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**NASA'S EARTH OBSERVING SYSTEM
DATA AND INFORMATION SYSTEM**

WGISS-45 International Directory Network (IDN) Report

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EED2 Team, NASA's Global Change Master Directory (GCMD)
CEOS WGISS-45 Meeting
Session: Data DISCOVERY and ACCESS
Location: National Institute for Space Research (INPE)
　　　　　　São Jose dos Campos, Brazil
April 10, 2018

International Directory Network (IDN) Topics

I. Transition of DIF-9 to DIF-10 Metadata Records

II. GCMD Keyword Update

III. DIF-10 and UMM-C Schema Changes

IV. Metadata Validation

V. docBUILDER for Submitting IDN Metadata (i.e. Registration)

VI. Mapping WGClimate Essential Climate Variable (ECV) Inventory to IDN Records

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I. TRANSITION DIF-9 TO DIF-10

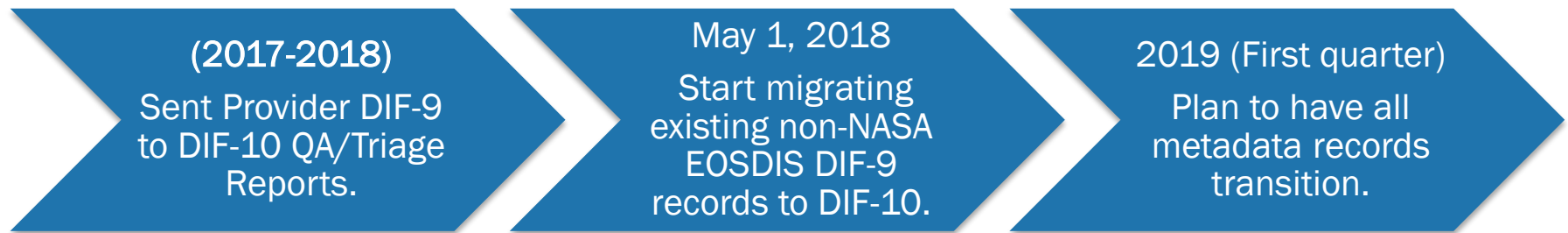# Why Transition From DIF-9 to DIF-10?

- DIF-10 offers improvements to the DIF including:
  - New fields (Ex: Product_Level_ID)
  - Renamed fields (Ex: Parameters changed to Science_Keywords)
  - Restructured fields (Ex: Hierarchical representation of Platforms/Instrument).

- These changes serve to bring the DIF in compliance with NASA's Unified Metadata Model (UMM) and integrate features requested by the IDN community.

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DIF-9 Fields Mapped to Required DIF-10 Fields

DIF-9 Fields	DIF-10 Fields
Data Center/Organization	*Organization*
Data Set Progress	Data Set Progress
Entry_ID	*Entry_ID (Shortname)*
Data_Set_Citation/Version	*Entry_ID (Version)*
Entry_Title	Entry_Title
ISO Topic Category	ISO Topic Category
Source/Sensor	*Platform/Instrument*
Project	Project
Related URL	Related URL
Science Keywords	Science Keywords
Spatial Coverage	Spatial Coverage
Summary	Summary
Temporal Coverage	Temporal Coverage
None	*Product Level ID*

RED fields indicate changes between DIF-9 and DIF-10

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DIF-9 to DIF-10 Transition Schedule

(2017-2018) Sent Provider DIF-9 to DIF-10 QA/Triage Reports.	May 1, 2018 Start migrating existing non-NASA EOSDIS DIF-9 records to DIF-10.	2019 (First quarter) Plan to have all metadata records transition.

- Providers need to submit new metadata in DIF-10 or any format compatible with NASA's Common Metadata Repository (CMR).
  - Compatible formats: DIF-10, NASA ISO (MENDs), and UMM-JSON.
- docBUILDER supports DIF-10 format.

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Provider QA/Triage Reports

- The reports are a list of DIF-9 records that are missing required DIF-10 field values needed for ingest.

- The reports consist of 2 sections:
  - An Overview page
    - Listing of the missing fields
    - Total number of effected fields
    - Number of records effected.
    - Summary of the process and additional information
  - Record by Record of issues
    - List of the individual records
    - Identified by CMR unique ID and Entry_ID
    - Effected field xPath
    - Type of issue

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QA/Triage Reports: Overview

	A	D	E
1	**Antarctic Data Centre, Australia (AADC) Metadata Quality Assurance (QA) Report to Upgrade to DIF-10 from DIF-9** Number of records effected: 2711 Compiled on 2018-02-13		
2	**XPath**	**Total Field Values**	**Records**
3	/DIF/Data_Set_Citation/Version	2708	2708
4	/DIF/Product_Level_Id	2711	2711
5	/DIF/Project/Short_Name	2534	2534
6	/DIF/Sensor_Name/Short_Name	1693	1693
7	/DIF/Source_Name/Short_Name	653	653
8	/DIF/Spatial_Coverage	6	6
9	/DIF/Temporal_Coverage	6	6
10		**10311**	
11			

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QA/Triage Reports: Record By Record

	A	C	D	E	F
1	Concept-ID	EntryID	Field Xpath	Type of DIF-10 check	Type of DIF-10 Issue
3812	C1214311201-AU_AADC	macca_SPOT3_georef	/DIF/Product_Level_Id	RequiredFieldCheck	Missing Required Field
3813	C1214311687-AU_AADC	AAS_4092_1159	/DIF/Product_Level_Id	RequiredFieldCheck	Missing Required Field
3814	C1214312952-AU_AADC	ASAC_760	/DIF/Product_Level_Id	RequiredFieldCheck	Missing Required Field
3815	C1273648982-AU_AADC	AAS_3338_Davis_Gravel_Runway	/DIF/Product_Level_Id	RequiredFieldCheck	Missing Required Field
3816	C1214308575-AU_AADC	GP_Bibliography	/DIF/Product_Level_Id	RequiredFieldCheck	Missing Required Field
3817	C1214308592-AU_AADC	gillock_isl_sat	/DIF/Product_Level_Id	RequiredFieldCheck	Missing Required Field
3818	C1214311440-AU_AADC	vestfold_seals_gis	/DIF/Product_Level_Id	RequiredFieldCheck	Missing Required Field
3819	C1214311790-AU_AADC	ASAC_1071_Geomorphic_Map	/DIF/Product_Level_Id	RequiredFieldCheck	Missing Required Field
3820	C1214311220-AU_AADC	oldcasey_buildings_gis	/DIF/Product_Level_Id	RequiredFieldCheck	Missing Required Field
3821	C1214312530-AU_AADC	ASAC_1163_WilkesGis_1999	/DIF/Product_Level_Id	RequiredFieldCheck	Missing Required Field
3822	C1214312447-AU_AADC	ASAC_1163_WilkesGIS_2010	/DIF/Product_Level_Id	RequiredFieldCheck	Missing Required Field
3823	C1214305788-AU_AADC	ASAC_1332	/DIF/Product_Level_Id	RequiredFieldCheck	Missing Required Field
3824	C1409214638-AU_AADC	AAS_4062_DSS1617_Glacial_isotopic_composition	/DIF/Product_Level_Id	RequiredFieldCheck	Missing Required Field
3825	C1409214682-AU_AADC	AAS_4062_DSS1617A_Glacial_isotopic_composition	/DIF/Product_Level_Id	RequiredFieldCheck	Missing Required Field
3826	C1366863846-AU_AADC	AAS_4077_ELEV	/DIF/Product_Level_Id	RequiredFieldCheck	Missing Required Field
3827	C1214308596-AU_AADC	glacio_1981_traverse_data_report	/DIF/Product_Level_Id	RequiredFieldCheck	Missing Required Field
3828	C1214313504-AU_AADC	glacio_87_traverse1a	/DIF/Product_Level_Id	RequiredFieldCheck	Missing Required Field
3829	C1214313505-AU_AADC	glacio_87_traverse1b	/DIF/Product_Level_Id	RequiredFieldCheck	Missing Required Field
3830	C1214313506-AU_AADC	glacio_87_traverse2	/DIF/Product_Level_Id	RequiredFieldCheck	Missing Required Field
3831	C1214313507-AU_AADC	glacio_87_traverse3a	/DIF/Product_Level_Id	RequiredFieldCheck	Missing Required Field
3832	C1214313508-AU_AADC	glacio_87_traverse3b	/DIF/Product_Level_Id	RequiredFieldCheck	Missing Required Field
3833	C1214313509-AU_AADC	glacio_87_traverse4	/DIF/Product_Level_Id	RequiredFieldCheck	Missing Required Field
3834	C1214313458-AU_AADC	glacio_87_traverse5	/DIF/Product_Level_Id	RequiredFieldCheck	Missing Required Field
3835	C1291724265-AU_AADC	lawdome_1970	/DIF/Product_Level_Id	RequiredFieldCheck	Missing Required Field
3836	C1292614797-AU_AADC	icecore_borehole_orientation_1970s	/DIF/Product_Level_Id	RequiredFieldCheck	Missing Required Field
3837	C1214308597-AU_AADC	glacio_data_report_1978_casey	/DIF/Product_Level_Id	RequiredFieldCheck	Missing Required Field
3838	C1214308572-AU_AADC	glacio_data_report_1979_casey	/DIF/Product_Level_Id	RequiredFieldCheck	Missing Required Field
3839	C1214308598-AU_AADC	glacio_data_report_1981_casey	/DIF/Product_Level_Id	RequiredFieldCheck	Missing Required Field
3840	C1278304362-AU_AADC	glacio_data_report_1982_casey	/DIF/Product_Level_Id	RequiredFieldCheck	Missing Required Field
3841	C1214308599-AU_AADC	glacio_data_report_1983_casey	/DIF/Product_Level_Id	RequiredFieldCheck	Missing Required Field
3842	C1214308600-AU_AADC	glacio_data_report_1986_casey	/DIF/Product_Level_Id	RequiredFieldCheck	Missing Required Field

Overview　**RecordbyRecord**　+

Ready

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Population of DIF-10 Required Fields

- Providers have 3 options:
  - Update the DIF-9 records with the corresponding DIF-10 required fields.
  - Provide the GCMD/IDN staff with the required fields values.
  - Or, GCMD/IDN staff will transition records directly to DIF-10 using default values for the required fields. (Example default value: "Not provided")

If you have any questions or your agency has not received a Provider QA/Triage report, please contact the GCMD/IDN User Support Office at GSFC-GCMDUSO@mail.nasa.gov or myself at Michael.P.Morahan@nasa.gov.

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II. GCMD KEYWORD UPDATE

Keyword Version 8.6 Release (Spring 2018)

Related URL	• Added: 32 • Deleted: 4 • Modified: 17
Water Quality/Water Chemistry	• Added: 33 • Deleted: 0 • Modified: 24

If you are interested in becoming a keyword reviewer, please contact the ESO at eso-staff@lists.nasa.gov.

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Keyword Version 8.7 Proposed Topics (2019)

Cryosphere

Earth Science Services/

Web Services

Keyword Landing Page

- ✓ Access the GCMD Keywords

- ✓ Submit a Keyword Request

- ✓ See the Keyword Release Announcements

- ✓ Review the Keyword Governance Document

https://earthdata.nasa.gov/about/gcmd/global-change-master-directory-gcmd-keywords

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III. DIF-10 AND UMM-C AND SCHEMA CHANGES

DIF-10.3 Updates

- Existing fields now required:
  - Data_Set_Progress and Product_Level_ID
- Add new sub-fields for :
  - Distribution: Average_Granule_Size and Total_Collection_Size
  - Access_Contraints and Use_Contraints: Type
  - Related_URL/Related_URL Type: URLContentType
- Made optional:
  - Data_Creation and Data_Last_Revision
- Allow:
  - "not applicable" to be specify for Dataset_Citation/Persistent_Identifier.

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UMM-C 1.10 Updates

- Add:
  - New UseConstraints sub-fields:
    - LicenseUrl
      - » Linkage
      - » Protocol
      - » ApplicationProfile
      - » Name
      - » Description
      - » Function
      - » MimeType
    - LicenseText
  - Controlled vocabulary:
    - Tiling System Identification names
    - Collection Progress
- Allow:
  - "not applicable" to be specify for Dataset_Citation/Persistent_Identifier.

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IV. VALIDATION OF METADATA RECORDS

Methods for Validating IDN Metadata

- CMR Ingest API

    - CMR Ingest API Validation documentation: https://cmr.earthdata.nasa.gov/ingest/site/docs/ingest/api.html#validate-collection

    - Recommended for bulk record validation against the UMM-C metadata model

- QAViewer API

    - Metadata Quality Assurance Tool Viewer documentation: https://gcmd.nasa.gov/qaviewer/help/help.html

    - Recommended for single record validation against the DIF-10 schema

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Using CMR Ingest API Validation

- Validating a metadata record

curl -i -X POST -H "Content-type: application/dif10+xml" --data-binary @EOP-ESA-SENTINEL_1_L1.xml https://cmr.earthdata.nasa.gov/ingest/providers/ESA/validate/collection/EOP-ESA-SENTINEL_1_L1

- Example of the returned validation log:

```
<?xml version="1.0" encoding="UTF-8"?><result><warnings>After translating item to UMM-C the metadata had the following issue: /AdditionalAttributes/ object has missing required properties (["Description"])</warnings></result>
```

- The errors and warnings are returned with the UMM-C field names.

  - UMM-C documentation: https://wiki.earthdata.nasa.gov/display/CMR/CMR+Documents

Using QAViewer API for Validation

- QAViewer link:

  https://gcmd.nasa.gov/qaviewer/QAViewer.html

Click to find metadata file

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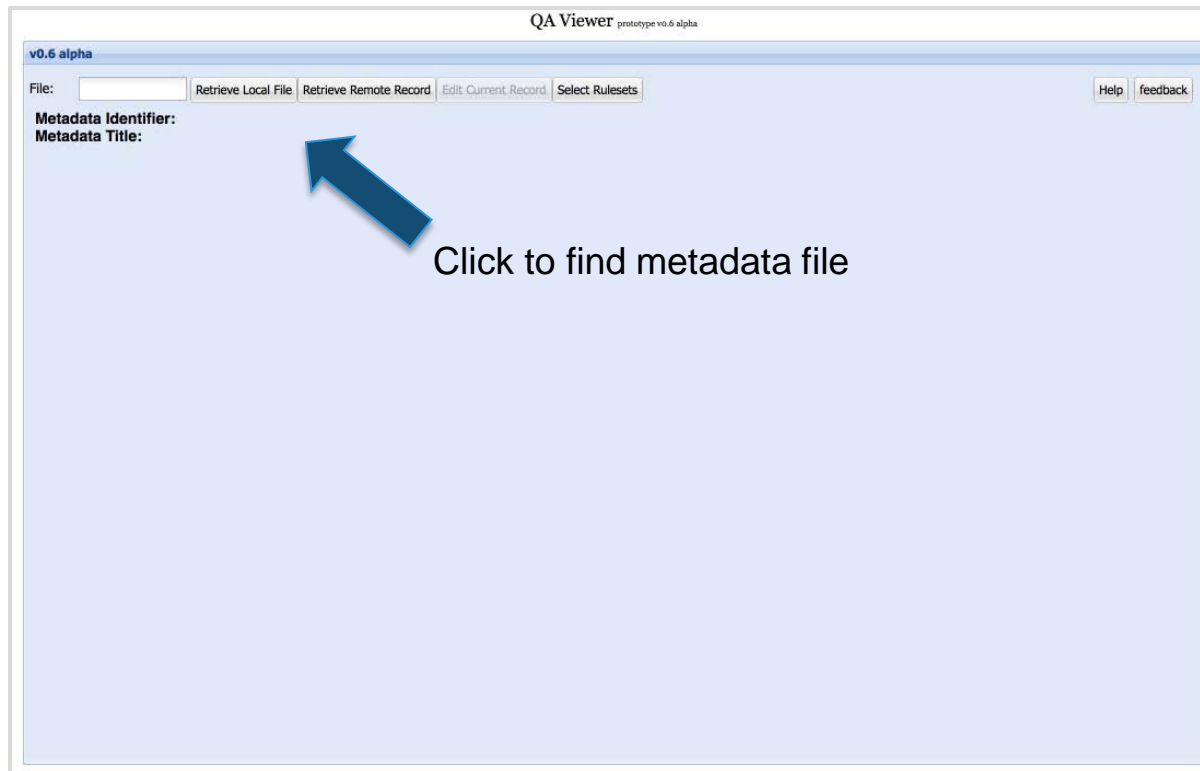
Using QAViewer API for Validation
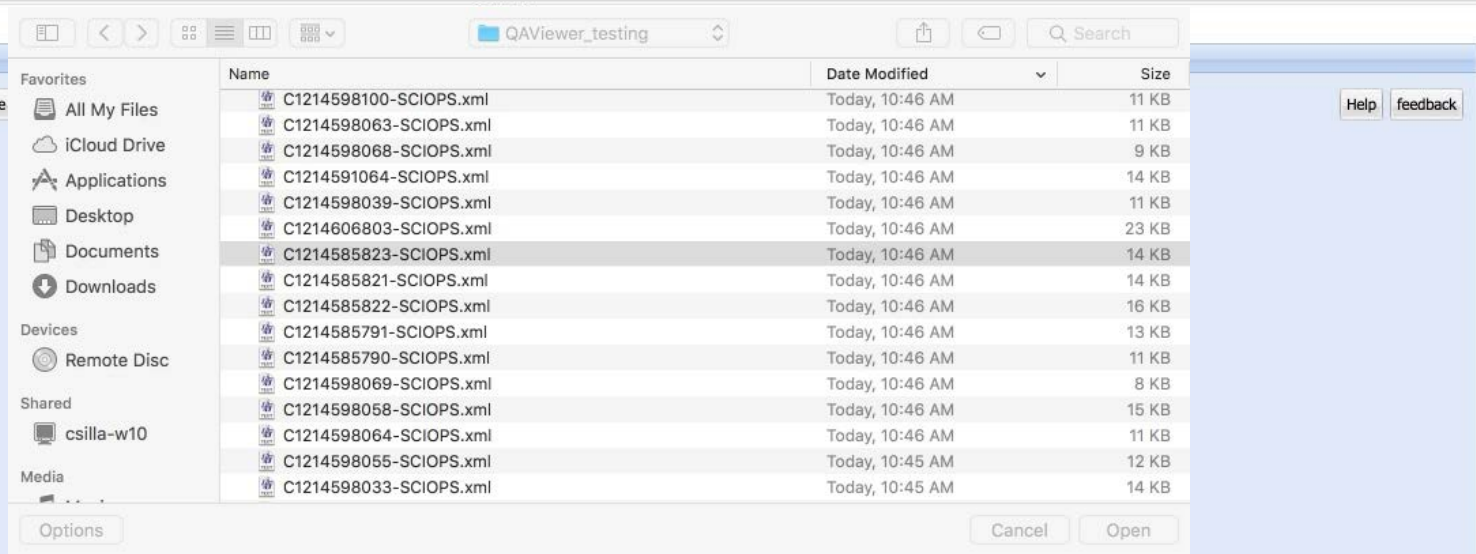
Select metadata file
from your local files

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Using QAViewer API for Validation

The API displays metadata record's errors and warning.

V. DOCBUILDER FOR SUBMITTING IDN METADATA

docBUILDER for a New DIF-10

International Directory Network (IDN)

docBUILDER Help guide

DIF Writer's guide

Select Record → View All Fields → Edit Field → Submit to CMR

Insert collection Short Name (Entry_ID) and Version

Please enter Record Entry ID: (What is an Entry ID?)
Short Name:
Version:

Click button

○ Create a new record

or

○ Modify an existing record

If you would like to use an existing template, Please select a template from the menu below:

No template ▸   What is a template?

CONTINUE »

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docBUILDER to update a DIF-10

DIF-10 docBUILDER Field Layout

DIF-10 docBUILDER Field view

DIF-10 docBUILDER QAViewer

International Directory Network (IDN)

docBUILDER Help guide
DIF Writer's guide

The metadata authoring page allows you to select fields to create
you complete the field as indicated by the check box next to the f

Select Record   View

Entry ID (DIF-10): INPE_CBERS4_AWFI_1 (0 granules)

Record
- Generate Error Report
- Generate Broken Link Report
- Download Record
- Save as template
- About docBUILDER
- Contact Us

Required fields (10 of 12 pa
- ✓ Entry ID ⓘ
- ✓ Entry Title ⓘ
- ✗ Science Keywords ⓘ
- ✓ ISO Topic Category ⓘ
- ✓ Organization ⓘ
- ✓ Summary ⓘ
- ✓ Related URL ⓘ
- ✗ Platform/Instrument ⓘ
- ✓ Temporal Coverage ⓘ
- ✓ Spatial Coverage ⓘ
- ✓ Project ⓘ
- ✓ Metadata Dates ⓘ

Legend: ⓘ = Description o
✗ = Fails Validation

Note: This document is automatically
complete the document and submit it

View XML editor

---

v2.2

File: [   ] Retrieve Local File Retrieve Remote Record Edit Current Record Select Rulesets   Help feedback

Metadata Identifier: INPE_CBERS4_AWFI_1
Metadata Title: AWFI - Wide Field Imaging Camera (CBERS 4) Imagery
▶ Click to view 2 XML parser errors...

dif_10.2-ummc_compliance_V1.0 - Ruleset

UMMC compliance rule set for DIF 10.2 V1.0

Expand All Collapse All   Download Result in CSV   Download Rule Set

Select Result Type to Filter On
☐ Passed: 102 ☑ Failed: 3 ☑ Warnings: 0 ☑ Info: 0

Name	Res	
▸ 📁 DIF	FAIL	
ℛ Required Field Check	FAIL	/DIF/Science_Keywords - Science_Keywords is required for UMM-C compliance. Please add the required field
ℛ Required Field Check	FAIL	/DIF/Platform/Short_Name - Short_Name is required for UMM-C compliance. Please add the required field
ℛ Required Field Check	FAIL	/DIF/Platform/Instrument/Short_Name - Short_Name is required for UMM-C compliance. Please add the required field

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VI. MAPPING WGCLIMATE ESSENTIAL CLIMATE VARIABLE (ECV) INVENTORY TO IDN RECORDS

WGClimate ECV Inventory

http://climatemonitoring.info/ecvinventory

Mapping ECV Inventory to IDN records

- Goal: Identify the ECV records within the IDN.
  - The ECV Inventory spreadsheet has 3 columns to help identify IDN records:
    - Data record name and version
    - Data record identifier
    - Data documentation (link)
  - The IDN added 3 columns to the inventory:
    - Provide IDN/FedEO Entry Link
    - Identify record as CWIC, FedEO, or Not connected
    - Distinguish, if the IDN records are "Linked from Collection to Granules"

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Preliminary Report

	Total ECV Entries (out of 913)	In the IDN and Granule/Product accessible via CWIC infrastructure.	In the IDN has granule/product accessible via CNES infrastructure.	ECVs Not in the IDN
ECVs considered for mapping (Current records)	496	288	4	204
ECVs Not considered for mapping (Future records)	417	NA	NA	NA

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What has been done?

- Mapped NASA, NOAA, and some CNES and EUMETSAT ECV records to IDN records.

- WGISS Chair Mirko Albani has requested WGClimate members to start adding the missing ECV collection records to the IDN.

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Questions?

Please Provide feedback to:

gsfc-gcmduso@mail.nasa.gov
Or
Michael.P.Morahan@nasa.gov

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