



NOAA CoMET Tool and the Maturity Matrix Self-Assessment

Nancy Ritchey

Chief, Archive Branch, Data Stewardship Division

NOAA/NESDIS National Centers for Environmental Information (NCEI)

Thursday, 23 April 2020

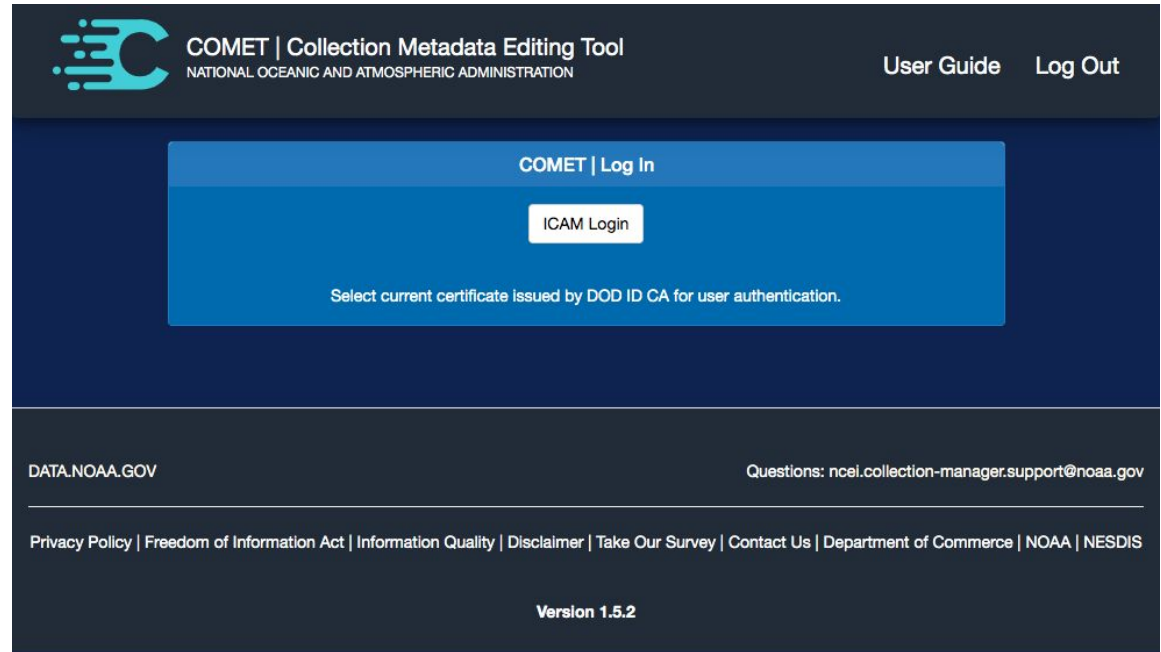
WGIS-49

Virtual

Collection Metadata Editing Tool (CoMET)

NOAA's User Interface
for creating, editing,
and managing
collection metadata and
assessing Data
Stewardship Maturity

[CoMET User's Manual](#)



The screenshot displays the CoMET user interface. At the top left is the CoMET logo, a stylized 'C' with horizontal lines, followed by the text 'COMET | Collection Metadata Editing Tool' and 'NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION'. On the top right are links for 'User Guide' and 'Log Out'. The main content area features a blue box with the text 'COMET | Log In' and a white button labeled 'ICAM Login'. Below the button, it says 'Select current certificate issued by DOD ID CA for user authentication.' At the bottom of the page, there is a footer with 'DATA.NOAA.GOV' on the left, 'Questions: ncel.collection-manager.support@noaa.gov' on the right, and a horizontal line of links: 'Privacy Policy | Freedom of Information Act | Information Quality | Disclaimer | Take Our Survey | Contact Us | Department of Commerce | NOAA | NESDIS'. The version number 'Version 1.5.2' is centered at the very bottom.



CoMET Dataset Metadata Editor

- Supports ISO 19115-2 standard
- Follows NOAA and NCEI guidance
- Implements version control and history
- Enables import of ISO components from external sources

CoMET Editor

Identification Keywords Access Coverage Content History Quality Metadata Resources

1. Descriptive title of the dataset being documented. Spell out any acronyms.
NOAA Himawari 8 Advanced Himawari Imager (AHI) L2 Rainfall Rate from STAR
2. An alternative title or short name by which the dataset is known.
STAR-Himawari8-AHI-L2-Rainfall-Rate
[+ Add Alternate Title](#)
3. The date when the dataset was published or released. See date type definitions.
Date: 2020-02-01 Date Type: publication
[+ Add Date](#)
4. Edition or version number of the dataset.
[VERSION OF RESOURCE]
5. Unique identifier used to reference the dataset, such as a DOI.
[DOI OR RESOURCE IDENTIFIER]
[+ Add Identifier](#)
6. Identify individuals and/or organizations who were or are responsible for creating the dataset. A responsible party role of "Author", "Originator" or "Principal Investigator" is required.
Responsible Party
Role: originator
Individual Name: [ORIGINATOR PERSON NAME]
Organization: DOC/NOAA/NESDIS/STAR > Center for Satellite Applications and Research, NESDIS, NOAA, U.S. Department of Commerce
Position:



CoMET Dataset Metadata Editor

- Provides autocompletion of keywords, including NASA's GCMD
- UI is built upon CoMET APIs, which can also be leveraged by external tools
- Commonly used ISO components can be referenced
- Users can create new records, delete, edit, change, save and re-use records.

CoMET Editor

Identification Keywords Access Coverage Content History Quality Metadata Resources

1. Identify keywords.

▣ theme Keywords using the Global Change Master Directory (GCMD) Science Keywords 8.6 (1)

EARTH SCIENCE > ATMOSPHERE > PRECIPITATION > PRECIPITATION RATE

+ Add Keyword

▣ place Keywords using the Global Change Master Directory (GCMD) Location Keywords 8.6 (16)

▣ platform Keywords using the Global Change Master Directory (GCMD) Platform Keywords 8.6 (1)

Himawari-8

+ Add Keyword

▣ instrument Keywords using the Global Change Master Directory (GCMD) Instrument Keywords 8.6 (1)

AHI > Advanced Himawari Imager

+ Add Keyword

▣ project Keywords using the Global Change Master Directory (GCMD) Project Keywords 8.6 (1)

NOAA OneStop Project

+ Add Keyword

▣ dataCentre Keywords using the Global Change Master Directory (GCMD) Data Center Keywords 8.6 (1)

Add Keyword Type and Vocabulary to the above list:

Type:

Choose Vocabulary:



CoMET Record Groups

Groups enable sharing of duties and roles across a team (ex. author, reviewer).

COMET | Collection Metadata Editing Tool
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

User Guide | Log Out

Signed in as amanda.dean

Home | Record List

Select a Record Group
CoMET Sandbox

New Record
Import Record | Create Record

Bulk Record Actions
Bulk Actions

Search content
Ex: AMSU, GOES, Grid
Search

Showing 1 to 10 of 91 records

Single Record Actions	Record Name	Edit State	Last Editor	Last Updated	Create Date
Edit Manage View Assess Validate	-Enter Description Here-	DRAFT	cedit.edit	2020-04-01 14:44:13 EDT	2020-04-01 14:44:13 EDT
Edit Manage View Assess Validate	Himawari 8 L2 Rainfall Rate	DRAFT	amanda.dean	2020-03-30 15:29:25 EDT	2020-02-03 09:17:00 EST
Edit Manage View Assess Validate	Himawari 8 L2 Cloud Height from AHI	DRAFT	amanda.dean	2020-03-30 15:26:46 EDT	2020-01-30 15:31:50 EST
Edit Manage View Assess Validate	Himawari 8 L2 Derived Motion Winds	DRAFT	amanda.dean	2020-03-30 15:21:57 EDT	2020-02-03 09:09:56 EST
Edit Manage View Assess Validate	Himawari 8 AHI L2P GHRSSST ACSPO SST	DRAFT	amanda.dean	2020-03-30 14:55:33 EDT	2020-02-03 11:48:32 EST



CoMET Rubric Assessment

- The NOAA Rubric V2 assesses a record for adherence to NOAA metadata best practices
- A higher score indicates more complete documentation
- Can be used as a measure of documentation maturity

Showing 1 to 10 of 72 records

Single Record Actions

Edit ▾ Manage ▾ View ▾ Assess ▾ Validate ▾

Edit ▾ Manage ▾ View ▾

Edit ▾ Manage ▾ View ▾

Edit ▾ Manage ▾ View ▾

Component Analysis

CSW Rubric

DOI Rubric

ISO Rubric V2

Completeness Rubric for: NOAA JPSS Visible Infrared Imaging Radiometer Suite (VIIRS) Sensor Data Record (SDR) from IDPS

Completeness Score: 100% + 23

Resource Hierarchy Level: 'Dataset' — Status: 'InGoing'

CATEGORY	SCORE + EXTRA CREDIT	RUBRIC REQUIREMENTS
Identification	100% + 3	Required
Access	100% + 0	Conditional - not required when Resource Hierarchy Level = 'fieldSession' or Status = 'planned'.
Coverage	100% + 3	Required
Content	100% + 0	Conditional - not required when Resource Hierarchy Level = 'fieldSession'.
History	100% + 5	Required
Quality	100% + 1	Conditional - not required when Resource Hierarchy Level = 'fieldSession'.
Connections	97% + 1	Required
Metadata	100% + 1	Required
Associated Resource	+ 4	Highly Recommended
Attribution	+ 5	Highly Recommended

About Completeness Rubric
More Information
Contact

IdentificationAccessCoverageContentHistoryQualityConnectionsMetadataResourcesAttribution

Identification Category The Identification Category provides content needed for basic discovery of the resource. It includes the title, an abstract, theme keywords, point of contact, status and Resource Hierarchy Level.
9/9 +3



Data Stewardship Maturity Matrix

- Consistent framework for assessing and reporting quantifiable stewardship practices
- Allows for greater stewardship quality transparency and contributes to the reproducibility of NOAA's data products.
- Developed jointly by domain experts leveraging institutional knowledge and community best practices and standards
- Vetted through use case studies with diverse datasets managed by different organizations, in collaboration with NC State University, NCEI Data Stewardship Division, and U.S. and international data stewardship groups.

Maturity Scale	Level 1 - Ad Hoc	Level 2 - Minimal	Level 3 - Intermediate	Level 4 - Advanced	Level 5 - Optimal
Key Component	Not Managed	Managed Limited	Managed Defined, Partially Implemented	Managed Well-Defined, Fully Implemented	Level 4 + Measured, Controlled, Audit
Preservability	<i>The state of dataset being preservable</i>				
Accessibility	<i>The state of dataset being publicly searchable and accessible</i>				
Usability	<i>The state of data product being easy to understand and use</i>				
Production Sustainability	<i>The state of data production being sustainable and extendable</i>				
Data Quality Assurance	<i>The state of data product quality being assured/screened</i>				
Data Quality Control /Monitoring	<i>The state of data product quality being controlled and monitored</i>				
Data Quality Assessment	<i>The state of data product quality being assessed</i>				
Transparency /Traceability	<i>The state of data product being transparent, trackable, and traceable</i>				
Data Integrity	<i>The state of data integrity being verifiable</i>				



Guidance, Templates, Tools

- Developed training materials, templates, tools and automation of some features.
- Assessed more than 800 datasets for NOAA OneStop
- Not sustainable as a manual process

A Quick Startup Guide for Utilizing the NCEI/CICS-NC Scientific Data Stewardship Maturity Scoreboard

Document ID: NCEI/CICS-NC/SDSM_0001
Version: Rev. 1.2/09/2014

Ge Peng (Ge.Peng@noaa.gov)
CICS-NC/NCEI
Maturity Level as of 04/16/2015

Guidance

DSMM diagram

Workflow

DSMM diagram

ISO metadata

Report

NOAA Technical Report NESDIS XXX
doi: 10.7289/XXXXXXX

Data Stewardship Maturity Scoreboard
Dataset Title

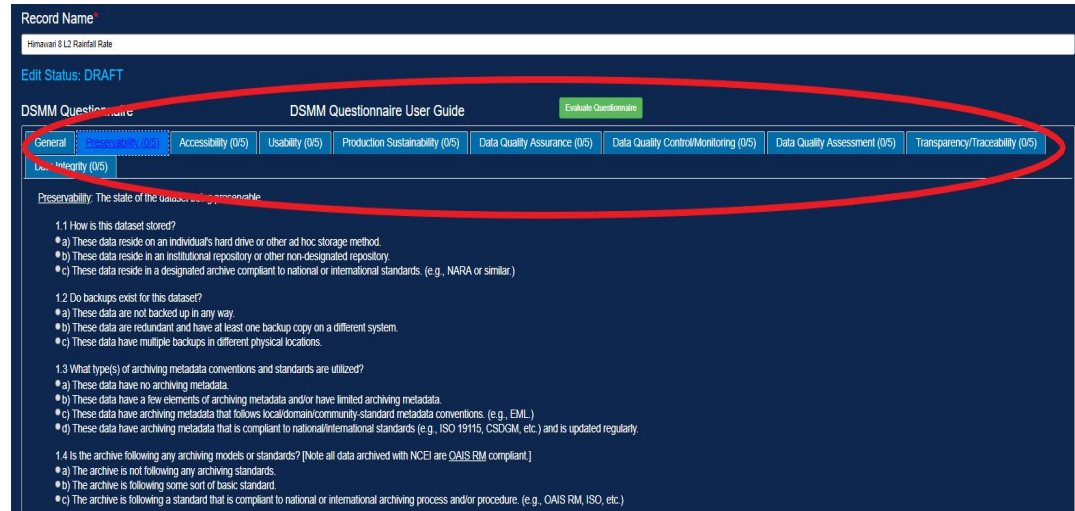


Data Stewardship Maturity Questionnaire

Streamlined Assessment Process

[DSMQ User's Guide](#)

- Provides a user friendly set of questions to input and obtain maturity score for each key component and overall
- User doesn't need to understand the DSMM to answer the questions.
- Questionnaire covers all **nine key components** of the maturity model:



The screenshot displays the DSMQ User's Guide interface. At the top, the record name is "Himavari 8 L2 Rainfall Rate" and the status is "DRAFT". Below this, the "DSMM Questionnaire" section is visible, featuring a navigation bar with nine tabs: General, Preservability (0/5), Accessibility (0/5), Usability (0/5), Production Sustainability (0/5), Data Quality Assurance (0/5), Data Quality Control/Monitoring (0/5), Data Quality Assessment (0/5), and Transparency/Traceability (0/5). A red oval highlights this navigation bar. The "Preservability" section is currently selected, showing a definition and four numbered questions (1.1 to 1.4) with multiple-choice options (a, b, c, d).

Preservability, Accessibility, Usability, Production Sustainability, Data Quality Assurance, Data Quality Control/Monitoring, Data Quality Assessment, Transparency/Traceability, Data Integrity



DSMQ Assessment

- DSMQ improves upon manual assessments by reducing inconsistencies standardized multiple choice questions
- Questionnaire is incorporated into CoMET UI allowing users to create records, delete, edit, change, save, re-use and share
- Assessment ratings are stored and displayed in real-time

Home / Record List / Edit: CoMET Sandbox

Description* (TEST) NOAA JPSS Visible Infrared Imaging Radiometer Suite

Edit Status: DRAFT Save Commit Exit Delete

DSMM Questionnaire

Evaluate Questionnaire

The DSMQ user's guide is available here.

General	Preservability (2.75/5)	Accessibility (1/5)	Usability (2/5)	Production Sustainability (2.5/5)
Data Quality Assurance (2/5)	Data Quality Control/Monitoring (2.66/5)	Data Quality Assessment (2/5)		
Transparency/Traceability (2.75/5)	Data Integrity (3.5/5)			

Preservability: The state of the dataset being preservable.

1.1 How is this dataset stored?

- a) These data reside on an individual's hard drive or other ad hoc storage method.
- b) These data reside in an institutional repository or other non-designated repository.
- c) These data reside in a designated archive compliant to national or international standards. (e.g., NARA or similar.)

1.1c What national or international standard is the data archive compliant with? [e.g., National Archives and Records Administration (NARA).]

National Archives and Records Administration (NARA)

1.2 Do backups exist for this dataset?

- a) These data are not backed up in any way.
- b) These data are redundant and have at least one backup copy on a different system.
- c) These data have multiple backups in different physical locations.

1.3 What type(s) of archiving metadata conventions and standards are utilized?

- a) These data have no archiving metadata.
- b) These data have a few elements of archiving metadata and/or have limited archiving metadata.
- c) These data have archiving metadata that follows local/domain/community-standard metadata conventions. (e.g., EML.)
- d) These data have archiving metadata that is compliant to national/international standards (e.g., ISO 19115, CSDGM, etc.) and is updated regularly.



DSMQ Ease of Use

- Collection Metadata records can be imported to fast track the assessment
- Users can hover over phrases to obtain more information
- Green “Evaluate Questionnaire” button in the upper right hand corner provides a score for each section

The screenshot displays the DSMQ Questionnaire interface. At the top, it shows 'Edit Status: DRAFT' and 'DSMM Questionnaire User Guide'. A navigation bar includes sections: General, Preservability (0/5), Accessibility (0/5), Usability (0/5), Production Sustainability (0/5), Data Quality Assurance (0/5), and Data Quality Control/Monitoring (0/5). The 'Accessibility (0/5)' section is selected. A green button labeled 'Evaluate Questionnaire' is circled in red in the top right. A callout box points to underlined text in the '2.1' question: 'Data files are available via a web service or data server with different protocols'. Another red circle highlights the phrase 'collection-level' in question 2.2. A third red circle highlights the phrase 'granule-level' in question 2.2. A fourth red circle highlights the phrase 'standards-based data server' in question 2.3b.

Accessibility: The state of being publicly searchable and accessible.

2.1 Is the dataset available online?

- a) Data files are not publicly available and can only be obtained from a private site.
- b) Data files are available via public FTP site.
- c) Data files are available via a web service or data server with different protocols.

2.2 How searchable is the dataset?

- a) Not searchable.
- b) Data files are online searchable at the collection-level. Dataset has no granules to be searched.
- c) Data files are online searchable at the granule-level. (e.g., CLASS, AIRS, etc.)

2.3 Will the dataset be offered with any data service or server compatibility and interoperability?

- a) Data files are not available on a standards-based data server. (Data server performance is limited.)
- b) Data files are available on a standards-based data server. (e.g., TDS, OPeNDAP, THREDDS, WMS, etc.)

2.3b What standards-based server are the data files available on? Check all that apply:

- a) OPeNDAP
- b) THREDDS
- c) WMS
- d) LAS
- e) Other

2.4 Do dataset search metrics follow any attributes/elements conventions and standards?

- a) Search metrics not following any convention or standard.
- b) Search metrics are following local/domain standards.
- c) Search metrics are compliant to standards-based search and discovery attributes and elements conventions and standards. (e.g., ACDD, CE, etc.)

Future Capability: Report

Data Stewardship Maturity Report:

- Automatic generation of human readable, government regulation compliant, documents containing consistent, content-rich assessment information for data products.
- Reports will receive a DOI, be preserved by the NOAA Central Library and linked to the data metadata and DOI.
- Anticipated completion June 2021

From this

Home Record List Edit: CoMET Sandbox

Description: (TEST) NOAA JPSS Visible Infrared Imaging Radiometer Suite Edit Status: DRAFT Save Commit Exit

DSMM Questionnaire

The DSMMQ user's guide is available here. Evaluate Questionnaire

General Preservability (2.7/5) Accessibility (1/5) Usability (2/5) Production Sustainability (2.5/5)

Data Quality Assurance (2/5) Data Quality Control/Monitoring (2.6/5) Data Quality Assessment (2/5)

Transparency/Trackability (2.7/5) Data Integrity (3.5/5)

Preservability: The state of the dataset being preservable.

1.1 How is this dataset stored?

- a) These data reside on an individual's hard drive or other ad hoc storage method.
- b) These data reside in an institutional repository or other non-designated repository.
- c) These data reside in a designated archive compliant to national or international standards. (e.g., NARA or similar)

1.1c What national or international standard is the data archive compliant with? (e.g., National Archives and Records Administration (NARA))

1.2 Do backups exist for this dataset?

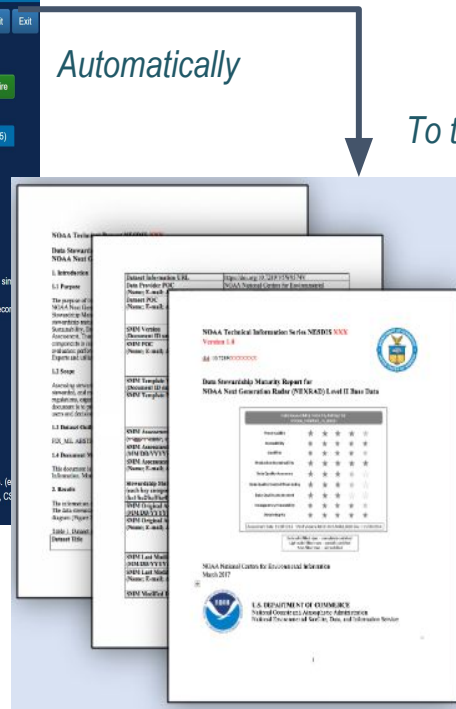
- a) These data are not backed up in any way.
- b) These data are redundant and have at least one backup copy on a different system.
- c) These data have multiple backups in different physical locations.

1.3 What type(s) of archiving metadata conventions and standards are utilized?

- a) These data have no archiving metadata.
- b) These data have a few elements of archiving metadata and/or have limited archiving metadata.
- c) These data have archiving metadata that follows local/domain/community-standard metadata conventions. (e.g., Dublin Core)
- d) These data have archiving metadata that is compliant to national/international standards (e.g., ISO 19115, CS, regularly).

Automatically

To this



DSMM in OneStop

Overall rating is inserted into the collection metadata record which is displayed in the NOAA OneStop search and discovery UI on the dataset landing page.

DSMM Rating:

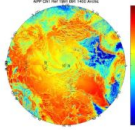
★★★★☆ ⓘ [hide info](#)

The average DSMM rating of this collection is 3.44.

The [Data Stewardship Maturity Matrix \(DSMM\)](#) is a unified framework that defines criteria for the following nine components based on measurable practices:

- Accessibility
- Data Integrity
- Data Quality Assessment
- Data Quality Assurance
- Data Quality Control Monitoring
- Preservability
- Production Sustainability
- Transparency Traceability
- Usability

NOAA Climate Data Record (CDR) of AVHRR Polar Pathfinder (APP) Cryosphere



This NOAA Climate Data Record (CDR) contains the AVHRR Polar Pathfinder (APP) product. APP is a fundamental CDR comprised of calibrated and navigated AVHRR channel data (reflectances and brightness temperatures), viewing and illumination geometry (sensor scan angle, solar zenith angle, and sun-sensor relative azimuth angle), Universal Coordinated Time (UTC) of the data acquisition, and a surface type mask. The data are twice daily composites of up to 23 orbits on a 5 km Equal-Area Scalable Earth (EASE)-Grid twice daily over both poles, the Arctic and Antarctic, from 1982 to the present. The daily APP composites are centered on local solar times of 14:00 (high sun, but could be nighttime for some polar areas in winter) and 04:00 for the Arctic or 02:00 for the Antarctic. The APP covers the north polar region (Arctic) from 48.4 degrees northward, and the south polar region (Antarctic) from -53.2 degrees southward.

Files ▾
[Show all 53623 files in collection](#)

Citation ▾

Identifier(s) ▾

Overview Access


Time Period:
1982-01-01 to Present

Themes:
Spectral/Engineering, Infrared Wavelengths, Brightness Temperature

Instruments:
Advanced Very High Resolution Radiometer

Platforms:
NOAA Polar Orbiting Environmental Satellites

Map:



Bounding Coordinates:
Bounding Box (degrees): 48.04, 90.1, -90° (N, N, E, S).

DSMM Rating:
★★★★☆ ⓘ [show info](#)



CoMET Release Status

- Initial production release - December 2020
- Full production release - June 2021
- Expected public release - September 2021

