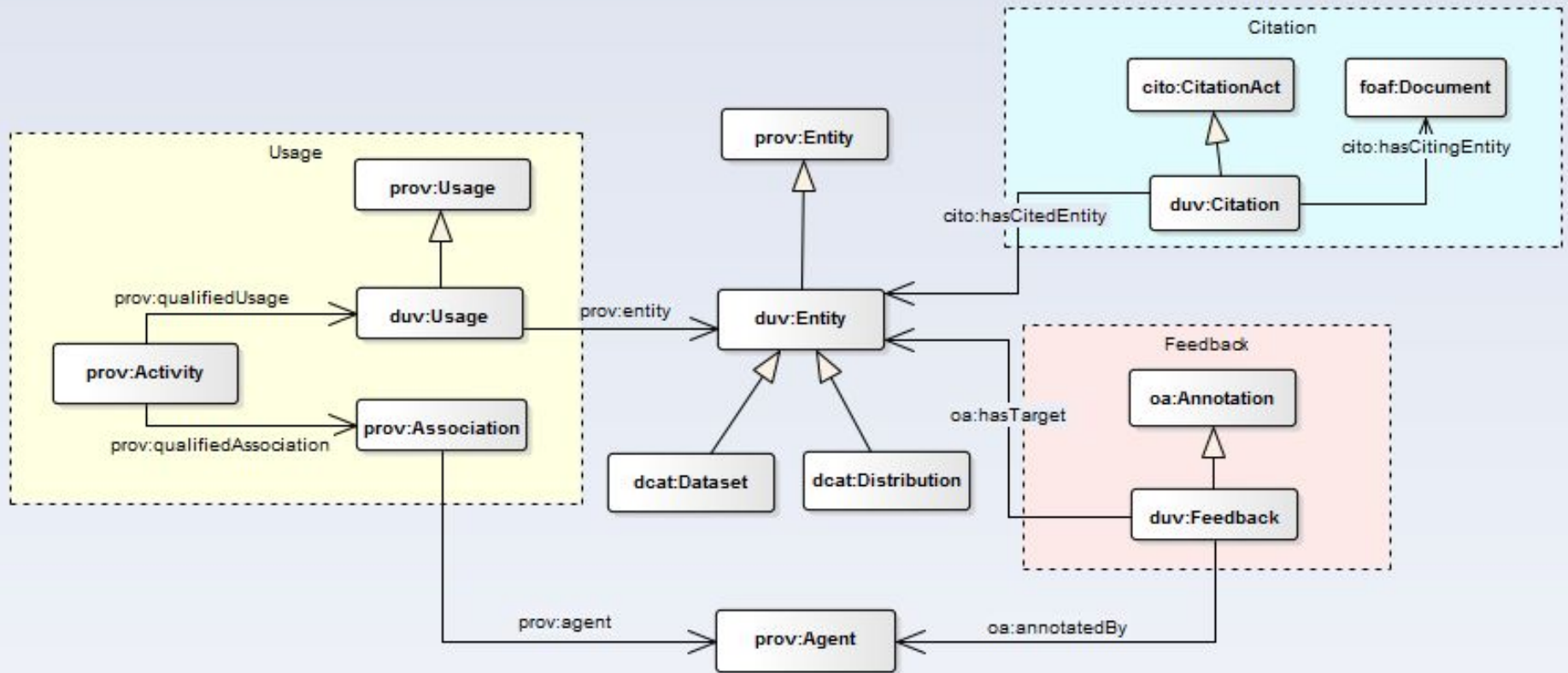


Data Usage Vocabulary Use Case

ERIC STEPHAN, BERNADETTE FARIAS LÓSCIO, SUMIT PUROHIT
Data on the Web Best Practices Data Usage Vocabulary Editors

Data Usage Vocabulary



Major Components

- DCAT:Dataset / DCAT:Distribution Centric
- Usage – Providing information about what can operate on a dataset. (publisher or collaborator perspective)
- Feedback – Describing interactions and responses from the consumer communities about the dataset.
- Citation – Associating information references (e.g. scientific, about) of the dataset

Collaborator Use Case

- A citizen of the Web 'Eric' wanted to view and analyze a formatted dataset of interest and wanted a way to document their findings as a means of sharing with fellow collaborators.
- Eric wanted to view a published observational data formatted in NetCDF with an off the shelf viewer he could find through a web search engine.

Selecting a Dataset/Distribution of Interest




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- Using a discovery tool rdesc.org by designating a box roughly bounding the Western United States as a boundary. The query returned a number of results. (e.g. Dataset).
- A specific set of observations for solar radiation called 'ARESE-ER2-MAS' was stored in a NetCDF format and was selected and landing page was available for the dataset.

RDESC Semantics Discovery About



Resource Discovery for Extreme Scale Collaborative
Semantics for Publication and Discovery of Science Resources

Rensselaer U.S. DEPARTMENT OF ENERGY

RDESC Semantics Discovery About

Browse Browse Index Examples D3 Publishing

1-10 of 665

Data Resources

A-level ARM Data Stream (146)
ARM Data Stream (580)
B-level ARM Data Stream (104)

Wms Map

Clear Use Map

North: 47.8525 East: -94.4385
West: -128.8916 South: 30.5749

Contributors

(Hold shift and draw a bounding box)

EA
QU
EA
AT
AN
CA
EA
AT
CC
EA

Title: ARM Enhanced Shortwave Experiment (ARESE) Solar Radiation Data Set (ARESE_ER2_MAS)
Resource: http://sciflo.jpl.nasa.gov/LOD-DIF/GCMD/DIF-ARESE_ER2_MAS (metadata)
Type: Dataset
Description: The ARM Enhanced Shortwave Experiment (ARESE) was conducted at the Department of Energy's ARM Southern Great Plains (SGP) Central Facility between September 22, 1995 and November 1, 1995. The principal (1) to directly measure the absorption of solar radiation by the clear and cloudy uncertainty bounds on these measurements; and (2) to investigate the possible causes of model predictions. This data set is distributed by the NASA Langley Distributed Active Archive from the LARC/DAAC Home page]

Dioxins and Furans in Sediment and Biota
[jpl.nasa.gov/LOD-DIF/GCMD/DIF-BESTsed24](http://sciflo.jpl.nasa.gov/LOD-DIF/GCMD/DIF-BESTsed24) (metadata)

of sediment and crayfish (*Pacifastacus leniusculus*) was conducted in order to satisfy set forth in the City of St. Helens National Discharge Elimination System (NPDES) Permit les were collected from five sites to evaluate the accumulation of dioxins and furans in idiment and crayfish sampling primarily focused on locations downriver from the location of : samples were collected and analyzed for seventeen dioxin/furan congeners, particle size ind total organic carbon. All sediment data are presented on dry weight basis and TOC- o provided in the report. Sampling station latitude and longitude were recorded from ovided by a Trimble Navigation Global Positioning System receiver. The area of study was -St. Helens. Each sediment sample consisted of a composite of at least four ...

1980-1999) from the California Air Resources Board
[jpl.nasa.gov/LOD-DIF/GCMD/DIF-ARB_California_Air_Quality_Data](http://sciflo.jpl.nasa.gov/LOD-DIF/GCMD/DIF-ARB_California_Air_Quality_Data) (metadata)

California Air Resources Board has available two CD-ROMs (CDs) with 20 years of air quality data. the same air quality data, but provide these data in different formats. The CDs contain air quality data (1980-1999), 10 years of Toxics air quality data (1990-1999), 12 years (hot) data (1988-1999), and 6 years of non-methane organic compound (NMOC) data updates to the air quality data CDs released before 2001. One of the many new a hyperlinked version of supporting documents. The first CD contains data that are oysager (a program contained on the CD, which displays data on maps and as time series s annual data summaries in table format, which can be viewed using selection buttons ting...

imaging SpectroRadiometer (AirMISR) Data from the KONza Validation Experiment (KONVEX)
[jpl.nasa.gov/LOD-DIF/GCMD/DIF-AIRMISR_KONVEX](http://sciflo.jpl.nasa.gov/LOD-DIF/GCMD/DIF-AIRMISR_KONVEX) (metadata)

Validation Experiment (KONVEX) spanned the time 11 - 18 July, 1999. The data included in 009_flight_#36 only. The data are provided by the Jet Propulsion Laboratory (JPL) in

NASA Global Change Master Directory
Discover Earth science data and services

Home Search Learn about GCMD Portals Collaborate

Data Sets Services / Tools Ancillary Descriptions

ARM Enhanced Shortwave Experiment (ARESE) Solar Radiation Data
Entry ID: ARESE_ER2_MAS

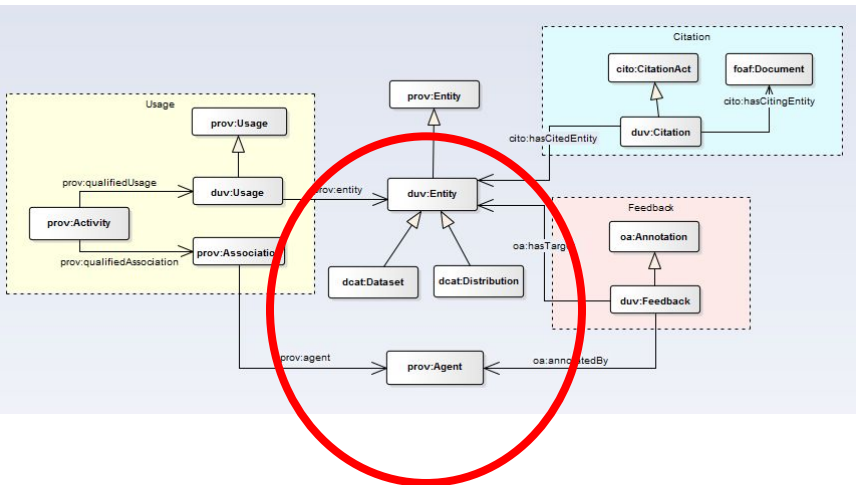
[Get Data] [Update this Record]

Related URL: Get Data
Link: https://sciflo.jpl.nasa.gov/project/arese/arese_table
Description: Access ARESE Data and Information

- Reformat as FGDC document
- Reformat as ISO 19115 document
- View Text Only Format

[Update this Record]

DUV Describing The Dataset/Distribution



ex:dataset-western-us-rdesc

a **dc:Dataset**;

dct:spatial "North 47.8525 West -128.8916 South 30.5749 East
-94.4385" ;

dc:landingPage <<https://rdesc.org/browse>> ;

rdfs:comment "Note the landing page will take you to a browser, enter
the geospatial coordinates to return the dataset"

ex:distribution-arese-er2-mas

a **dc:Distribution**;

dct:title "ARM Enhanced Shortwave Experiment (ARESE) Solar Radiation
Data";

dc:distribution ex:dataset-western-us-rdesc;


dc:landingPage

<http://gcmd.nasa.gov/KeywordSearch/Metadata.do?Portal=GCMD&OrigMetadataNode=GCMD&EntryId=ARESE_ER2_MAS> ;

dc:identifier "doi:10.1029/97jd02434"


rdfs:comment "You must order the data from the landing page to use"

- Select off the shelf viewer and was interested discovering available NetCDF distributions that he could use to view and plot observational data.



ncBrowse

A Graphical netCDF File Browser

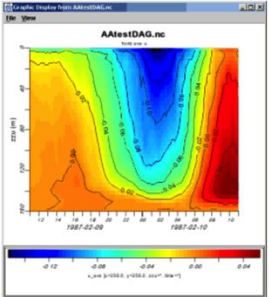


[Latest ncBrowse news!](#) | [Help!](#) | [Mail Archive](#) | [Current version 1.6.7](#)

ncBrowse is a Java application that provides flexible, interactive graphical displays of data and attributes from a wide range of netCDF data file conventions.

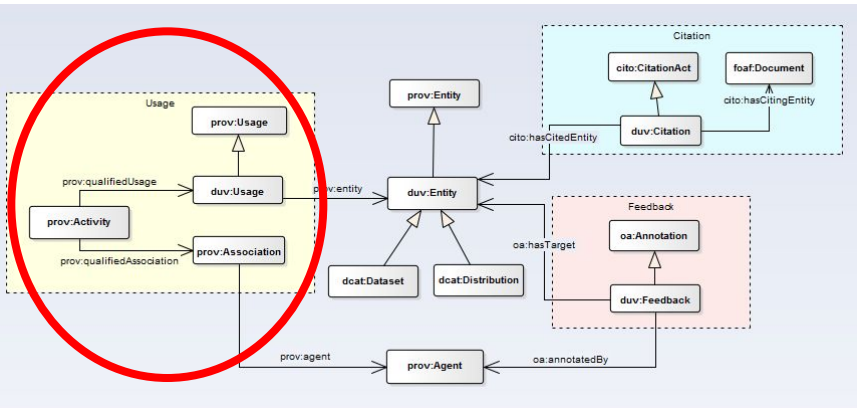
Features

- ~~2006~~ Version 1.6.7 released. Minor bug fix.
- Version 1.6.6 released. Stopped using deprecated NetcdfFile constructor. ncBrowse can now open newer Common Data Form files. Requires at least JDK 1.6.
- Version 1.6.5 released. Uses the new newCDF 4.2 library. New installer that supports the newer operating systems. Requires at least JDK 1.6.
- Version 1.6.3 released. Fixes Dapper connection problem.
- Version 1.6.2 released. Fixes epic_code missing error.
- Version 1.6.0 released. Cleans up Dapper data access and fixes numerous bugs.
- **Color lines** by another variable.
- **3D visualizations** and LAS data access now available.
- New OPeNDAP (formerly known as DODS) support with test version.
- New **MacOS X** support with test version.
- Contains support for variable mapping and animation. (Warning: this is test version, please report any problems.)
- Directly access **remote netCDF** files from the Web. Uses the [HTTPClient](#) library for connectivity.
- Designed to work with arbitrary **netCDF** files.
- Browses file using the **EPIC** and **COARDS** conventions.
- Provides a "tree" view of the netCDF file.
- Handles character variables.
- Handles dimensions without an associated variable.
- *Use [net_awkward](#) to perform 1 and 2 dimensional cuts through data.*



Plot of velocity as a function of depth and time.

DUV Describing Usage



ex:netcdf-browser

a **prov:Agent, prov:SoftwareAgent** ;

foaf:homePage <http://www.epic.noaa.gov/java/ncBrowse/> ;

rdfs:label "browser" .

ex:viewer

a **prov:Role**;

rdfs:label "software used for examining netcdf files" .

ex:plot-netcdf-data

a **duv:Usage**;

prov:entity ex:distribution-arese-er2-mas

ex:plot-netcdf-variables

a **prov:Activity**;

rdfs:label "Tools that can examine solar radiation data in NetCDF";

prov:qualifiedAssociation [

a prov:Association;

prov:agent ex:netcdf-browser;

prov:hadRole ex:viewer;

];

prov:qualifiedUsage ex:plot-netcdf-data

Bad news....problems encountered with data availability – Need to provide feedback

Data Center at the NASA Langley Research Center

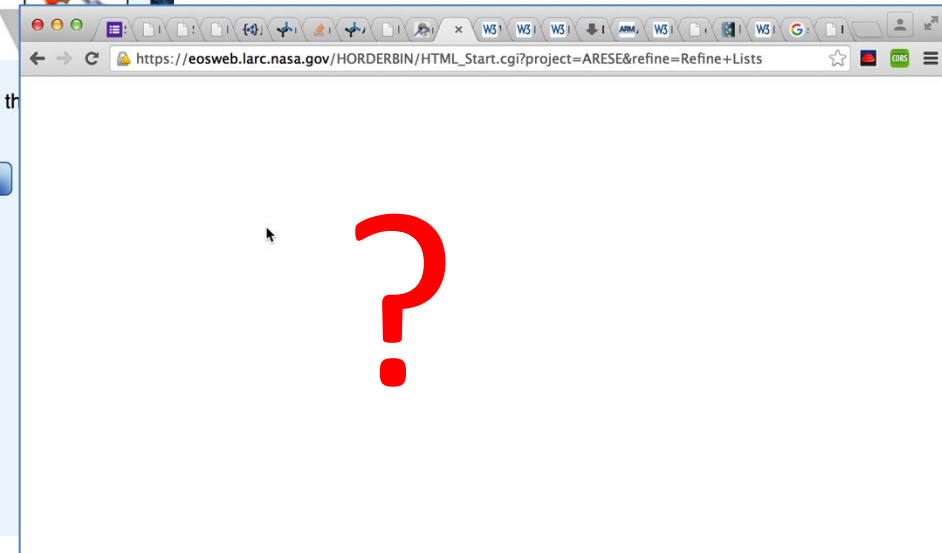
Home | Data Descriptions | Order Data | Citing ASDC Data | Help & Resources

Home » ARESE Data and Information

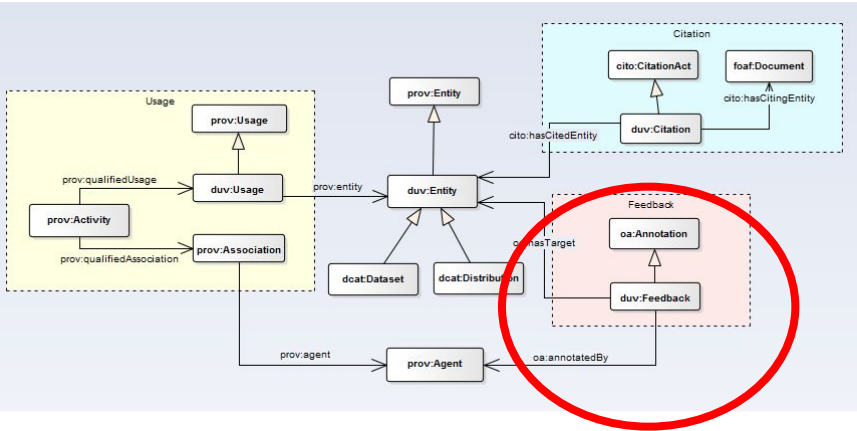
ARESE Data and Information

ARM Enhanced Shortwave Experiment ([ARESE](#)) is a DoE - NASA collaboration designed to measure absorption of solar radiation in the cloudy atmosphere by measuring the upwelling and downwelling radiative fluxes using three aircraft flying at the tropopause, near cloud top, and below cloud base.

Project Title:	ARESE	ASDC Order Tool:	Order Data
Discipline:	Field Campaigns		
	Radiation Budget		
Platform:			
NASA ER2			
Instrument:	MAS		
Spatial Coverage:	Southern Great Plains		
Spatial Resolution:	Variable		
Temporal Coverage:			
09/25/1995 - 10/23/1995			
Temporal Resolution:	Daily		
File Format:	NETCDF		



DUV Describing Feedback



ex:distribution-arese-er2-mas-comment

```
a duv:Feedback ;  
oa:hasBody "Was unsuccessful downloading dataset from landing  
page. Is there a problem with data availability?" ;  
oa:hasTarget ex:distribution-arese-er2-mas ;  
oa:annotatedBy ex:eric ;
```

ex:distribution-arese-er2-mas-comment-reply

```
a duv:Feedback ;  
oa:hasBody "The ARM project might have a copy: please see  
https://www.arm.gov/campaigns/sgp1995arese " ;  
oa:hasTarget ex:distribution-arese-er2-mas-comment ;  
oa:motivatedBy oa:replying ;  
oa:annotatedBy ex:eric
```

ex:dataset-western-us-rdesc-comment

```
a duv:Feedback ;  
oa:hasBody "Use the data entry fields at the lower left hand part of  
the screen to get this dataset" ;  
oa:hasTarget ex:dataset-western-us-rdesc ;  
oa:annotatedBy ex:eric ;
```



ARM (Atmospheric Radiation Measurement Enhanced Shortwave Experiment (ARESE) NASA ER-2 MODIS Airborne Simulator (MAS) Langley DAAC Data Set Document



Summary:

The ARM Enhanced Shortwave Experiment (ARESE) was conducted at the Department of Energy's Central Facility between September 22, 1995 and November 1, 1995. The principal objectives of ARESE were to measure the absorption of solar radiation by the clear and cloudy atmosphere and to place uncertainty bounds on the possible causes of absorption in excess of model predictions.

This document provides information for the ARESE_ER2_MAS data set archived at the Langley DAAC. See [ARESE Home Page](#).

Table of Contents:

- [1. Data Set Overview](#)
- [2. Investigator\(s\)](#)
- [3. Theory of Measurements](#)
- [4. Equipment](#)
- [5. Data Acquisition Methods](#)
- [6. Observations](#)
- [7. Data Description](#)
- [8. Data Organization](#)
- [9. Data Manipulations](#)

17. References:

- Ayers, J.K, Minnis, P., et al: "Calibration of GOES Using Satellite and ARESE Aircraft Data". 6th ARM Science Team Meeting (San Antonio, TX, March 4-7, 1996)
- Minnis, P., et al: "Cloud Shortwave Radiative Forcing from Satellite and Surface Data During ARESE". 6th ARM Science Team Meeting (San Antonio, TX, March 4-7, 1996)

```
*****
*                               *
*           Readme file for the ARESE ER2 MAS Data Sets           *
*                               *
*****

1.0 INTRODUCTION

This file contains information about the NASA ER2 Moderate Resolution Imaging Spectroradiometer (MODIS) Airborne Simulator (MAS) data sets sample read software and data files for the data set:

    ARM Enhanced Shortwave Experiment (ARESE_ER2_MAS)

The ER2 MAS data files range in size from 8 Mbytes to 1.1 Gbytes. The data files are written in netCDF (Common Data Format). NCSA's (National Center for Supercomputing Applications) HDF (Hierarchical Data Format) libraries with the netCDF extensions are required to build the read software. These libraries can be obtained via anonymous ftp from ftp.ncsa.uiuc.edu (141.142.20.50) or via the World Wide Web at http://hdf.ncsa.uiuc.edu.

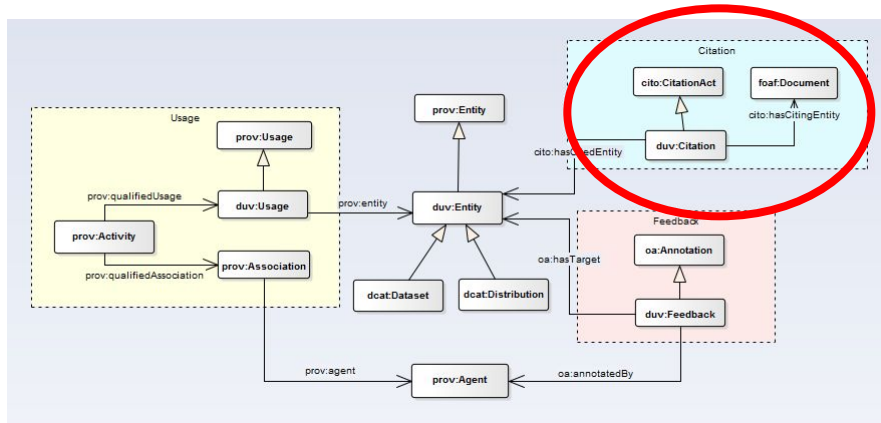
This readme file includes the following sections:

    Section 2.0 - describes all sample programs (source files).
    Section 3.0 - discusses how to create the executable from the C
                  program(s).
    Section 4.0 - demonstrates how to invoke the run-time executable(s).
    Section 5.0 - provides general information on the data set.
    Section 6.0 - provides more detailed implementation notes.

If users have questions while using the sample read software, please contact the Langley DAAC User and Data Services (SUDS) office at:

    NASA Langley Research Center
    Langley DAAC User and Data Services Office
    Mail Stop 157D
    Hampton, VA 23681
    USA
    email: support-asdc@earthdata.nasa.gov
    telephone: (757) 864-8656
    fax: (757) 864-8807
```

DUV Describing Citation



ex:thisCitation

a **duv:Citation**;

cito:hasCitingEntity ex:distribution-arese-er2-mas;

cito:hasCitedEntity :readmeFile;

ex:readmeFile

a **foaf:document**

<https://eosweb.larc.nasa.gov/sites/default/files/project/arese/readme/readme_arese_er2_mas.txt>;

dct:title "Readme file for the ARESE ER2 MAS Data Sets"@en;

duv:cites ex:distribution-arese-er2-mas;

Composite Usage Information Value Added Back in Search Repository



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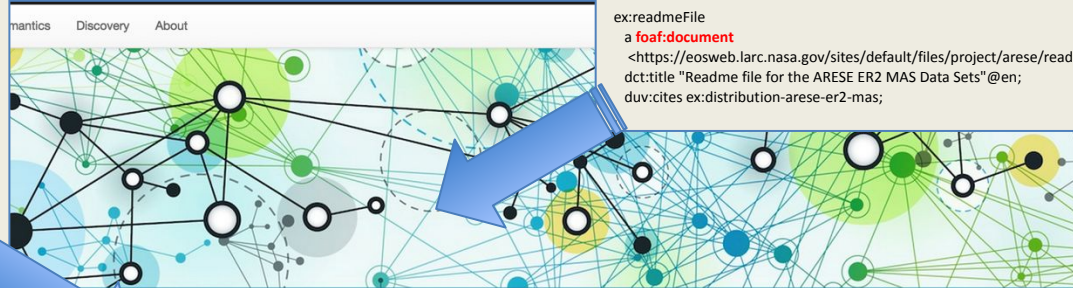
```
ex:netcdf-browser
  a prov:Agent, prov:SoftwareAgent ;
  foaf:homePage <http://www.epic.noaa.gov/java/ncBrowse/> ;
  rdfs:label "browser" .

ex:viewer
  a prov:Role;
  rdfs:label "software used for examining netcdf files" .

ex:plot-netcdf-data
  a duv:Usage;
  prov:entity ex:distribution-arese-er2-mas
  .

ex:plot-netcdf-variables
  a prov:Activity;
  rdfs:label "Tools that can examine solar radiation data in NetCDF";
  prov:qualifiedAssociation [
    a prov:Association;
    prov:agent ex:netcdf-browser;
    prov:hadRole ex:viewer;
  ];
  prov:qualifiedUsage ex:plot-netcdf-data
```

Usage



```
ex:thisCitation
  a duv:Citation;
  cito:hasCitingEntity ex:distribution-arese-er2-mas;
  cito:hasCitedEntity :readmeFile;
  .

ex:readmeFile
  a foaf:document
  <https://eosweb.larc.nasa.gov/sites/default/files/project/arese/readme/readme_arese_er2_mas.txt>;
  dct:title "Readme file for the ARESE ER2 MAS Data Sets"@en;
  duv:cites ex:distribution-arese-er2-mas;
```

Citation

Resource Discovery for Extreme Scale Collabor

Semantics for Publication and Discovery of Science Resources



```
ex:distribution-arese-er2-mas-comment
  a duv:Feedback ;
  oa:hasBody "Was unsuccessful downloading dataset from landing page. Is there a problem with data availability?";
  oa:hasTarget ex:distribution-arese-er2-mas ;
  oa:annotatedBy ex:eric ;
  .

ex:distribution-arese-er2-mas-comment-reply
  a duv:Feedback ;
  oa:hasBody "The ARM project might have a copy: please see https://www.arm.gov/campaigns/sgp1995arese " ;
  oa:hasTarget ex:distribution-arese-er2-mas-comment ;
  oa:motivatedBy oa:replying ;
  oa:annotatedBy ex:eric ;
  .

ex:dataset-western-us-rdesc-comment
  a duv:Feedback ;
  oa:hasBody "Use the data entry fields at the lower left hand part of the screen to get this dataset" ;
  oa:hasTarget ex:dataset-western-us-rdesc ;
  oa:annotatedBy ex:eric ;
  .
```

Feedback