

Data Wizard for Consolidating ARM Products

KRISTA GAUSTAD AND CARINA LANSING

PNNL

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▶ 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

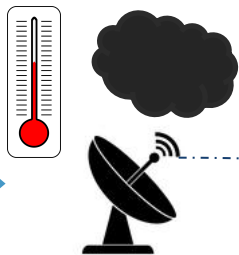
▶ Data Consolidator Wizard

- Step by step workflow
- Uses defaults
- Remove need to specify output product

Location?



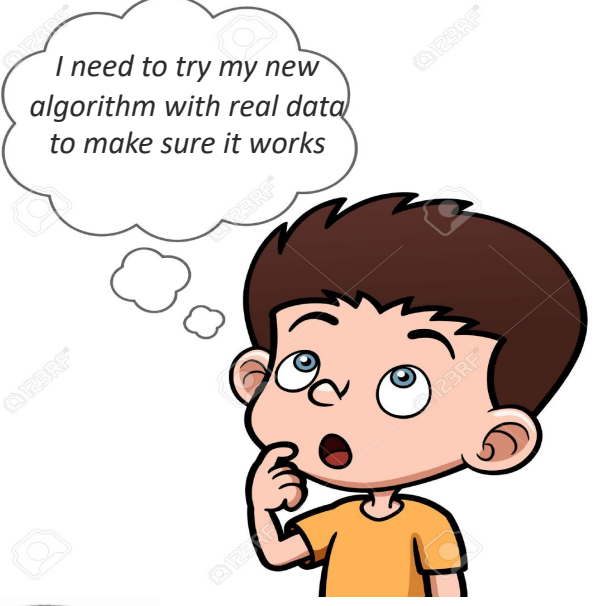
Instruments?



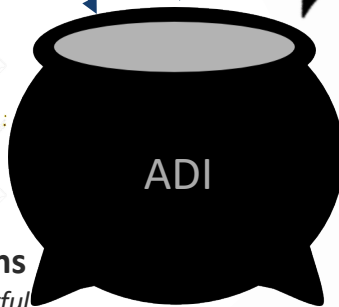
Data & Measurement Frequency?



Different measurement with diverse sampling intervals and output data recipe

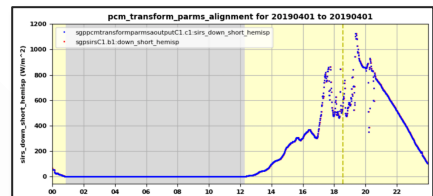


Magic happens
(thank our wonderful libraries and applications)



Output data

```
s1rs_down_short_hemisp = 59.4803, 55.2205, 54.5344, 55.3039, 53.3936,
53.7106, 55.6449, 47.5135, 36.5121, 31.0413, 28.2943, 26.6343, 25.4961,
24.6545, 24.2106, 24.6415, 26.2959, 28.6765, 28.9999, 28.4574, 24.4733,
21.3545, 19.9156, 18.9453, 18.169, 17.4786, 16.8674, 16.2539, 15.667,
15.1335, 14.5244, 13.8793, 13.2404, 12.5915, 11.7836, 10.9732, 10.115,
9.24569, 8.33811, 7.43745, 6.60616, 5.77858, 4.97837, 4.23442, 3.5519,
2.92637, 2.30603, 1.67383, 1.07048, 0.527098, 0.0533821, -0.357576,
```



Data plot

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

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 Process Interface at <https://mars.dmf.arm.gov/pcm-process-dev/>
 - PCM Data Object Interface at <https://pcm.arm.gov/pcm/>
- ▶ To save sample processes created today/tomorrow contact
 - Krista.gaustad@pnnl.gov