

```

### 8.1.11. Distribution information

Table 19. Distribution information

Template value	ADD URL TO DATA ACCESS SERVICE*HR MW, ADD DISTRIBUTOR SHORTNAME*HR (e.g.:EUM), ADD DISTRIBUTOR EMAIL ADDRESS*HR, ADD FORMAT NAME*O MW, ADD FORMAT VERSION*O MW
Information	Resource format, distributor information and resource transfer options (URLs)
Necessity	Highly recommended for WCMP 1.3
Category	Product information
XPath	<ol style="list-style-type: none"> <li>1. /gmd:MD_Metadata/gmd:distributionInfo/*/gmd:distributionFormat/*/gmd:formatDistributor/*/distributorContact/gmd:CI_ResponsibleParty</li> <li>2. /gmd:MD_Metadata/gmd:distributionInfo/*/gmd:distributionFormat/*/gmd:formatDistributor//distributorTransferOptions//gmd:online/</li> </ol>

Below is an example of a GRIB product made available via an FTP server (for readability, distributor details are not included in this snippet, but can be found in the template record):

```

<gmd:distributionInfo>
  <gmd:MD_Distribution>
    <gmd:distributionFormat>
      <gmd:MD_Format>
        <gmd:name>
          <gco:CharacterString>GRIB</gco:CharacterString>
        </gmd:name>
        <gmd:version>
          <gco:CharacterString>FM 92 GRIB Edition 2</gco:CharacterString>
        </gmd:version>
        <gmd:specification>
          <gco:CharacterString>http://www.wmo.int/pages/prog/www/WMOCodes.html</gco:CharacterString>
        </gmd:specification>
      </gmd:MD_Format>
    </gmd:distributionFormat>
    <gmd:transferOptions>
      <gmd:MD_DigitalTransferOptions>
        <gmd:onLine>
          <gmd:CI_OnlineResource>
            <gmd:linkage>
              <gmd:URL>ftp://data-portal.ecmwf.int/</gmd:URL>
            </gmd:linkage>
            <gmd:protocol>
              <gco:CharacterString>WWW:DOWNLOAD-1.0-ftp--
download</gco:CharacterString>
            </gmd:protocol>
            <gmd:name>
              <gco:CharacterString>ECMWF DCPC FTP
Server</gco:CharacterString>
            </gmd:name>
            <gmd:description>
              <gco:CharacterString>WMO Information System download
service through ECMWF DCPC</gco:CharacterString>
            </gmd:description>
            <gmd:function>
              <gmd:CI_OnlineFunctionCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/r
esources/Codelist/gmxCodelists.xml#CI_OnlineFunctionCode"
codeListValue="download">download</gmd:CI_OnlineFunctionCode>
              </gmd:function>
            </gmd:CI_OnlineResource>
          </gmd:onLine>
        </gmd:MD_DigitalTransferOptions>
      </gmd:transferOptions>
    </gmd:MD_Distribution>
  </gmd:distributionInfo>

```

### 8.1.12. Party to be recognized as the originator of the information

Table 20. Party to be recognized as the originator of the information

Template value	ADD-CITED-RESPONSIBLE-PARTY-ORGANISATION*O-MW
Information	Party that should be cited as the originator (that is, data author) of the resource.
Necessity	Optional for WCMP 1.3
Category	Product information
XPath	<code>/gmd:MD_Metadata/gmd:distributionInfo/*/gmd:distributionFormat/*/gmd:formatDistributor/*/distributorContact/gmd:CI_ResponsibleParty</code> (complex content)

When the data owners wish to be cited in references to their data, they can stipulate this in the “citedResponsibleParty” block, using the role “originator”.

Below is an example:

```

<gmd:identificationInfo>
<gmd:MD_DataIdentification>
  <gmd:citation>
    <gmd:CI_Citation>
      ... ..
      <gmd:citedResponsibleParty>
        <gmd:CI_ResponsibleParty>
          <gmd:organisationName>
            <gco:CharacterString>EUMETSAT</gco:CharacterString>
          </gmd:organisationName>
          <gmd:role>
            <gmd:CI_RoleCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/r
esources/Codelist/gmxCodelists.xml#MD_ScopeCode"
codeListValue="pointOfContact">originator</gmd:CI_RoleCode>
            </gmd:role>
          </gmd:CI_ResponsibleParty>
        </gmd:citedResponsibleParty>
        <gmd:otherCitationDetails>
          <gco:CharacterString>Add other citing instructions
here</gco:CharacterString>
        </gmd:otherCitationDetails>
        ... ..
      </gmd:CI_Citation>
    </gmd:citation>
    ... ..
  </gmd:MD_DataIdentification>
</gmd:identificationInfo>

```

Further details on how the item should be cited can be added to the “otherCitationDetails” block.

### 8.1.13. Frequency of resource updates

Table 21. Frequency of resource updates

Template value	ADD PRODUCT UPDATE FREQ PERIOD*O, ADD PRODUCT UPDATE FREQ CODE*O MW
Information	Frequency of resource update
Necessity	Optional for WCMP 1.3
Category	Product information
XPath	<code>/gmd:MD_Metadata/gmd:identificationInfo/*/gmd: resourceMaintenance/*/gmd:maintenanceAndUpdate Frequency/</code>

If the block on resource maintenance and update frequency is used, the MD\_MaintenanceFrequencyCode is mandatory.

The example below shows a product that is available every 6 hours starting at 03 UTC.

```
<gmd:resourceMaintenance>
  <gmd:MD_MaintenanceInformation>
    <gmd:maintenanceAndUpdateFrequency>
      <gmd:MD_MaintenanceFrequencyCode codeListValue="irregular"
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/r
esources/codelist/gmxCodeLists.xml#MD_MaintenanceFrequencyCode"/>
    </gmd:maintenanceAndUpdateFrequency>
    <gmd:userDefinedMaintenanceFrequency>
      <gts:TM_PeriodDuration>PT6H</gts:TM_PeriodDuration>
    </gmd:userDefinedMaintenanceFrequency>
    <gmd:maintenanceNote>
      <gco:CharacterString>ADD-PRODUCT-UPDATE-FREQ-NOTE (e.g. Instances of bulletin
SIKB20NGTT are available every 6 hours starting at 03 UTC)</gco:CharacterString>
    </gmd:maintenanceNote>
  </gmd:MD_MaintenanceInformation>
</gmd:resourceMaintenance>
```

## 8.2. Mandatory WIS technical information

In addition to the mandatory elements included in section 5.8.1 above, the following information is required:

### 8.2.1. Metadata record unique identifier

Table 22. Metadata record unique identifier

Template value	ADD-WCMP-IDENTIFIER*M
Information	Unique identifier (UID) for individual WIS discovery metadata records
Necessity	Mandatory for WCMP 1.3
Category	WIS technical information
XPath	<code>/gmd:MD_Metadata/gmd:fileIdentifier/*/text()</code>

The WCMP UID (fileIdentifier) has to be globally unique, that is, no two WIS metadata records can have the same WCMP UID.

In the absence of any system, defined by the organization creating a metadata record, that ensures uniqueness of the WCMP UID, this should be structured as follows:

```
urn:x-wmo:md:DataProviderInternetDomainName::ProductUID
```

where:

- “:” is used as a separator;
- urn:x-wmo:md: is mandatory;
- DataProviderInternetDomainName:: designates the citation authority, based on the reversed Internet domain name of the data provider (for example, int.eumetsat, gov.noaa); please note the recommended use of two colons “::”. For products exchanged on the GTS, the required form is “int.wmo.wis::”.
- ProductUID is a unique identifier whose structure is defined by the organization responsible for the metadata record.

Examples:

- UID for northern hemisphere satellite cloud information chart from Japan: urn:x-wmo:md:jp.go.jma.wis.dcp-sat::WAID
- UID for an outgoing long-wave radiation product from the FY-2D satellite: urn:x-wmo:md:cn.gov.cma::NSMC.FY2D.OLR\_MLT\_OTG.BAWX

Unique identifier for GTS products

Additional rules apply to metadata records describing products distributed through the GTS. The file identifier for bulletin metadata has the following structure:

```
urn:x-wmo:md:int.wmo.wis::{uid}
```

where {uid} is a unique identifier derived from the GTS bulletin or file name.

Further background information on constructing a file identifier for products distributed through the GTS is available in the WMO Core Metadata Profile version 1.3, Part 1, section 9.2.

An example of file identifier for a Deutscher Wetterdienst Numerical Weather Prediction Model is:

```
urn:x-wmo:md:int.wmo.wis::HTXC85EDZW
```

An example of file identifier for Meteo France Numerical Weather Prediction Model is:

```
urn:x-wmo:md:int.wmo.wis::FR-meteofrance-toulouse,GRIB,ARPEGE-75N10N-60W65E_C_LFPW
```

## 8.2.2. Metadata modification - DateStamp

Table 23. Metadata modification - DateStamp

Template value	ADD-METADATA-LAST-MODIFICATION-DATE*M
Information	Date when the metadata record was last modified
Necessity	Mandatory for WCMP 1.3

Category	WIS technical information
XPath	/gmd:MD_Metadata/gmd:dateStamp

This shows when the metadata record was last modified and has the following date pattern: YYYY MM DDThh:mm:ss, for example 2015 12 29T11:45:55.

### 8.2.3. Product creation date

Table 24. Product creation date

Template value	ADD-PRODUCT-CREATION-DATE*M
Information	Creation date of the product
Necessity	Mandatory for WCMP 1.3
Category	WIS technical information
XPath	/gmd:MD_Metadata/gmd:identificationInfo//gmd:citation//gmd:date//gmd:date/text()

This shows when the product was created and has the following date pattern: YYYY MM DD or YYYY MM DDThh:mm:ss. See also section 5.8.1.5 for details of the date/time format.

Example:

```
<gmd:date>
  <gmd:CI_Date>
    <gmd:date>
      <gco>Date>2015-03-23</gco>Date>
    </gmd:date>
    <gmd:dateType>
      <gmd:CI_DateTypeCode
codeList="http://standards.iso.org/ittf/PubliclyAvailableStandards/ISO_19139_Schemas/r
esources/Codelist/gmxCodelists.xml#CI_DateTypeCode" codeListValue="creation"/>
      </gmd:dateType>
    </gmd:CI_Date>
  </gmd:date>
```



# Chapter 9. Technical Document

More details on the WCMP metadata can be found at [http://wis.wmo.int/MD\\_Index](http://wis.wmo.int/MD_Index).

# Chapter 10. Annex. Criteria for Creating a Metadata Record That Represents a Collection of Products

This annex defines criteria and other elements to consider when creating a metadata record that represents a collection of products.

To understand the notion of collection, it is important to distinguish between a dataset and a temporal subset of a dataset. Meteorological data is often transient (for example, observations, forecasts and NWP products) and continuously updated. A dataset is typically seen as an aggregate of temporal instances or subsets (the collection) and, as explained below, metadata for a dataset is not typically set at the instance level. This is so even when a new instance or subset of a dataset is produced daily, and when only the latest day of data is ever available (in that case, the temporalExtent of the dataset is “latest 24 hours only”).

The criteria to be considered when creating the collection metadata record include:

1. Size of dataset instances:

An important consideration, in terms of dataset granularity, is how the dataset instances will be made available to end users; for instance, push or pull services, with filter capabilities or not.

Numerical model output could be seen as a four- and even five-dimensional dataset (latitude, longitude, height, time, reference time). It is possible to set granularity at this level, but the amount of data would be huge, and it would not be possible to exchange the whole dataset using “push” mode. Such large scale granularity of data is ideally provided via download (or publish-subscribe) services with subsetting capabilities (for instance, Web Coverage Service (WCS) or direct download INSPIRE services). When the data provider is not able to implement such services, and when only predefined datasets or time windows are made available (for example, datasets for global exchange on the WIS) the granularity may have to be finer. For example, the French high-resolution model, AROME, is split into two daily subsets:

- Dataset 1: AROME 0°01 FRANCE – 00h–23h
- Dataset 2: AROME 0°01 FRANCE – 24h–45h

where Dataset 1 covers hourly steps H to H+23h and Dataset 2 covers hourly steps H+24 to H+45.

The granularity of the subsets is chosen according to the size of the instances to be exchanged, and the size of the granules (500 Mb, 1Gb, etc.) should be compatible with the bandwidth available for data exchange. Note that it is also possible to define an aggregate of two subsets, for instance: \*\* Dataset 0: AROME 0°01 FRANCE

where Dataset 0 is an aggregate of Dataset 1 and Dataset 2;

1. Content consistency:

It is recommended, if possible, not to blend multiple data categories or topics in the same dataset,

which would result in a heterogeneous aggregate. For example, an aggregate of satellite observations and weather forecasts would typically not make sense (unless they had been combined for a particular purpose); whereas an aggregate of lake pollution and river pollution data makes sense, especially if the data processing has been similar and the data license is the same.

More generally, dataset heterogeneity in terms of content can result in very vague descriptions in the metadata, which will in turn affect data discoverability on the WIS;

1. Update frequency and other temporal characteristics:

The refresh rate of data also has to be taken into account, in terms of dataset granularity, because this will have an impact on catalogues.

Setting the dataset/metadata granularity at the temporal instance level instead of time series level would require the generation (automatically) of a lot of metadata records and the update of catalogues in near real time. It would also make it difficult to synchronize metadata records among the GISCs, especially through harvesting processes. Such a large number of metadata records would also make it difficult for users to find the information they were seeking. For instance, a “French WMO Resolution 40 Essential SYNOP” dataset could be seen as a temporal series and, provided that the entire dataset continues to be available, the discovery metadata should be provided at this level not at temporal instance level (for example, “French WMO Resolution 40 Essential SYNOP 2016-04-07T12:00:00Z”).

It is also recommended not to blend data of different refresh rates in the same dataset, because it will not be possible to specify the update frequency in discovery metadata records;

1. Data policy and distribution scope:

A dataset shall be homogeneous in terms of data policy, including WMO distribution policy, which is described through WMO\_DistributionScopeCode, WMO\_DataLicenseCode, WMO\_GTSPProductCategoryCode and MD\_RestrictionCode codelists. The Manual on WIS, Appendix C, Part C1, section 9.3 states: “The presence of more than one WMO data-policy statement in a single metadata record yields an ambiguous state; a WIS discovery metadata record describing data for global exchange shall declare only a single WMO data policy.”;

1. Spatial extent:

Except for global datasets, a coarse granularity is likely to affect the discoverability of data on the basis of a spatial criterion, especially if the areas where data are available are disjoint. For example, synoptic observations from the French Overseas Departments of Guyana, Martinique, Reunion and Guadeloupe are dispatched in different datasets.

## Field hierarchy and cardinality

Below is a nested list of fields likely to be used in a WCMP record, together with their cardinality.

Cardinality is denoted by [x..y]. Where it is preceded by ISO, the cardinality in the WCMP will be the same. Where it is different, the cardinality for both ISO and WCMP will be appended to the element name.

As noted in paragraph 5.7.10, many optional subsections of a WCMP record contain elements that

are mandatory only if that subsection is used. See, for example, the identifier, authority and title segments, as shown in lines 53–57 in the hierarchical list of fields below, where identifier is optional [0..n] and, even if it is used, authority is also optional [0..n]; however, if authority is used, then title is mandatory [1..1].

The cardinality notation [x..y] indicates the minimum and maximum allowable times that the element may be used within that part of the hierarchy or tree.

For instance, the notation:

[0..n] means that the element is optional, but can also be used any number of times;

[1..2] means that it is mandatory (there must be at least one) and may be used a maximum of two times.

```
1  MD_Metadata_ ._.ISO[1..1]
2  _ .fileIdentifier_ .char_ ._.WMO[1..1] , ISO[0..1]
3  _ .language_ .char_ ._.ISO[0..1]
4  _ .characterSet_ .CODE:MD_CharacterSetCode_ ._.ISO[0..1]
5  _ .parentIdentifier_ .char_ ._.ISO[0..1]
6  _ .hierarchyLevel_ .char_ ._.ISO[0..n]
7  _ .hierarchyLevelName_ .char_ ._.ISO[0..n]
8
9  _ .contact_ ._.ISO[1..n]
10 _ ._.CI_ResponsibleParty
see lines 66-99, for all fields available for CI_ResponsibleParty
11 _ ._.individualName_ .char_ ._.ISO[0..1]
12 _ ._.organisationName_ .char_ ._.ISO[0..1]
13 _ ._.contactInfo_ ._.ISO[0..1]
14 _ ._.CI_Contact_ ._.
15 _ ._.address_ ._.ISO[0..1]
16 _ ._.CI_Address_ ._.
17 _ ._.electronicMailAddress_ .char_ ._.ISO[0..n]
18 _ ._.role_ .CODE:CI_RoleCode_ ._.ISO[1..1]
19
20 _ .dateStamp_ .DATETIME_ ._.ISO[1..1]
21 _ .metadataStandardName_ .char_ ._.ISO[0..1]
22 _ .metadataStandardVersion_ .char_ ._.ISO[0..1]
23 _ .dataSetURI_ .char_ ._.ISO[0..1]
24
~~~~~
25 _ .spatialRepresentationInfo_ ._.ISO[0..n]
26 _ ._.MD_GridSpatialRepresentation
27 _ ._.numberOfDimensions_ .integer_ ._.ISO[1..1]
28 _ ._.axisDimensionProperties_ ._.ISO[1..1]
29 _ ._.MD_Dimension_ ._.
30 _ ._.dimensionName_ .CODE:MD_DimensionNameTypeCode_ ._.ISO[1..1]
31 _ ._.dimensionSize_ .integer_ ._.ISO[1..1]
32 _ ._.resolution_ .SCALE_ ._.ISO[0..1]
33 _ ._.dimensionName_ .CODE:MD_DimensionNameTypeCode_ ._.ISO[1..1]
34 _ ._.dimensionSize_ .integer_ ._.ISO[1..1]
```

```

35 _ _ _ .resolution_ .SCALE_ _ .ISO[0..1]
36 _ _ _ .cellGeometry_ .CODE:MD_CellGeometryCode_ _ .ISO[1..1]
37 _ _ _ .transformationParameterAvailability_ .Boolean_ _ .ISO[1..1]
38
~~~~~
39
40 _ .identificationInfo_ _ .ISO[1..n]
41 _ _ .MD_DataIdentification_ .
42
43 _ _ _ .citation_ _ .ISO[1..1]
44 _ _ _ .CI_Citation_ _ .
45 _ _ _ .title_ .char_ _ .ISO[1..1]
46 _ _ _ .alternateTitle_ .char_ _ .ISO[0..n]
47 _ _ _ .DATE_ _ .ISO[1..n]
48 _ _ _ .CI_Date_ .
49 _ _ _ .DATE_ .DATETIME_ _ .ISO[1..1]
50 _ _ _ .dateType_ .CODE:CI_DateTypeCode_ _ .ISO[1..1]
51 _ _ _ .edition_ .char_ _ .ISO[0..1]
52
53 _ _ _ .identifier_ _ .ISO[0..n]
54 _ _ _ .MD_Identifier_ _ .
55 _ _ _ .authority_ _ .ISO[0..1]
56 _ _ _ .CI_Citation_ _ .
see lines 43-111, for all fields available for CI_Citation
57 _ _ _ .title_ .char_ _ .ISO[1..1]
58 _ _ _ .alternateTitle_ .char_ _ .ISO[0..n]
59 _ _ _ .DATE_ _ .ISO[1..n]
60 _ _ _ .CI_Date_ .
61 _ _ _ .DATE_ .DATE_ _ .ISO[1..1]
62 _ _ _ .dateType_ .CODE:CI_DateTypeCode_ _ .ISO[1..1]
63 _ _ _ .code_ .char_ _ .ISO[1..1]
64
65 _ _ _ .citedResponsibleParty_ _ .ISO[0..n]
66 _ _ _ .CI_ResponsibleParty_ _ .
67 _ _ _ .individualName_ .char_ _ .ISO[0..1] *C
68 _ _ _ .organisationName_ .char_ _ .ISO[0..1] *C
69 _ _ _ .positionName_ .char_ _ .ISO[0..1] *C
70
71 _ _ _ .contactInfo_ _ .ISO[0..1]
72 _ _ _ .CI_Contact_ _ .
73
74 _ _ _ .phone_ _ .ISO[0..1]
75 _ _ _ .CI_Telephone_ _ .
76 _ _ _ .voice_ .char_ _ .ISO[0..n]
77 _ _ _ .facsimile_ .char_ _ .ISO[0..n]
78
79 _ _ _ .address_ _ .ISO[0..1]
80 _ _ _ .CI_Address_ _ .
81 _ _ _ .deliveryPoint_ .char_ _ .ISO[0..n]
82 _ _ _ .city_ .char_ _ .ISO[0..1]
83 _ _ _ .administrativeArea_ .char_ _ .ISO[0..1]

```

```

84 _ _ _ _ _ .postalCode_ .char_ _ .ISO[0..1]
85 _ _ _ _ _ .country_ .char_ _ .ISO[0..1]
86 _ _ _ _ _ .electronicMailAddress_ .char_ _ .ISO[0..n]
87
88 _ _ _ _ _ .onlineResource_ _ .ISO[0..1]
89 _ _ _ _ _ .CI_OnlineResource_ _ .
90 _ _ _ _ _ .linkage_ .URL_ _ .ISO[1..1]
91 _ _ _ _ _ .protocol_ .char_ _ .ISO[0..1]
92 _ _ _ _ _ .applicationProfile_ .char_ _ .ISO[0..1]
93 _ _ _ _ _ .name_ .char_ _ .ISO[0..1]
94 _ _ _ _ _ .description_ .char_ _ .ISO[0..1]
95 _ _ _ _ _ .function_ .CODE:CI_OnLineFunctionCode_ _
.ISO[0..1]
96
97 _ _ _ _ _ .hoursOfService_ .char_ _ .ISO[0..1]
98 _ _ _ _ _ .contactInstructions_ .char_ _ .ISO[0..1]
99 _ _ _ _ _ .role_ .CODE:CI_RoleCode_ [1..1].
100
101 _ _ _ _ _ .presentationForm_ .CODE:CI_PresentationFormCode_ _ .ISO[0..n]
102
103 _ _ _ _ _ .series_ _ .ISO[0..1]
104 _ _ _ _ _ .CI_Series_ .
105 _ _ _ _ _ .name_ .char_ _ .ISO[0..1]
106 _ _ _ _ _ .issueIdentification_ .char_ _ .ISO[0..1]
107 _ _ _ _ _ .page_ .char_ _ .ISO[0..1]
108 _ _ _ _ _ .otherCitationDetails_ .char_ _ .ISO[0..1]
109 _ _ _ _ _ .collectiveTitle_ .char_ _ .ISO[0..1]
110 _ _ _ _ _ .ISBN_ .char_ _ .ISO[0..1]
111 _ _ _ _ _ .ISSN_ .char_ _ .ISO[0..1]
112
113
114 _ _ _ .abstract_ .char_ _ .ISO[1..1]
115 _ _ _ .purpose_ .char_ _ .ISO[0..1]
116 _ _ _ .credit_ .char_ _ .ISO[0..n]
117 _ _ _ .status_ .CODE:MD_ProgressCode_ _ .ISO[0..n]
118
119 _ _ _ .pointOfContact_ _ .ISO[0..n]
120 _ _ _ .CI_ResponsibleParty_ _ .
121 _ _ _ .individualName_ .char_ _ .ISO[0..1]
122 _ _ _ .organisationName_ .char_ _ .ISO[0..1]
123 _ _ _ .positionName_ .char_ _ .ISO[0..1]
124 _ _ _ .contactInfo_ _ .ISO[0..1]
125 _ _ _ .CI_Contact_ _ .
126 _ _ _ .phone_ _ .ISO[0..1]
127 _ _ _ .CI_Telephone_ _ .
128 _ _ _ .voice_ .char_ _ .ISO[0..1]
129 _ _ _ .facsimile_ .char_ _ .ISO[0..1]
130 _ _ _ .address_ _ .ISO[0..1]
131 _ _ _ .CI_Address_ _ .
132 _ _ _ .deliveryPoint_ .char_ _ .ISO[0..1]
133 _ _ _ .electronicMailAddress_ .char_ _ .ISO[0..1]

```

```

134 _ . _ . _ . _ .role_ .CODE:CI_RoleCode_ _ .ISO[1..1]
135
136 _ . _ . _ .resourceMaintenance_ _ .ISO[0..n]
137 _ . _ . _ .MD_MaintenanceInformation_ .
138 _ . _ . _ . _ .maintenanceAndUpdateFrequency_ .
      CODE: MD_MaintenanceFrequencyCode_ _ .ISO[1..1]
139 _ . _ . _ . _ .userDefinedMaintenanceFrequency_ .TM_PeriodDuration_ _ .ISO[0..1]
140 _ . _ . _ . _ .updateScopeDescription_ _ .ISO[0..n]
141 _ . _ . _ . _ .MD_ScopeDescription_ .
142 _ . _ . _ . _ . _ .dataset_ .char_ _ .ISO[1..1]
143 _ . _ . _ . _ .maintenanceNote_ .char_ _ .ISO[0..n]
144
145 _ . _ . _ .graphicOverview_ _ .ISO[0..n]
146 _ . _ . _ .MD_BrowseGraphic_ .
147 _ . _ . _ . _ .fileName_ .char_ _ .ISO[1..1]
148 _ . _ . _ . _ .fileDescription_ .char_ _ .ISO[0..1]
149 _ . _ . _ . _ .fileType_ .char_ _ .ISO[0..1]
150
151 _ . _ . _ .descriptiveKeywords_ _ WMO[1..n] _ .ISO[0..n]
152 _ . _ . _ .MD_Keywords_ .
153 _ . _ . _ . _ .keyword_ .char_ _ .ISO[1..n]
154 _ . _ . _ . _ .type_ .CODE:MD_KeywordTypeCode_ _ .ISO[0..1]
155 _ . _ . _ . _ .thesaurusName_ _ .ISO[0..1]
156 _ . _ . _ . _ . _ .CI_Citation_ _ .
see lines 43-111, for all fields available for CI_Citation
157 _ . _ . _ . _ . _ .title_ .char_ _ .ISO[1..1]
158 _ . _ . _ . _ . _ .DATE_ _ .ISO[1..1]
159 _ . _ . _ . _ . _ . _ .CI_Date_ _ .
160 _ . _ . _ . _ . _ . _ .DATE_ .DATE_ _ .ISO[1..1]
161 _ . _ . _ . _ . _ . _ .dateType_ .CODE:CI_DateTypeCode_ _ .ISO[1..1]
162
163 _ . _ . _ .resourceSpecificUsage_ _ .ISO[0..n]
164 _ . _ . _ .MD_Usage_ .
165 _ . _ . _ . _ .specificUsage_ .char_ _ .ISO[1..1]
166 _ . _ . _ . _ .userDeterminedLimitations_ .char_ _ .ISO[0..n]
167 _ . _ . _ . _ .userContactInfo_ _ .ISO[1..n]
168 _ . _ . _ . _ . _ .CI_ResponsibleParty_ _ .
see lines 66-99, for all fields available for CI_ResponsibleParty
169 _ . _ . _ . _ . _ .individualName_ .char_ _ .ISO[0..1]
170 _ . _ . _ . _ . _ .organisationName_ .char_ _ .ISO[0..1]
171 _ . _ . _ . _ . _ .role_ .CODE:CI_RoleCode_ _ .ISO[1..1]
172
173 _ . _ . _ .resourceConstraints_ _ .ISO[0..n]
174 _ . _ . _ .MD_Constraints_ . ISO[0..n]
175 _ . _ . _ . _ .useLimitation_ _ .ISO[0..n]
176 _ . _ . _ . _ .MD_LegalConstraints_ . ISO[0..n]
177 _ . _ . _ . _ .useLimitation_ .char_ _ .ISO[0..n]
178 _ . _ . _ . _ .accessConstraints_ .CODE:MD_RestrictionCode_ _ .ISO[0..n]
179 _ . _ . _ . _ .accessConstraints_ .CODE:MD_RestrictionCode_ _ .ISO[0..n]
180 _ . _ . _ . _ .useConstraints_ .CODE:MD_RestrictionCode_ _ .ISO[0..n]
181 _ . _ . _ . _ .useConstraints_ .CODE:MD_RestrictionCode_ _ .ISO[0..n]

```

```

182 _ _ _ _ _ .otherConstraints_ .char_ _ .ISO[0..n]
183 _ _ _ _ _ .otherConstraints_ .char_ _ .ISO[0..n]
184 _ _ _ _ _ .MD_SecurityConstraints_ . ISO[0..n]
185 _ _ _ _ _ .useLimitation_ .char_ _ .ISO[0..n]
186 _ _ _ _ _ .classification_ .CODE:MD_ClassificationCode_ _ .ISO[1..1]
187 _ _ _ _ _ .userNote_ .char_ _ .ISO[0..1]
188 _ _ _ _ _ .classificationSystem_ .char_ _ .ISO[0..1]
189 _ _ _ _ _ .handlingDescription_ .char_ _ .ISO[0..1]
190
191 _ _ _ .aggregationInfo_ _ .ISO[0..n]
192 _ _ _ _ .MD_AggregateInformation_ .
193
194 _ _ _ _ _ .aggregateDataSetName_ _ .ISO[0..1]
195 _ _ _ _ _ .CI_Citation_ _ .
see lines 43-111, for all fields available for CI_Citation
196 _ _ _ _ _ .title_ .char_ _ .ISO[1..1]
197 _ _ _ _ _ .DATE_ _ .ISO[1..1]
198 _ _ _ _ _ .CI_Date_ _ .
199 _ _ _ _ _ .DATE_ . DATE _ _ .ISO[1..1]
200 _ _ _ _ _ .dateType_ .CODE:CI_DateTypeCode_ _ .ISO[1..1]
201
202 _ _ _ _ _ .aggregateDataSetIdentifier_ _ .ISO[0..1]
203 _ _ _ _ _ .MD_Identifier_ .
204 _ _ _ _ _ .authority_ _ .ISO[0..1]
205 _ _ _ _ _ .CI_Citation_ _ .
see lines 43-111, for all fields available for CI_Citation
206 _ _ _ _ _ .title_ .char_ _ .ISO[1..1]
207 _ _ _ _ _ .DATE_ _ .ISO[1..1]
208 _ _ _ _ _ .CI_Date_ _ .
209 _ _ _ _ _ .DATE_ . DATE _ _ .ISO[1..1]
210 _ _ _ _ _ .dateType_ .CODE:CI_DateTypeCode_ _ .ISO[1..1]
211 _ _ _ _ _ .code_ .char_ _ .ISO[1..1]
212
213 _ _ _ _ _ .associationType_ .CODE:DS_AssociationTypeCode_ _ .ISO[1..1]
214 _ _ _ _ _ .initiativeType_ .CODE:DS_InitiativeTypeCode_ _ .ISO[0..1]
215
216 _ _ _ .spatialRepresentationType
217 _ _ _ _ .MD_SpatialRepresentationTypeCode
CODE: MD_SpatialRepresentationTypeCode ISO[0..n]
218
219 _ _ _ .spatialResolution_ _ .ISO[0..n]
220 _ _ _ _ .MD_Resolution_ _ .ISO[ ..]
221 _ _ _ _ _ .equivalentScale_ _ .ISO[1..1]
222 _ _ _ _ _ .MD_RepresentativeFraction_ .
223 _ _ _ _ _ .denominator_ .integer_ _ .ISO[1..1]
224
225 _ _ _ .language_ .char_ _ .ISO[1..n]
226 _ _ _ .characterSet_ .CODE:MD_CharacterSetCode_ _ .ISO[0..n]
227 _ _ _ .topicCategory_ .CODE:MD_TopicCategoryCode_ _ .WMO[1..n] ISO[0..n]
228 _ _ _ .environmentDescription_ .char_ _ .ISO[0..1]
229

```



```

230 _ . _ . .extent_ . _ .ISO[0..n]
231 _ . _ . .EX_Extent_ .
232 _ . _ . .description_ .char_ . _ .ISO[0..1]
233 _ . _ . .geographicElement_ . _ .ISO[0..n] (Mandatory, if data is
geospatial)
234 _ . _ . .EX_GeographicBoundingBox_
235 _ . _ . .westBoundLongitude_ .DECIMAL_ . _ .ISO[1..1]
236 _ . _ . .eastBoundLongitude_ . DECIMAL_ . _ .ISO[1..1]
237 _ . _ . .southBoundLatitude_ . DECIMAL_ . _ .ISO[1..1]
238 _ . _ . .northBoundLatitude_ . DECIMAL_ . _ .ISO[1..1]
239
240
241 _ . _ . .geographicElement_ . ISO[0..n]
242 _ . _ . .EX_GeographicDescription_ .
243 _ . _ . .extentTypeCode_ . _ .Boolean_ . _ .ISO[0..1]
244 _ . _ . .geographicIdentifier_ . _ .ISO[1..1]
245 _ . _ . .MD_Identifier_ .
246 _ . _ . .code_ .char_ . _ .ISO[1..1]
247
248
249 _ . _ . .temporalElement_ . _ .ISO[0..n]
250 _ . _ . .EX_TemporalExtent_ .
251 _ . _ . .extent_ . _ .ISO[1..1]
252
253 _ . _ . .supplementalInformation_ .char_ . _ .ISO[0..1]
254
~~~~~
255
256 _ .referenceSystemInfo_ . _ .ISO[0..n]
257 _ . _ .MD_ReferenceSystem_ .
258 _ . _ .referenceSystemIdentifier_ . _ .ISO[0..1]
259 _ . _ .RS_Identifier_ .
260 _ . _ . .authority_ . _ .ISO[0..1]
261 _ . _ . .code_ .char_ . _ .ISO[1..1]
262 _ . _ . .codeSpace_ .char_ . _ .ISO[0..1]
263 _ . _ . .version_ .char_ . _ .ISO[0..1]
264
~~~~~
265
266 _ .contentInfo_ . _ .ISO[0..n]
267 _ . _ .MD_CoverageDescription_ .
268 _ . _ .attributeDescription_ . _ .ISO[1..1]
269 _ . _ .RecordType_ . _ .
270 _ . _ .contentType_ .CODE:MD_CoverageContentTypeCode_ . _ .ISO[1..1]
271
~~~~~
272
273 _ .distributionInfo_ . _ .ISO[0..1]
274 _ . _ .MD_Distribution_ .
275 _ . _ .distributionFormat_ . _ .ISO[0..n]
276 _ . _ .MD_Format_ .

```

```

277 _ . _ . _ . _ .name_ .char_ _ .ISO[1..1]
278 _ . _ . _ . _ .version_ .char_ _ .ISO[1..1]
279 _ . _ . _ . _ .amendmentNumber_ .char_ _ .ISO[0..1]
280 _ . _ . _ . _ .specification_ .char_ _ .ISO[0..1]
281 _ . _ . _ . _ .fileDecompressionTechnique_ .char_ _ .ISO[0..1]
282
283 _ . _ . _ . _ .formatDistributor_ _ .ISO[0..n]
284 _ . _ . _ . _ .MD_Distributor_ .
285 _ . _ . _ . _ .distributorContact_ _ .ISO[1..1]
286 _ . _ . _ . _ . _ .CI_ResponsibleParty_ .
see lines 66-99, for all fields available for CI_ResponsibleParty
287 _ . _ . _ . _ . _ .individualName_ .char_ _ .ISO[0..1]
288 _ . _ . _ . _ . _ .organisationName_ .char_ _ .ISO[0..1]
289 _ . _ . _ . _ . _ .role_ .CODE:CI_RoleCode_ _ .ISO[1..1]
290 _ . _ . _ . _ . _ .distributorTransferOptions_ _ .ISO[0..n]
291 _ . _ . _ . _ . _ .MD_DigitalTransferOptions_ .
292 _ . _ . _ . _ . _ .unitsOfDistribution_ .char_ _ .ISO[0..1]
293 _ . _ . _ . _ . _ .transferSize_ .Real_ _ .ISO[0..1]
294
295 _ . _ . _ . _ . _ .onLine_ _ .ISO[0..n]
296 _ . _ . _ . _ . _ .CI_OnlineResource_ .
297 _ . _ . _ . _ . _ .linkage_ .URL_ _ .ISO[1..1]
298 _ . _ . _ . _ . _ .protocol_ .char_ _ .ISO[0..1]
299 _ . _ . _ . _ . _ .name_ .char_ _ .ISO[0..1]
300 _ . _ . _ . _ . _ .description_ .char_ _ .ISO[0..1]
301 _ . _ . _ . _ . _ .function_ .CODE: CI_OnLineFunctionCode_ _
.ISO[0..1]
302
~~~~~
303
304 _ .dataQualityInfo_ _ .ISO[0..n]
305 _ . _ .DQ_DataQuality_ .
306 _ . _ .scope_ _ .ISO[1..1]
307 _ . _ . _ .DQ_Scope_ .
308 _ . _ . _ . _ .level_ .CODE:MD_ScopeCode_ _ .ISO[1..1]
309 _ . _ . _ . _ .extent_ .
310 _ . _ . _ . _ .levelDescription_ _ .ISO[0..n]
311 _ . _ . _ . _ .MD_ScopeDescription_ .
312 _ . _ . _ . _ .dataset_ .char_ _ .ISO[1..1]
313 _ . _ . _ .lineage_ _ .ISO[0..1]
314 _ . _ . _ .LI_Lineage_ .
315 _ . _ . _ . _ .statement_ .char_ _ .ISO[0..1]
316
317 _ . _ . _ . _ .processStep_ _ .ISO[0..n]
318 _ . _ . _ . _ .LI_ProcessStep_ .
319 _ . _ . _ . _ .description_ .char_ _ .ISO[1..1]
320 _ . _ . _ . _ .rationale_ .char_ _ .ISO[0..1]
321 _ . _ . _ . _ .source_ _ .ISO[0..n]
322 _ . _ . _ . _ . _ .LI_Source_ .
323 _ . _ . _ . _ . _ .description_ .char_ _ .ISO[0..1]
324 _ . _ . _ . _ . _ .sourceCitation_ _ .ISO[0..1]

```

```

325 _ . _ . _ . _ . _ . _ .CI_Citation_ . _ .
326
327 _ . _ . _ . _ .source_ . _ .ISO[0..n]
328 _ . _ . _ . _ .LI_Source_ .
329 _ . _ . _ . _ .description_ .char_ . _ .ISO[0..1]
330
~~~~~
331
332 _ .metadataConstraints_ . _ .ISO[0..n]
333 _ .MD_Constraints_ .
334 _ . _ .useLimitation_ .char_ . _ .ISO[0..n]
335 _ .MD_LegalConstraints_ .
336 _ . _ .useLimitation_ .char_ . _ .ISO[0..n]
337 _ . _ .accessConstraints_ .CODE: MD_RestrictionCode_ . _ .ISO[0..n]
338 _ . _ .useConstraints_ .CODE: MD_RestrictionCode
339 _ . _ .otherConstraints_ .char_ . _ .ISO[0..n]
340
~~~~~
341
342 _ .applicationSchemaInfo_ . _ .ISO[0..n]
343 _ .MD_ApplicationSchemaInformation_ .
344 _ . _ .name_ . _ .ISO[1..1]
345 _ . _ . _ .CI_Citation_ . _ .
see lines 43-111, for all fields available for CI_Citation
346 _ . _ .schemaLanguage_ .char_ .
347 _ . _ .constraintLanguage_ .char_ . _ .ISO[1..1]
348
~~~~~
349
350 _ .metadataMaintenance_ .
351 _ .MD_MaintenanceInformation_ . _ .ISO[0..1]
352 _ . _ .maintenanceAndUpdateFrequency_ . CODE:MD_MaintenanceFrequencyCode_ . _
.ISO[1..1]
353 _ . _ .dateOfNextUpdate_ .DATE_ . _ .ISO[1..1]
354 _ . _ .userDefinedMaintenanceFrequency_ .PERIODDURATION_ . _ .ISO[0..1]
355 _ . _ .updateScope_ .CODE:MD_ScopeCode_ . _ .ISO[0..1]
356 _ . _ .updateScopeDescription_ . _ .ISO[0..n]
357 _ . _ . _ .MD_ScopeDescription_ . _ .ISO[0..n]
358 _ . _ . _ .dataset_ .char_ .
359 _ . _ .maintenanceNote_ .char_ . _ .ISO[1..1]
360

```