Data Wizard for Consolidating ARM Products

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ASR 2019 PI Meeting, Weds Jun 12, 1:30 to 3:30
Arm Data Integration Framework

- Automates data preprocessing and post processing
- Simplify integration of algorithms into framework
- GUI Interface
- Decrease cost/improve efficiency of Value Added Product development
- Flexible to support diversity of VAPs
- Great for infrastructure developers
- Too complex and detailed for others

Data Consolidator Wizard

- Step by step workflow
- Uses defaults
- Remove need to specify output product
I need to try my new algorithm with real data to make sure it works.

Different measurement with diverse sampling intervals and output data recipe.

Output data

Magic happens (thank our wonderful libraries and applications)
Group Exercise – Basic Features

Input Data
- Location = sgpC1
- Datastream met.b1 (1 minute data)
  - temp_mean
  - rh_mean
  - lat, lon, alt
- Datastream 5ebbr.b1 (5 minute data)
  - rh_bottom_fraction
  - temp_air_bottom

Output Data
- 3 minute sampling interval
- Auto transformation
  - met.b1 will be averaged to 3 minute grid
  - 5ebbr.b1 will be interpolated to 3 minute grid
  - Accept all default settings

ADI Wizard
https://mars.dmf.arm.gov/pcm-process-dev/
User Name: demo_<your_initials>
Password: pB4.EndH

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Evaluating Results

Products Produced

- Output data
- Plot of input and output data by variable
- Provenance and Logging
- Input data (not downloaded)
- Process logs
- High level summary information including exit status
- Debug information sent to console
- Dumps of internal data structures
- Retrieved data
  - Transformed data
  - Output data
- Documentation of advanced transform parameters (not downloaded)
Advanced Settings

- **Input QC**
  - Altering the interpretation of QC applied to input data (all)
    - Bit packed QC (qc_mask)
    - Integer QC (qc_bad)

- **Output QC**
  - Metric fields that are available while averaging that you can use to QC your data. (averaging)
    - Standard deviation between input data samples within a given averaging window
    - Number of points used to compute average/total possible number of input samples
  - Transformations
    - Alignment & Width (averaging, subsample, interpolation)
    - Range (interpolation and nearest neighbor)
Supporting Applications

- Dependency Diagrams
  - Diagram of relationship of data products and process to one another

- Process Data Object Design Interface
  - Catalog of all ARM datastreams
  - Filter and Search to identify preferred product
Future Capabilities

- Plot output with QC
- Hourly and Monthly in addition to Daily output
- Roll up qc
- Retrieve extra data at ends to remove edge effects
- Import DOD to PCM-DOD GUI to allow adding new/calculated variables
Getting Access

- Access Requires an ARM account.

- To request a username and password, visit ARM Facility User Registration site.

- After being given access log you can log into
  - PCM Data Object Interface at https://pcm.arm.gov/pcm/

- To save sample processes created today/tomorrow contact
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