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## **ARM Climate Research Facility Quarterly Ingest Status Report**

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**Third Quarter:  
April 1 to June 30, 2014**

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July 2014

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## **Abstract**

The purpose of this report is to provide a concise status update for ingests maintained by the Atmospheric Radiation Measurement (ARM) Climate Research Facility. The report is divided into the following sections: (1) new ingests for which development has begun; (2) progress on existing ingests; (3) future ingests that have been recently approved; (4) other work that leads to an ingest; and (5) top requested ingests from the ARM Data Archive. New information is highlighted in [blue text](#).

## **Acknowledgements**

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## **1.0 New Ingests**

This section describes new activities that have begun in the last quarter after being approved by the ARM Infrastructure and Science Team. There will be ingest software development needed for the following instruments.

### **1.1 Cryogenic Frostpoint Hygrometer (CFH)**

Instrument Mentor: Martin Stuefer, University of Alaska, Fairbanks

Developer: Not assigned to a developer yet.

The Engineering Change Order 00769 was approved in 2009 for the addition of this instrument. Ingest development has not started.

### **1.2 Infrared/Visible Sky Imager (IRSI)**

Instrument Mentor: Victor Morris, Pacific Northwest National Laboratory

Developer: Annette Koontz, Pacific National Laboratory

The Engineering Change Order 15948 was approved to create the new ingest for this instrument.

### **1.3 Ka ARM Zenith Radar Version 2 (KAZR2)**

Instrument Mentor: Karen Johnson, Brookhaven National Laboratory

Developer: Krista Gaustad, Pacific Northwest National Laboratory

The Engineering Work Order 1598-TASK was approved to create the new ingest for this instrument

### **1.4 Marine Atmospheric Emitted Radiance Interferometer (MAERI)**

Instrument Mentor: Denny Hackel, University of Wisconsin

Developer: Annette Koontz, Pacific Northwest National Laboratory

Currently the MAERI data can be processed via the aeri\_ingest. However, discussions are ongoing between the mentor and management about possible changes to the MAERI data. If/when decisions are made on this matter, further work on an ingest will likely be required.

### **1.5 Scanning ARM Cloud Radar Version 2 (SACR2)**

Instrument Mentor: Karen Johnson, Pacific Northwest National Laboratory

Developer: Krista Gaustad, Pacific Northwest National Laboratory

The Engineering Work Order 967-TASK was approved to create the new ingest for this instrument.

## **1.6 X-Band Scanning ARM Precipitation Radar (XSAPR)**

Instrument Mentor: Scott Collis, Argonne National Laboratory

Developer: Jonathan Helmus, Argonne National Laboratory

The Engineering Work Order Task 1291 was approved to create the new ingest for this instrument.

## **2.0 Existing Ingests**

This section describes the status of each ingest and the ongoing activities that were approved to enhance the performance of, or maintain, existing ingests. The information is abstracted primarily from the monthly updates provided by the development team to the Engineering Change Orders (ECOs).

In general, ingests read instrument raw data and generate one or more netCDF files from that input data. Once read, the raw data is properly named and prepared for shipment to the ARM Data Archive.

### **2.1 Atmospheric Emitted Radiance Interferometer (AERI)**

Mentor: Denny Hackel, University of Wisconsin

Developer: Annette Koontz, Pacific Northwest National Laboratory

Status: Operational

Purpose: The aeri\_ingest is used to read raw data generated by the AERI.

The following datastreams are generated:

- aerich1.b1 or aeri01ch1.a1, channel 1 data
- aerich2.b1 or aeri01ch2.a1, channel 2 data
- aeriengineer.b1 or aeri01engineer.a1, contains engineering data
- aerisummary.b1 or aeri01summary.a1, summary data

The aeri\_ingest has been ported to the ADI libraries and was released to production in January 2014. The aeri\_ingest also processes MAERI data. If the MAERI instrument data format changes, there may be further development efforts needed.

## 2.2 Ameriflux Measurement Component (AMC)

Mentor: Marc Fischer, Lawrence Berkeley National Laboratory

Developer: Yan Shi, Pacific Northwest National Laboratory

Status: Operational

This ingest generates:

- amc.b1

Purpose: The amc\_ingest is used to read raw data of the AMC.

## 2.3 Aerosol Observing System (AOS)

Mentor: Anne Jefferson, National Oceanic and Atmospheric Administration (NOAA), Stephen Springston, Brookhaven National Laboratory(BNL)

Developer: Annette Koontz, Pacific Northwest National Laboratory

Purpose: To read both NOAA- and BNL-mentored AOS raw data from a variety of instruments and generate netCDF files.

The following datastreams are optionally generated:

- aosclap3w.b1, CLAP3W data, NOAA system only
- aospsap3w.b1, PSAP3W data, both NOAA and BNL systems
- aosnephdry.b1, reference nephelometer data, both NOAA and BNL systems
- aosnephwet.b1, “ramped” nephelometer data, both NOAA and BNL systems
- aosaeth.a1, aethelometer data, BNL system only
- aosccn100.a1, cloud condensation nuclei (CCN) data, both NOAA and BNL systems
- aosccn200.a1, dual CCN data, BNL system only
- aosco.a1, carbon monoxide data, BNL system only
- aospcpf.a1, CPC “fine” data, BNL system only
- aospcp.a1, CPC data, NOAA system only
- aospcpu.a1, CPC “ultrafine” data, BNL system only
- aosimpactor.a1, impactor state data, BNL system only
- aosmet.a1, meteorologic data collected by BNL system only
- aosnox.a1, nitrous oxide data collected by BNL system only
- aosozone.a1, ozone data collected by BNL system only

- aossmps.a1, SMPS data collected by BNL system only
- aossmpstrh.a1, SMPS temperature and RH data collected by BNL system only
- aosuhsas.a1, UHSAS data collected by BNL system only

Status: Operational

Recent Modifications: The minor bug fix for the aos\_ingest was released to production in May 2014.

As a result of the AOS harmonization meeting held at Argonne National Laboratory in May 2014, work has begun to fully understand the operation of both the NOAA- and BNL-mentored CPC and dry nephelometer. Ingest software changes are under way for the CPC and comparisons are ongoing using data from Brazil.

We will begin modifications to process mentor-checked data for ozone, met, nox, so2 and co datastreams. See ECO 01042 for details.

## 2.4 Atmospheric Sounder Spectrometer for Infrared Spectral Technology (ASSIST)

Mentor: Connor Flynn, Pacific Northwest National Laboratory

Developer: Brian Ermold, Pacific Northwest National Laboratory

Recent Modifications: Released to production in May, after the port to use the ADI library.

## 2.5 Beam-Steered Radar Wind Profiler (BSRWP)

Mentor: Rich Coulter, Argonne National Laboratory

Developer: Brian Ermold, Pacific Northwest National Laboratory

Purpose: Read raw data from the 1290bsrwp (“1290-MHz Beam-Steered Radar Wind Profiler”) instrument and generate the 1290bsrwpprecipavg.b1 and 1290bsrwpwindavg.b1 datastreams. It is also currently renaming the moments and spectral files for archival. Currently, this ingest is only used to process Marine ARM GPCI<sup>1</sup> Investigation of Clouds (MAGIC) intensive operational period (IOP) data.

Status: Operational

Recent Modifications: The bsrwp\_ingest was released to production in May 2014 so the raw spectra data can be processed in production to generate netCDF files.

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<sup>1</sup> GPCI = GCSS Pacific Cross-section Intercomparison, a working group of GCSS

GCSS = GEWEX Cloud Systems Study

GEWEX = Global Energy and Water Cycle Experiment, a core project of the World Climate Research Programme.

## 2.6 Planetary Boundary-Layer Height Ceilometer (CEILPBLHT)

Mentor: Vic Morris, Pacific Northwest National Laboratory

Developer: Yan Shi, Pacific Northwest National Laboratory

Status: Operational

Purpose: ceilpblht\_ingest processes raw ceilpblht data and generates:

- ceilpblht.a0

Release to production for the Finland deployment.

## 2.7 Disdrometer (DISDROMETER)

Mentor: Mary Jane Bartholomew, Brookhaven National Laboratory

Developer: Yan Shi, Pacific Northwest National Laboratory

Status: Operational

Purpose: The disdrometer\_ingest is used to read data from disdrometer instruments. Disdrometers are used to collect data from tipping bucket rain gauges.

The following netCDF datastreams are generated:

- disdrometer.b1

## 2.8 Doppler Lidar (DL)

Mentor: Rob Newsom, Pacific Northwest National Laboratory

Developer: Yan Shi, Pacific Northwest National Laboratory

Status: Operational

Purpose: The dl\_ingest processes raw Doppler Lidar data to produce daily netCDF files.

The following datastreams are optionally generated:

- dlcal1.a0
- dlcal2.a0
- dlftp.a0
- dlppi.a0
- dlppi2.a0

- dlrhi.a0
- dlrhi2.a0
- dlusr.a0

Released to production during January 2014 for the Finland deployment.

## 2.9 Energy Balance Bowen Ratio (EBBR)

Mentor: David Cook, Argonne National Laboratory

Developer: Brian Ermold, Pacific Northwest National Laboratory

Status: Operational

Purpose: The ebbbr\_ingest reads data from the EBBR system. The following datastreams are generated:

- 5ebbbr.b1, 5-minute data
- 15ebbbr.b1, 15-minute data
- 30ebbbr.b1, 30-minute data

[Recent Modifications:](#) This ingest has been ported to use ADI libraries. It has not been released to production.

## 2.10 Eddy Correlation Flux Measurement System (ECOR)

Mentor: David Cook, Argonne National Laboratory

Developer: Brian Ermold, Pacific Northwest National Laboratory

Status: Operational

[Recent Modifications:](#) This ingest was ported to ADI and released to production in April 2014. The conf package was also updated for ENA, GAN, and OLI, and released to production in June 2014.

Purpose: The ecor\_ingest reads data from the ECOR and generates netCDF datastreams, which provide in situ, half-hour measurements of the surface turbulent fluxes of momentum, sensible heat, latent heat, and carbon dioxide.

Datastreams generated include the following:

- 30ecor.b1

This ingest has been ported to ADI and released to production in March 2014.

## 2.11 G-Band Vapor Radiometer (GVR)

Mentor: Maria Cadeddu, Argonne National Laboratory

Developer: Annette Koontz, Pacific Northwest National Laboratory

Status: Operational

Purpose: The gvr\_ingest reads data generated by the 183.3-GHz radiometer and generates netCDF datastreams. The GVR is located at the North Slope of Alaska (NSA) C1 site.

Datastreams generated include the following:

- gvr.a0
- gvr.b1

This ingest has been ported to ADI and released to production.

## 2.12 G-band Vapor Radiometer Profiler (GVRP)

Mentor: Maria Cadeddu, Argonne National Laboratory

Developer: Annette Koontz, Pacific Northwest National Laboratory

Status: Operational

Purpose: The gvrp\_ingest processes data generated by the MP183 radiometer. The instrument is located at the NSA C1 site.

Datastreams generated by the ingest are:

- gvrpC1.b1
- gvrpC1.a1

This ingest has been ported to ADI and released to production.

## 2.13 High Spectral Resolution Lidar (Calibrated Files Produced by University of Washington) (HSRLUW)

Mentor: Connor Flynn, Pacific Northwest National Laboratory

Developer: Brian Ermold, Pacific Northwest National Laboratory

Status: Operational

This ingest has been ported to ADI and released to production.

## 2.14 In Situ Aerosol Profiles Multi-filter Radiometer (IAPMFR)

Mentor: Gary Hodges, NOAA

Developer: Annette Koontz, Pacific Northwest National Laboratory

Status: Operational

Purpose: This ingest reads MFR data collected from routine airplane flights around the Southern Great Plains (SGP) Central Facility. The MFR data is calibrated by the `iapmfr_ingest`. This ingest has not been ported to ADI.

The following datastreams are produced:

- `sgpiapmfrC1.a0`
- `sgpiapmfrC1.b1`

## 2.15 Infrared Thermometer (IRT)

Mentor: Vic Morris, Pacific Northwest National Laboratory

Developer: Yan Shi, Pacific Northwest National Laboratory

Status: Operational

This ingest generates the following datastreams:

- `irt.b1`
- `irt10m.b1`
- `irt25m.b1`

Purpose: The `irt_ingest`, similar to the `irthr_ingest`, reads data from the IRT instruments. However, this ingest is designed for the older IRTs that report data every 20 seconds.

This ingest has been ported to use ADI libraries. In February 2014 the ingest was released to production.

## 2.16 Infrared Thermometer – High-Resolution (IRTTHR)

Mentor: Vic Morris, Pacific Northwest National Laboratory

Developer: Yan Shi, Pacific Northwest National Laboratory

Status: Operational

Datastreams generated are for 200-millisecond, 2-second, and 1-minute sample intervals and include the following:

- irt200ms.a1, 200-millisecond data
- irt2s.b1, 2-second data
- irt.b1, 1-minute data

Purpose: The irtthr\_ingest reads data from the high-resolution IRT instruments distributed around the SGP site.

This ingest has been ported to use ADI libraries. In February 2014 the irt\_ingest was released to production.

## 2.17 K-band ARM Zenith Radar (KAZR)

Mentor: Karen Johnson, Brookhaven National Laboratory, Nitin Bharadwaj, Pacific Northwest National Laboratory

Developer: Annette Koontz, Pacific Northwest National Laboratory

Status: Operational

Purpose: This ingest reads the KAZR (formerly the millimeter-wavelength cloud radar [MMCR]) zenith-pointing radar data, generating the kazraux.a0, kazrge.a1, kazrmd.a1, kazrhi.a1 datastreams. The actual datastreams generated depend upon how the mentor configures the instrument.

The following datastreams are generated by this ingest:

- kazrge.a1
- kazrmd.a1
- kazrhi.a1

This ingest has been ported to ADI and released to production.

Recent Modifications: Datastreams were renamed, and the data levels were modified. Kazraux.a1 became kazraux.a0, and kazr\*.b1 became kazr\*.a1. The historical KAZR data are being reprocessed.

*There will be a redesign of the KAZR, which will be called KAZR2. The kazr\_ingest will require a major overhaul to handle the new KAZR2 data. This work has not started.*

## 2.18 Ka ARM Zenith Radar Filtered Spectral Data (KAZRSPEC)

Mentor: Karen Johnson, Brookhaven National Laboratory

Developer: Annette Koontz, Pacific Northwest National Laboratory

Status: Operational

The following datastreams are generated by this ingest:

- kazrspeccmaskhicopol.a0
- kazrspeccmaskmdcopol.a0
- kazrspeccmaskmdxpol.a0
- kazrspeccmaskgecopol.a0
- kazrspeccmaskgexpol.a0

Purpose: Filter large spectra files to eliminate non-cloud content, generate netCDF files, and quicklook plots. The kazrspec\_ingest was updated and released to production in February 2014.

## **2.19 ARM-standard Meteorological Instrumentation, Marine (MARINEMET)**

Mentor: Michael Reynolds, Remote Measurement and Research Company

Developer: Yan Shi, Pacific Northwest National Laboratory

Status: Operational

Purpose: The marinemet\_ingest processes raw meteorological instrumentation at AMF (MET) data at MAGIC to produce daily netCDF files.

The following datastreams are generated by the ingest:

- Marinemet.b1
- Marinemets1.b1

Recent Modifications: [This ingest was released to after a minor logic fix in May 2014.](#)

Related EWO: 14824

## **2.20 Surface Meteorological Instrumentation (MET)**

Mentor: Michael Ritsche, Argonne National Laboratory

Developer: Yan Shi, Pacific Northwest National Laboratory

Status: Operational

Purpose: The met\_ingest processes data collected from conventional in situ sensors measuring meteorological data such as wind speed, barometric pressure, and so on.

The met ingest has been reprocessed end-to-end to convert smet, smos, etc. to MET with consistent data object designs (DODs). All of the data reprocessing has been completed and is at the data reviewing stage.

Recent Modifications: The met\_ingest has been ported to use the ADI libraries. The met\_ingest has been released to production.

The following datastream is generated:

- met.b1

## 2.21 Multi-Filter Radiometer (MFRCDL)

Mentor: Gary Hodges, National Oceanic and Atmospheric Administration

Developer: Annette Koontz, Pacific Northwest National Laboratory

Status: Operational

Purpose: This ingest processes MFRSR, NIMFR, MFR3M, MFR10M, MFR25M and NFOV2CH raw data and generates raw and calibrated netCDF files.

The following datastreams are generated:

- mfrsr.a0
- mfrsraux.a0
- mfrsr.b1
- nimfr.a0
- nimfr.b1
- mfr3m.a0
- mfr3m.b1
- mfr10m.a0
- mfr10m.b1
- mfr25m.a0
- mfr25m.b1
- nfov2ch.b1

Recent Modifications: The ADI library version of the mfrcdl\_ingest was released to production in April 2014. The new version includes several updates to better handle 24-hour daylight in the polar regions of the planet and more consistent nighttime offset computations.

## 2.22 Micropulse Lidar Polarized, Fast Sampling (MPLPOLFS)

Mentor: Rich Coulter, Argonne National Laboratory

Developer: Annette Koontz, Pacific Northwest National Laboratory

Status: Operational

Purpose: The mplpol\_ingest processes data from the micropulse lidar (MPL, “fast sampling”).  
Datastreams generated include the following:

- mplpolfs.b1

This ingest has been ported to ADI and released to production.

Recent Modifications: The mplpolfs\_ingest was released for processing the Finland data in January 2014.

## **2.23 Microwave Radiometer (MWR)**

Mentor: Maria Cadeddu, Argonne National Laboratory

Developer: Annette Koontz, Pacific Northwest National Laboratory

Status: Operational

Purpose: The mwr\_ingest processes data from the MWR. Datastreams generated include the following:

- mwrlos.b1, line-of-sight data
- mwrlos.a1, TIP data

This ingest has been ported to ADI and released to production.

## **2.24 Microwave Radiometer – High Frequency (MWRHF)**

Mentor: Maria Cadeddu, Argonne National Laboratory

Developer: Annette Koontz, Pacific Northwest National Laboratory

Status: Operational

Purpose: The mwrhf\_ingest processes 90/150-GHz microwave radiometer – high frequency (MWRHF) data.

The following datastreams are generated:

- mwrhf.b1
- mwrhfcal90.a1
- mwrhfcal150.a1

Recent Modifications: This ingest has been ported to ADI and was released to production in July 2013.

## 2.25 Marine W-Band ARM Cloud Radar (M-WACR)

Mentor: Karen Johnson, Brookhaven National Laboratory

Developer: Annette Koontz, Pacific Northwest National Laboratory

Status: Operational

Purpose: This ingest reads data from the M-WACR and generates the following datastreams:

- magmwacrauxM1.a0
- magmwacrM1.a1

Recent Modifications: The m-wacr\_ingest was released for processing the Finland data in January 2014.

## 2.26 Marine W-Band ARM Cloud Radar Spectra Filter (MWACRSPEC)

Mentor: Karen Johnson, Brookhaven National Laboratory

Developer: Annette Koontz, Pacific Northwest National Laboratory

Status: In Development

Purpose: Filter huge spectra data files and eliminate non-cloud content. Generate netCDF files and quicklook plots.

Recent Modifications: The mwacrspec\_ingest was released to production in January 2014 for processing the Finland data.

## 2.27 Microwave Radiometer – 3-Channel (MWR3C)

Mentor: Maria Cadeddu, Argonne National Laboratory

Developer: Annette Koontz, Pacific Northwest National Laboratory

Status: Operational

The following datastreams are generated:

- mwr3c.b1
- mwrectip.a1

Purpose: Process data from the three-channel microwave radiometer.

This ingest has been ported to ADI and released to production. Historical MWR3C data have been reprocessed.

Recent Modifications: A new software package is being developed to read the original raw MWR3C data and recalibrate it. This process has not yet been released to production.

## 2.28 Microwave Radiometer Profiler (MWRP)

Mentor: Maria Cadeddu, Argonne National Laboratory

Developer: Maria Cadeddu, Argonne National Laboratory

Status: Operational

Purpose: The mwrp\_ingest processes data collected from the MWRP. Datastreams generated include the following:

- mwrp.b1

This ingest has been ported to ADI and was released to production in June 2013.

Recent Modifications: A new version of the mwrp\_ingest was released to production in May 2014. The raw format was changed by the vendor for the Azores instrument.

## 2.29 Surface Navigation Data (NAV)

Mentor: Richard Coulter, Argonne National Laboratory

Developer: Annette Koontz, Pacific Northwest National Laboratory

Purpose: This reads data from mobile location datastream for the MAGIC IOP.

The following datastreams are generated:

- nav.a1
- navgps.a1

Status: Operational

Recent Modifications: This ingest has been ported to ADI, but is not yet released to production.

## 2.30 Optical Rain Gauge (ORG)

Mentor: Mike Ritsche, Argonne National Laboratory

Developer: Yan Shi, Pacific Northwest National Laboratory

Status: Operational

Purpose: The org\_ingest processes ORG measurements.

The following datastreams are generated:

- org.b1

This ingest has been ported to ADI and released to production.

## **2.31 OTT Parsivel2 Laser Disdrometer (PARS2)**

Mentor: Mary Jane Bartholomew, Brookhaven National Laboratory

Developer: Yan Shi, Pacific Northwest National Laboratory

Status: Operational

Purpose: pars2\_ingest processes raw pars2 data and generates:

- pars2.b1

This ingest has been ported to ADI and released to production.

## **2.32 Portable Radiation Package (PRP)**

Mentor: Mike Reynolds, Remote Measurement and Research Company

Developer: Annette Koontz, Pacific Northwest National Laboratory

Status: Operational

Purpose: This ingest reads prprad, prptcm, prptcm, prpfrsr raw data currently in operation for the MAGIC IOP. The following datastreams are generated:

- 6sprpfrsr.a0
- 1sprprad.a1
- 1sprptcm.a1
- 5sprpgps.a1
- prpfrsr.a0
- prpgps.a1
- prprad.a1
- prptcm.a1

Recent Modifications: Added logic to handle a second set of radiometer instruments.

## 2.33 Radiation Measurements at the ARM Mobile Facility Niamey, Niger, Deployment (RAD)

Mentor: Peter Gotseff, National Renewable Energy Laboratory

Developer: Yan Shi, Pacific Northwest National Laboratory

Status: Operational

Purpose: The rad\_ingest processes raw skyrad/gndrad data to produce daily netCDF files.

The following datastreams are generated:

- Skyrad20s.a0
- Skyrad60s.b1
- Gndrad20s.a0
- Gndrad60s.b1

Recent Modifications: Released to production to process the Finland data. Ported to ADI.

## 2.34 Rain Gauge (RAIN)

Mentor: Mary Jane Bartholomew, Brookhaven National Laboratory

Developer: Brian Ermold, Pacific Northwest National Laboratory

Status: Operational

Purpose: The rain\_ingest processes tipping bucket measurements.

Recent Modifications: [This ingest is being ported to ADI. It has not been released to production yet.](#)

The following datastreams are generated:

- rainaux.b1
- rain.b1

## 2.35 Raman Lidar (RL)

Mentor: Rob Newsom, Pacific Northwest National Laboratory

Developer: Laurie Gregory, Brookhaven National Laboratory

Purpose: This ingest processes RL data.

The following datastreams are generated:

- rl.a0
- rllg.a0

Status: Operational

## 2.36 Roll/Pitch Ingest (RPY)

Mentor: Rich Coulter, Argonne National Laboratory

Developer: Sri Gourisetti, Pacific Northwest Laboratory

Purpose: The roll pitch ingest processes position data (roll, pitch and related data) from instruments on a moving platform. The ingest generates:

- rphilt.a1
- rphcontrol.a1

[Recent Modifications: This ingest has been ported to ADI and will be released to production soon.](#)

## 2.37 Radar Wind Profiler (RWP)

Mentor: Rich Coulter, Argonne National Laboratory

Developer: Brian Ermold, Pacific Northwest National Laboratory

Purpose: Read data from the 50, 915 or 1290 RWP RASS wind profiler.

The following datastreams are generated:

- 50rwptempcon.a1
- 50rwptempmom.a0
- 50rwptempspec.a0
- 50rwpwindcon.a1
- 50rwpwindmom.a0
- 50rwpwindspec.a0
- 915rwpprecipcon.a1
- 915rwpprecipmom.a0
- 915rwpprecipspec.a0
- 915rwptempcon.a1
- 915rwptempmom.a0
- 915rwptempspec.a0

- 915rwpwindcon.a1
- 915rwpwindmom.a0
- 915rwpwindspec.a0
- 1290rwpprecipcon.a1
- 1290rwpprecipmom.a0
- 1290rwpprecipspec.a0
- 1290rwpwindcon.a1
- 1290rwpwindmom.a0
- 1290rwpwindspec.a0

Recent Modifications: This ingest was modified in May 2014 to handle a new operating mode.

## 2.38 Scanning ARM Cloud Radar (SACR)

Mentor: Karen Johnson, Brookhaven National Laboratory

Developer: Annette Koontz, Pacific Northwest National Laboratory

Status: Operational

Purpose: Read ARM scanning cloud radar data and generate a variety of datastreams (66 different datastreams are possible, depending on radar configuration).

This ingest has been ported to ADI and released to production.

Recent Modifications: The `sacr_ingest` was released to production in February 2014. This version is backward compatible with older raw data versions.

In June 2014 the `sacrspec` was released to production. This version of the `sacrspec` ingest processes new and old format spectra data.

*A completely new raw data format will be generated for the SACR2 raw data version. This work has not started yet.*

## 2.39 Shortwave Array Spectroradiometer – he Measurements (SASHE)

Mentor: Connor Flynn, Pacific Northwest National Laboratory

Developer: Brian Ermold, Pacific Northwest National Laboratory

Purpose: Read data from sashe instruments and generate netCDF files.

[Recent Modifications: This ingest was recently cloned from the sas\\_ingest, ported to ADI, and released to production in July 2014.](#)

The following datastreams are generated:

- sashemfr.b1
- sashenir.b1
- sashenirhisun.a0
- sashenirlowsun.a0
- sashevia.b1
- sashevishisun.a0
- sashevislowsun.a0

## **2.40 Shortwave Array Spectroradiometer – ze Measurements (SASZE)**

Mentor: Connor Flynn, Pacific Northwest National Laboratory

Developer: Brian Ermold, Pacific Northwest National Laboratory

Purpose: This ingest reads sasze input files and generates netCDF output.

[Recent Modifications: This ingest was recently cloned from the sas\\_ingest, ported to ADI and released to production. Responsivity files for the Brazil deployment were released in January 2014.](#)

Status: Operational.

The following datastreams are generated:

- saszefilterbands.a1
- saszenir.a0
- saszenir.a1
- saszevis.a0
- saszevis.a1

## **2.41 Surface Energy Balance System (SEBS)**

Mentor: David Cook, Argonne National Laboratory

Developer: Yan Shi, Pacific Northwest National Laboratory

Status: Operational

Purpose: pars2\_ingest processes raw SEBS raw data.

The following datastream is generated:

- sebs.b1

This ingest has been ported to ADI and released to production.

## **2.42 Solar Infrared Radiation Station (SIRS)**

Mentor: Peter Gotseff, National Renewable Energy Laboratory

Developer: Annette Koontz, Pacific Northwest National Laboratory

Status: Operational

Purpose: The sirs\_ingest processes data collected from SIRS instruments. Datastreams generated include the following:

- sirs.b1
- sirs20s.a0
- brs20s.a0
- brs.b1

Recent Modifications: The instrument data loggers were upgraded to newer Campbell data loggers. This required changes to the ingest logic, and a few bugs have been found and corrected. This ingest has been ported to ADI and released to production.

## **2.43 Mini Sound Detection and Ranging (SODAR)**

Mentor: Richard Coulter, Argonne National Laboratory

Developer: Annette Koontz, Pacific Northwest National Laboratory

Status: Operational

Purpose: The sodar\_ingest processes data collected from mini SODAR instruments. Datastreams generated include the following:

- sodar.b1
- sodarspec.a1

Recent Modifications: [This ingest has been ported to ADI. It was released to production in May 2014.](#)

## **2.44 Balloon-Borne Sounding System (SONDE)**

Mentor: Donna Holdridge, Argonne National Laboratory

Developer: Annette Koontz, Pacific Northwest National Laboratory

Status: Operational

Purpose: The sonde\_ingest processes data collected from the balloon-borne sounding system (SONDE). Datastreams generated include the following:

- sondewnpn.b1

This ingest has been ported to ADI and released to production.

## **2.45 Surface Temperature and Humidity Reference (SURTHREF)**

Mentor: Mike Ritsche, Argonne National Laboratory

Developer: Yan Shi, Pacific Northwest National Laboratory

Status: Operational

Purpose: The surthref\_ingest processes data collected from SURTHREF system instruments. Datastreams generated include the following:

- surthref.b1

This ingest has been ported to ADI and released to production.

## **2.46 Soil Water and Temperature System (SWATS)**

Mentor: John Harris, Cooperative Institute for Mesoscale Meteorological Studies

Developer: Brian Ermold, Pacific Northwest National Laboratory

Status: Operational

Purpose: The swats\_ingest processes data collected from the SWATS. Datastreams generated include the following:

- swats.b1
- swatsspcp.b1

## **2.47 Shortwave Spectroradiometer (SWS)**

Mentor: Connor Flynn, Pacific Northwest National Laboratory

Developer: Yan Shi, Pacific Northwest National Laboratory

Status: Operational

Recent Modifications: The sws\_ingest was ported to ADI and released to production in June 2014. The responsivity files for SGP were also corrected this time.

Purpose: The sws\_ingest processes data collected from the SWS. Datastreams generated include the following:

- sws.b1
- swsaux.b1

## **2.48 Temperature, Humidity, Wind and Pressure Sensors (THWAPS)**

Mentor: Mike Ritsche, Argonne National Laboratory

Developer: Brian Ermold, Pacific Northwest National Laboratory

Status: Operational

Purpose: The thwaps\_ingest processes data collected from THWAPS instruments.

Recent Modifications: The ADI library version of the thwaps\_ingest was released to production in January 2014.

Datastreams generated include the following:

- thwaps.b1

## **2.49 Total Precipitation Sensor (TPS)**

Mentor: Mark Ivey, Sandia National Laboratory

Developer: Yan Shi, Pacific Northwest National Laboratory

Status: Operational

Purpose: The tps\_ingest processes data from the TPS (precipitation rate and daily accumulated precipitation). The instrument is located at the NSA C1 site. Datastreams generated by this instrument are nsatps.C1.b1 and nsatps.C1.00 (raw).

- tps.b1

Related EWO: 14846

Recent Modifications: The tps\_ingest has been ported to ADI and released to production.

## **2.50 Total Sky Imager (TSI)**

Mentor: Victor Morris, Pacific Northwest National Laboratory

Developer: Annette Koontz, Pacific Northwest National Laboratory

Status: Operational

Purpose: The tsi\_ingest process data from the TSI. Datastreams generated by this instrument are:

- Tsioldmask.a1
- Tsiskycover.b1
- Tsiskyimage.a1

Recent Modifications: During January 2014 some minor logic errors were corrected and a new version was released to production.

## **2.51 Facility-Specific Multi-Level Meteorological Instrumentation (TWR)**

Mentor: David Cook, Argonne National Laboratory

Developer: Brian Ermold, Pacific Northwest National Laboratory

Status: Operational

Purpose: The twr\_ingest processes data collected from meteorological instruments located on towers above the ground. The datastreams generated include the following:

- 1440twr21x.b1
- 1440twr25m.b1
- 1440twr60m.b1
- 1twr10x.b1
- 1twr25m.b1
- 1twr60mC1.b1
- 30twr10x.b1
- 30twr25m.b1
- 30twr60m.b1

## **2.52 Vaisala Ceilometer (CEIL)**

Mentor: Victor Morris, Pacific Northwest National Laboratory

Developer: Brian Ermold, Pacific Northwest National Laboratory

Status: Operational

Purpose: The ceil\_ingest processes data collected from the Vaisala ceilometer (CEIL). Datastreams generated include the following:

- ceil.b1

Ported to ADI and released to production.

The datastreams and the ingest are being renamed to “ceil.” There is an ongoing end-to-end reprocessing activity taking place before the new version of the ingest is run on the production system.

## **2.53 Video Disdrometer (VDIS)**

Mentor: Mary Jane Bartholomew, Brookhaven National Laboratory

Developer: Yan Shi, Pacific Northwest National Laboratory

Status: Operational

Purpose: Read and process 2-dimensional video distrometer data

Recent Modifications: Released to production in March 2014 to correct time shift in the rain rate files. It has been ported to ADI.

## **2.54 W-Band ARM Cloud Radar (WACR)**

Mentor: Karen Johnson, Brookhaven National Laboratory

Developer: Krista Gaustad, Pacific Northwest National Laboratory

Status: Operational, but not in use.

Purpose: Read and process W-band radar data and generate wacr.b1 data files. The WACR was most recently deployed at Cape Cod. The WACR will be upgraded before the next deployment to use the M-WACR file format.

Note: There currently are no “wacr” instruments in production.

Recent Modifications: [The wacr\\_ingest has been rewritten for the new wacr2 raw data format. This version of the ingest was released to production in June 2014.](#)

## **2.55 Cloud Radar Spectra Filter (WACRSPEC)**

Mentor: Karen Johnson, Brookhaven National Laboratory

Developer: Krista Gaustad, Pacific Northwest National Laboratory

Status: Operational

Purpose: Filter huge spectra files to eliminate non-cloud content and generate netCDF files and quicklook plots.

Recent Modifications: This `wacrspec_ingest` will require modification to handle the new WACR2 raw data format, and it will be ported to ADI at that time. *This work has not started yet.*

## 2.56 XSAPR X-band Scanning Precipitation Radar (XSAPR)

Mentor: Scott Collis, Argonne National Laboratory

Developer: Jonathan Helmus, Argonne National Laboratory

Purpose: The `xsapr` ingest process is used to read data from the four X-SAPR radar instruments. The data from these instruments comes stored in the IRIS/Sigmat format developed by Vaisala. The IRIS/Sigmat format is a published radar data format. During ingest, the radar moments and metadata contained in this format are read in and converted into netCDF.

The following datastreams are generated:

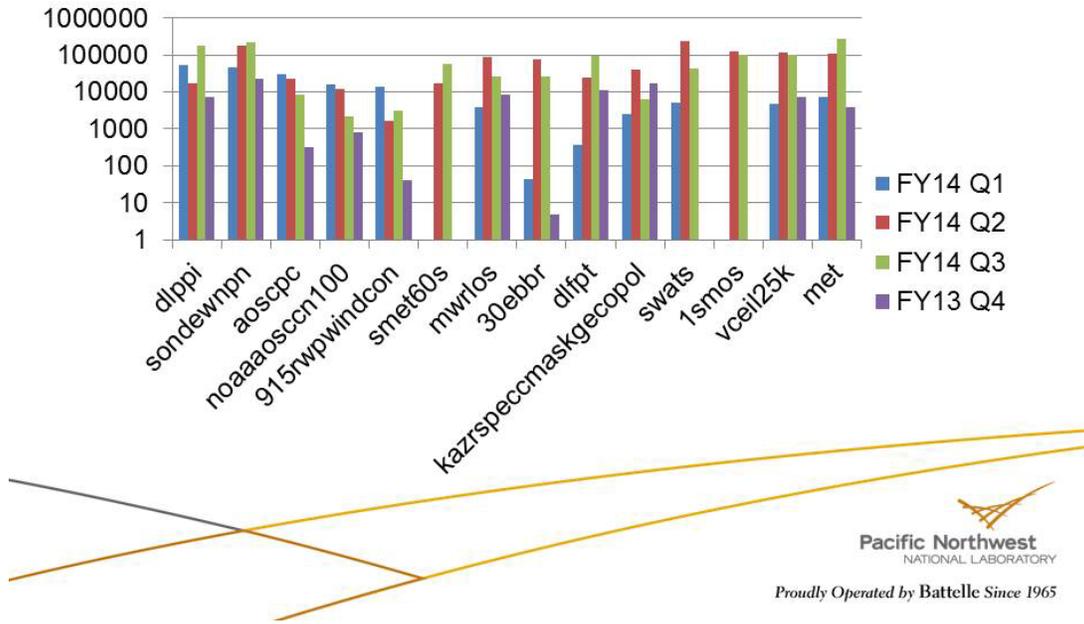
- `xsaprppi.a1`
- `xsaprrhi.a1,`
- `xsaprvt.a1`

Recent Modifications: Released to production in March 2014. A few logic errors have been detected and corrected. Processing has commenced for NSA C1 and SGP I6 data.

## 3.0 Ingest Metrics

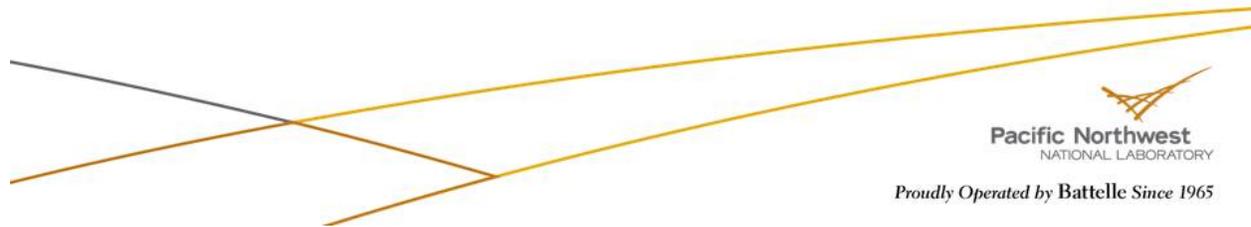
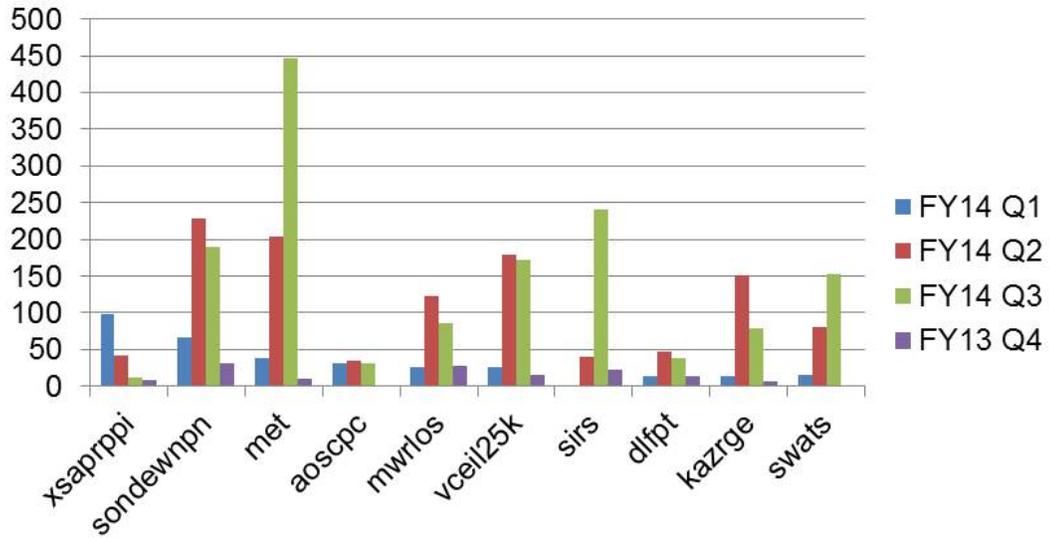
This section lists ingest reports downloaded by users from the ARM Data Archive during the third quarter of FY2014, and the three previous quarters.

## Ingest – Files Downloaded



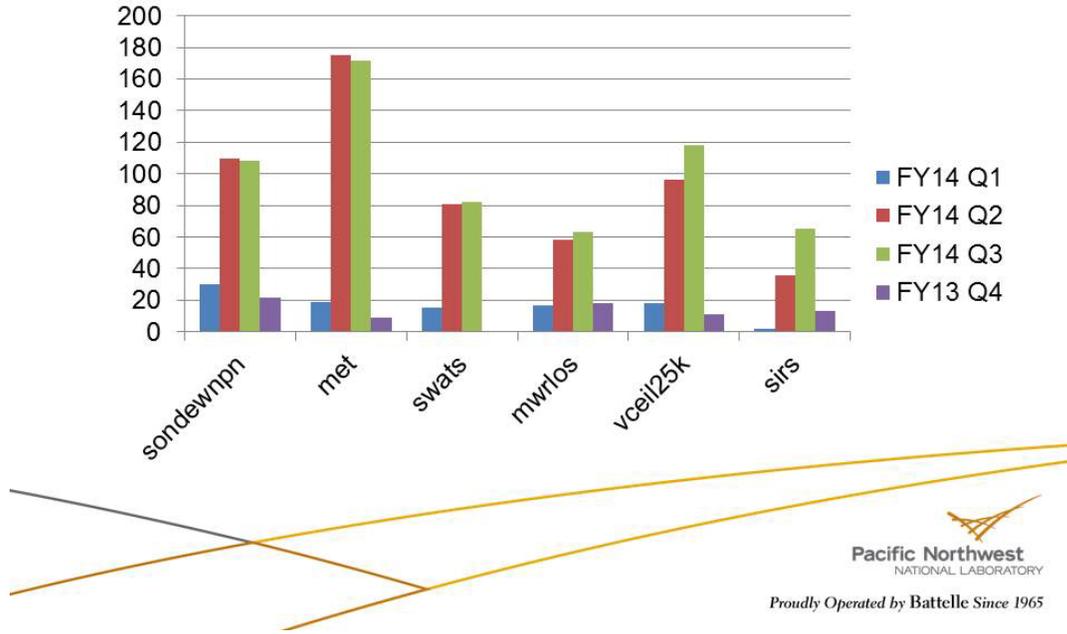
**Figure 1.** This chart shows the number of ingest files downloaded for the third quarter of FY2014 as well as the three previous quarters.

## Ingest – Unique Sessions



**Figure 2.** This chart shows the number of unique sessions to download ingest reports for the third quarter of FY2014 as well as the three previous quarters.

## Ingest – Unique Users



**Figure 3.** This chart shows the number of unique users accessing ingest reports for the third quarter of FY2014 as well as the three previous quarters.



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