Discover Aquarius Data

Vardis Tsontos
NASA Jet Propulsion Laboratory
PO.DAAC Data Engineer
PO.DAAC Services & Tools

Services & Tools for Accessing & Subsetting Data
*Also have visualization capabilities
Keyword-based Discovery

- PO.DAAC portal supports drill-down searches and exposure of data product catalogues by keyword
- Entering “aquarius” in the search bar...
Keyword-based Discovery

- PO.DAAC portal supports drill-down searches and exposure of data product catalogues by keyword
- Entering “aquarius” in the search bar... returns a list of all Aquarius datasets maintained within the PO.DAAC archive with associated metadata descriptions
Faceted Search

- Categorical filters can be used to narrow down selections, including:
  - Processing level
    - 2: Swath
    - 3: Grid
Faceted Search

- Categorical filters can be used to narrow down selections, including:
  - Spatial resolution
    - Swath
    - Grid
  - Temporal resolution
Catalog Entries & Metadata

• Clicking on individual dataset items returns complete dataset-level metadata descriptions for the selected product.
Catalog Entries & Metadata

• Tabs for catalog entries provide information on:
  – "Data Access"
    - List of particular data access services (FTP, OPeNDAP, THREDDS, Web-services) available for the particular dataset, together with an indication of file format and compression information
Catalog Entries & Metadata

- Tabs for catalog entries provide information on:
  - "Documentation"
    - List of information resources and other documentation available for a given dataset
Catalog Entries & Metadata

• Tabs for catalog entries provide information on:
  – "Granules"
    - Complete listing of available data files for that product, organized by Year/Month/Day levels that can be expanded and drilled down into
Product "Level" (L0 -> L4): reflects stage in data processing sequence

- L0: raw instrument telemetry data
- L1a: orbital/swath files containing instrument count & navigational telemetry data
- L2: orbital/swath files containing georeferenced geophysical measurement data
- L3: gridded/mapped parameter data at 1 degree Lat/Lon spatial resolution for various time intervals (see table below)
- L4: "value added" gridded data files – integrates data from multiple sensors and/or applies more advanced statistical/interpolation procedure e.g. IPRC/SOEST U. Hawaii L4-OISSS product – coming to PO.DAAC soon

File ("Granule") Names/conventions

20110814_164328.AQ_L0
Q2011139152300.L1A_SCI.hdf
Q2011237000100.L2_SCI_V4.0.hdf
Q20112392011245.L3m_7D_SCI_V4.0_SSS_1deg.hdf

Aquarius L3 data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Time Interval</th>
<th>Orbital Aggregate</th>
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</thead>
<tbody>
<tr>
<td>Salinity Density</td>
<td>28day_running</td>
<td>Combined (SCI)</td>
</tr>
<tr>
<td>Wind Speed</td>
<td>3month</td>
<td>Ascending (SCIA)</td>
</tr>
<tr>
<td>Ancillary SST</td>
<td>7day</td>
<td>Descending (SCID)</td>
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<td></td>
<td>7day_running</td>
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<tr>
<td></td>
<td>annual</td>
<td></td>
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<tr>
<td></td>
<td>climatology_monthly</td>
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<tr>
<td></td>
<td>climatology_seasonal</td>
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<tr>
<td></td>
<td>cumulative</td>
<td></td>
</tr>
<tr>
<td></td>
<td>daily</td>
<td></td>
</tr>
<tr>
<td></td>
<td>monthly</td>
<td></td>
</tr>
</tbody>
</table>


Table 2. Aquarius V4.0 Datasets by Product Level/Type with Associated Descriptions and Metadata.

<table>
<thead>
<tr>
<th>Level</th>
<th>Product Short Name</th>
<th>Product Long Name &amp; Description</th>
<th>Temporal Resolution</th>
<th>Ellipsoidal Type</th>
<th>Mapping Type</th>
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</thead>
<tbody>
<tr>
<td>0</td>
<td>AQUARIUS_L0_SSS</td>
<td>Aquarius Level 0 Sea Surface Salinity</td>
<td>1 observation every 1.44 seconds. Repeats orbit every 7 days.</td>
<td>N/A</td>
<td>Swath</td>
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<tr>
<td>1a</td>
<td>AQUARIUS_L1A_SSS</td>
<td>Aquarius Level 1A Sea Surface Salinity</td>
<td>1 observation every 1.44 seconds. Repeats orbit every 7 days.</td>
<td>N/A</td>
<td>Swath</td>
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</tr>
<tr>
<td>3</td>
<td>AQUARIUS_L3_SSS_V4</td>
<td>Aquarius Level 3 Sea Surface Salinity</td>
<td>1 observation every 1.44 seconds. Repeats orbit every 7 days.</td>
<td>N/A</td>
<td>Swath</td>
</tr>
<tr>
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</tr>
<tr>
<td>3</td>
<td>AQUARIUS_L3_SSS_DAILY_V4</td>
<td>Aquarius Level 3 Sea Surface Salinity Standard Mapped Image Daily</td>
<td>Daily</td>
<td>WGS 84</td>
<td>Gridded</td>
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</table>
**Metadata** - contextual information that describes & facilitates correct interpretation of data values and their quality (e.g. Units, sensor type, model/manufacturer)

- comprised of an **Attribute** and associated **Value** (e.g. Units : PSU)

**Dataset Level Metadata**
- information fields describing a data product
  - **Resolution** (spatial/temporal)
  - **Coverage** (spatial/temporal)
  - **Time interval/Frequency**
  - **Latency**
  - **Source/Provider**
  - **Reference Citation**
  - **DOI**

**Web Portal Aquarius Dataset Metadata Entry**

**Key Terms & Data Concepts**

- **Granule (File) Level Metadata**
  HDF/netCDF – “self describing” science data formats

- **Global Level** (header) File Metadata
  Attributes describing the granule data overall
  eg. file data start/stop DateTimes, spatial extents

- **Variable Level Metadata**
  Attributes describing properties of individual file variables contained in data arrays
  “Structural Metadata” – eg float l3m_data (time, lat, lon)
  “Descriptive Metadata” – eg _FillValue, Standard Name, Units, Scaling factor etc

- **Metadata Standards** for Earth Science Data: eg. [http://cfconventions.org/](http://cfconventions.org/), ACDD
  -> Ensures “interoperability” ie. automated machine interpretation of meta/data
• Contents of the “l3m_data” array here with monthly average salinity values
  – *Rows* = *Latitude*
  – *Columns* = *Longitude*
PO.DAAC Services & Tools

Visualization

Web Portal

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Next: Accessing Aquarius data via PODAAC tools/services