

Guidance for The NCEI Collection Level Metadata Template v1.1

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[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 is defining 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.

Template will be updated as needed and reviewed annually. See [Steering Committee/Future Maintenance](#) 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>Mandatory for non geospatial data</p> <ul style="list-style-type: none"> • "nonGeographicDataset"
contact	Mandatory	<p>The metadata contact shall be NCEI. No additional contacts are allowed. https://data.noaa.gov/docucomp/440b3ac2-64a5-46e2-9846-38305718b644</p> <p>See Organizations and People Table for more details.</p>

dateStamp	Mandatory	Either gco:Date and gco:DateTime are acceptable. See ISO Explorer guidance.
metadataStandardName	Mandatory	The value shall always be: "ISO 19115-2 Geographic Information - Metadata - Part 2: Extensions for Imagery and Gridded Data" .
metadataStandardName	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 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	Always include to indicate the progress. <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).

		See ISO Explorer for code descriptions.
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 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

		<ul style="list-style-type: none"> ● 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 Statement <p>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>
aggregationInfo	Optional, Repeatable	<p>Use this section to document the following types of related data and information.</p> <ul style="list-style-type: none"> ● Related journal articles that are not part of the distributed archive package ● Library publications ● Related project pages and data pages hosted outside NCEI ● Other related data pages and archive packages at NCEI that are separate collections/metadata e.g. INPORT metadata record links ● Full Citation for the parent of a collection record ● Cruise that the data were collected on ● Google Scholar search results <p>Note: if a publication or document is distributed with the data then provide access link in distribution section instead.</p> <p>See ISO MD_AggregateInformation and ISO Explorer for more details.</p>
language	Mandatory	Default value is " eng; USA "

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 lineage section, not in gmd:edition.
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 names as you would like to see them in the recommended data citation. ● Always include a "publisher" role and identify "NOAA National Centers for Environmental Information" in the organization field. ● Do not include an individual and an organization in the same citeResponsibleParty for "author" and "publisher" roles. ● 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. ● May repeat for other non-author and non-publisher roles that do not need to be included in the citation.

		<ul style="list-style-type: none"> Do not provide contact details. <p>See the 'For Citable Credit' row in the Organizations and People 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" xlink:actuate="onRequest">keyword</gmx:Anchor></p>
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

- International Council for the Exploration of the Sea/SeaDataNet (ICES/SDN) Ship Codes: <https://data.noaa.gov/docucomp/3418d56c-ad92-4fe4-88e8-8fd0d1aa2d0b>

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 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. See ISO Explorer for guidance on the EX_GeographicBoundingBox section.
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 Metadata Information](#). 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. <code><gmd:date gco:nilReason="inapplicable"/></code> 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. <code><gmx:Anchor xlink:href="https://doi.org/{{DOI}}" xlink:title="DOI" xlink:actuate="onRequest">{{DOI}}</gmx:Anchor></code>

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 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
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title	Mandatory	Always include a name of 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 organization responsible for the project. The following contact info is not recommended: personal phone, fax, email, and address
citedResponsibleParty >> onlineResource	Optional	Include linkage to 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 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 organization responsible for the data. The following contact info is not recommended: personal phone, fax, email, and address
citedResponsibleParty >> onlineResource	Optional	Include linkage to data homepage with roleCode of information .

associationType	Mandatory	The code value is crossReference .
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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 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

		<ol style="list-style-type: none"> 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 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	<p>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.</p>

version	Mandatory	<ul style="list-style-type: none"> • When version is already documented in the name field, also repeat in this field. e.g. 4. • If 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 Aggregate Information 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 Distribution Access 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 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 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
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NCEI Contact	Mandatory	<ul style="list-style-type: none"> Always use 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 Modeling Team). 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 resource 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 resourceConstraints row in [ISO MD_DataIdentification](#).

Types of Citations	Obligation	Explanation
Recommended data citation statement	Mandatory	<ul style="list-style-type: none"> ● This field recommends how to cite the dataset. ● Use the "author" AND "publisher" roleCodes from data citedResponsibleParty. ● Include DOI when the dataset has one owned by NCEI. ● Use the following citation style <p>Cite as: {{Last, F. M., F. M. Last, and F. M. Last}}. {{YYYY}}. {{Title}}. {{Version}}. [indicate subset used]. NOAA National Centers for Environmental Information. https://doi.org/{{DOI}}. Accessed [date].</p>
Other data citation statements	Optional	<ul style="list-style-type: none"> ● Include for data citations that are in publications ● 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,	<ul style="list-style-type: none"> ● linkage: Include URL to the downloadable document.

	if applicable	<ul style="list-style-type: none"> ● protocol: HTTPS ● name: Include title of document ● description: Include a brief summary of 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) ● 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.

		<ul style="list-style-type: none"> ● 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) ● 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](#) which meets on the second, third and fourth Monday of the month. 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 has updates 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.