Working Group on Information Systems and Services-47

Services Metadata Use Cases

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Problem Statement

- Is it a Service or a Tool?
  - Many different types of tools/services
  - Much confusion and disagreement over what constitutes a tool or a service
- How can the Service or Tool be used?
  - Many different ways to utilize and interface with various tools and services
- How should Metadata representations be structured?
  - EOSDIS had a single Services Metadata model that was growing too complex
    - Needed to be restructured, but how?

Possible Solution

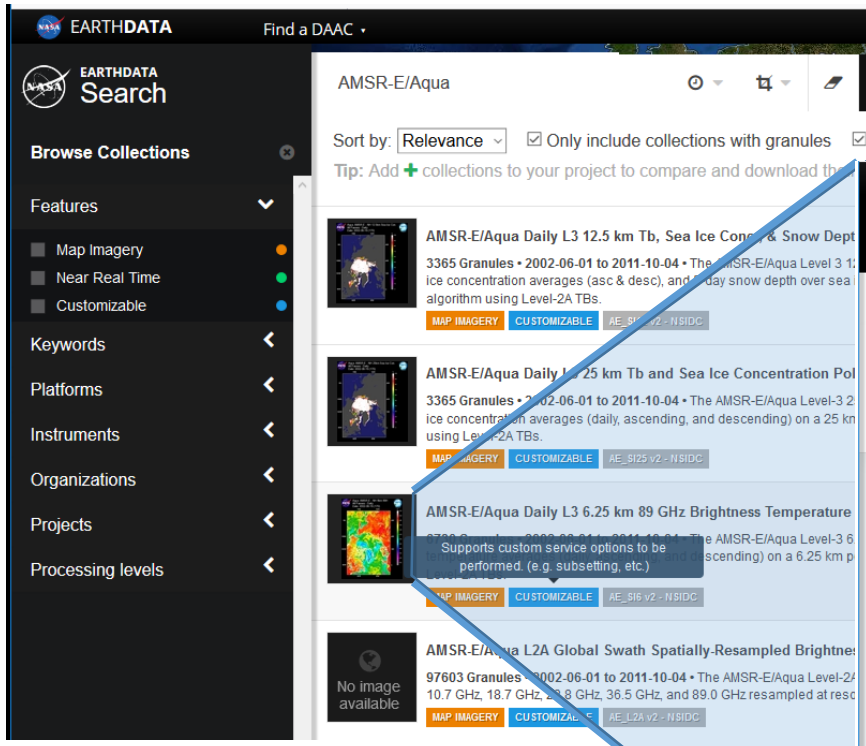
- Break out Metadata models for each distinct use case
  - Never mind what it is (Tool or Service), how do you plan to use it?
    - Back-end automation?
    - Transferal of content and context?
    - Offline reference?
  - Pros:
    - Allows for an Agile approach:
      - Metadata use case models can be expanded and prioritized as needed
      - Adding or modifying use cases will have limited disruption to metadata models
    - Distinct metadata models for distinct use cases reduces ambiguity and complexity
  - Cons:
    - More to integrate and maintain
    - Potential for repetitious model entries:
      - A single Tool or Service could potentially have entries in several use-case metadata models
      - Workaround: Related metadata model use case entries must be linked together

Some Key Use Cases being developed:

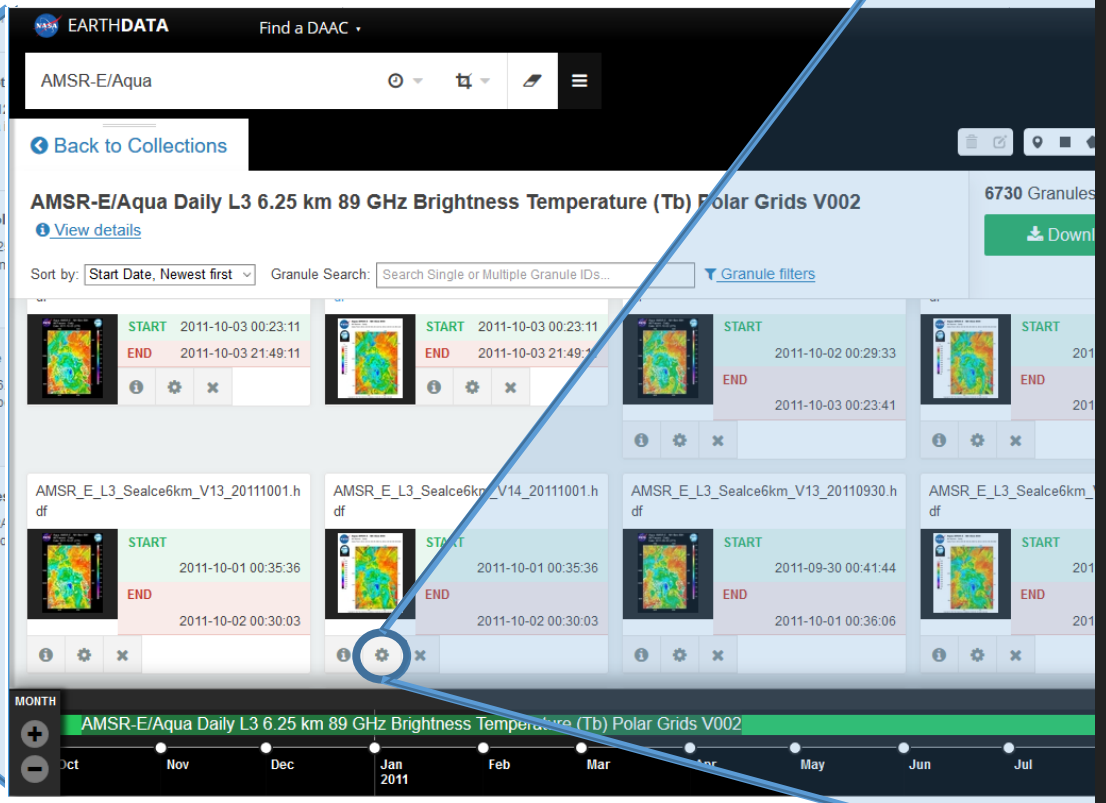
End-to-End Services (E2E)

- Enables a data transformation service to be applied to data sets behind-the-scenes:
  - User finds and selects a data set
  - User selects the desired service option
    - e.g. subset by [variable]
  - Metadata linking dataset and applicable services calls the selected service to perform upon the selected dataset
    - Done on the backend, transparent to user
    - Enabled via HTTPS API endpoint, like OPeNDAP or EGI
      - e.g. OGC Web Map Service
  - User receives transformed data set

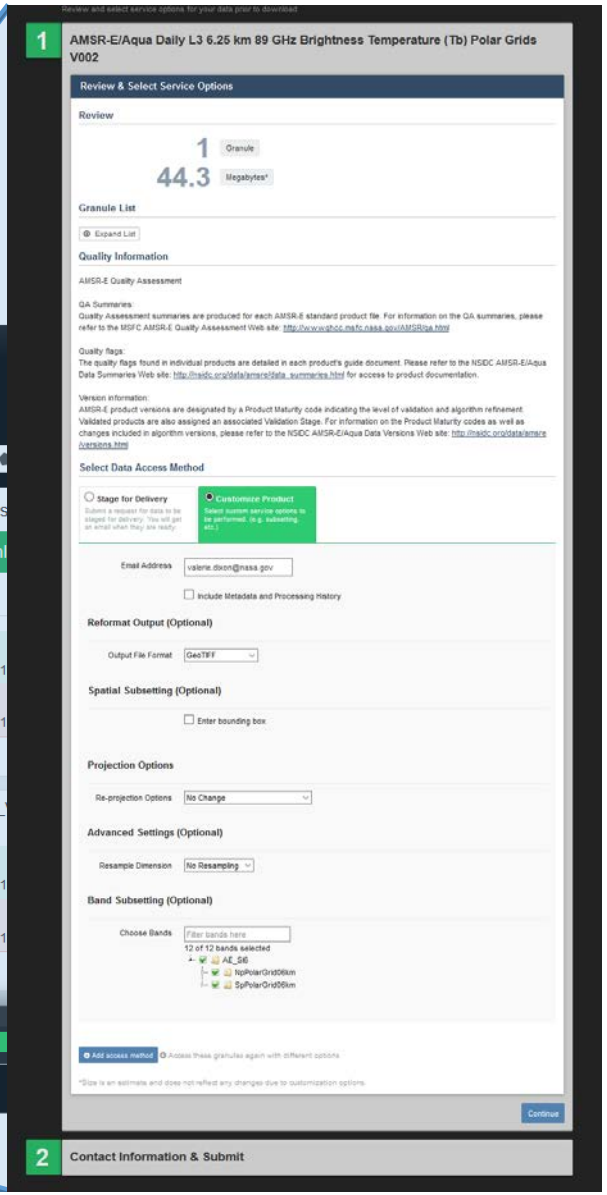
End-to-End Services (E2E):



Customizable Collection in Earthdata Search



Configure & Download Granule



E2E Customization Options

https://search.earthdata.nasa.gov/search

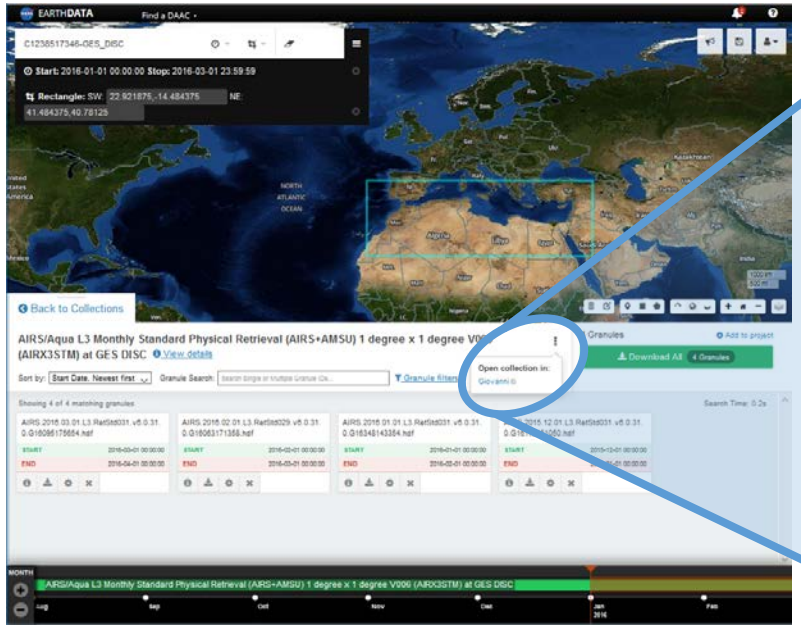
Some Key Use Cases being developed :

Smart Handoffs

- Enables transferal of search results and/or context to another tool
  - User finds and selects a data set
  - User wants to view or manipulate the dataset in another tool
    - e.g. GIOVANNI, SOTO
  - User selects option to transfer search context to associated, enabled tool
    - e.g. dataset name, geospatial or temporal search parameters, etc.
  - User is redirected to the desired tool with previous search context pre-populated
    - via a well-defined API endpoint
    - via a WMS/WCS/THREDDS call
  - User carries on with their analysis in their desired tool
- GUI-instigated (supported) or API accessible (planned)

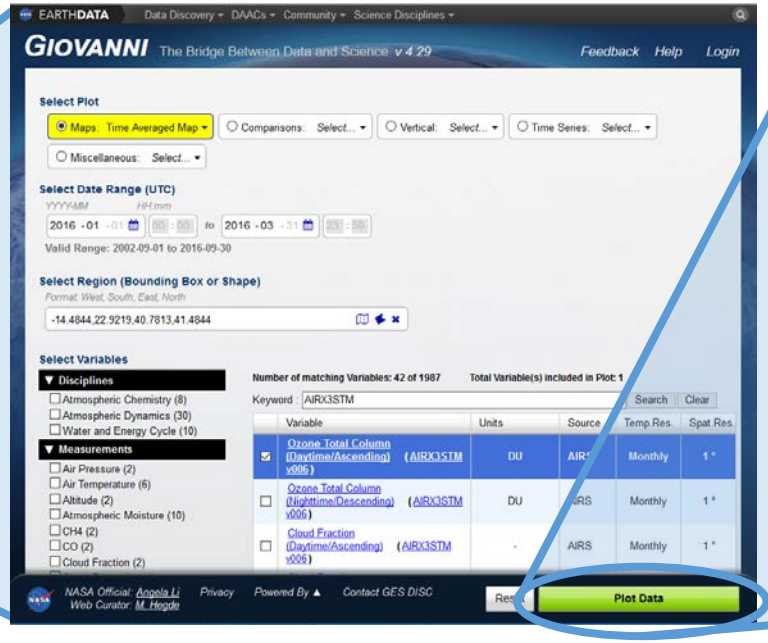
Smart Handoffs:

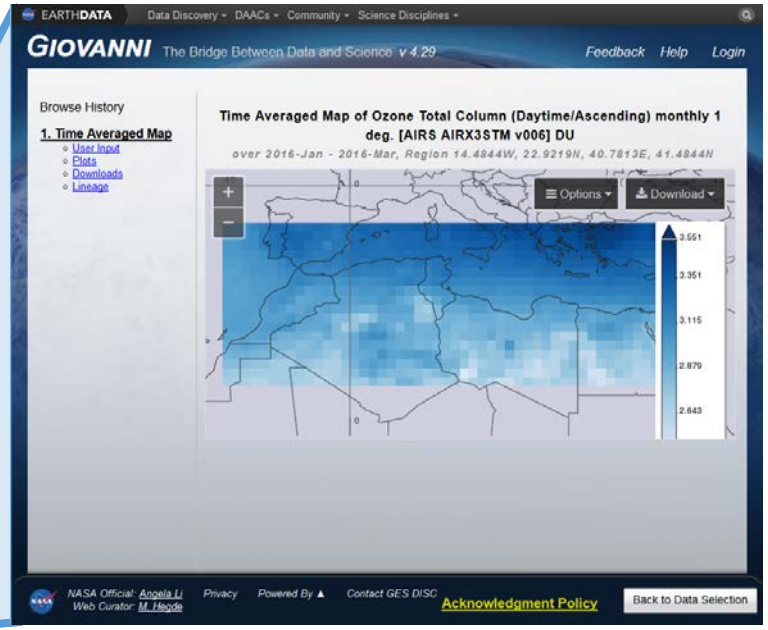
Collection in Earthdata Search with a Smart Handoff metadata association…



https://search.earthdata.nasa.gov/search

…to a more specialized data extraction tool like Giovanni:





https://giovanni.gsfc.nasa.gov

Some Key Use Cases being developed :

Downloadable Tools

- Associates datasets to applicable tools which must be downloaded to the user's processing platform to use them locally
  - User finds and selects a data set
  - User wants to see what Downloadable Tools are applicable to the selected data set
    - e.g. Python, R libraries, Panoply
  - User selects desired Local Tool and is redirected to a primary splash page, containing:
    - Information about the tool,
    - How to install and use it,
    - A download option
  - User downloads the dataset to perform local processing

Some Key Use Cases being developed :

Service Entry Resource Formats (SERFs)

- Legacy records from the GCMD describing tools and services, primarily from the IDN community
  - Efforts to identify and update still-valid SERF records recently concluded
  - Valid SERF records were migrated over to UMM-Service
- Curation concerns
  - Remaining legacy SERFs, and the SERF docBUILDER have been deprecated
  - Future curation of SERF records in UMM-S will be enabled with OpenMMT
    - The Open Metadata Management Tool will allow users with an Earth Data Login credential to propose new or modifications to existing metadata records – including services
- Services Refactoring
  - UMM-S SERFs will need to be reallocated to applicable use-case sub-models
  - Do *NOT* want to recreate a bottomless tool repository

Special thanks to EED-2/GCMD team

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