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Data Recipes

Toward Creating How-To Knowledge Base for Earth Science Data

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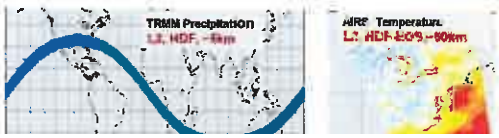
Examples of Earth Science Data



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Why Create Data Recipes ?

Earth Science data sets are complicated

- **Data type and structure** : swath, grid, point, vector, tiled, ...
- **Map projection** : Equidistant, Sinusoidal, ...
- **Resolution** : hourly, daily, monthly, ...; m, km, deg, ...
- **Data formats** : HDF, HDF-EOS, netCDF, GRIB, GeoTIFF,...
- **Metadata models** : ECHO, GCMD, HDFEOS, COARDS, netCDF-CF convention,
- ...

Solution: Developed data services and tools

- *70+ data services or tools at EOSDIS DAACs*
  all services or tools have user guides
- *online FAQ for data access and usage*

Why Create Data Recipes ?

But, still many questions, e.g.:

- How to download data in a specific format (netCDF, ASCII, ...) ?
- How to download time series to a single file in netCDF?
- How to read data with a data tool (ArcGIS, GrADS, R, ...)?
- You have a number of data services; which one is best for doing my work?
- ...

Solution: Data Recipes could be helpful!

They help distribute key expertise from those who have it to those who need it

Characteristics of Data Recipes

- **Task- oriented** -- solve a specific problem
- **Detailed** -- provide step-by-step instruction with screenshots
- **Real data** – work with real data archived at data centers
- **Online** – reduce supporting resources for data centers and save time for data users

Data Recipe Structure at GES DISC

A data recipe is a **task-oriented, common-structured,** online How-To page, containing the following eight sections:

- ✓ **Overview** – summary of the recipe
- ✓ **Best When** – conditions for which the recipe is applicable
- ✓ **Task** – group name to which the recipe topic belongs (obtaining data, reading/viewing data, format conversion, etc.)
- ✓ **Example** – description of a use scenario for the recipe
- ✓ **Tool or Service** – name of the tool or service to which the recipe applies
- ✓ **Procedure** – step-by-step instruction with screenshots
- ✓ **Discussion** – additional information about using the service or tool
- ✓ **See Also** – related recipes

Each recipe is carefully tested by scientists other than the author

Example Data Recipe Topics

http://disc.gsfc.nasa.gov/recipes

Obtaining Data in NetCDF:
- How to Obtain Data in NetCDF Format via OPeNDAP
- How to Obtain Data in NetCDF Format via SSW
- How to Obtain Spatially Subsetted Time Series Data in One NetCDF File via GDS

Importing Data into ArcGIS:
- How to Import Gridded Data in NetCDF Format into ArcGIS
- How to Import Satellite Swath Data in NetCDF Format into ArcGIS

Obtaining Subsetted Time Series:
- How to Obtain a Spatio-temporal + Variable Subset of Data with the Simple Subset Wizard
- How to Obtain Spatial Subsetted Time Series in ASCII Format via GDS

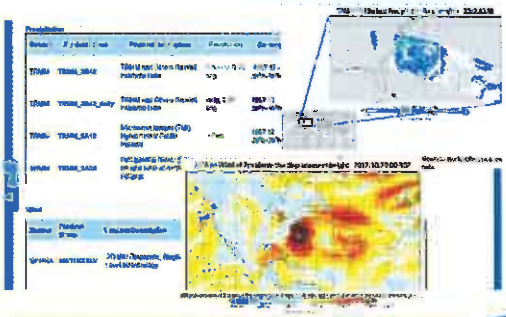
Example of Data Recipe

How to Import Gridded Data in NetCDF Format into ArcGIS

For someone in GIS community who is not familiar with the netCDF data format

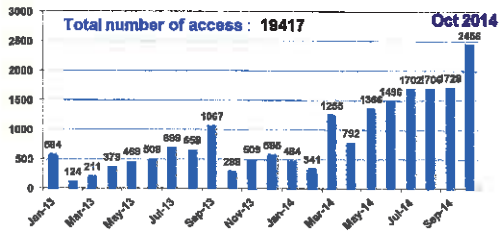
Example of Data Recipe

How to Obtain Data for Conducting Hurricane Case Study



Advanced event-based data search with sample images

Monthly Access of Data Recipe



- The data recipe project was initiated in late 2012.
- The first set of data recipes was released in early 2013.
- There is a total of 22 recipes that are published so far.

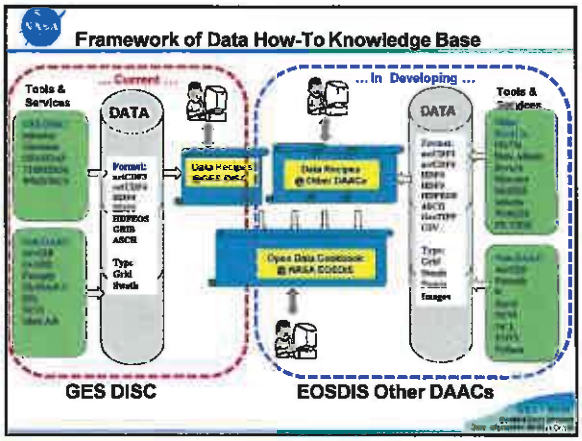
Future Plans at GES DISC

- Group recipes to form a **searchable data recipe catalog**
- Include links to relevant data recipes on GES DISC product landing pages
- Incorporate data recipe feedback capabilities and facilitate moderated **user recipe contributions** to expand GES DISC Data Cookbook
- Provide links to existing data How-To from "Open Sources", such as GrADS, HDF, NCO, Python, …

NASA EOSDIS Data Recipe Activities

The NASA Earth Science Data System Working Group on data recipes (ESDSWG-data recipe) was established in Spring 2014.

- Inventory and analysis of existing data tools and help documents
- Provide recommended **data recipe template** and guidelines for writing and grouping data recipes in a common structure
- Initiate an EOSDIS-wide campaign for leveraging the distributed knowledge within EOSDIS and its user communities; to eventually create an EOSDIS "open data cookbook" for better serving the data users



Thank You

http://disc.gsfc.nasa.gov/recipes

Inviting more data centers and data users to create and enrich data How-To for everyone

Make your knowledge powerful !