International Directory Network (IDN) Report

CEOS WGISS-55
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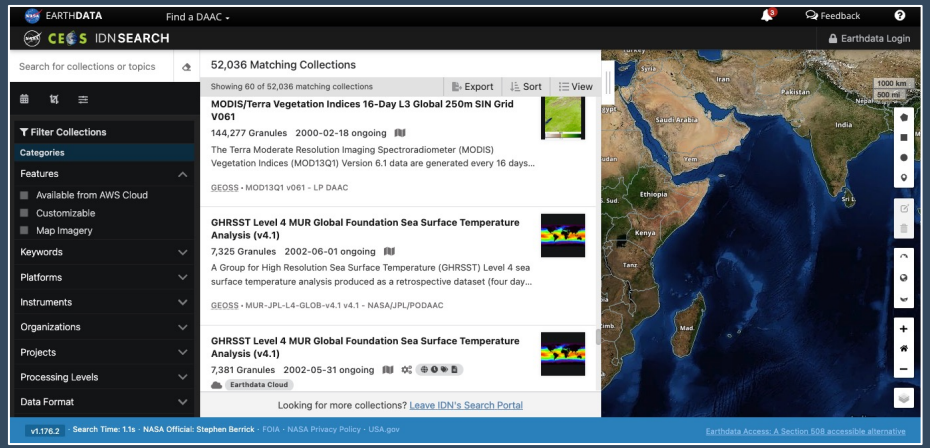
Outline

- 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

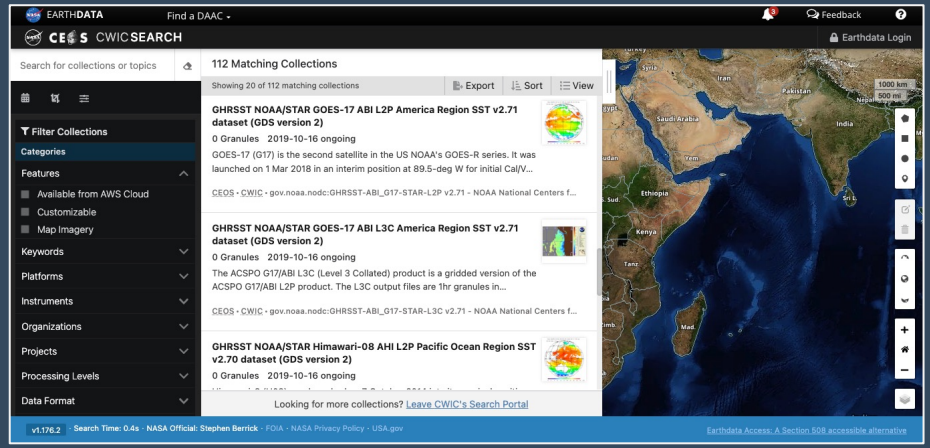
IDN Search and CWIC Portals

IDN Search Portal



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

CWIC Portal



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

IDN/CWIC Metrics

(Based on February 2023 counts)

- CWIC Providers and counts:

Providers	Total Collections	Total Granules
ISRO	37	2,833,916
NRSCC	29	1,686,707
USGS	33	13,062,163
NOAA	112	0

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

	Total Collections	Total Granules
CWIC	481 (98 with granules)	~17,582,786
IDN	+56,600	+1,330,000,000

- The IDN offers FedEO collections: 457 (with ~39,812,158 granules)

IDN/CWIC Metrics

WGISS-54 vs. WGISS-55

IDN/CWIC Metrics

(Based on August 22, 2022 counts)

- CWIC Providers and counts:

Providers	Total Collections	Total Granules
ISRO	37	2,833,916
NRSCC	29	1,686,707
USGS	33	12,885,838
NOAA	112	3,576,400

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

	Total Collections	Total Granules
CWIC	209	+20,982,861
IDN	+52,000	+1,115,000,000

- The IDN offers FedEO collections: 263 (209 offering +32,002,095 granules)

WGISS-1022-MM 7

IDN/CWIC Metrics

(Based on 27, 2023 counts)

- CWIC Providers and counts:

Providers	Total Collections	Total Granules
ISRO	37	2,833,916
NRSCC	29	1,686,707
USGS	33	13,062,163
NOAA	112	0

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

	Total Collections	Total Granules
CWIC	481 (98 with granules)	~17,582,786
IDN	+56,600	+1,330,000,000

- The IDN offers FedEO collections: 457 (with ~39,812,158 granules)

WGISS-1022-MM 7

- 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.

EARTHDATA
CMR Search

DOCUMENTATION DIRECTORY STAC WIKI CLIENT PARTNER'S GUIDE GITHUB

Short Name: ASCATB-L2-25km

MetOp-B ASCAT Level 2 25.0km Ocean Surface Wind Vectors in Full Orbit Swath

C2075141559-POCLOUD | Version Operational/Near-Real-Time

This dataset contains operational near-real-time Level 2 ocean surface wind vector retrievals from the Advanced Scatterometer (ASCAT) on MetOp-B at 25 km sampling resolution (note: the effective resolution is 50 km). It is a product of the European Organization for the Exploitation of Meteorological Satellites (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.n geophysical model function using a Hamming filter to spatially average the Sigma-0 data in the ASCAT L1B data. Each file is provided in netCDF version 3 format, and contains one full orbit derived from 3-minute orbit granules. 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 3-minute orbit granule 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 sun-synchronous polar orbit aboard the MetOp-B platform. For more information on the MetOp-B mission, please visit: https://www.eumetsat.int/our-satellites/metop-series . For more timely announcements, users are encouraged to register with the KNMI scatterometer email list: scat@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.

Metadata Download Options

ATOM | DIF 10 | ECHO 10 | ISO 19115 (MENDS) | ISO 19115 (SMAP)

Overview | Download Data | Services 4 | Tools 2 | Citation Info | Documentation | Additional Info | Related Collections 0

Concept ID	Name	Type
S2004184019-POCLOUD	PO.DAAC Cloud OPeNDAP	OPeNDAP
S2153799015-POCLOUD	PODAAC Concise	Harmony
S1962070864-POCLOUD	PODAAC L2 Cloud Subsetter	Harmony
S2227193226-POCLOUD	PODAAC L2SS-py Concise Chain	Harmony

III. UMM-C (DIF10) Cloud metadata fields (DirectDistributionInformation)

Direct Distribution Information Metadata for Cloud available Datasets

- 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"
  - S3CredentialsAPIEndpoint: "https://some-data-product-credentials-api.com/api.html"
  - S3CredentialsAPIDocumentationURL: https://some-data-product-credentials-api.com/docs.html
- CMR JSON example:


```
"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/) or through agreed automatic ingest.
  - Any provider can add the OSDD URLs to their collections for IDN granule discovery.
    - Must follow CEOS Open Search Best Practices (https://ceos.org/ourwork/workinggroups/wgiss/access/opensearch/)

Related_URL OSDD DIF-10 Example


```
<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
      &amp;startDate=2015-07-06T00:00:00.000Z&amp;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",
        URL: "https://fedeo.esa.int/opensearch/description.xml?parentIdentifier=EOP:ESA:EARTH-
ONLINE:ADAM.Surface.Reflectance.Database",
        GetData: {
            Format: "Not provided",
            MimeType: "application/opensearchdescription+xml",
            Size: 0,
            Unit: "KB"
        }
    },
...
],
```

RelatedURL OSDD ISO Example


```
<gmd:MD_Distributor>
    <gmd:distributorContact gco:nilReason="missing"/>
    <gmd:distributorFormat>
      <gmd:MD_Format>
        <gmd:name>
        <gco:CharacterString>Format: Not provided MimeType:
application/opensearchdescription+xml</gco:CharacterString>
        </gmd:name>
        <gmd:version gco:nilReason="unknown"/>
        <gmd:specification/>
      </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
P:ESA:EARTH-ONLINE:ADAM.Surface.Reflectance.Database</gmd:URL>
        </gmd:linkage>
        <gmd:protocol>
        <gco:CharacterString>https</gco:CharacterString>
        </gmd:protocol>
        <gmd:name>
        <gco:CharacterString>??</gco:CharacterString>
        </gmd:name>
        <gmd:description>
        <gco:CharacterString>Description: tag_key: opensearch.granule.osdd
URLContentType: DistributionURL Type: GET CAPABILITIES Subtype:
OpenSearch</gco:CharacterString>
        </gmd:description>
        <gmd:function>
        <gmd:CI_OnLineFunctionCode

codeList="http://www.ngdc.noaa.gov/metadata/published/xsd/schema/resources/
Codelist/gmxCodelists.xml#CI_OnLineFunctionCode"
codeListValue="download"/>
        </gmd:function>
        </gmd:CI_OnlineResource>
        </gmd:onLine>
      </gmd:MD_DigitalTransferOptions>
    </gmd:distributorTransferOptions>
  </gmd:MD_Distributor>
</gmd:distributor>
```

IV. UMM Updates

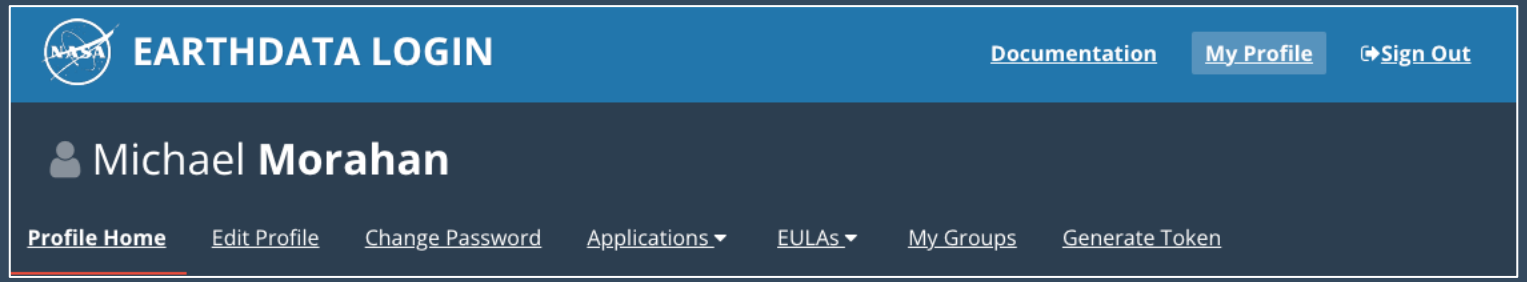
Description of the UMM Updates

- 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
  - ServiceType: add new enumerations for ArcGIS Image Service, Web Feature Service, Web Geoprocessing Service.
  - Change log link: https://git.earthdata.nasa.gov/projects/EMFD/repos/unified-metadata-model/browse/service/CHANGELOG.md

End-user license agreement (EULA)

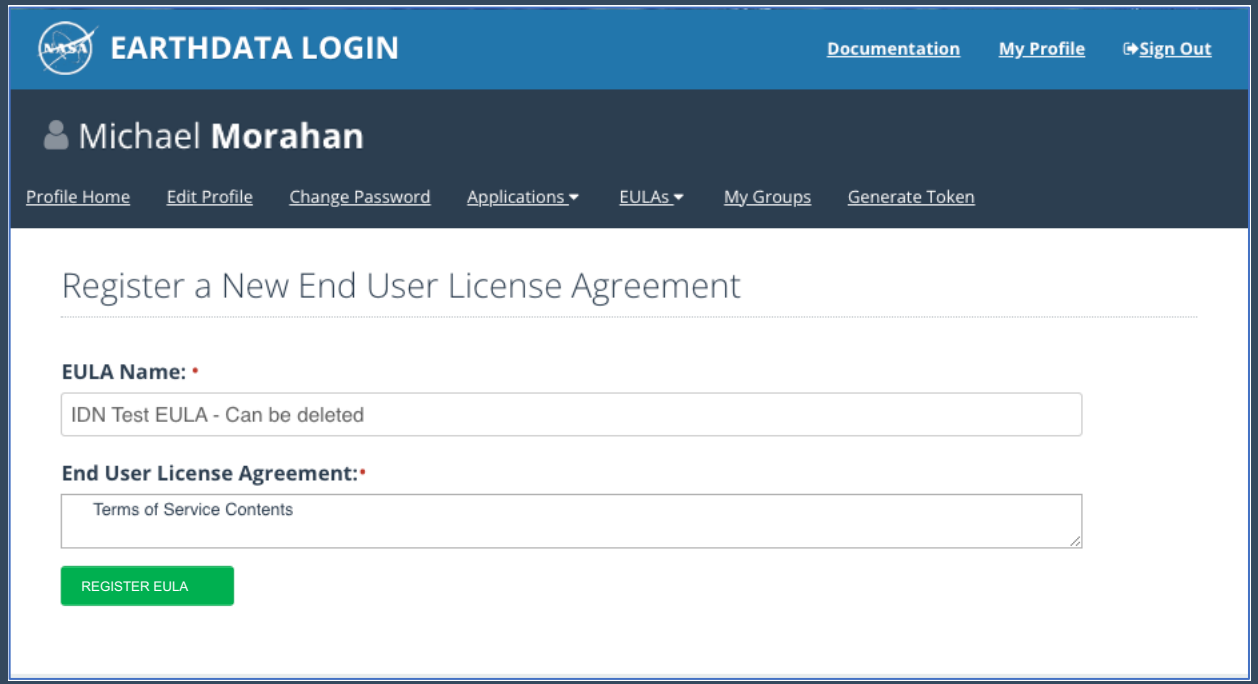
- NASA CMR has improved how to handle EULAs in CMR
  - Previous EULA method was using CMR Tags and cause problems for accessing applications.
  - New method is to transferring the EULA information to Earthdata Login (https://urs.earthdata.nasa.gov) and UMM-C metadata.
    - This new method has made it 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)



Creating/Accept End-user license agreement (EULA)

The EULAIdentifier value that goes into the provider's dataset metadata.

End-user license agreement: which can be edited or deleted by the provider.

Profile Home | Edit Profile | Change Password | Applications | EULAs | My Groups | Generate Token

Manage End User License Agreement

Name: IDN Test EULA - Can be deleted

Eula ID: 5ddf86f2-7d70-4486-b643-8a016c7dec0e

Created By: eereiter

Last Updated By: eereiter

Created: 2023-03-01 15:25:01 UTC

Last Updated: 2023-03-01 15:25:01 UTC

End User License Agreement

```
Terms of Service Contents

* Sentinel-3 Data License

ESA Sentinel-3 End User License Agreement

EUROPEAN COMMISSION Directorate-General for Internal Market, Industry,
Entrepreneurship and SMEs Space Policy, Copernicus and Defence Space Data
for Societal Challenges and Growth

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Service Information without any express or implied warranty, including
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EU law grants free access to Copernicus Sentinel Data and Service
Information for the purpose of the following use in so far as it is lawful[4]:

1. reproduction;
2. distribution;
3. communication to the public;
4. adaptation, modification and combination with other data and
information;
5. any combination of points (a) to (d).
```

EDIT | DELETE

Creating/Accept End-user license agreement (EULA)

Provider's EULA for the user to agree too.

Michael **Morahan**

Profile Home | Edit Profile | Change Password | Applications | EULAs | My Groups | Generate Token

End User License Agreement

SEDAC Website (Beta)

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.
```

☐ **I agree to the terms of End User License Agreement**
(Please select the checkbox to Agree)

AGREE

Michael **Morahan**

Profile Home | Edit Profile | Change Password | Applications | EULAs | My Groups | Generate Token

Accept New EULAs

SEDAC Website (Alpha)	ACCEPT EULA
Toolsets for Airborne Data (TAD)	ACCEPT EULA
TEST-TAD (URS for Test Enviornment)	ACCEPT EULA
SEDAC Website (Beta)	ACCEPT EULA
VCFW Test	ACCEPT EULA
Sea Level Website	ACCEPT EULA
Alaska Satellite Facility Data Access (DEV/TEST)	ACCEPT EULA
DB Direct	ACCEPT EULA

User's new EULA list to accept.

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.
  - Forums User Guide: https://forum.earthdata.nasa.gov/docs/assets/sitedocs/userguide.pdf

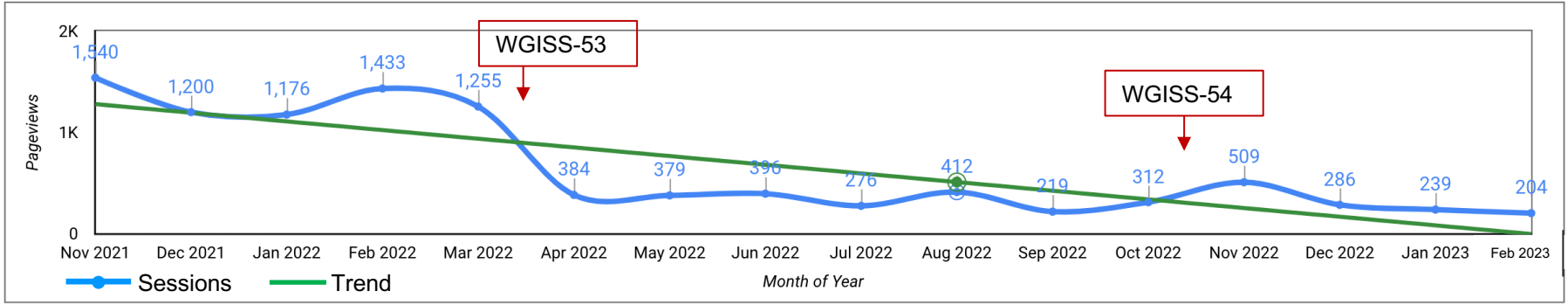
VI. IDN Metrics

IDN Homepage Usage

(November 2021 to February 2023)

(https://idn.ceos.org/)

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

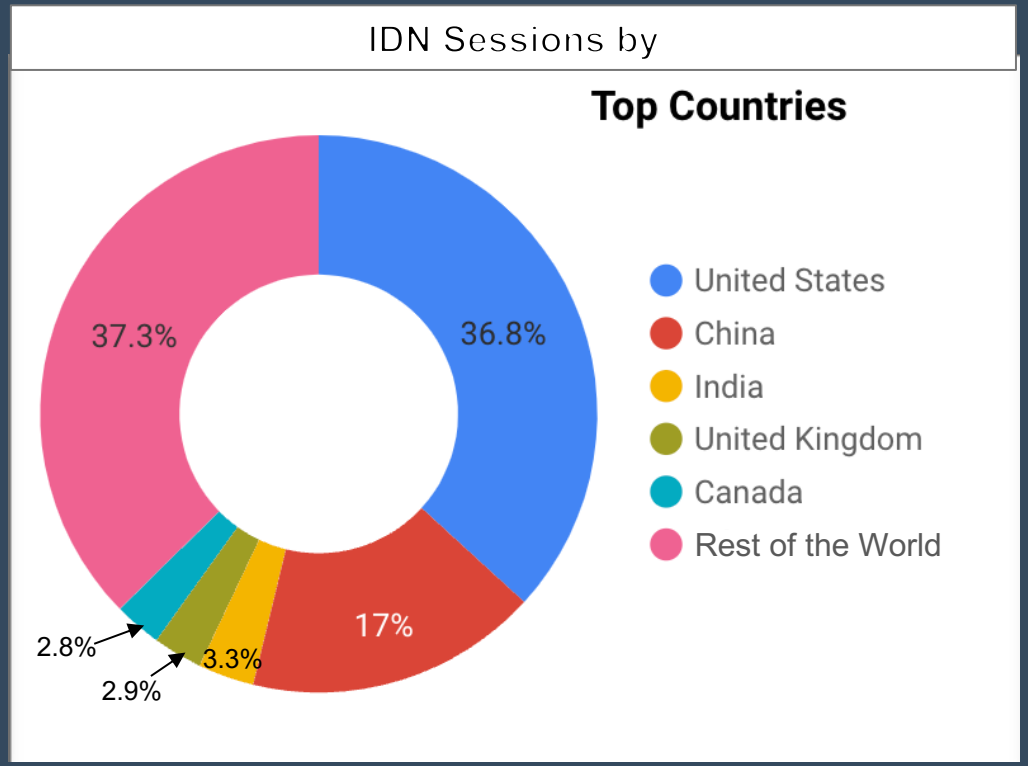


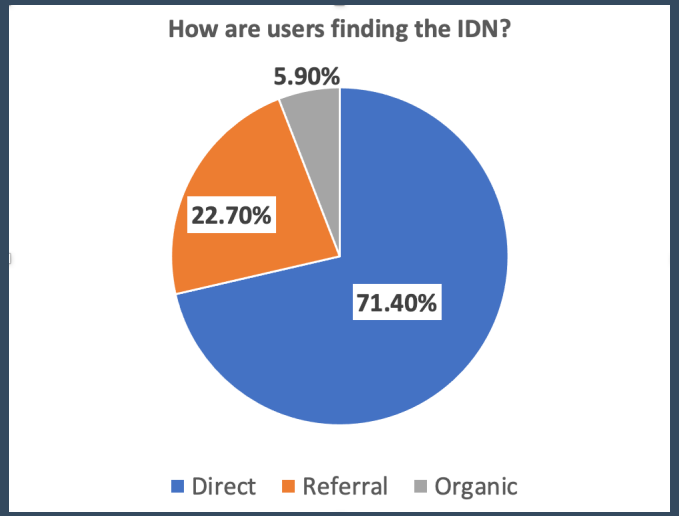
- **User**: An individual person browsing the website.
- **Sessions**: A single visit to the website, consisting of one or more pageviews.
- **Pageviews**: A pageview is reported when a page has been viewed by a user on the website.

IDN Homepage Usage (continue)

November 2021 to Fedruary 2023

https://idn.ceos.org/





- **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.

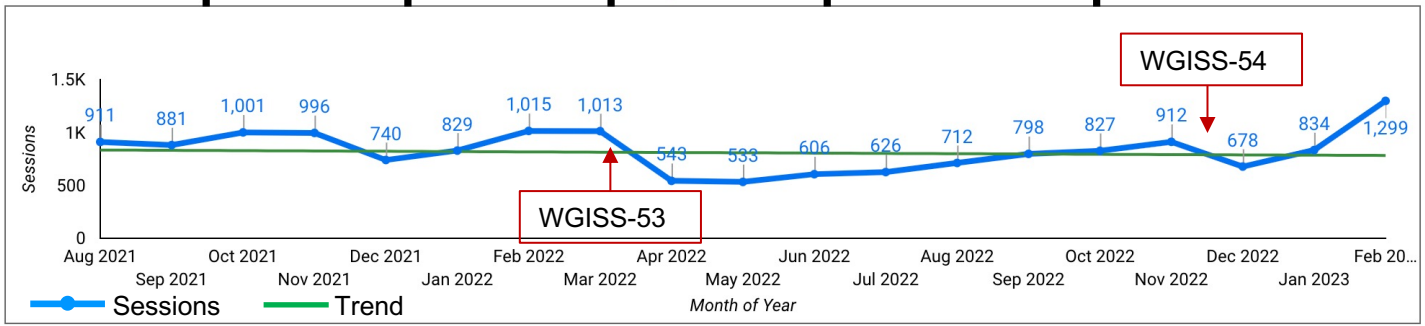
IDN Search Portal Usage

(August 2021 to February 2023)

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

Current Status

Users	Sessions	Pageviews	Pages / Session	Avg. Session Duration	Bounce Rate
12,356	15,754	41,263	2.62	00:05:59	26.30%



- **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

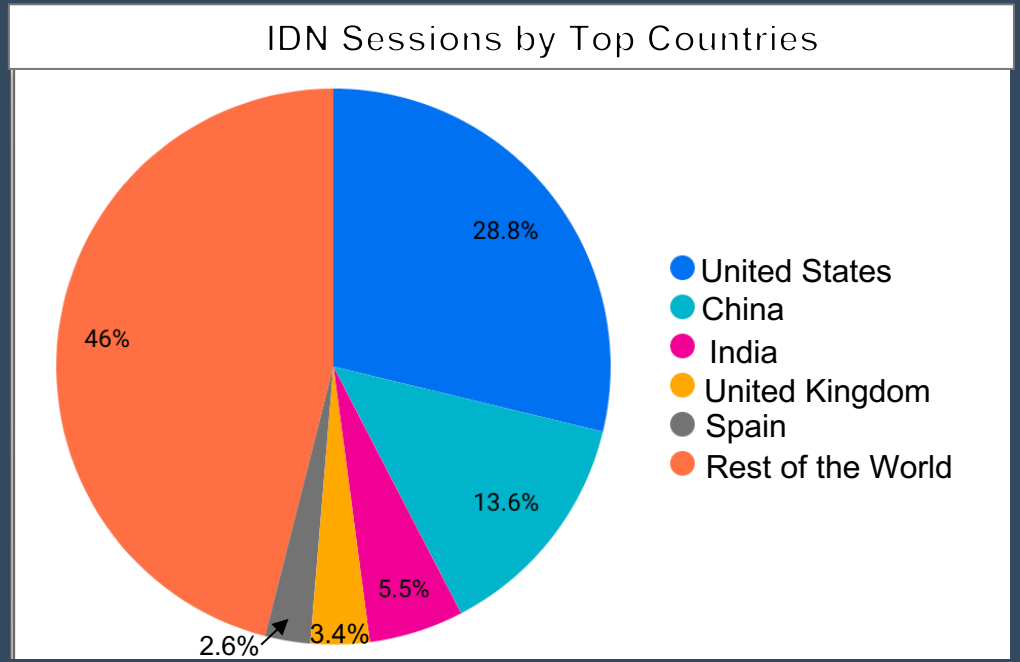
(August 2021 to February 2023)
(https://search.earthdata.nasa.gov/portal/idn/search)

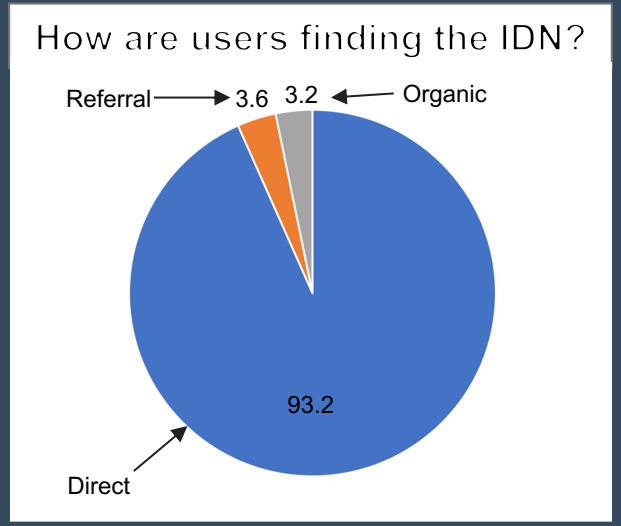
Page	Users	Pageviews	Sessions
search.earthdata.nasa.gov/portal/idn/search	12169	23422	13481
search.earthdata.nasa.gov/portal/idn/search/granules	5719	12511	1712
search.earthdata.nasa.gov/portal/idn/projects	1235	2083	118
search.earthdata.nasa.gov/portal/idn/downloads	1498	1974	242
search.earthdata.nasa.gov/portal/idn/search/granules/collection-details	962	1015	158
search.earthdata.nasa.gov/portal/idn/search/granules/granule-details	566	175	40
search.earthdata.nasa.gov/portal/idn/preferences	53	43	2
search.earthdata.nasa.gov/portal/idn/contact_info	40	22	0
search.earthdata.nasa.gov/portal/idn/subscriptions	51	18	1
Total	22293	41263	15754

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.

Draft MMT Usage

https://draftmmt.earthdata.nasa.gov

DraftMMT Usage from April 2022 to February 2023.

User	Unique Login	Total Logins
IDN Metadata Author	26	57

Break down of Drafts created, submitted, and approved.

	Created	Submitted	Approved
New Draft Proposals	69	69	59
Update Collections	35	35	35

- **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**
    - https://wiki.earthdata.nasa.gov/display/CMR/Draft+Metadata+Management+Tool+%28dMMT%29+User%27s+Guide

Useful Links (continue)

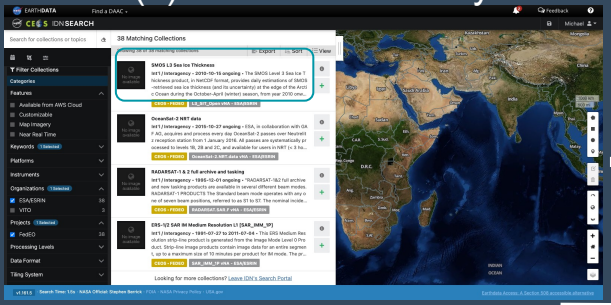
- **GCMD Keywords**
  - https://earthdata.nasa.gov/earth-observation-data/find-data/gcmd/gcmd-keywords
- **GCMD Keyword Viewer**
  - https://gcmd.earthdata.nasa.gov/KeywordViewer/
- **New KMS URLs**
  - GET Capabilities
    - https://gcmd.earthdata.nasa.gov/kms/
  - All Science Keyword in CSV format
    - https://gcmd.earthdata.nasa.gov/kms/concepts/concept_scheme/sciencekeywords?case=native&format=csv

Useful Links (continue)

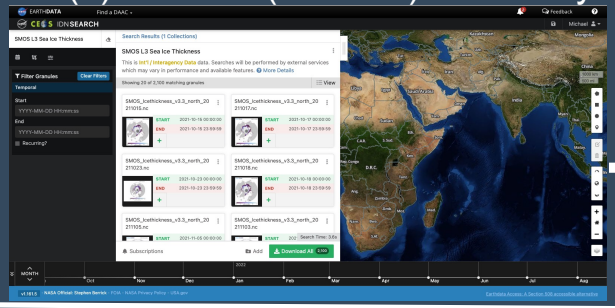
- **UMM-C, UMM-G, UMM-S, UMM-T, UMM-V Documents**
  - https://wiki.earthdata.nasa.gov/display/CMR/CMR+Documents
- **CMR Collection Metadata Schemas**
  - https://git.earthdata.nasa.gov/projects/EMFD
- **CMR Search API**
  - https://cmr.earthdata.nasa.gov/search/site/docs/search/api.html
- **CMR OpenSearch Documentation**
  - https://cmr.earthdata.nasa.gov/opensearch/home/docs

IDN Search Portal: Granule Discovery and Download Summary
ESA/FedEO SMOS L3 Sea Ice Thickness

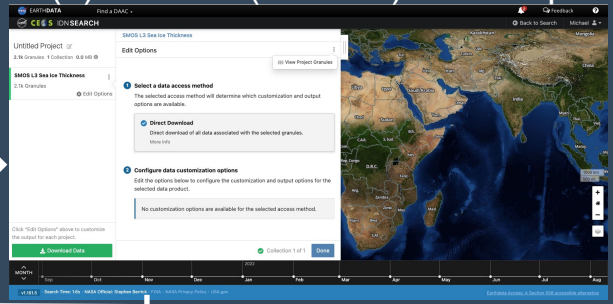
(1) Dataset Discovery



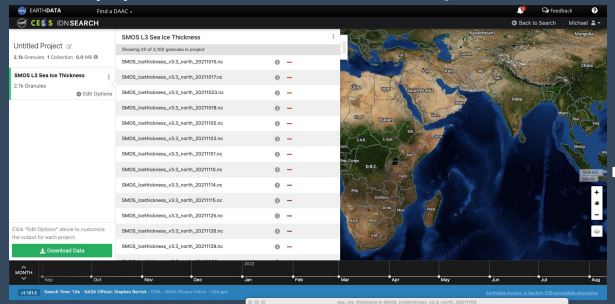
(2) Granule (data file) Discovery



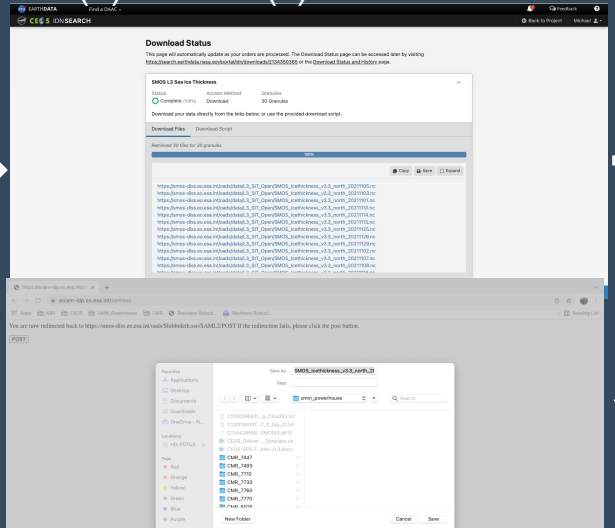
(3) Granule (data file) Order Optio



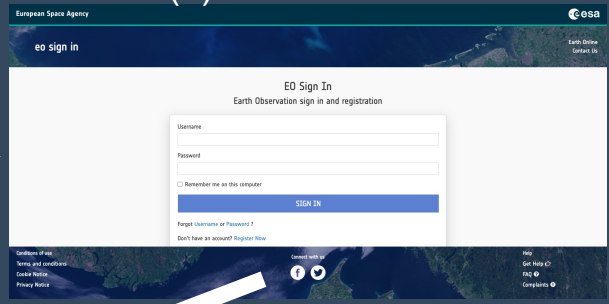
(4) Order Selection Options



(5) Granule(s) Download Status

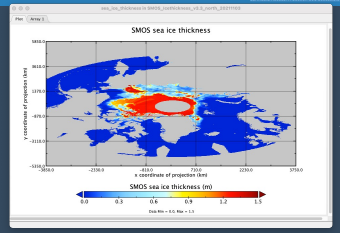


(6) ESA's EO Client



(7) Direct download from ESA's EO Client

(8) User Display of Data using NASA's Panoply Tool



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