

Guidance for the NCEI Collection Level Metadata Template v1.2

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Version	Date	Description	Responsible Party
v1.1	2019-10-04	Initial Publication	NCEI Metadata Working Group
v1.2	2020-04-08	Updated URLs to ISO Explorer, clarified guidance on data citations, added an example for ORCID integration and fixed minor typos.	Anna Milan

[Introduction](#)

[Scope](#)

[Template Overview](#)

[Syntax in the XML](#)

[Guidance](#)

[ISO MI_Metadata](#)

[ISO MD_DataIdentification](#)

[ISO CI_Citation for Data](#)

[ISO MD_Keywords](#)

[ISO CI_ResponsibleParty](#)

[ISO EX_Extent](#)

[ISO MD_Identifier](#)

[ISO MD_AggregateInformation](#)

[ISO MD_AggregateInformation for Parent Cruise](#)

[ISO MD_AggregateInformation for Related Projects](#)

[ISO MD_AggregateInformation for Related Data](#)

[ISO MD_AggregateInformation for Related Publications and Documents](#)

[ISO MD_AggregateInformation for Google Scholar Search Results](#)

[ISO MD_Distributor](#)

[ISO MD_StandardOrderProcess](#)

[ISO MD_Format](#)

[ISO MD_DigitalTransferOptions for onLine](#)

[ISO MD_DigitalTransferOptions for offLine](#)

[ISO MD_MaintenanceInformation](#)

[Categories of Information](#)

[Organizations and People](#)

[Data Identifiers](#)

[Data Citations](#)

[Data Distribution Link Types](#)

[Template Maintenance](#)

Introduction

Standardized metadata allows data to be findable, accessible, interoperable and reusable (FAIR) by users. The NCEI Collection Level Metadata Template, also referred to as the "Template" throughout this document, contains technical and content specifications for the collection level metadata representing the data and products that are archived, published and managed by NCEI. The Template is a means to assure consistency across and interoperability of NCEI's metadata records; and to establish a framework for the NCEI systems that support and use this metadata.

The objectives include:

- Establish a comprehensive set of consistent, standard metadata capable of representing all NCEI data holdings.
- Provide a transparent understanding about how metadata content will be used for data discovery.
- Ultimately, improve the end users' ability to find and use NCEI's data.

This guidance document is intended for NCEI staff who are directly involved in the management of collection level metadata records or

developing tools to support metadata following the Template. It is assumed that the reader has a general knowledge of the standards, tools and workflows in use at NCEI.

Scope

A collection level metadata record represents a data collection. For the purpose of this guidance, a collection is a grouping of environmental data or products that share common characteristics, and consists of one or more granules. However, given NCEI's diverse holdings of datatypes and diverse data management approaches, this may mean very different things to different data managers and applicability of the collection level concept will have to be determined on a case-by-case basis.

The Template, specifically, does not apply to the following types of NCEI resources:

- Granules: the smallest aggregation of data that can be independently managed (described, inventoried, and retrieved)
- Events, such as a cruise
- Publications
- Map layers
- Services
- Projects
- Data not managed by NCEI

Template Overview

The NCEI Collection Level Metadata Template provides guidance for four sections in the ISO 19115-2 standard and the information is presented based on the order in which the fields occur in the ISO standard. The Template defines the minimum set of information that all NCEI metadata records should have. If there is a need to use additional sections in the ISO standard the Template does not preclude this and the additional fields may be required by the NOAA Completeness Rubric, other systems and may be relevant to include for your dataset.

- Metadata Information section
- Data Identification section
- Data Distribution
- Metadata Maintenance section.

Additional information on the specific fields in the ISO standard can be found in the ISO Explorer wiki

(https://www.ngdc.noaa.gov/wiki/index.php/MI_Metadata). If the guidance in the Template differs from the ISO Explorer the guidance in the

Template takes precedence. The most common area where you will see this type of difference is when the ISO standard says a field is optional but NCEI has made the decision that the field should be mandatory for all records or when there is specific NCEI content required.

Note, NCEI has many disparate systems and the Template is addressing known system differences in the content where possible. For example, there are multiple ways to represent the NCEI dataset identifiers ([Data Identifiers](#) table). If you discover scenarios where the recommendations don't work within your system or for your data please bring concerns to the [NCEI Metadata Working Group](#) to be discussed.

There are two copies of the template published to the NOAA WAF, one has guidance embedded throughout in XML comments and will not validate and the other does not have guidance, but will validate.

- https://data.noaa.gov/waf/templates/iso_u/xml/ncei_template.xml
- https://data.noaa.gov/waf/templates/iso_u/xml/ncei_template-clean.xml

The Template will be updated as needed and reviewed annually. See [Template Maintenance](#) section for more details.

Syntax in the XML

Template guidance [in the raw XML](#) is presented in different ways depending on the purpose of the field.

Standardized values

Standardized values are presented for certain fields within the standard to ensure that consistent information is presented to users - primarily contacts and data use constraints. If a field has a fixed value the content will be presented in this manner (example)

```
<gmd:pointOfContact>
  <gmd:CI_ResponsibleParty>
    <gmd:organisationName>
      <gco:CharacterString>NOAA National Centers for Environmental Information</gco:CharacterString>
    </gmd:organisationName>
  </gmd:CI_ResponsibleParty>
</gmd:pointOfContact>
```

Format Requirements

Specific fields in the ISO record require that information follow a specific format in order to validate. If a field has domain specific formatting this format will be presented in double `{{}}` brackets. Example below:

```
<gmd:CI_Date>
  <gmd:date>
    <gco:Date>{{yyyy-mm-dd}} </gco:Date>
  </gmd:date>
</gmd:CI_Date>
```

Field level guidance

Field level guidance is presented in two manners within the Template. Double `{{}}` brackets provide a brief overview of the type of information that should be captured in the field. XML comments represented as `<!-- GUIDANCE:-->` provide additional details including more details about the type of information that should be added to the field along with field level conditionality (mandatory/conditional/optional). Example below:

```
<gmd:title>
  <gco:CharacterString>{{document title}} <!-- GUIDANCE: Optional. Include citations to documents that are not
    distributed with the data.--></gco:CharacterString>
</gmd:title>
```

Guidance

The guidance in the following tables follows the structure of the ISO metadata standard when the header begins with "ISO ...". When there are specific content requirements independent of the ISO structure, there are other tables in the [Categories of Information](#) section. Each table has links to the tables it is referenced from, to another table that has more details and to the relevant ISO Explorer page, as applicable.

ISO MI_Metadata

Go to [ISO Explorer](#).

Element name	Obligation	Explanation
fileIdentifier	Mandatory	<ul style="list-style-type: none"> The value is composed of a namespace and a unique id, separated by a colon. Ensure that the value after the namespace is as unique as possible and only contains alphanumeric values. Note: if identifiers are not in compliance, it will be addressed case-by-case as needed. Further determinations about namespace and normalization of fileIdentifier values will be addressed by a working group independently of the NCEI Template and in coordination with NCEI metadata tool support.
parentIdentifier	Not Allowed	This field is reserved for granule metadata only.
hierarchyLevel	Mandatory, Repeatable	<p>Recommend using the following codes as applicable to the collection:</p> <ul style="list-style-type: none"> "series" for collections with granules "dataset" for a collection that does not have granules <p>Manadatory for non geospatial data, such as space weather data:</p> <ul style="list-style-type: none"> "nonGeographicDataset"
contact	Mandatory	<p>The metadata contact shall be NCEI. No additional contacts are allowed.</p> <p>https://data.noaa.gov/docucomp/440b3ac2-64a5-46e2-9846-38305718b644</p> <p>See Organizations and People table for more details.</p>
dateStamp	Mandatory	<p>Either gco:Date and gco:DateTime are acceptable.</p> <p>See ISO Explorer guidance.</p>

metadataStandardName	Mandatory	The value shall always be: "ISO 19115-2 Geographic Information - Metadata - Part 2: Extensions for Imagery and Gridded Data" .
metadataStandardVersion	Mandatory	The value shall always be: "ISO 19115-2:2009(E)" .
identificationInfo	Mandatory	See ISO MD_DataIdentification .
distributionInfo	Mandatory	See ISO MD_Distributor .
metadataMaintenance	Mandatory	See ISO MD_MaintenanceInformation .

ISO MD_DataIdentification

Go to [ISO Explorer](#) for NOAA guidance.

Element name	Obligation	Explanation
citation	Mandatory	See ISO CI_Citation for Data .
abstract	Mandatory	Content is user defined, but it must follow the guidance below in order to be approved for NCEI. See abstract guidance on ISO Explorer (1) and ISO Explorer (2)
purpose	Mandatory	Use default text below or replace with a statement that is more specific to the data in particular. If the data are not available to the public, then replace the default statement as needed. Default text: "This data is available to the public for a wide variety of uses including scientific research and analysis."

status	Mandatory, Repeatable	<p>Always include to indicate the progress.</p> <ul style="list-style-type: none"> • Code values are "completed", "onGoing", "planned", "underDevelopment", "deprecated", or "obsolete". • Repeat to include "historicalArchive" for data that are in the NCEI archive (not just online or in preparation for the archive). <p>See ISO Explorer for code descriptions.</p>
pointOfContact	Mandatory, Repeatable	<ul style="list-style-type: none"> • The NCEI CI_ResponsibleParty component shall be first: https://data.noaa.gov/docucomp/440b3ac2-64a5-46e2-9846-38305718b644 • Repeat for other NCEI contacts as needed. <p>See Organizations and People table and ISO CI_ResponsibleParty</p>
resourceMaintenance	Mandatory, Repeatable	<ul style="list-style-type: none"> • Default code value is "asNeeded". • Replace default value with code that categorizes how frequently the dataset is updated. If the update frequency is less than a day, then use the code "continual" and provide more detail in the TM_PeriodDuration field. <p>See ISO Explorer for code descriptions.</p>
graphicOverview	Mandatory	<ul style="list-style-type: none"> • Default image is a NOAA logo, however, a more relevant image is preferred. https://data.noaa.gov/docucomp/401b6d95-a542-4309-bf52-8c9b20caeccd • Do not provide links to <ul style="list-style-type: none"> ○ dynamic image services ○ images hosted on FTP ○ images in PDF format ○ images in TIFF format <p>See ISO Explorer for image suggestions and other details.</p>

descriptiveKeywords	Mandatory, Repeatable	<p>Always include:</p> <ul style="list-style-type: none"> ● GCMD science keywords with "theme" keywordTypeCode ● GCMD organization keywords with "datacentre" keywordTypeCode ● GCMD location keywords with "place" keywordTypeCode <p>Recommended, if applicable:</p> <ul style="list-style-type: none"> ● GCMD project keywords with "project" keywordTypeCode ● GCMD platform keywords with "platform" keywordTypeCode ● GCMD instrument keywords with "instrument" keywordTypeCode ● GCMD temporal resolution keywords with "dataResolution" keywordTypeCode ● GCMD horizontal resolution keywords with "dataResolution" keywordTypeCode ● GCMD vertical resolution keywords with "dataResolution" keywordTypeCode ● WMO Category Code with "theme" keywordTypeCode ● ECV Code with "theme" keywordTypeCode ● ICES Ship Names with "platform" keywordTypeCode <p>Optional</p> <ul style="list-style-type: none"> ● Other keywords from other thesauri for any keywordTypeCode <p>See ISO MD Keywords and NOAA Keyword Implementation Guidance for more details.</p>
resourceConstraints	Mandatory, Repeatable	<p>Mandatory</p> <ul style="list-style-type: none"> ● Distribution Liability Statement: https://data.noaa.gov/docucomp/dadd4ac3-2b9f-4db5-8603-71285b94c3d7 ● Use Liability Statement: https://data.noaa.gov/docucomp/e8163b1b-fb5a-4f4e-8d5c-ed06da10e21b ● Recommended Data Citation <p>Statement Optional</p> <ul style="list-style-type: none"> ● Repeat when the provider of the dataset has a statement that differs from the standard constraints. ● Other constraint statements, as applicable. <p>See Data Citations and ISO Explorer for more details.</p>

topicCategory	Mandatory, Repeatable	See ISO Explorer for code definitions.
extent	Mandatory	See ISO EX_Extent

ISO CI_Citation for Data

Go back to [ISO MD_DataIdentification](#). Go to [ISO Explorer](#).

Element name	Obligation	Explanation
title	Mandatory	The title shall be the same as the title for the DOI and the recommended data citation.
alternateTitle	Optional, Repeatable	Use when the resource needs to be identifiable by a different name. The xml type shall be gco:CharacterString type only. There is no ideal metadata XML solution to support a web title programmatically through gmx:Anchor.
date	Mandatory, Repeatable	The " publication " dateType code shall always be included, even if the date is unknown. Other codes for dateTypes, such as "creation" or "revision" are optional.
edition	Optional	Include for products that are developed under a version release cycle. Sometimes, this value is also included in the title, but the title is never included in this field. Note, accession or AIP versions or other archive updates are included in the lineage section, not in gmd:edition field.
identifier	Mandatory, Repeatable	See Data Identifiers table.

citedResponsibleParty	Mandatory, Repeatable	<ul style="list-style-type: none"> • Always include an "author" role and identify an individual or organization. • Document authors in the preferred order and as you would like to see them in the recommended data citation, e.g. the first author would be first and formatted as 'LastName, FirstName'. • Always include a "publisher" role and identify "NOAA National Centers for Environmental Information" in the organization field. • It is not recommended to include an individual and an organization in the same citeResponsibleParty for "author" and "publisher" roles if you want the organization also listed as an author, because when an organization is listed with the individual, it will not get included in the data citation for the "author" role. • It is not recommended to include contact details, such as phone, fax, email or address. • The position field, individual IDs and organization URLs are permitted. • If the individual has an OrcID or a Researcher ID then it can be captured with the gmx:Anchor. e.g. <gmd:individualName> <gmx:Anchor xlink:href="http://orcid.org/0000-0002-3647-5046" xlink:title="ORCID Researcher ID" xlink:actuate="onRequest"> Joe Smith </gmx:Anchor> </gmd:individualName> • May repeat for other non-author and non-publisher roles that do not need to be included in the citation. • Do not provide contact details. <p>See the 'For Citable Credit' row in the Organizations and People table and the Data Citations table.</p>
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ISO MD_Keywords

Go back to [ISO MD_DataIdentification](#). Go to [ISO Explorer](#).

Element name	Obligation	Explanation
keyword	Mandatory	<p>The gco:CharacterString tag may be replaced by the gmx.anchor tag to specify linkages to the term represented in a RDF or SKOS format.</p> <p>e.g. <gmx:Anchor xlink:href="{ {url to keyword} }" xlink:title="keyword"</p>

		xlink:actuate="onRequest">keyword</gmx:Anchor>
type	Mandatory	See ISO Explorer for code descriptions.
thesaurusName	Mandatory	<p>The following thesaurus names and CI_Citation components shall be used for the required and recommended keywords.</p> <ul style="list-style-type: none"> • Global Change Master Directory (GCMD) Science Keywords https://data.noaa.gov/docucomp/227737d0-428b-11df-9879-0800200c9a66 • Global Change Master Directory (GCMD) Data Center Keywords: https://data.noaa.gov/docucomp/9f0de6e6-428b-11df-9879-0800200c9a66 • Global Change Master Directory (GCMD) Location Keywords: https://data.noaa.gov/docucomp/82A5DD19565ACBECE040AC8C5AB41A40 • Global Change Master Directory (GCMD) Project Keywords: https://data.noaa.gov/docucomp/9f0de6e5-428b-11df-9879-0800200c9a66 • Global Change Master Directory (GCMD) Platform Keywords: https://data.noaa.gov/docucomp/82A5DD195659CBECE040AC8C5AB41A40 • Global Change Master Directory (GCMD) Instrument Keywords: https://data.noaa.gov/docucomp/82A5DD195658CBECE040AC8C5AB41A40 • Global Change Master Directory (GCMD) Temporal Data Resolution Keywords: https://data.noaa.gov/docucomp/59799b40-fb26-4c49-96c0-59756a486ac3 • WMO Category Code: https://data.noaa.gov/docucomp/21fcf62b-7785-49c6-99e6-13ae4e2b8a61 • Global Climate Observing System (GCOS) Essential Climate Variables (ECVs): https://data.noaa.gov/docucomp/ed1c2c09-e96b-4fe3-8454-74791a286c4e

		<ul style="list-style-type: none"> International Council for the Exploration of the Sea/SeaDataNet (ICES/SDN) Ship Codes: https://data.noaa.gov/docucomp/3418d56c-ad92-4fe4-88e8-8fd0d1aa2d0b
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ISO CI_ResponsibleParty

Go back to [ISO MD_DataIdentification](#). Go to [ISO Explorer](#).

Usage of these fields will vary. Go to [Organizations and People](#) table for more details.

Element name	Obligation	Explanation
individualName	Conditional	Include a person's name as it should be displayed on a web page or in a data citation.
organisationName	Conditional	Do not use GCMD organization keywords in this field.
positionName	Conditional	Include position or group name, e.g. Data Manager or NCEI Geomagnetic Modeling Team.
contactInfo	Optional	Only recommended for an NCEI point of contact.
role	Mandatory	Code values in the Template are author , publisher , pointOfContact , distributor . See ISO Explorer for more options.

ISO EX_Extent

Go back to [ISO MD_DataIdentification](#). Go to [ISO Explorer](#).

Element name	Obligation	Explanation
description	Optional	Brief statement of temporal and geographic extent.

geographicElement	Mandatory	<ul style="list-style-type: none"> • Mandatory, unless the data have no geospatial coordinates and hierarchyLevel is "nonGeographicDataset". • The gmd:geographicElement can be repeated to describe the appropriate level of detail desired, however, the first gmd:geographicElement shall always represent the maximum bounding extent for the entire resource and it may include areas where the data does not exist. • If the data extent is a point, then East=West coordinates and North=South coordinates and then repeat geographicElement with EX_BoundingPolygon/gmd:polygon/gml:Point value. <p>See ISO Explorer for guidance on the EX_GeographicBoundingBox section.</p>
temporalElement	Mandatory	See ISO Explorer (1) for a single date or ISO Explorer (2) for a time range.
verticalElement	Optional	See ISO Explorer for guidance.

ISO MD_Identifier

Go back to [ISO CI_Citation for Data](#) or [ISO MD MaintenanceInformation](#). Go to [ISO Explorer](#). Usage of these fields will vary. Go to [Data Identifiers](#) for more details.

Element name	Obligation	Explanation
authority	Mandatory	<ul style="list-style-type: none"> • Always include a citation to the owner of the ID value. • The title is required. • It is not necessary to include a date associated with the authority, however, the field is mandatory so if there is no date, then include a nilReason attribute instead. e.g. <gmd:date gco:nilReason="inapplicable"/> • All other fields are optional.

code	Mandatory	<ul style="list-style-type: none"> If the code is a DOI or has a resolveable URI, then use the gmx:Anchor field, instead of a gco:CharacterString. e.g. <gmx:Anchor xlink:href="https://doi.org/{{DOI}}" xlink:title="DOI" xlink:actuate="onRequest">{{DOI}}</gmx:Anchor>
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ISO MD_AggregateInformation

Go back to [ISO MD_DataIdentification](#). Go to [ISO Explorer](#).

Element name	Obligation	Explanation
aggregateDataSetName	Mandatory	Always include a title in the citation to the related resource. It's optional to include other fields, such as the identifier, citedResponsibleParty, dates, URLs, etc.
aggregateDataSetIdentifier	Not allowed	Include the identifier in the citation under aggregateDataSetName instead.
associationType	Mandatory	Code values in the Template are largerWorkCitation and crossReference .
initiativeType	Mandatory, if applicable	Code values in the Template are operation , project , and sciencePaper .

ISO MD_AggregateInformation for Parent Cruise

Go back to [ISO MD_AggregateInformation](#).

Element	Obligation	Explanation
title	Mandatory	Always include a title of the cruise, e.g. BD06-1 from Naha, Okinawa, Japan to Apra Harbor, Guam on the USNS Bowditch on the western margin of Guam and the Northern Mariana Islands from 2006-10-13 to 2006-11-12
date	Mandatory	gco:nilReason=" inapplicable ".

dateType	Mandatory	Code value is always publication .
identifier	Mandatory	Cruise ID: {{id}}
citedResponsibleParty >> organisationName	Optional	Include the organization that facilitated the cruise. The following contact info is not recommended: personal phone, fax, email, and address
citedResponsibleParty >> onlineResource	Optional	Include linkage to cruise homepage or cruise-level metadata record with roleCode of information .
associationType	Mandatory	The code value is largerWorkCitation .
initiativeType	Mandatory	The code value is operation .

ISO MD_AggregateInformation for Related Projects

Go back to [ISO MD_AggregateInformation](#).

Element	Obligation	Explanation
title	Mandatory	Always include the name of the related project.
date	Mandatory	If the date is unknown or inapplicable, then include the gco:nilReason attribute instead.
dateType	Mandatory	Code value is always publication .
identifier >> code	Optional	Include project id, if applicable.
citedResponsibleParty >> organisationName	Optional	Include the organization responsible for the project. The following contact info is not recommended: personal phone, fax, email, and address
citedResponsibleParty >> onlineResource	Optional	Include a link to the project homepage with roleCode of information .

associationType	Mandatory	The code value is largerWorkCitation .
initiativeType	Mandatory	The code value is project .

ISO MD_AggregateInformation for Related Data

Go back to [ISO MD_AggregateInformation](#).

Element	Obligation	Explanation
title	Mandatory	Always include the name of related data.
date	Mandatory	If the date is unknown or inapplicable, then include the gco:nilReason attribute instead.
dateType	Mandatory	Code value is always publication .
identifier >> code	Optional	Include data id, if applicable.
citedResponsibleParty >> organisationName	Optional	Include the organization responsible for the data. The following contact info is not recommended: personal phone, fax, email, and address
citedResponsibleParty >> onlineResource	Optional	Include a link to the data homepage with roleCode of information .
associationType	Mandatory	The code value is crossReference .

ISO MD_AggregateInformation for Related Publications and Documents

Go back to [ISO MD_AggregateInformation](#).

Element	Obligation	Explanation
title	Mandatory	Always include the title of the document.
date	Mandatory	If the publication date is unknown or inapplicable, then include the gco:nilReason attribute.
dateType	Mandatory	Code value is publication .
identifier >> code	Optional	Include document id or DOI, if applicable.
citedResponsibleParty >> organisationName	Optional	Include the organization responsible for the project. The following contact info is not recommended: personal phone, fax, email, and address
citedResponsibleParty >> onlineResource	Optional	Include linkage to document homepage with function code of information .
otherCitationDetails	Optional	Include the document citation.
associationType	Mandatory	The code value is crossReference .
initiativeType	Mandatory	Include code value that best represents the type of document: sciencePaper , userGuide , or dataDictionary .

ISO MD_AggregateInformation for Google Scholar Search Results

Go back to [ISO MD_AggregateInformation](#).

Element	Obligation	Explanation
title	Mandatory	Other publications that cite this dataset.

date	Mandatory	gco:nilReason="inapplicable"
citedResponsibleParty >> onlineResource	Mandatory	<ul style="list-style-type: none"> linkage: https://scholar.google.com/scholar?q={{queryValue}} protocol: HTTPS name: Google Scholar search results description: Search for publications that cite this dataset by {{queryValue}}. function: information
associationType	Mandatory	The code value is crossReference .
initiativeType	Mandatory	The code value is sciencePaper .

ISO MD_Distributor

Go back to [ISO MI_Metadata](#). Go to [ISO Explorer](#).

Element name	Obligation	Explanation
distributorContact	Mandatory	<p>The CI_ResponsibleParty component for NCEI is: https://data.noaa.gov/docucomp/440b3ac2-64a5-46e2-9846-38305718b644</p> <p>No additional distributor contacts allowed, unless approved for special cases.</p>
distributionOrderProcess	Mandatory	See ISO MD_StandardOrderProcess
distributorFormat	Mandatory, Repeatable	See ISO MD_Format

distributorTransferOptions	Mandatory, Repeatable	<p>Repeat for all online and offline options. It is highly recommended that the following order of links and link types are preserved. Note, NCEI editing tools should enforce this order, but discovery tools may display in a different order.</p> <ol style="list-style-type: none"> 1. information - link to the metadata landing page 2. information - project or product web pages 3. download - links to download the data or documents that are part of the DIP 4. fileAccess - for cloud access links 5. search - map or test searches 6. order - links for ordering, e.g. CLASS 7. offlineAccess 8. browsing 9. sample data
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ISO MD_StandardOrderProcess

Go back to [ISO MD_Distributor](#). Go to [ISO Explorer](#).

Element name	Obligation	Explanation
fees	Mandatory	<p>Use default text below or replace with a statement that is more specific as needed.</p> <p>Default text: "In most cases, electronic downloads of the data are free. However, fees may apply for custom orders, data certifications, copies of analog materials, and data distribution on physical media."</p>
plannedAvailableDateTime	Optional	<p>If metadata is published before data goes operational, then add YYYY-MM-DDTHH:MM:SS of the estimated available time. This value will need to be removed once the data are available.</p>
orderingInstructions	Mandatory	<ul style="list-style-type: none"> • Use default text below or replace with a statement that is more specific as needed. • Do not add URLs to this field. <p>Default text: "Contact NCEI for other distribution options and instructions."</p>

ISO MD_Format

Go back to [ISO MD_Distributor](#). Go to [ISO Explorer](#).

Element name	Obligation	Explanation
name	Mandatory	Include for all data formats that are part of the distribution. Do not include document types or other non-data formats. Include version if it's typically part of the format name, e.g. NetCDF-4.
version	Mandatory	<ul style="list-style-type: none"> • When the version is already documented in the name field, also repeat in this field. e.g. 4. • If the version is inapplicable then gco:nilReason="inapplicable". • If version is unknown then gco:nilReason="unknown"
specification	Optional	<ul style="list-style-type: none"> • Include information used to decode the file format, such as the name of the specification and profiles, if applicable. • Provide full citation to specification in the ISO MD_AggregateInformation section when specification is independent from the data access or the distribution section when NCEI is providing specification as a DIP. • Do not include URLs.
fileDecompressionTechnique	Optional	Include the full name of the compression technique applied to this format or set of formats if there is any compression (zip) or aggregation (tar) applied.

ISO MD_DigitalTransferOptions for onLine

Go back to [ISO MD_Distributor](#). Go to [ISO Explorer](#).

Element name	Obligation	Explanation
linkage	Mandatory	See Data Distribution Link Types table for details.
protocol	Mandatory	Select code value from https://github.com/OSGeo/Cat-Interop/blob/master/LinkPropertyLookupTable.csv .
name	Mandatory	Recommendation: Include same value as the web page title.
description	Optional	Include brief summary or other details that help the user understand the contents of the link.
applicationProfile	Optional	See Working Spreadsheet for examples.
function	Mandatory	The Template includes the following function codes: information , search , download , offline , order , browsing and fileAccess .

ISO MD_DigitalTransferOptions for offLine

Go back to [ISO MD_Distributor](#). Go to [ISO Explorer](#).

Element name	Obligation	Explanation
name	Optional	Include code value if relevant. See code options in ISO Explorer .
mediumNote	Mandatory	Include additional instructions about offline data as applicable.

ISO MD_MaintenanceInformation

Go back to [ISO MI_Metadata](#). Go to [ISO Explorer](#).

Element name	Obligation	Explanation
maintenanceAndUpdateFrequency	Mandatory	The default code is " asNeeded ". Other options are available as applicable. See ISO Explorer guidance.
maintenanceNote	Optional	Include descriptions of modifications to the metadata record that may be useful for public users. A full record of metadata history should live in the metadata management tool, e.g. Git, SVN or CoMET. See ISO Explorer guidance.

Categories of Information

Organizations and People

Go back to [ISO MD_DataIdentification](#), [ISO CI_Citation for Data](#), [ISO MD_Distributor](#) or [ISO MD_MaintenanceInformation](#) tables.

Type	Obligation	Explanation
NCEI Contact	Mandatory	<ul style="list-style-type: none"> Always use this for the metadata contact, distributionContact and pointOfContact sections. The common NCEI contact information shall not contain street addresses or names of individuals. The CI_ResponsibleParty component for NCEI is: https://data.noaa.gov/docucomp/440b3ac2-64a5-46e2-9846-38305718b644
Other NCEI Contacts	Optional	<ul style="list-style-type: none"> Include other NCEI contacts, if desired, in the pointOfContact section Include the individualName or positionName field. A positionName field can be used to identify a type of position (e.g. Data Manager) or a group (e.g. NCEI Geomagnetic

		<p>Modeling Team).</p> <ul style="list-style-type: none"> The organisationName field shall always be "NOAA National Centers for Environmental Information"
For citable credit	Mandatory	<ul style="list-style-type: none"> Use the citedResponsibleParty field in the MD_DataIdentification > Citation section. Always include an "author" role and identify an individual or organization. Always include a "publisher" role and identify "NOAA National Centers for Environmental Information" in the organization field. It is not recommended to include contact details, such as phone, fax, email or address.
Non-NCEI contacts	Optional	<ul style="list-style-type: none"> It is not recommended to include contact details, such as phone, fax, email or address, for non-NCEI individuals or organizations. IDs and URLs are permitted.

Data Identifiers

Go back to [ISO CI_Citation for Data](#) or [ISO MD_Identifier](#).

Type of ID	Obligation	Explanation
Digital Object Identifier (DOI)	Mandatory if applicable	<ul style="list-style-type: none"> Include when data has a DOI minted or managed by NCEI. The authority is "International DOI Foundation (IDF)". Use the gmx:Anchor tag instead of the gco:CharacterString
Accession Identifier	Mandatory if applicable	<ul style="list-style-type: none"> Include when data has an Accession ID from NCEI's Archive Management System (AMS) The authority is "NCEI Archive Management System". Preface identifier with "NCEI Accession ID: ".

NCEI Data Set ID (DSI)	Mandatory if applicable	<ul style="list-style-type: none"> • Include when the data has a Data Set ID (DSI), e.g. for datasets archived in North Carolina. • The authority is "NCEI Digital Catalog". • Preface identifier with "NCEI DSI: ".
Other Data Identifiers	Optional	<ul style="list-style-type: none"> • Include if applicable.
Metadata Identifier	Mandatory	<ul style="list-style-type: none"> • Always include. • This value is the same as the value in the fileIdentifier field. • When there are multiple identifiers, this one must be last. • The authority is "NOAA National Centers for Environmental Information". • Preface identifier value with "NCEI Metadata ID: "

Data Citations

Go back to the resourceConstraints row in [ISO MD_DataIdentification](#). Go back to [ISO CI_Citation for Data](#).

Types of Citations	Obligation	Explanation
Recommended data citation statement	Mandatory	<p>The information in this field provides a recommendation for how to cite the dataset. Values in the citation shall match the values in the fields as documented in the ISO CI_Citation for Data table.</p> <ul style="list-style-type: none"> • Use the same title as the title of the metadata record. • Use the organizationName and individualName fields with the roles of the "author" and "publisher". Multiple authors are separated by semi-colons. • Use the publication date. The date must be formatted as YYYY. Do not include month or day. • Use the edition field for version, as applicable. • Include DOI when the dataset has one owned by NCEI. • Format the citation using the following style <p>Cite as: {{Author(s)}}. {{Publication year}}: {{Title}}. {{Version}}. [indicate subset</p>

		<p>used]. NOAA National Centers for Environmental Information. https://doi.org/{{DOI}}. Accessed [date].</p> <p>E.g. Palecki, Michael A.; Lawrimore, Jay H.; Leeper, Ronald D.; Bell, Jesse E.; Embler, Scott; Casey, Nancy (2013): United States Climate Reference Network (USCRN) Quality Controlled Datasets. [indicate subset used]. NOAA National Centers for Environmental Information. https://doi.org/10.7289/v5h13007. Accessed [date].</p>
Other data citation statements	Optional	<p>Include for data citations that are in publications.</p> <ul style="list-style-type: none"> For example, "When using temperature, please also cite: Locarnini, R. A., A. V. Mishonov, J. I. Antonov, T. P. Boyer, H. E. Garcia, O. K. Baranova, M. M. Zweng, C. R. Paver, J. R. Reagan, D. R. Johnson, M. Hamilton, and D. Seidov, 2013. World Ocean Atlas 2013, Volume 1: Temperature. S. Levitus, Ed., A. Mishonov Technical Ed.; NOAA Atlas NESDIS 73, 40 pp."

Data Distribution Link Types

Go back to [ISO MD_Distributor](#). See [Working Spreadsheet](#) for more examples.

Type of Distribution	Obligation	Explanation
NCEI Metadata Landing Page	Mandatory	<p>Always include the metadata landing page hosted by the authoritative NCEI metadata discovery portal.</p> <ul style="list-style-type: none"> linkage: <ul style="list-style-type: none"> https://www.ncei.noaa.gov/metadata/geoportal/rest/metadata/item/{{fileIdentifier}}/html/ If the data has an NCEI DOI, then use the DOI URL instead, e.g. https://doi.org/10.7289/V55719BN protocol: HTTPS name: NCEI Dataset Landing Page description: (optional) function: information

NCEI product or project page	Mandatory if applicable	<ul style="list-style-type: none"> ● linkage: Include URL to the web page ● name: Include title of web page ● description: Include description of web page (optional) ● protocol: HTTPS ● function: information <p>Do not include product or project pages that are not hosted by NCEI, these can be referenced in the aggregationInformation section.</p>
Direct data download	Mandatory if applicable	<p>Include access points for directly downloading the data. e.g. FTP, HTTPS, THREDDS, LAS, OPeNDAP, ERDDAP.</p> <ul style="list-style-type: none"> ● linkage: Include URL to the downloadable data. ● protocol: Include relevant code value. ● name: Include name of URL. ● description: Optional, to include brief summary or other details, such as download size. ● function: download
Distributed Documents	Mandatory if applicable	<ul style="list-style-type: none"> ● linkage: Include URL to the downloadable document. ● protocol: HTTPS ● name: Include title of document ● description: Include a brief summary of the document. (optional) ● applicationProfile: Documentation ● function: download
Restricted Data	Mandatory if applicable	<ul style="list-style-type: none"> ● linkage: gco:nilReason="withheld" ● name: Restricted Data Access Point ● description: Access to this dataset is limited to specified group of users. ● function: download
Cloud Access Points	Mandatory if applicable	<ul style="list-style-type: none"> ● linkage: Include URL to the landing page for data access on cloud server, e.g. ● protocol: HTTPS ● name: Include title of cloud landing page ● description: Include brief summary. (optional)

		<ul style="list-style-type: none"> function: fileAccess
Map Viewers and Search Portals	Mandatory if applicable	<p>Include when a user must search for the data before downloading.</p> <ul style="list-style-type: none"> linkage: Include URL to viewer or portal, e.g. https://www.ngdc.noaa.gov/maps/water_column_sonar/index.html. protocol: HTTPS (or other relevant code) name: Include title of viewer or portal description: Include brief summary. (optional) function: search
Service Options	Mandatory if applicable	<ul style="list-style-type: none"> linkage: Include URL to the list of services available, e.g. https://gis.ngdc.noaa.gov/arcgis/rest/services/water_column_sonar/MapServer or https://www.ngdc.noaa.gov/thredds/catalog/crm/catalog.html?dataset=crmDatasetScan/crm_vol3.nc. protocol: HTTPS (or other relevant code) name: Include title. description: Include brief summary. (optional) function: search
Ordering Options	Mandatory if applicable	<ul style="list-style-type: none"> linkage: Include URL to the ordering interface, e.g. https://www.class.noaa.gov/saa/products/search?datatype_family=GRGLMPROD protocol: HTTPS (or other relevant code) name: Include title of web page. description: Include brief summary. (optional) function: order
Offline Data	Mandatory if applicable	<ul style="list-style-type: none"> linkage: Include URL to the web page that has details about the offline data access options. protocol: HTTPS (or other relevant code) name: Include title of web page. description: Include brief summary or other details. (optional) applicationProfile: (optional)

		<ul style="list-style-type: none"> function: offline
Browsable Data	Mandatory if applicable	<ul style="list-style-type: none"> linkage: Include URL to the web page allows for browsing data only, e.g. https://www.ncdc.noaa.gov/gibbs/. protocol: HTTPS (or other relevant code) name: Include title of web page. description: Include brief summary or other details. (optional) function: browsing
Sample Data	Mandatory if applicable	<ul style="list-style-type: none"> linkage: Include URL to a sample of the data. protocol: HTTPS (or other relevant code) name: Include title of web page. description: Include brief summary or other details. (optional) function: download or browsing

Template Maintenance

The NCEI Metadata Working Group is responsible for maintaining the NCEI Collection Level Metadata Template. The Template will be reviewed on an annual basis to ensure that the existing guidance is still relevant given the evolving infrastructure that exists today as NCEI continues to consolidate towards common systems and common best practices.

Issues will be tracked through the [ISO Metadata JIRA Project](#) to ensure that the discussions are captured and decisions are recorded. Questions about or suggestions for the Template can also be raised for discussion through the [NCEI Metadata Working Group](#). If you would like to discuss something during this meeting please add the topic to the agenda under the [Future Agenda Topics](#) heading in the meeting minutes.

The NCEI Metadata Working Group will discuss and adjudicate proposed changes. Depending on the expected level of impact of the change (i.e. editorial vs. new field requirements) a wider NCEI comment period may be opened to solicit feedback. When the Template updates are accepted this guidance document along with the raw XML metadata template will be updated and given a new version. Updates to the Template will be announced through different forums including the CCOG data managers meeting, Archive Management Team Meeting and the Data Stewardship Council.