International Directory Network (IDN) Report

CEOS WGISS-55
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Outline

• CEOS/IDN/CWIC Collaborations
• CMR Service and Tool records for IDN
• UMM-C (DIF10) Cloud metadata fields (DirectDistributionInformation)
• Removal of CMR OpenSearch Description Document (OSDD) Tag
• UMM Updates
• GCMD Keyword Releases
• IDN Metrics
I. CEOS/IDN/CWIC Collaborations
**IDN Search Portal**

IDN Search and CWIC Portals

**CWIC Portal**

https://search.earthdata.nasa.gov/portal/idn/search

https://search.earthdata.nasa.gov/portal/cwic/search
IDN/CWIC Metrics
(Based on February 2023 counts)

- CWIC Providers and counts:

<table>
<thead>
<tr>
<th>Providers</th>
<th>Total Collections</th>
<th>Total Granules</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISRO</td>
<td>37</td>
<td>2,833,916</td>
</tr>
<tr>
<td>NRSCC</td>
<td>29</td>
<td>1,686,707</td>
</tr>
<tr>
<td>USGS</td>
<td>33</td>
<td>13,062,163</td>
</tr>
<tr>
<td>NOAA</td>
<td>112</td>
<td>0</td>
</tr>
</tbody>
</table>

- Total Collections and Granules offered by the IDN Search and CWIC Portals:

<table>
<thead>
<tr>
<th></th>
<th>Total Collections</th>
<th>Total Granules</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWIC</td>
<td>481 (98 with granules)</td>
<td>~17,582,786</td>
</tr>
<tr>
<td>IDN</td>
<td>+56,600</td>
<td>+1,330,000,000</td>
</tr>
</tbody>
</table>

- The IDN offers FedEO collections: 457 (with ~39,812,158 granules)
IDN/CWIC Metrics
WGISS-54 vs. WGISS-55

- **Differences:**
  - USGS: increase in granules
  - NOAA: zero granules (retirement of CMR CWIC Tag / transition to OSDD links in datasets metadata.
  - CWIC: less granules because of the NOAA OSDD transition.
  - ESA: increase of collections and granules
  - IDN: increase of collections and granules
CEOS/IDN/CWIC Collaborations

- **ESA/FedEO** continue re-ingesting dataset records into CMR/IDN:
  - Re-ingested: 179 ESA, 53 DLR, and 45 VITO.
  - Ingest new FedEO provider’s Data Center CEDA 180 dataset records for ESA Climate Change Initiative (CCI).

- **ISRO** updated 12 dataset records “Get Data” links.

- **NOAA NCEI** meeting:
  - Discuss CMR OpenSearch OSDD tag retirement.
  - Review ISO example to add OSDD links in CMR.

- **CCMEO** considering adding DirectDistributionInformation metadata for cloud discovery.

- **USGS** updated datasets RelateURL metadata with OSDD links.
II. CMR Service and Tool records for IDN
CMR Service and Tool information

- Unified Metadata Models for Service (UMM-S) / Tool (UMM-T) records in CMR can be searched using CMR API:
  - Search API
    - Services: https://cmr.earthdata.nasa.gov/search/site/docs/search/api.html#service
    - Tools: https://cmr.earthdata.nasa.gov/search/site/docs/search/api.html#tool
  - Schemas
    - Services: https://git.earthdata.nasa.gov/projects/EMFD/repos/unified-metadata-model/browse/service/v1.5.1/umm-s-json-schema.json
    - Tools: https://git.earthdata.nasa.gov/projects/EMFD/repos/unified-metadata-model/browse/tool/v1.2.0/umm-t-json-schema.json

- Users can search for CEOS tools by using ShortName or keywords:
  - Short Name: https://cmr.earthdata.nasa.gov/search/tools.umm_json?name=Proba-V%20MEP&pretty=true
  - Keywords: https://cmr.earthdata.nasa.gov/search/tools?keyword=Sentinel%20satellites
CMR Service and Tool information

- Service and tool records are only directly discoverable using the CMR Search API and indirectly they are discoverable through their associated collections in the IDN/Earthdata Search.
- These records are associated to the the dataset records using the search.
- Dataset records do show all the services and tools associated with it.

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This dataset contains operational near-real-time Level 2 ocean surface wind vectors retrievals from the Advanced Scatterometer (ASCAT) on MetOp-B at 25 km sampling resolution (note the effective resolution is 56 km). It is a product of the European Organization for the Exploration of the Atmosphere and Space (EUMETSAT) Ocean and Sea Ice Satellite Application Facility (OSI SAF) provided through the Royal Netherlands Meteorological Institute (KNMI). The wind vector retrievals are currently processed using the CMOD-5 through two different models: using a Herring2 filter to spatially enhance the Sare J data in the KNMI OSI SAF dataset. Each file is provided in netCDF version 5 format, and contains one full orbit derived from 9 minute orbit samples. Latency is approximately 2 hours from the latest measurement. The beginning of the orbit is defined by the first wind vector cell measurement within the first 9 minute orbit sample that starts north of the Equator in the ascending node. ASCAT is a C-band dual swath fan beam radar scatterometer providing two independent swaths of backscatter retrievals in an asynchronous polar orbit aboard the MetOp-B platform. For more information on the MetOp-B mission, please visit https://eumetsat.int/mission/metopt . For more timely announcements, users are encouraged to register with the KNMI scatterometer email list, scwvinfo@knmi.nl. Users are also highly advised to check the dataset user guide periodically for updates and new information on known problems and issues. All intellectual property rights of the OSI SAF products belong to EUMETSAT. The use of these products is granted to every interested user, free of charge. If you wish to use these products, EUMETSAT’s copyright credit must be shown by displaying the words “copyright (year) EUMETSAT” on each of the products used.
III. UMM-C (DIF10) Cloud metadata fields (DirectDistributionInformation)
The Direct Distribution Information main element allows data providers to provide users information on getting direct access to data products that are stored in the Amazon Web Service (AWS) S3 buckets when they are initially looking at a collection. The end users get information such as the S3 credentials end point, a credential documentation URL, as well as bucket prefix names, and an AWS region.

There are multiple sub-elements that comprise Direct Distribution Information:

- **Region**: Defines the possible values for the Amazon Web Service US Regions where the data product resides. The current valid values are: us-east-1, us-east-2, us-west-1, and us-west-2.
- **S3BucketAndObjectPrefixNames**: Defines the possible values for the Amazon Web Service US S3 bucket and/or object prefix names.
- **S3CredentialsAPIEndpoint**: Defines the URL where the credentials are stored.
- **S3CredentialsAPIDocumentationURL**: Defines the URL where the credential documentation is stored.

Each of these elements describes the information that is necessary to pull out data products that are stored in the AWS cloud using a S3 URL that is located inside each granule's (data product file's) metadata.
Direct Distribution Information Metadata for Cloud available Datasets

- **Examples:**
  - Region: "us-east-1"
  - S3BucketAndObjectPrefixNames: "Bucket 1"

- **CMR JSON example:**

```json
"DirectDistributionInformation": {
  "Region": "us-west-2",
  "S3BucketAndObjectPrefixNames": [
    "s3://lp-prod-protected/MYD11_L2.061",
    "s3://lp-prod-public/MYD11_L2.061"
  ],
  "S3CredentialsAPIEndpoint": "https://data.lpdaac.earthdatacloud.nasa.gov/s3credentials",
  "S3CredentialsAPIDocumentationURL": "https://data.lpdaac.earthdatacloud.nasa.gov/s3credentialsREADME"
},
```
IV. Removal of CMR OpenSearch Description Document (OSDD) Tag
**RelatedURL OSDD implementation for IDN granule search**

- CMR’s support for OpenSearch collection-specific, granule search API for a collection through an Open Search Descriptor Document (OSDD) in the collection metadata.
  - Adding the CMR OSDD tag is no longer needed to implement OpenSearch collection-specific, granule searches for CEOS providers.
    - All CMR OSDD tags have been removed for datasets metadata records.
- The CMR OSDD tag was removed on **APRIL 14, 2023**.
- The UMM-C RelatedURL elements and sub-elements will only be used to populate the OSSD link.
  - The OSDD links can be added using the dMMT ([https://draftmmt.earthdata.nasa.gov/](https://draftmmt.earthdata.nasa.gov/)) or through agreed automatic ingest.
  - Any provider can add the OSDD URLs to their collections for IDN granule discovery.
<Related_URL>
  <URL_Content_Type>
    <Type>GET CAPABILITIES</Type>
    <Subtype>OpenSearch</Subtype>
  </URL_Content_Type>
  <URL>https://fedeo.esa.int/opensearch/description.xml?parentIdentifier=urn:eop:VITO:CGS_S2_LAI
    &startDate=2015-07-06T00:00:00.000Z&endDate=2021-12-31T23:59:00.000Z</URL>
  <Description>tag_key: opensearch.granule.osdd</Description>
  <Mime_Type>application/opensearchdescription+xml</Mime_Type>
</Related_URL>
RelatedURL OSDD UMM-C Example

```
RelatedUrls: [
{
...
{
    Description: "Collection-specific granule Open Search Descriptor Document",
    URLContentType: "DistributionURL",
    Type: "GET CAPABILITIES",
    Subtype: "OpenSearch",
    GetData: {
        Format: "Not provided",
        MimeTyp...
<gmd:MD_Distributor>
    <gmd:distributorContact gco:nilReason="missing"/>
    <gmd:distributorFormat>
        <gmd:MD_Format>
            <gmd:name>
                <gco:CharacterString>
                    Format: Not provided
                    MimeTyp
                    application/opensearchdescription+xml
                </gco:CharacterString>
                <gmd:version gco:nilReason="unknown"/>
                <gmd:specification/>
            </gmd:MD_Format>
            <gmd:distributorFormat/>
        </gmd:MD_Format>
    </gmd:distributorFormat>
    <gmd:distributorTransferOptions>
        <gmd:MD_DigitalTransferOptions>
            <gmd:unitsOfDistribution>
                <gco:CharacterString>KB</gco:CharacterString>
            </gmd:unitsOfDistribution>
            <gmd:transferSize>
                <gco:Real>0</gco:Real>
            </gmd:transferSize>
            <gmd:onLine>
                <gmd:CI_OnlineResource>
                    <gmd:linkage>
                        <gmd:URL>
                            https://fedeo.esa.int/opensearch/description.xml?parentIdentifier=EO:
                    </gmd:linkage>
                </gmd:CI_OnlineResource>
            </gmd:onLine>
        </gmd:MD_DigitalTransferOptions>
    </gmd:distributorTransferOptions>
</gmd:MD_Distributor>
IV. UMM Updates
Description of the UMM Updates

- **UMM-Collections**
  - EULAIdentifiers: element so that curators can associate their collections to their End User License Agreements (EULA).
    - Example:
      - EULAIdentifiers: e9f67a66-e5fc-43gc-b720-ae12a2c3d8f2
  - TilingIdentificationSystems/Coordinates: change to allow Coordinates take string and apha-numeric data values.
    - Example:
      - TilingIdentificationSystemName: Military Grid Referance System
      - Coordinate1/MinimumValue: 4Q FJ 1 6
    - Change log link: https://git.earthdata.nasa.gov/projects/EMFD/repos/unified-metadata-model/browse/collection/CHANGELOG.md

- **UMM-Services**
    - Change log link: https://git.earthdata.nasa.gov/projects/EMFD/repos/unified-metadata-model/browse/service/CHANGELOG.md
End-user license agreement (EULA)

- NASA CMR has improved how to handle EULAs in CMR
  - Previous EULA method was using CMR Tags and cause problems for accessing applications.
  - New method is to transferring the EULA information to Earthdata Login (https://urs.earthdata.nasa.gov) and UMM-C metadata.
    - This new method has made it easier for applications to utilize the end-user license agreements.
  - The EULA are created in Earthdata Login and the EULA ID is added to the dataset metadata.
  - The EULAIdentifiers is in addition to the Use Constraints elements and LicenseURL sub-elements but is not required.
Creating/Accept End-user license agreement (EULA)

- Click on the EULA link on the menu bar to create (Providers) or accept (End-users) EULAs.
Creating/Accept End-user license agreement (EULA)

Register a New End User License Agreement

**EULA Name:**
IDN Test EULA - Can be deleted

**End User License Agreement:**
Terms of Service Contents

**REGISTER EULA**
Creating/Accept End-user license agreement (EULA)

The EULAIIdentifier value that goes into the provider’s dataset metadata.

End-user license agreement: which can be edited or deleted by the provider.
Creating/Accept End-user license agreement (EULA)

Provider’s EULA for the user to agree too.

End User License Agreement

Please review the End User License Agreement below. You must accept the terms and conditions in order to use EULA restricted applications.

SEDAC Data Access is free of charge. You may use the website without registering, but in order to download data, user registration is required. Please see the user registration page at http://beta.sedac.ciesin.columbia.edu/user-registration for more details. For more information about the privacy policy, copyright, and permissions, please visit the SEDAC page at http://beta.sedac.ciesin.columbia.edu/privacy.

User’s new EULA list to accept.

- SEDAC Website (Alpha)
- Toolsets for Airborne Data (TAD)
- TEST-TAD (URS for Test Enviornment)
- SEDAC Website (Beta)
- VCFW Test
- Sea Level Website
- Alaska Satellite Facility Data Access (DEV/TEST)
- DB Direct
V. GCMD Keyword Releases
GCMD Keyword Update

● GCMD Keyword Releases:
  ○ All Keyword releases: https://wiki.earthdata.nasa.gov/display/ED/Keyword+Release+Announcements
  ○ 10 Keyword releases since WGISS-54 with varies additions to Science Keywords, Platforms, Instruments, Providers, Projects, Services Keywords, and Locations.

● GCMD Keyword Forum: https://forum.earthdata.nasa.gov/app.php/tag/GCMD+Keywords
  ○ Forum lets GCMD metadata providers request new or updates to the GCMD Keywords and allows users to provide feedback and comments.
VI. IDN Metrics
IDN Homepage Usage
(November 2021 to February 2023)
(https://idn.ceos.org/)

- **Users**: 10,078
- **Sessions**: 13,033
- **Page views**: 27,946

- **User**: An individual person browsing the website.
- **Sessions**: A single visit to the website, consisting of one or more pageviews.
- **Pageviews**: A pageview is reported when a page has been viewed by a user on the website.
IDN Homepage Usage (continue)
November 2021 to February 2023
https://idn.ceos.org/

How are users finding the IDN?

- **Direct**: includes people who typed your website’s URL into their browser or clicked a link in an email application.
- **Referral**: A referral is reported when a user clicks through to your website from another third-party website.
- **Organic**: refers to people clicking on a free link from a search results page. For example, people clicking through to your website from a free result on a Google search results page.

### Top Countries

- **United States**: 37.3%
- **China**: 36.8%
- **India**: 17%
- **United Kingdom**: 3.3%
- **Canada**: 2.9%
- **Rest of the World**: 2.8%

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IDN Search Portal Usage
(August 2021 to February 2023)
(https://search.earthdata.nasa.gov/portal/idn/search)

Current Status

<table>
<thead>
<tr>
<th>Users</th>
<th>Sessions</th>
<th>Pageviews</th>
<th>Pages / Session</th>
<th>Avg. Session Duration</th>
<th>Bounce Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>12,356</td>
<td>15,754</td>
<td>41,263</td>
<td>2.62</td>
<td>00:05:59</td>
<td>26.30%</td>
</tr>
</tbody>
</table>

- **User**: An individual person browsing the website.
- **Sessions**: A single visit to the website, consisting of one or more pageviews.
- **Pageviews**: A pageview is reported when a page has been viewed by a user on the website.
- **Pages/Session**: the average number of pageviews in each session.
- **Avg. Session Duration**: how long users are spending on your website.
- **Bounce Rate**: is the percentage of sessions with only one interaction.
# IDN Search Portal Usage
(August 2021 to February 2023)
(https://search.earthdata.nasa.gov/portal/idn/search)

<table>
<thead>
<tr>
<th>Page</th>
<th>Users</th>
<th>Pageviews</th>
<th>Sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>search.earthdata.nasa.gov/portal/idn/search</td>
<td>12169</td>
<td>23422</td>
<td>13481</td>
</tr>
<tr>
<td>search.earthdata.nasa.gov/portal/idn/search/granules</td>
<td>5719</td>
<td>12511</td>
<td>1712</td>
</tr>
<tr>
<td>search.earthdata.nasa.gov/portal/idn/projects</td>
<td>1235</td>
<td>2083</td>
<td>118</td>
</tr>
<tr>
<td>search.earthdata.nasa.gov/portal/idn/downloads</td>
<td>1498</td>
<td>1974</td>
<td>242</td>
</tr>
<tr>
<td>search.earthdata.nasa.gov/portal/idn/search/granules/collection-details</td>
<td>962</td>
<td>1015</td>
<td>158</td>
</tr>
<tr>
<td>search.earthdata.nasa.gov/portal/idn/search/granules/granule-details</td>
<td>566</td>
<td>175</td>
<td>40</td>
</tr>
<tr>
<td>search.earthdata.nasa.gov/portal/idn/preferences</td>
<td>53</td>
<td>43</td>
<td>2</td>
</tr>
<tr>
<td>search.earthdata.nasa.gov/portal/idn/contact_info</td>
<td>40</td>
<td>22</td>
<td>0</td>
</tr>
<tr>
<td>search.earthdata.nasa.gov/portal/idn/subscriptions</td>
<td>51</td>
<td>18</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>22293</td>
<td>41263</td>
<td>15754</td>
</tr>
</tbody>
</table>
IDN Search Portal Usage
August 2021 to February 2023
https://search.earthdata.nasa.gov/portal/idn/search

Direct: includes people who typed your website’s URL into their browser or clicked a link in an email application.

Referral: A referral is reported when a user clicks through to your website from another third-party website.

Organic: refers to people clicking on a free link from a search results page. For example, people clicking through to your website from a free result on a Google search results page.

IDN Sessions by Top Countries

- United States: 28.8%
- China: 13.6%
- India: 5.5%
- United Kingdom: 3.4%
- Spain: 3.2%
- Rest of the World: 2.6%

How are users finding the IDN?

- Direct: 93.2%
- Referral: 3.6%
- Organic: 3.2%
Draft MMT Usage from April 2022 to February 2023.

<table>
<thead>
<tr>
<th>User</th>
<th>Unique Login</th>
<th>Total Logins</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDN Metadata Author</td>
<td>26</td>
<td>57</td>
</tr>
</tbody>
</table>

Break down of Drafts created, submitted, and approved.

<table>
<thead>
<tr>
<th></th>
<th>Created</th>
<th>Submitted</th>
<th>Approved</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Draft Proposals</td>
<td>69</td>
<td>69</td>
<td>59</td>
</tr>
<tr>
<td>Update Collections</td>
<td>35</td>
<td>35</td>
<td>35</td>
</tr>
</tbody>
</table>

- Draft MMT will only save unsubmitted collection metadata for 30 days.
Questions

Please provide questions/comments to:

michael.p.morahan@nasa.gov (KBR)
valerie.dixon@nasa.gov (NASA)
Background Slides
Useful Links

- **International Directory Network (IDN)**
  - https://idn.ceos.org/

- **International Directory Network (IDN) Search Portal**
  - https://search.earthdata.nasa.gov/portal/idn/search

- **EarthData Login**
  - https://urs.earthdata.nasa.gov/home

- **Draft MMT**
  - https://draftmmt.earthdata.nasa.gov/
  - Draft Metadata Management Tool (dMMT) User's Guide
Useful Links (continue)

- **GCMD Keywords**

- **GCMD Keyword Viewer**
  - [https://gcmd.earthdata.nasa.gov/KeywordViewer/](https://gcmd.earthdata.nasa.gov/KeywordViewer/)

- **New KMS URLs**
  - GET Capabilities
    - [https://gcmd.earthdata.nasa.gov/kms/](https://gcmd.earthdata.nasa.gov/kms/)
  - All Science Keyword in CSV format
    - [https://gcmd.earthdata.nasa.gov/kms/concepts/concept_scheme/sciencekeywords?case=native&format=csv](https://gcmd.earthdata.nasa.gov/kms/concepts/concept_scheme/sciencekeywords?case=native&format=csv)
Useful Links (continue)

- UMM-C, UMM-G, UMM-S, UMM-T, UMM-V Documents
  - https://wiki.earthdata.nasa.gov/display/CMR/CMR+Documents

- CMR Collection Metadata Schemas
  - https://git.earthdata.nasa.gov/projects/EMFD

- CMR Search API
  - https://cmr.earthdata.nasa.gov/search/site/docs/search/api.html

- CMR OpenSearch Documentation
  - https://cmr.earthdata.nasa.gov/opensearch/home/docs
IDN Search Portal: Granule Discovery and Download Summary
ESA/FedEO SMOS L3 Sea Ice Thickness

(1) Dataset Discovery
(2) Granule (data file) Discovery
(3) Granule (data file) Order Options

(4) Order Selection Options
(5) Granule(s) Download Status
(6) ESA’s EO Client

(7) Direct download from ESA’s EO Client
(8) User Display of Data using NASA’s Panoply Tool
This work was supported by NASA/GSFC under Raytheon Technologies contract number 80GSFC21CA001.