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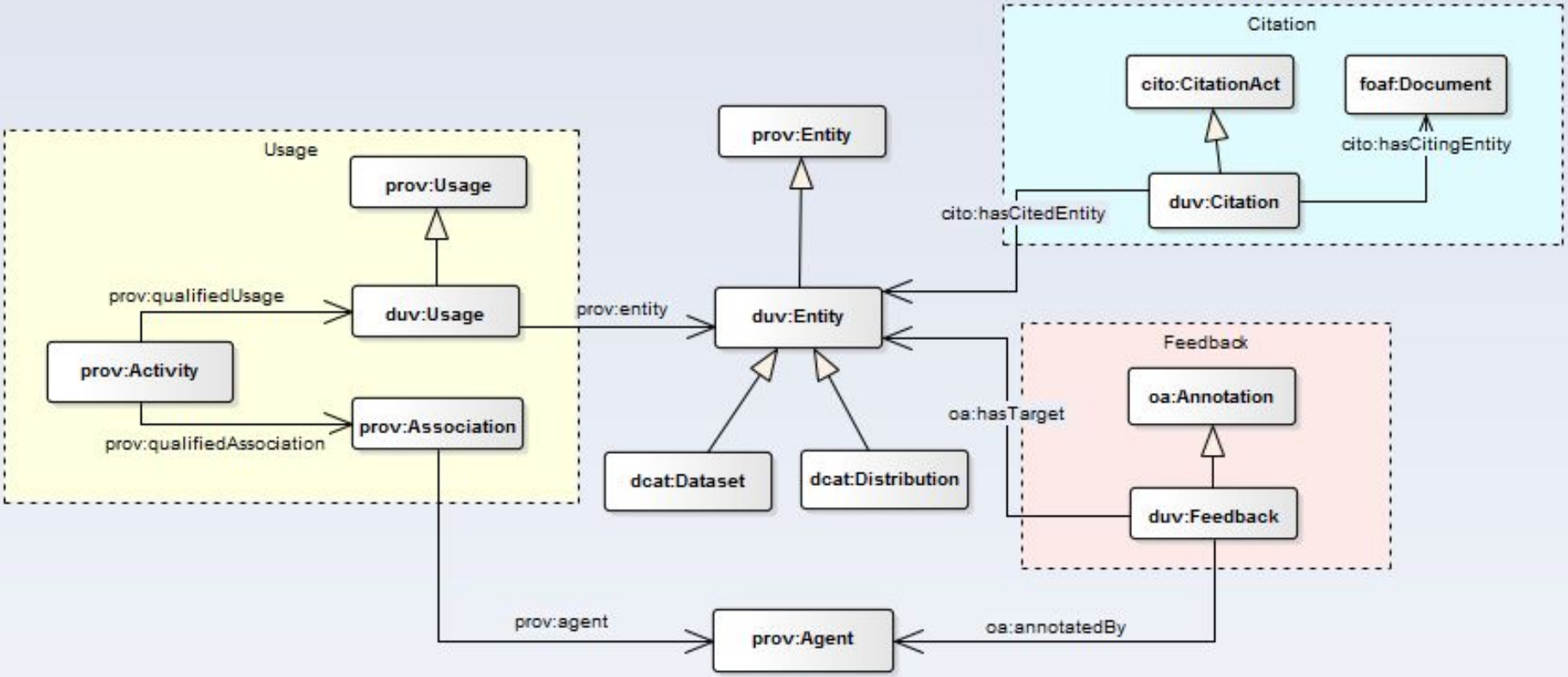
Data Usage Vocabulary Use Case

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

- 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.org

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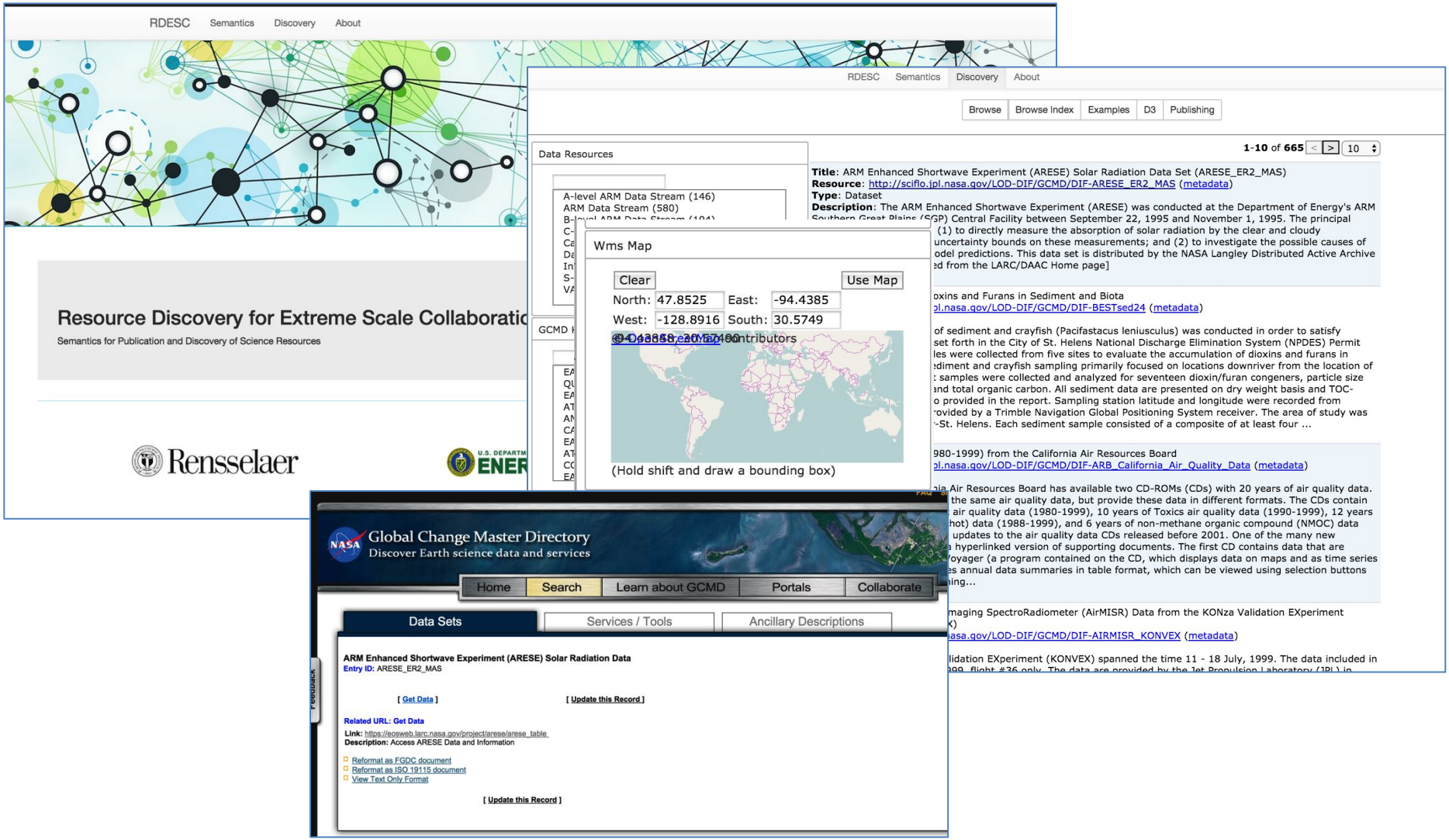
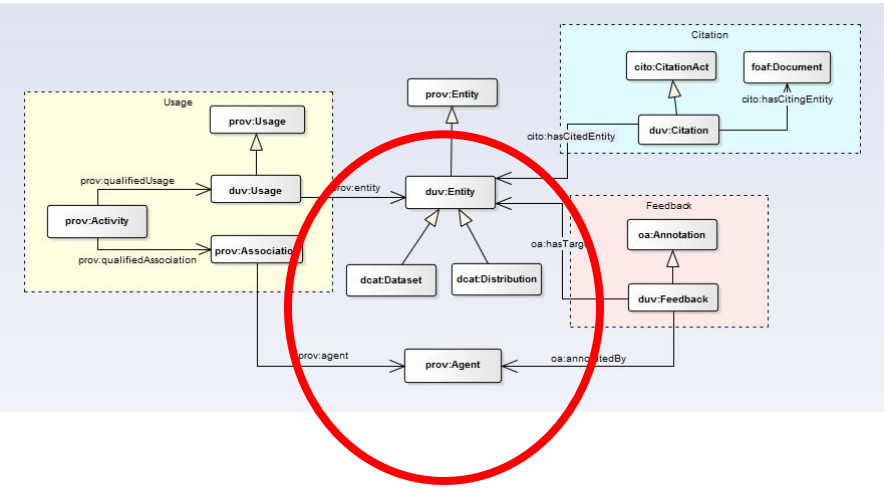


DUV Describing The Dataset/Distribution

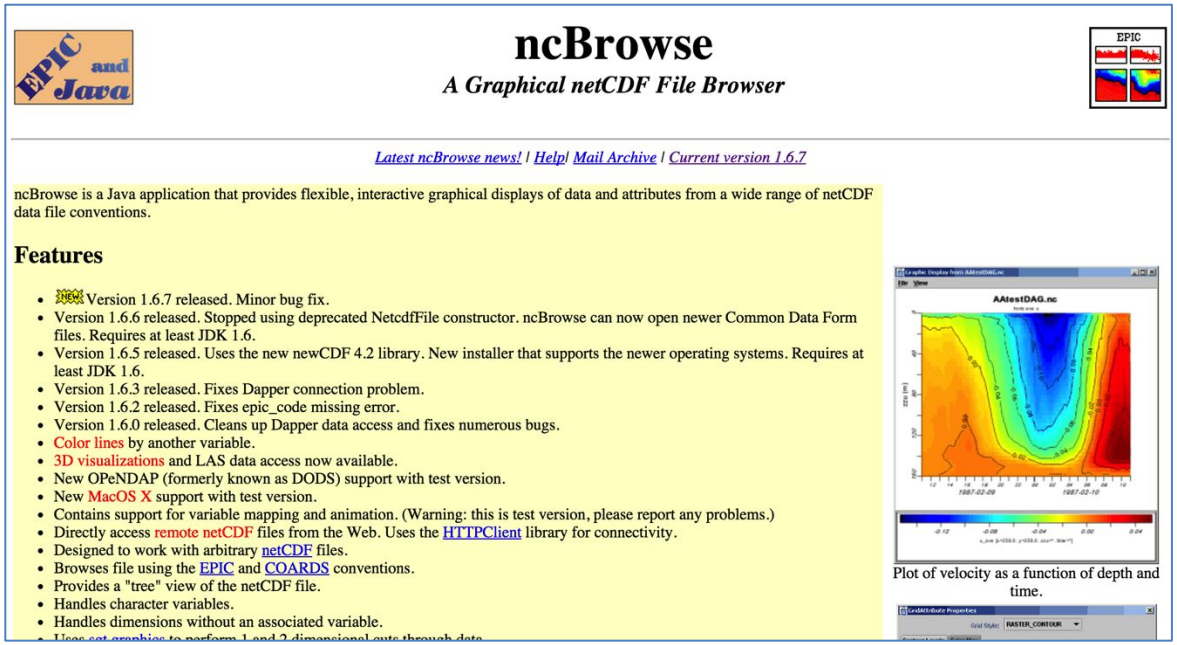


ex:dataset-western-us-rdesc
 a **dcat:Dataset;**
 dct:spatial "North 47.8525 West -128.8916 South 30.5749 East -94.4385" ;
 dcat:landingPage <https://rdesc.org/browse> ;
 rdfs:comment "Note the landing page will take you to a browser, enter the geospatial coordinates to return the dataset"
.

ex:distribution-arese-er2-mas
 a **dcat:Distribution;**
 dct:title "ARM Enhanced Shortwave Experiment (ARESE) Solar Radiation Data";
 dcat:distribution ex:dataset-western-us-rdesc;
 dcat: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"
.

NetCDF Distribution Usage

- 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*

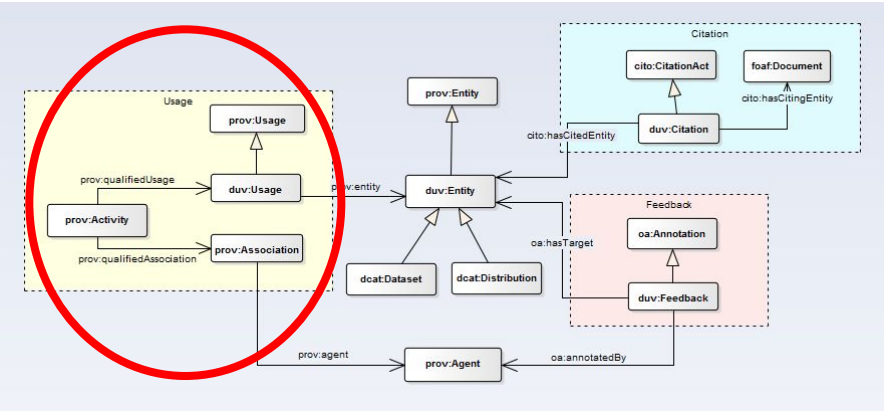
ncBrowse is a Java application that provides flexible, interactive graphical displays of data and attributes from a wide range of netCDF data file conventions.

Features

- NEW! 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.

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

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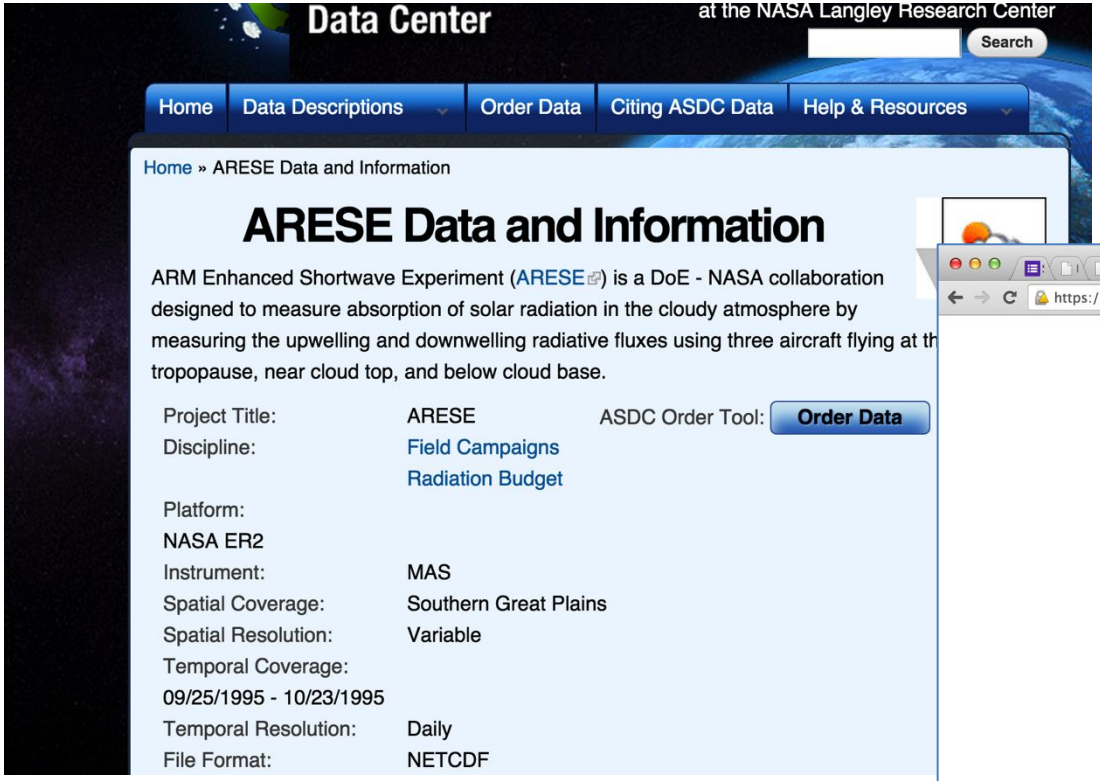
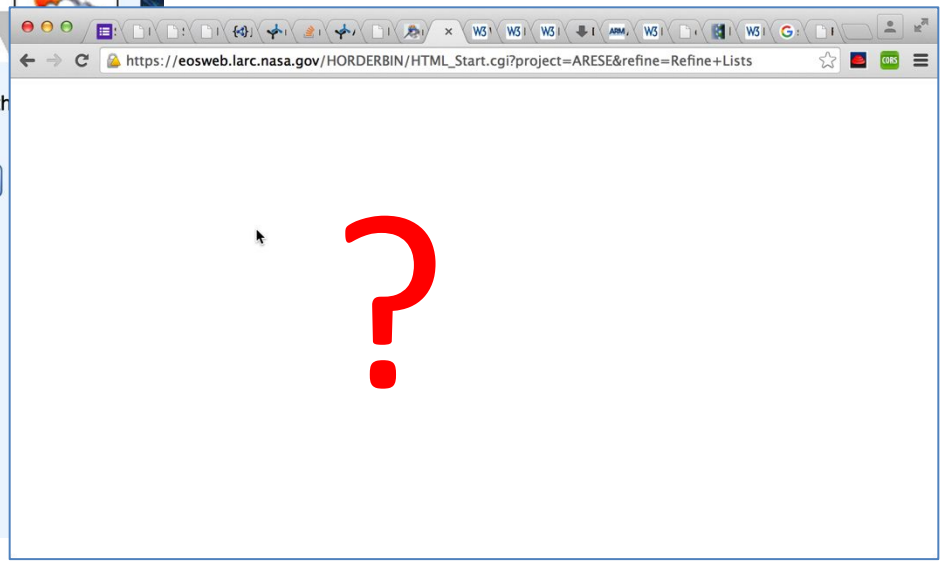
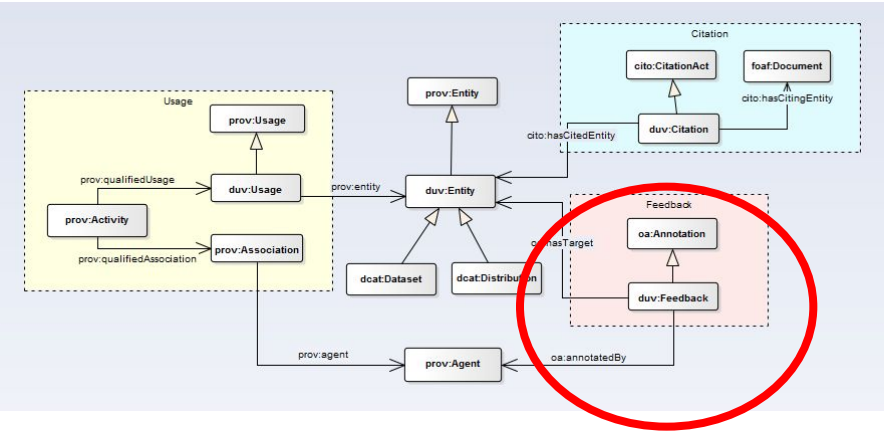




DUV Describing Feedback



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 ;
.

Citing Helpful References

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ATMOSPHERIC SCIENCE DATA CENTER

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

ARESE

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 AR absorption of solar radiation by the clear and cloudy atmosphere and to place uncertainty bounds o investigate 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 DA ARESE Home Page.

Table of Contents:

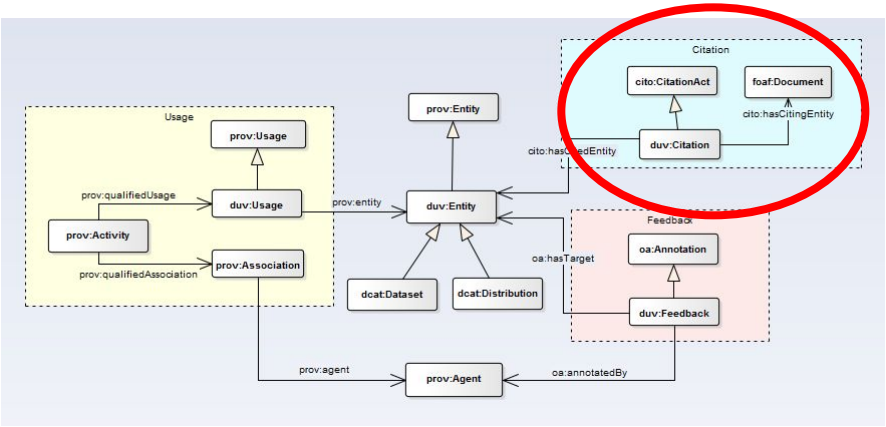
17. References:

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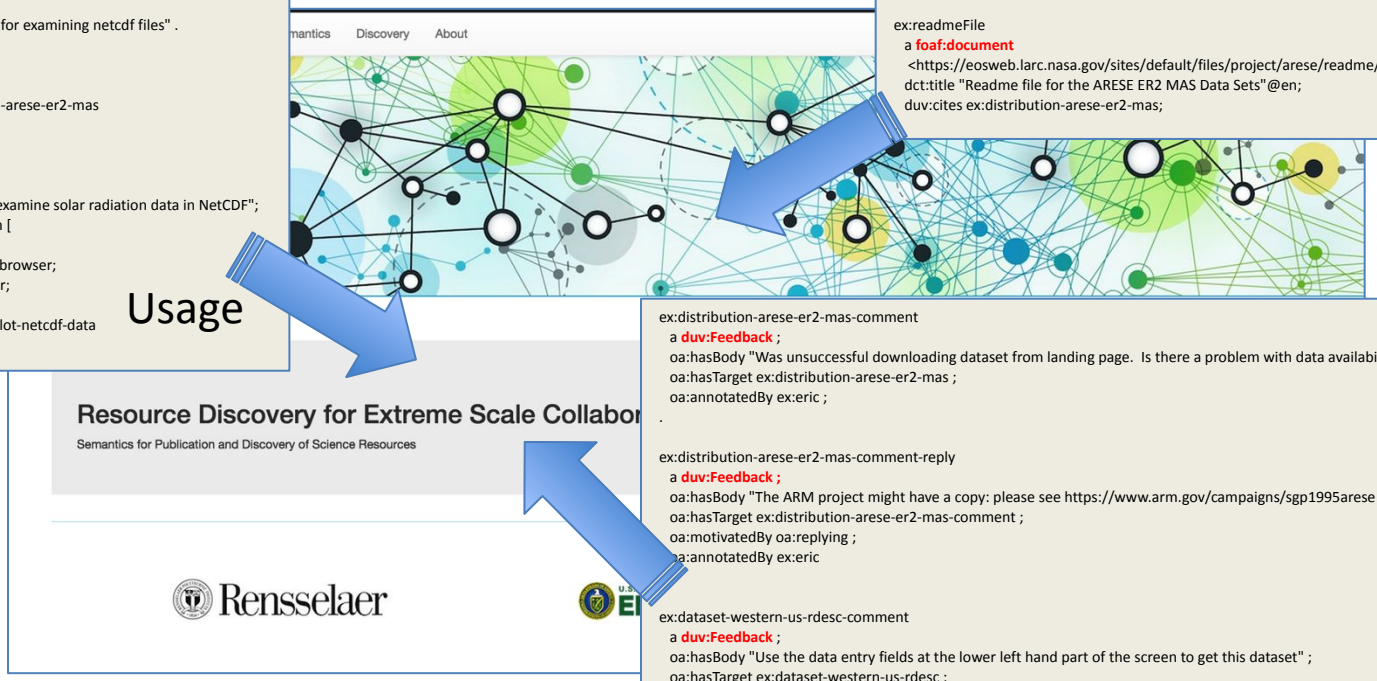
```
ex:netcdf-browser
  a prov:Agent, prov:SoftwareAgent ;
  foaf:homePage <http://www.epic.noaa.gov/java/ncBrowse/> ;
  rdfs:label "browser" .

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

```
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?" ;
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  oa:annotatedBy ex:eric ;
.
```

Feedback