

# Native Projection Names

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## Element Description

The Native Projection Names element identifies the projection(s) that the data are originally distributed in.

## Best Practices

Not all Earth Observation data will have a projection associated with it. In order to have a projection, the data must first be geolocated to a [datum](#) (i.e. a spherical or ellipsoidal representation of the Earth) and subsequently transformed into a flat surface. In other words, the latitudes and longitudes of projected data have been transformed from the surface of a model sphere or ellipsoid to a 2D surface or plane. Knowing the projection of the data is important for data reuse, since projected data is [inherently distorted in some way](#), and certain projections may not be compatible with others. The Native Projection Name(s) must be selected from the following controlled vocabulary options:

- Geographic
- Mercator
- Spherical Mercator
- Space Oblique Mercator
- Universal Transverse Mercator
- Military Grid Reference
- MODIS Sinusoidal System
- Sinusoidal
- Lambert Equal Area
- NSIDC EASE Grid North and South (Lambert EA)
- NSIDC EASE Grid Global
- EASE Grid 2.0 N. Polar
- Plate Carree
- Polar Stereographic
- WELD Albers Equal Area
- Canadian Albers Equal Area Conic
- Lambert Conformal Conic
- State Plane Coordinates
- Albers Equal Area Conic
- Transverse Mercator
- Lambert Azimuthal Equal Area
- UTM Northern Hemisphere
- NAD83 / UTM zone 17N
- UTM Southern Hemisphere
- Cylindrical

Note that the Native Projection Name must match the projection that has been defined in the parent collection. This field is optional and may be repeated in the case that the granule has multiple native projections.

### Examples:

Native Projection Name: Mercator

Native Projection Name: Lambert Conformal Conic

## Element Specification

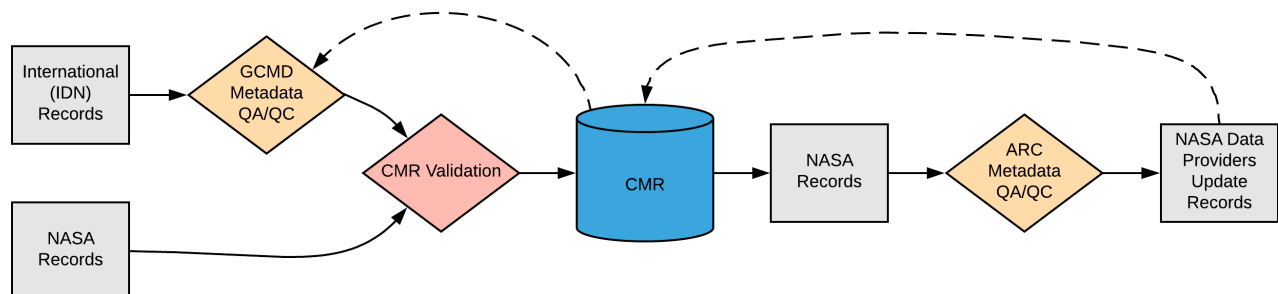
Native Projection Names is an optional element, multiple protection names may be provided (Cardinality: 0..\*)

| Model | Element | Type | Constraints | Required? | Cardinality |
|-------|---------|------|-------------|-----------|-------------|
|-------|---------|------|-------------|-----------|-------------|

|       |                       |                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |      |
|-------|-----------------------|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|------|
| UMM-G | NativeProjectionNames | Array composed of:<br>Enumerations | Geographic<br><br>Mercator<br><br>Spherical Mercator<br><br>Space Oblique Mercator<br><br>Universal Transverse Mercator<br><br>Military Grid reference<br><br>MODIS Sinusoidal System<br><br>Sinusoidal<br><br>Lambert Equal Area<br><br>NSIDC EASE Grid North and South (Lambert EA)<br><br>NSIDC EASE Grid Global<br><br>EASE Grid 2.0 N. Polar<br><br>Plate Caree<br><br>Polar Stereographic<br><br>WELD Albers Equal Area<br><br>Canadian Albers Equal Area Conic<br><br>Lambert Conformal Conic<br><br>State Plane Coordinates<br><br>Albers Equal Area Conic<br><br>Transverse Mercator<br><br>Lambert Azimuthal Equal Area<br><br>UTM Northern Hemisphere<br><br>NAD83 / UTM zone 17N<br><br>UTM Southern Hemisphere<br><br>Cylindrical | No | 0..* |
|-------|-----------------------|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|------|

## 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.

| Priority Categorization          | Justification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Red = High Priority Finding      | <p>This element is categorized as highest priority when:</p> <ul style="list-style-type: none"> <li>◦ The Native Projection Name provided is incorrect for the granule.</li> <li>◦ The Native Projection Name does not match a valid value: Geographic, Mercator, Spherical Mercator, Space Oblique Mercator, Universal Transverse Mercator, Military Grid reference, MODIS Sinusoidal System, Sinusoidal, Lambert Equal Area, NSIDC EASE Grid North and South (Lambert EA), NSIDC EASE, Grid Global, EASE Grid 2.0 N. Polar, Plate Caree, Polar Stereographic, WELD Albers Equal Area, Canadian Albers Equal Area Conic, Lambert Conformal Conic, State Plane Coordinates, Albers Equal Area Conic, Transverse Mercator, Lambert Azimuthal Equal Area, UTM Northern Hemisphere, NAD83 / UTM zone 17N , UTM Southern Hemisphere, Cylindrical.</li> </ul> |
| Yellow = Medium Priority Finding | Not Applicable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Blue = Low Priority Finding      | Not Applicable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 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

### ECHO 10

The Native Projection Names element does not currently map to ECHO 10.

| UMM-G Element         | ECHO 10 Path | Type | Constraints | Required in ECHO10? | Cardinality |
|-----------------------|--------------|------|-------------|---------------------|-------------|
| NativeProjectionNames | N/A          | N/A  | N/A         | N/A                 | N/A         |

#### Example Mapping

ECHO 10

N/A

UMM

N/A

### ISO 19115-2 MENDS

The Native Projection Names element is optional in ISO 19115-2 (Cardinality: 0..\*)

| UMM-G Element | ISO Path | Type | Notes |
|---------------|----------|------|-------|
|---------------|----------|------|-------|

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |        |                                                                                                                                                                                                                                                                       |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NativeProjectionNames | /gmi:MI_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification<br>/gmd:extent/gmd:EX_Extent [=><br><br>with<br><br>gmd:EX_Extent id="boundingExtent" (this element is included with the <i>spatial extent block</i> - a new 'geographicElement' path should be provided for each projection name)<br><br>[=>/gmd:geographicElement/gmd:EX_GeographicDescription id="NativeProjectionName"/gmd:geographicIdentifier/gmd:MD_Identifier/gmd:code/gco:CharacterString {native projection name}<br><br>where * = 1, 2, etc. A unique number for each projection name.<br><br>[=>/gmd:geographicElement/gmd:EX_GeographicDescription/gmd:geographicIdentifier/gmd:MD_Identifier/gmd:codeSpace/gco:CharacterString = gov.nasa.esdis.umm.nativeprojectionname<br>[=>/gmd:geographicElement/gmd:EX_GeographicDescription/gmd:geographicIdentifier/gmd:MD_Identifier/gmd:description/gco:CharacterString = NativeProjectionName | String | This element maps to the UMM-G Native Projection Names.<br><br>Note that this element is included with the spatial extent block , therefore; a new 'geographicElement' needs to be added for each projection name. The geographicElement includes the boundingBox id. |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Example Mapping

ISO 19115-2 MENDS

```

<gmi:MI_Metadata>
  <gmd:identificationInfo>
    <gmd:MD_DataIdentification>
      <gmd:extent>
        <gmd:EX_Extent id="boundingExtent">
          <gmd:geographicElement>
            <gmd:EX_GeographicDescription id="
NativeProjectionName1">
              <gmd:geographicIdentifier>
                <gmd:MD_Identifier>
                  <gmd:code>
                    <gco:CharacterString>Lambert
Equal Area</gco:CharacterString>
                  </gmd:code>
                  <gmd:codeSpace>
                    <gco:CharacterString>gov.nasa.
esdis.umm.nativeprojectionname</gco:CharacterString>
                  </gmd:codeSpace>
                  <gmd:description>
                    <gco:
CharacterString>NativeProjectionName</gco:
CharacterString>
                  </gmd:description>
                </gmd:MD_Identifier>
              </gmd:geographicIdentifier>
            </gmd:EX_GeographicDescription>
          </gmd:geographicElement>
          <gmd:geographicElement>
            <gmd:EX_GeographicDescription id="
NativeProjectionName2">
              <gmd:geographicIdentifier>
                <gmd:MD_Identifier>
                  <gmd:code>
                    <gco:CharacterString>Plate
Carree</gco:CharacterString>
                  </gmd:code>
                  <gmd:codeSpace>
                    <gco:CharacterString>gov.nasa.
esdis.umm.nativeprojectionname</gco:CharacterString>
                  </gmd:codeSpace>
                  <gmd:description>
                    <gco:
CharacterString>NativeProjectionName</gco:
CharacterString>
                  </gmd:description>
                </gmd:MD_Identifier>
              </gmd:geographicIdentifier>
            </gmd:EX_GeographicDescription>
          </gmd:geographicElement>
        </gmd:EX_Extent>
      </gmd:extent>
    </gmd:MD_DataIdentification>
  </gmd:identificationInfo>
</gmi:MI_Metadata>

```

UMM

```

"NativeProjectionNames": ["Lambert Equal Area",
"Plate Carree"],

```

## ISO 19115-2 SMAP

Native Projection Names currently does not map to ISO 19115-2 SMAP.

| UMM-G Element          | ISO Path | Type | Notes |
|------------------------|----------|------|-------|
| NativeProjection Names | N/A      | N/A  | N/A   |

### Example Mapping

ISO 19115-2 SMAP

|     |
|-----|
| N/A |
|-----|

UMM

|     |
|-----|
| N/A |
|-----|

### UMM Migration

| UMM Version 1.4.0 | Translation Direction | UMM Version 1.5.0 |
|-------------------|-----------------------|-------------------|
|                   |                       |                   |

### History

#### UMM Versioning

| Version | Date       | What Changed                                                                                        |
|---------|------------|-----------------------------------------------------------------------------------------------------|
| 1.6.0   | 11/4/2019  | No changes were made for Native Projection Names during the transition from version 1.5.0 to 1.6.0. |
| 1.5.0   | 01/30/2019 | No changes were made for Native Projection Names during the transition from version 1.4.0 to 1.5.0. |
| 1.4.0   | 08/01/2018 |                                                                                                     |

#### ARC Documentation

| Version | Date       | What Changed                                                                              | Author                                                                  |
|---------|------------|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| 1.0     | 04/12/2019 | Recommendations/priority matrix transferred from internal ARC documentation to wiki space | <a href="#">Ingrid Garcia-Solera</a><br><a href="#">Jeanne' le Roux</a> |