

Data Dates

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Element Description

The Data Dates element is used to identify dates when the *data* or *resource itself* changed in some way. This element is made of two sub-elements, Type and Date. The Type describes what the date represents: a future review, when the resource was created, last updated, or planned for deletion. The Date describes when the resource had or will have the action performed on it as described by the Type element.

Best Practices

Each Data Date is accompanied by a Type. The Type must be selected from a controlled vocabulary list. There are four options available for Type:

1. **CREATE:** The date the resource was created. This should be the date the dataset was published in the database/ entered into the data archive system.
2. **UPDATE:** The date the resource was last updated. This includes any changes made to the data itself, such as a change in processing or a change in the file naming convention.
3. **REVIEW:** The date of a planned future review of the resource.
4. **DELETE:** The date the resource will be deleted.

Providing a Data Date is optional. Multiple Data Dates are allowed, however, the same date type should not be repeated more than once in the same record (for example, a CREATE and an UPDATE time can be provided, but two CREATE times cannot be provided in the same record). All dates should comply with the [ISO 8601 Standard](#).

Examples:

Type = CREATE Date: 2010-02-01

Type = UPDATE Date: 2018-02-01

Type = REVIEW Date: 2019-02-01

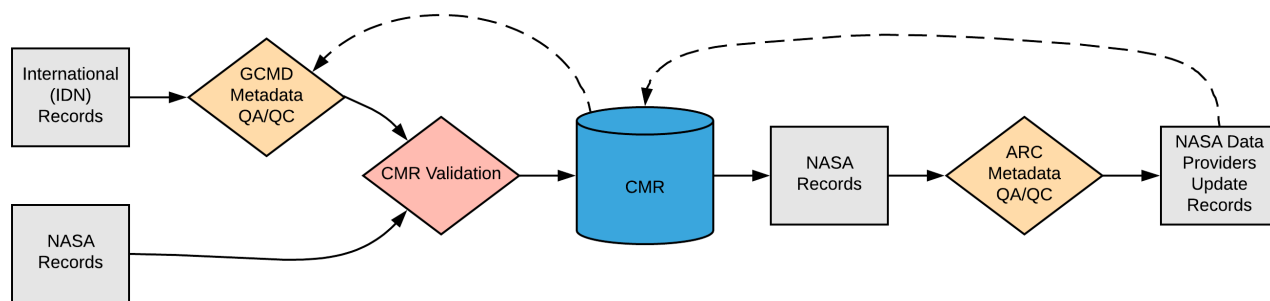
Element Specification

Data Date is an optional field. Multiple Data Dates may be provided, if necessary (Cardinality 0..*)

| Model | Element | Type | Usable Valid Values | Constraints | Required? | Cardinality | Notes |
|-------|----------------|-------------|--------------------------------------|-------------|-----------|-------------|---|
| UMM-C | DataDate /Type | Enumeration | CREATE UPDATE REVIEW DELETE | n/a | No | 0..* | The same Type should not be used more than once in the same record. |
| UMM-C | DataDate /Date | dateTime | n/a | n/a | No | 0..* | The actual date that the event associated with the data occurred/will occur goes in this field. |

Metadata Validation and QA/QC

All metadata entering the CMR goes through the below process to ensure metadata quality requirements are met. All records undergo CMR validation before entering the system. The process of QA/QC is slightly different for NASA and non-NASA data providers. Non-NASA providers include interagency and international data providers and are referred to as the International Directory Network (IDN).



Please see the expandable sections below for flowchart details.

- Manual Review
 - Check that the date is accurate for the dataset.
- Automated Review
 - Check that the field has been populated.
 - Check that the date format is correct.
 - Check that the field length is not greater than 1,000 characters.
- The CMR makes sure the date values are in the correct order and range where CREATE date needs to be earlier or equal to the UPDATE date and both dates need to be in the past. The REVIEW date needs to be before the DELETE date and both dates need to be in the future.
- The Date needs to comply with the [ISO 8601 Standard](#).

ARC Priority Matrix

| Priority Categorization | Justification |
|----------------------------------|--|
| Red = High Priority Finding | This element is categorized as highest priority when: <ul style="list-style-type: none"> • The DataDate/Type does not match one of the date type enumeration values (CREATE, UPDATE, REVIEW, DELETE). • The DataDate/Date provided does not comply with the ISO 8601 Standard. |
| Yellow = Medium Priority Finding | This element is categorized as medium priority when: <ul style="list-style-type: none"> • A REVIEW or DELETE date is in the past. • The CREATE or UPDATE date is in the future. • A translation error between a native metadata format (ISO, DIF 10, ECHO 10) and UMM is present for the date and/or the date type. |
| Blue = Low Priority Finding | This element is categorized as low priority when: <ul style="list-style-type: none"> • The default value of "1970-01-01T00:00:00.000Z" is provided. |
| Green = No Findings/Issues | The element is provided and follows all applicable criteria specified in the best practices section above. |

ARC Automated Checks

ARC uses the [pyQuARC library](#) for automated metadata checks. Please see the [pyQuARC GitHub](#) for more information.

Dialect Mappings

DIF 9 (Note: DIF-9 is being phased out and will no longer be supported after 2018)

DIF 10

Data Date is an optional field. Multiple Data Dates may be provided, if necessary (Cardinality 0..*)

| UMM-C Element | Path | Type | Usable Valid Values | Constraints | Required in DIF 10? | Cardinality | Notes |
|---------------|------|------|---------------------|-------------|---------------------|-------------|-------|
|---------------|------|------|---------------------|-------------|---------------------|-------------|-------|

| | | | | | | | |
|---|------------------------------------|---------------------------------|---|-----|----|------|--|
| DataDate /Type = CREATE DataDate /Date | Metadata_Dates /Data_Creation | Date dateTime Enumeration | unknown present unbounded future Not provided | n/a | No | 0..1 | Dates provided in the Data_Creation field will be labeled with the DataDate /Type of 'CREATE' when translated to UMM. If any of the enumeration values are provided (unknown, present, unbounded, future, Not provided) the date will automatically default to 1970-01-01T00:00:00Z when being translated to UMM. This is because UMM does not currently support any enumeration values in date fields. |
| DataDate /Type = UPDATE DataDate /Date | Metadata_Dates /Data_Last_Revision | Date dateTime Enumeration | unknown present unbounded future Not provided | n/a | No | 0..1 | Dates provided in the Data_Last_Revision field will be labeled with the DataDate/Type of 'UPDATE' when translated to UMM. If any of the enumeration values are provided (unknown, present, unbounded, future, Not provided) the date will automatically default to 1970-01-01T00:00:00Z when being translated to UMM. This is because UMM does not currently support any enumeration values in date fields. |
| DataDate /Type = REVIEW DataDate /Date | Metadata_Dates /Data_Future_Review | Date dateTime Enumeration | unknown present unbounded future Not provided | n/a | No | 0..1 | Dates provided in the Data_Future_Review field will be labeled with the DataDate/Type of 'REVIEW' when translated to UMM. If any of the enumeration values are provided (unknown, present, unbounded, future, Not provided) the date will automatically default to 1970-01-01T00:00:00Z when being translated to UMM. This is because UMM does not currently support any enumeration values in date fields. |
| DataDate /Type = DELETE DataDate /Date | Metadata_Dates /Data_Delete | Date dateTime Enumeration | unknown present unbounded future Not provided | n/a | No | 0..1 | Dates provided in the Data_Delete field will be labeled with the DataDate /Type of 'DELETE' when translated to UMM. If any of the enumeration values are provided (unknown, present, unbounded, future, Not provided) the date will automatically default to 1970-01-01T00:00:00Z when being translated to UMM. This is because UMM does not currently support any enumeration values in date fields. |

Value needed for translations:

Not provided - The value of 'Not provided' might appear in the Metadata_Dates/Data_Creation and/or the Metadata_Dates /Data_Last_Revision fields as a result of software used to convert older versions of DIF to DIF version 10.2. Required fields that are left empty in older versions a DIF record are automatically populated with 'Not provided' when being converted to a new version, and both Metadata_Dates /Data_Creation and Metadata_Dates/Data_Last_Revision are required in DIF version 10.2. Both Data_Creation and /Data_Last_Revision were changed from required to optional in DIF version 10.3. Therefore, no DIF 10.3 records should have 'Not provided' as a value in the Data_Creation or Data_Last_Revision fields. *This value should not be used by metadata providers.*

Example Mapping

DIF 10

```
<Metadata_Dates>
  <Data_Creation>2012-12-12</Data_Creation>
  <Data_Last_Revision>2018-10-03</Data_Last_Revision>
  <Data_Future_Review>2100-01-01</Data_Future_Review>
</Metadata_Dates>
```

UMM

```
DataDates: [
  {
    Date: "2012-12-12T00:00:00.000Z",
    Type: "CREATE"
  },
  {
    Date: "2018-10-03T00:00:00.000Z",
    Type: "UPDATE"
  },
  {
    Date: "2100-01-01T00:00:00.000Z",
    Type: "REVIEW"
  },
]
```

ECHO 10

Insert Time and Last Update are required in ECHO 10 (Cardinality: 1). Delete Time is optional. Only 1 Delete Time may be provided (Cardinality: 0..1).

| UMM-C Element | Path | Type | Constraints | Required in ECHO10? | Cardinality | Notes |
|--|------------|----------|-------------|---------------------|-------------|---|
| DataDate/Type = CREATE DataDate/Date | InsertTime | dateTime | n/a | Yes | 1 | The insert date/time the collection entered data provider's database. The date provided in the InsertTime field will be labeled with the DataDate/Type of 'CREATE' when translated to UMM. |
| DataDate/Type = UPDATE DataDate/Date | LastUpdate | dateTime | n/a | Yes | 1 | The most recent update which occurred on the data provider's database. The date provided in the LastUpdate field will be labeled with the DataDate/Type of 'UPDATE' when translated to UMM. |
| DataDate/Type = DELETE DataDate/Date | DeleteTime | dateTime | n/a | No | 0..1 | The date the collection is planned to be deleted from the data provider's database. The date provided in the DeleteTime field will be labeled with the DataDate/Type of 'DELETE' when translated to UMM. |

Example Mapping

ECHO 10

```
<InsertTime>2012-12-12T00:00:00.000Z</InsertTime>
<LastUpdate>2018-10-03T00:00:00.000Z</LastUpdate>
```

UMM

```
DataDates: [
  {
    Date: "2012-12-12T00:00:00.000Z",
    Type: "CREATE"
  },
  {
    Date: "2018-10-03T00:00:00.000Z",
    Type: "UPDATE"
  }
]
```

ISO 19115-2 MENDS

Data Date is an optional field. Multiple Data Dates may be provided, if necessary (Cardinality 0..*)

| UMM-C Element | Path | Type | Notes |
|----------------|---|----------|--|
| DataDate /Type | /gmi:MI_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/gmd:citation/ | dateTime | The actual date should be provided in the gco:DateTime field. |
| DataDate /Date | gmd:CI_Citation/gmd:date/gmd:CI_Date/gmd:date/gco:DateTime with /gmi:MI_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/gmd:citation/ gmd:CI_Citation/gmd:date/gmd:CI_Date/gmd:dateType/ gmd:CI_DateTypeCode = " https://cdn.earthdata.nasa.gov/iso/resources/Codelist/gmx/Codelists.xml#CI_DateTypeCode " codeListValue= | codelist | A codelist value (gmd:CI_DateTypeCode) should be provided with the date in order to identify the date Type. These fields can be repeated as many times as necessary - however, note that the same DateTypeCode should not be used more than once in the same record. If the same DateTypeCode is used more than once, only the first occurrence will be translated to UMM. |

Enumeration/Code List Mapping

| ISO MENDS | Translation Direction | UMM |
|-----------|-----------------------|-----|
|-----------|-----------------------|-----|

| | | |
|--------------|--|--------|
| creation | | CREATE |
| revision | | UPDATE |
| lastRevision | | FUTURE |
| unavailable | | DELETE |

Example Mapping

ISO 19115-2 MENDS

```

<gmi:MI_Metadata>
  ...
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      ...
      <gmd:citation>
        <gmd:CI_Citation>
          ...
          <gmd:date>
            <gmd:CI_Date>
              <gmd:date>
                <gco:DateTime>2012-12-12T00:00:00.000
Z</gco:DateTime>
              </gmd:date>
            </gmd:CI_Date>
          <gmd:dateType>
            <gmd:CI_DateTypeCode codeList="
https://cdn.earthdata.nasa.gov/iso/resources/Codelist
/gmx/Codelists.xml#CI_DateTypeCode" codeListValue="
creation">creation</gmd:CI_DateTypeCode>
            </gmd:dateType>
          </gmd:date>
            <gco:DateTime>2018-10-03T00:00:00.000
Z</gco:DateTime>
            </gmd:date>
          </gmd:dateType>
            <gmd:CI_DateTypeCode codeList="
https://cdn.earthdata.nasa.gov/iso/resources/Codelist
/gmx/Codelists.xml#CI_DateTypeCode" codeListValue="
revision">revision</gmd:CI_DateTypeCode>
            </gmd:dateType>
          </gmd:CI_Date>
        </gmd:date>
      ...
    </gmd:CI_Citation>
  </gmd:citation>
  ...
</gmd:MD_DataIdentification>
</gmd:identificationInfo>
...
</gmi:MI_Metadata>

```

UMM

```

DataDates: [
  {
    Date: "2012-12-12T00:00:00.000Z",
    Type: "CREATE"
  },
  {
    Date: "2018-10-03T00:00:00.000Z",
    Type: "UPDATE"
  }
]

```

ISO 19115-2 SMAP

Data Date is an optional field. Multiple Data Dates may be provided, if necessary (Cardinality 0..*)

| UMM-C Element | Path | Type | Notes |
|----------------|--|----------|--|
| DataDate /Type | /gmd:DS_Series/gmd:seriesMetadata/gmi:MI_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/ | dateTime | The actual date should be provided in the gco:DateTime field. |
| DataDate /Date | gmd:citation/gmd:CI_Citation/gmd:date/gmd:CI_Date/gmd:date/gco:DateTime with /gmd:DS_Series/gmd:seriesMetadata/gmi:MI_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/ gmd:citation/gmd:CI_Citation/gmd:date/ gmd:CI_Date/gmd:date/gmd:CI_DateTypeCode = " https://cdn.earthdata.nasa.gov/iso/resources/CodeList/gmxCodeLists.xml#CI_DateTypeCode " codeListValue= | codelist | A codelist value (gmd:CI_DateTypeCode) should be provided with the date in order to identify the date Type. These fields can be repeated as many times as necessary - however, note that the same DateTypeCode should not be used more than once in the same record. If the same DateTypeCode is used more than once, only the first occurrence will be translated to UMM. |

Enumeration/Code List Mapping

| ISO MENDS | Translation Direction | UMM |
|--------------|-----------------------|--------|
| creation | | CREATE |
| revision | | UPDATE |
| lastRevision | | FUTURE |
| unavailable | | DELETE |

Example Mapping

ISO 19115-2 SMAP

```

<gmd:DS_Series>
<gmd:seriesMetadata>
<gmi:MI_Metadata>
...
<gmd:identificationInfo>
  <gmd:MD_DataIdentification>
    ...
    <gmd:citation>
      <gmd:CI_Citation>
        ...
        <gmd:date>
          <gmd:CI_Date>
            <gmd:date>
              <gco:DateTime>2012-12-12T00:00:00.000
Z</gco:DateTime>
            </gmd:date>
            <gmd:dateType>
              <gmd:CI_DateTypeCode codeList="
https://cdn.earthdata.nasa.gov/iso/resources/Codelist
/gmx/Codelists.xml#CI_DateTypeCode" codeListValue="
creation">creation</gmd:CI_DateTypeCode>
            </gmd:dateType>
            <gmd:date>
              <gco:DateTime>2018-10-03T00:00:00.000
Z</gco:DateTime>
            </gmd:date>
            <gmd:dateType>
              <gmd:CI_DateTypeCode codeList="
https://cdn.earthdata.nasa.gov/iso/resources/Codelist
/gmx/Codelists.xml#CI_DateTypeCode" codeListValue="
revision">revision</gmd:CI_DateTypeCode>
            </gmd:dateType>
            </gmd:CI_Date>
          </gmd:date>
        ...
      </gmd:CI_Citation>
    </gmd:citation>
    ...
  </gmd:MD_DataIdentification>
</gmd:identificationInfo>
...
</gmi:MI_Metadata>
</gmd:seriesMetadata>
</gmd:DS_Series>

```

UMM

```

DataDates: [
  {
    Date: "2012-12-12T00:00:00.000Z",
    Type: "CREATE"
  },
  {
    Date: "2018-10-03T00:00:00.000Z",
    Type: "UPDATE"
  }
]

```

UMM Migration

None

History

UMM Versioning

| Version | Date | What Changed |
|---------|------------|--|
| 1.15.5 | 12/3/2020 | No changes were made for Data Dates during the transition from version 1.15.4 to 1.15.5 |
| 1.15.4 | 9/18/2020 | No changes were made for Data Dates during the transition from version 1.15.3 to 1.15.4 |
| 1.15.3 | 7/1/2020 | No changes were made for Data Dates during the transition from version 1.15.2 to 1.15.3 |
| 1.15.2 | 5/20/2020 | No changes were made for Data Dates during the transition from version 1.15.1 to 1.15.2 |
| 1.15.1 | 3/25/2020 | No changes were made for Data Dates during the transition from version 1.15.0 to 1.15.1 |
| 1.15.0 | 2/26/2020 | No changes were made for Data Dates during the transition from version 1.14.0 to 1.15.0 |
| 1.14.0 | 10/21/2019 | No changes were made for Data Dates during the transition from version 1.13.0 to 1.14.0 |
| 1.13.0 | 04/11/2019 | No changes were made for Data Dates during the transition from version 1.12.0 to 1.13.0. |
| 1.12.0 | 01/22/2019 | No changes were made for Data Dates during the transition from version 1.11.0 to 1.12.0. |
| 1.11.0 | 11/28/2018 | No changes were made for Data Dates during the transition from version 1.10.0 to 1.11.0. |
| 1.10.0 | 05/02/2018 | No changes were made for Data Dates during the transition from version 1.9.0 to 1.10.0. |

ARC Documentation

| Version | Date | What Changed | Author |
|---------|----------|---|---------------------------------|
| 1.0 | 10/16/18 | Recommendations/priority matrix transferred from internal ARC documentation to wiki space | Jeanne' le Roux |