

**ACRF Ingest Software Status:
New, Current, and Future**

Revision 6

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Introduction

The purpose of this report is to provide status of the ingest software used to process instrument data for the Atmospheric Radiation Measurement Program Climate Research Facility (ACRF). The report is divided into 4 sections: (1) for news about ingests currently under development, (2) for current production ingests, (3) for future ingest development plans, and (4) for information on retired ingests. Please note that datastreams beginning in “xxx” indicate cases where ingests run at multiple ACRF sites, which results in a datastream(s) for each location.

Readers of this status report may want to consult our current list of instrument mentors at <http://www.arm.gov/instruments/mentors.php> or our list of software developers at <http://engineering.arm.gov/engr/task/developercontacts.stm>.

Another useful utility is the current datastream status, presented from the ARM Data Management Facility (DMF) perspective, which can be found at <http://c1.dmf.arm.gov/ds/dsview/gui/datastream.php>.

Hint: Select the “Login as Guest Account” option. Depending on the speed of your internet connection, it may take a few minutes for the complete display to generate. Datastream status for the current calendar month will be displayed. The legend (visible in the upper right hand area) will help you understand the display. In addition, the number (ideally 24.0) indicates the number of hours of data for the day in question.

For those who are interested in the contents of datastreams generated by ARM software, refer to the data object design files at <http://science.arm.gov/tool/dod/showdod.php>.

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1. Ingest News

1.1 In Development

We are currently working on the following ingests:

[gvrp_ingest](#)
[rain_ingest](#)
[mwrhf_ingest](#)
[smos_ingest](#)

1.2 In Production

aeri_ingest	org_ingest
amfmet_ingest	rain_ingest
aos_ingest	rss_ingest
disdrometer_ingest	rwp_ingest
ebbr_ingest	sirs_ingest
ecor_ingest	smet_ingest
gvr_ingest	smor_ingest
iapmfr_ingest	smos_ingest
irt_ingest	sonde_ingest
irthr_ingest	surthref_ingest
met_ingest	swats_ingest
metrad_ingest	sws_ingest
mettwr_ingest	thwaps_ingest
mfr_ingest	tps_ingest
mfrcdl_ingest	tsi_ingest
mmcr_spec_filter	twr_ingest
mmcrmom_ingest	vceil_ingest
mplpol_ingest	wacr_ingest
mwr_ingest	wacr_spectra_filter
mwrp_ingest	
nfov2ch_ing	

1.3 Reprocessing Tasks

The purpose of this section is to present active reprocessing tasks. In some cases, significant software development is required, as well as research into historical calibration records. Reprocessing tasks are identified by a “RID” (Reprocessing Identification) number.

RID-4 SGP.C1 MPL

Mentor:	Rich Coulter, ANL
Developer:	Annette Koontz, PNNL
Reprocessor:	Bill Jackson, ORNL
Status:	Review
Date range:	TBD

Description:

The SGP.C1 MPL data for 2000/02/29-2000/03/06 were ingested out of sequence resulting in multiple data files per day. These data were reprocessed by Annette Koontz in October 2007 and she determined for the original processing too many files had been thrown at the ingest at once. She reprocessed all of 2000 and made those data available to Chaomei Lo (per special request). The data were not archived. Bill Jackson then reprocessed 2000-2003. Waiting on review by Robin Perez.

RID-179 SSS.Fn SIRS/GNDRAD/SKYRAD

Mentor: Tom Stoffel, NREL
Developer: Brian Ermold, PNNL
Reprocessor: Bill Jackson, ORNL
Status: On hold pending calibration record review
Date range: 2002-2006

Description:

The longwave calibration procedures were changed in SIRS/GNDRAD/SKYRAD data loggers as early as July 2003. This calibration method change resulted in an error in the longwave data. The previous calibration method was put back into place at all sites by February 2006.

The SIRS data reprocessing is complete. The AMF GNDRAD and SKYRAD reprocessing is complete. The TWP and NSA GNDRAD and SKYRAD reprocessing are on hold pending review of calibration records and modification of the old smor_ingest to process the data.

RID-203 SSS.Fn MWR

Developer: Annette Koontz, PNNL
Reprocessor: Annette Koontz, PNNL and Bill Jackson, ORNL
Status: Complete: TWP.C1, TWP.C2, NSA.C2, PYE.M1
In process: NSA C1, SGP B1, SGP B4, SGP B5, SGP B6, SGP C1
Date range: end-to-end (through 2005/06)

Description:

The MWR retrieval algorithm was modified (most recently) in June 2005. This end-to-end reprocessing of all MWR data will apply the latest retrieval algorithm to all MWR data through time and also result in a consistent DOD through time.

The **mwr_retrieval** software is used to apply a new retrieval to a specific set of days for a specified instrument, as determined by the mentor.

The **recalib_mwrlos** software is used to apply correct calibrations to the MWRLOS data. It is executed, over a specific set of days for a specified instrument, as determined by the mentor.

In addition, several special purpose scripts are used to reformat the historical MWRLOS data into the current DOD format. These scripts are needed to handle the MWRLOS data for time periods for which the raw data is in an old format, not compatible with the current ingest software.

RID-307 TWP.Cn/PYE.M1 SMET

Developer: Brian Ermold, PNNL
Reprocessor: Bill Jackson, ORNL
Status: PYE complete; TWP.Cn data 2004-2006 pending review
Date range: 1996-2006/07/13

Description:

On 20060713, the units of Barometric pressure data changed from hPa to kPa in order to standardize the measurement units among ARM sites and to conform to accepted standard units determined by the scientific community. Data reprocessing to make historical data conform to new units.

NOTE: Reprocessing of old format data (TWP.Cn 1996-2004) will require an ingest update.

RID-312 SSS.Fn MWR-TIP

Developer: Annette Koontz, PNNL
Reprocessor: Annette Koontz, PNNL and Bill Jackson, ORNL
Status: **Sample TWP.C1 and TWP.C2 data reprocessed March 25; waiting for review by Robin**
Date range: end-to-end (through March, 2007)

Description:

The MWRTIP DOD was modified effective 2007/04/01 to add a tip angle dimension in addition to the time dimension to correct a problem with tip angles being reported out of sequence. This end-to-end reprocessing of all MWRTIP data will result in a consistent DOD through time.

mwrtip retrieval 1.1-0 2008/03/21 per BCR 1450

The mwrtip_retrieval software is used to apply new retrievals per BCR 984 to MWRTIP data. Most of the historical MWR data requires reprocessing because it has been determined that the retrievals used on the instrument computer were in error. This software applies new retrievals to the MWRTIP data to correct the affected fields. We are currently processing historical data for all sites and facilities. No data has been shipped to the Archive at this time.

reformat mwrtip 1.1-0 2008/03/21 per BCR 1450

The reformat_mwrtip software is used to reformat the MWRTIP data per BCR 1385. The historical MWRTIP data is reconstructed to conform to the new DOD structure. After this step is complete, the data may need to be further processed via the mwrtip_retrieval software. All historical data for all sites and facilities that require formatting are being processed. No data has been shipped to the Archive at this time.

RID-352 SSS.Fn MFRSR/MFR10m/MFR25m

Developer: Annette Koontz, PNNL
Reprocessor: Annette Koontz, PNNL
Status: On hold pending calibration records from mentor
Date range: end-to-end (through 2007/08/31)

Description:

A new method of MFRSR calibration adopted/finalized October 2007 resulted in a new DOD. DMF reprocessed all MFRSR data for all sites beginning 2007/09/01 and all FKB MFRSR data. Historical reprocessing is proceeding (slowly) as the mentor makes available the required calibration records. Complete: NSA.C1, NSA.C2, FKB.M1, SGP.C1, SGP.E13, SGPMFR10m, SGPMFR25m, TWP.C2.

Active reprocessing: TWP C1, TWP C3

NOTE: mfr10m and mfr25m processing is done using prior calibration methods. There has been some talk of converting this processing to the new calibration method, but no work has been done toward that end.

RID-358 SSS.Fn LANGLEY

Developer: Annette Koontz, PNNL
Reprocessor: Bill Jackson, ORNL
Status: Follow-on task to RID-352
Date range: end-to-end

Description:

This reprocessing task is to run the Langley VAP using new MFRSR and NIMFR input following RID-352 completion.

Active reprocessing: SGP C1, SGP E13 completed, in review
TWP C1 and TWP C2 being processed

RID-359 SSS.Fn MFRSR-OD

Developer: Annette Koontz, PNNL
Reprocessor: Bill Jackson, ORNL
Status: Follow-on task to RID-358
Date range: end-to-end

Description:

This reprocessing task is to run the mfrod1barnmich VAP new Langley and MFRSR/NIMFR input following RID-358 completion.

Active reprocessing: SGP C1, SGP E13 completed, in review

RID-360 SGP.C1 MWRHF

Developer: Sutanay Choudhury, PNNL
Reprocessor: TBD
Status: On hold pending resolution of duplicate sample times
Date range: 20061103-20070402

Description:

The DOD says pressure is measured in kPa, but data are in hPa. The ingest is being modified to convert the data to kPa. New QC limits are also being applied.

RID-365 SSS.Fn QCRad1Long

Developer: Yan Shi, PNNL
Reprocessor: Yan Shi, PNNL
Status: Recently archived TWP C1, TWP C2, TWP C3, NSA C1, NSA C2
Date range: end-to-end

Description:

Originally processed data had frequent NaNs. The VAP is being modified to remove the NaN values.

RID-388 SSS.Fn AOS

Developer: Annette Koontz, PNNL
Reprocessor: Robin Perez, PNNL (coordinator)
Status: Metadata cleanup
Date range: end-to-end

Description:

End-to-end reprocessing to result in consistent DOD and datastream naming through time.

RID-402 SSS.Fn NIMFR

Developer: Annette Koontz, PNNL
Reprocessor: Annette Koontz, PNNL
Status: SGP NIMFR C1 Archived, NSA NIMFR C1 and NSA NIMFR C2 not started
Date range: end-to-end (through 20070831)

Description:

A new method of MFR calibration adopted/finalized October 2007 resulted in a new DOD. DMF reprocessed all NIMFR data beginning 2007/09/01. SGP.C1 historical reprocessing has been completed on repro1 but is waiting for mentor review before archival.

RID-413 FKB.M1 MPLPOL

Developer: Annette Koontz, PNNL
Reprocessor: Bill Jackson, ORNL
Status: Completed 2008/02/29
Date range: 20070317-20070717

Description:

Metadata error correction. Attribute location_description incorrectly indicated data were NIM data. Attribute was removed from fkbmplpolM1.b1, fkbmplpolavgM1.c1 and fkbmplpolavgM1.s1.

RID-445 PYE.M1 AOS NOAA-FitRH

Developer: Annette Koontz, PNNL
Reprocessor: Bill Jackson, ORNL
Status: Completed 2008/03/14
Date range: 20050309-20050915

Description:

Correct error in AOS NOAA-FitRH ingest. Data was processed in January, 2008.

RID-446 NIM.M1 AOS NOAA-FitRH

Developer: Annette Koontz, PNNL
Reprocessor: Bill Jackson, ORNL
Status: On hold, pending RID-445 review
Date range: 20051119-20061231

Description:

Correct error in AOS NOAA-FitRH ingest. Data were reprocessed in December, 2007, but another problem was found during data review. Need to re-reprocess.

RID-447 SGP.C1 AOS NOAA-FitRH

Developer: Annette Koontz, PNNL
Reprocessor: Bill Jackson, ORNL
Status: On hold, pending RID-445 review
Date range: 20070519-20070930

Description:

Correct error in AOS NOAA-FitRH ingest. Data were reprocessed in December, 2007, but another problem was found during data review. Need to re-reprocess.

RID-448 FKB.M1 GNDRAD

Developer: Brian Ermold, PNNL
Reprocessor: Bill Jackson, ORNL
Status: Completed 2008/03/12
Date range: 2007/05/19-2007/09/30

Description:

Recalibration. Resulted in two additional sensor recalibrations.

RID-450 NSA.C1 SKYRAD

Developer: Brian Ermold, PNNL
Reprocessor: Bill Jackson, ORNL
Status: Completed 2008/03/11
Date range: 2007/10/03-2007/10/25

Description:

Recalibration.

RID-451 NSA.C1 GNDRAD

Developer: Brian Ermold, PNNL
Reprocessor: Bill Jackson, ORNL
Status: Completed 2008/03/12
Date range: 2007/10/04-2007/10/25

Description:

Recalibration.

RID-457 TWP.C2 GNDRAD

Developer: Brian Ermold, PNNL
Reprocessor: Bill Jackson, ORNL
Status: Completed 2008/03/12
Date range: 2007/11/25-2007/11/30

Description:

Recalibration.

RID-458 TWP.C2 SKYRAD

Developer: Brian Ermold, PNNL
Reprocessor: Bill Jackson, ORNL
Status: Completed 2008/03/12
Date range: 2007/11/25-2007/11/30

Description:

Recalibration.

RID-467 NSA.C1 AERI

Developer: Brian Ermold, PNNL
Reprocessor: Dave Turner, UWisc
Status: Completed 2008/03/22
Date range: 2007/12/17-2008/02/13

Description:

Recalibration.

RID-471 SGP.C1 SWS

Developer: Sutanay Choudhury, PNNL
Reprocessor: Tonya Martin, PNNL
Status: 20071024-20080216 completed at DMF 2008/03/31. Remainder to be processed on REPROC1.
Date range: 2006/04/30-2008/02/16

Description:

Ingest error resulted in approximately 5% of spectra missing from netcdf files.

RID-473 SGP.C1 RAIN

Developer: Sutanay Choudhury, PNNL
Reprocessor: Nicole Keck, PNNL
Status: Hold pending additional ingest updates required
Date range: 2007/11/06-current

Description:

Ingest updated to properly handle missed raw data files. Data reprocessed 01/31/2008. Ingest is still missing some raw data files and metadata are not being properly filled in netcdf header.

RID-480 SSS.Fn SONDE

Developer: Annette Koontz, PNNL
Reprocessor: Nicole Keck, PNNL
Status: Completed 2008/02/28
Date range: 2008/01/31-2008/02/10

Description:

Intermittent reprocessing of sonde data from all sites to correct bad surface measurements of temperature and/or RH.

RID-481 SSS.Fn SONDE

Developer: Annette Koontz, PNNL
Reprocessor: Nicole Keck, PNNL
Status: Completed 2008/02/28
Date range: 2008/02/15-2008/02/20

Description:

Intermittent reprocessing of sonde data from all sites to correct bad surface measurements of temperature and/or RH.

RID-482 SGP.C1 SIRS

Developer: Brian Ermold, PNNL
Reprocessor: Bill Jackson, ORNL
Status: Reprocessed 2008/03/17, pending review
Date range: 1997/03/24-2008/02/25

Description:

Request was for 19990414-20001231 SIRS.C1 data to be reprocessed to produce data with case and dome temperatures. Since the DOD of the SIRS has changed repeatedly over the course of the program, the reprocessing task was expanded to end-to-end reprocessing of these data to produce a consistent DOD for all time. First and second reprocessing attempts have been completed. Pending review following 2nd pass.

RID-483 SGP.E21 SIRS

Developer: Brian Ermold, PNNL
Reprocessor: Yan Shi, PNNL
Status: Reprocessed 2008/03/10, pending review
Date range: 1999/07/27-2008/02/25

Description:

Request was for 20010221-20010331 SIRS.E21 data to be reprocessed to produce data with case and dome temperatures. Since the DOD of the SIRS has changed repeatedly over the course of the program, the reprocessing task was expanded to end-to-end reprocessing of these data to produce a consistent DOD for all time.

RID-487 SSS.Fn SONDE

Developer: Annette Koontz, PNNL
Reprocessor: Nicole Keck, PNNL
Status: Completed 2008/03/19
Date range: 2008/02/21-2008/02/25

Description:

Intermittent reprocessing of sonde data from all sites to correct bad surface measurements of temperature and/or RH.

RID-488 SSS.Fn SONDE

Developer: Annette Koontz, PNNL
Reprocessor: Nicole Keck, PNNL
Status: In process
Date range: 2008/02/27-2008/03/03

Description:

Intermittent reprocessing of sonde data from all sites to correct bad surface measurements of temperature and/or RH.

RID-489 SSS.Fn SONDE

Developer: Annette Koontz, PNNL
Reprocessor: Nicole Keck, PNNL
Status: In process
Date range: 2008/03/07-2008/03/18

Description:

Intermittent reprocessing of sonde data from all sites to correct bad surface measurements of temperature and/or RH.

RID-490 NIM.S1 RAD

Developer: Sutanay Choudhury, PNNL
Reprocessor: Bill Jackson, ORNL
Status: Completed 2008/04/04
Date range: 2005/12/26-2006/12/08

Description:

The Niamey Supplementary Facility longwave downwelling hemispheric irradiance measurement (nimradS1.b1, down_long_hemisp) was, on average, 6-8 W/m² less than that measured by the primary Niamey site's two longwave downwelling pyrgeometers. The S1 LWdn irradiance data were reprocessed to normalize these data to the average of the primary site's measurements by applying an adjustment multiplier of 1.00305 to the S1 downwelling pyrgeometer case and dome temperatures and then recalculating the LWdn irradiance.

RID-493 SSS.Fn SONDE

Developer: Annette Koontz, PNNL
Reprocessor: Nicole Keck, PNNL
Status: In process
Date range: 2008/03/19-2008/04/01

Description:

Intermittent reprocessing of sonde data from all sites to correct bad surface measurements of temperature and/or RH.

1.4 Retired Ingests

This section lists ingest software that has been retired from production.

[cm_ingest](#)
[cmh_ingest](#)
[issrwpcons_ingest](#)
[isssonde_ingest](#)
[mfirt_ingest](#)
[mmcr_ingest](#)
[mplps_ingest](#)
[noaaaos_ingest](#)

2. Ingest Details

In the following sections, we will provide very basic information about the ingest software currently running in production. We list the mentor, lead developer, backup developer, basic information about the processing done by the ingest, and the current operational status. Detailed instrument information can be found at <http://www.arm.gov/instruments/>.

2.1 aeri_ingest

Mentors: Dave Turner and Ralph Dedecker, UWISC
Lead Developer: Brian Ermold, PNNL
Backup Developer: Sutanay Choudhury, PNNL
Current Version: 8.0-0, 2006/10/31
Status: Running
Recent BCRs: 1241, 1212, 1202

Description:

The aeri_ingest is used to read raw data generated by the Atmospherically Emitted Radiance Interferometer (AERI). The following datastreams are generated:

xxx aerich1Fn.b1, channel 1 data
xxx aerich2Fn.b1, channel 2 data
xxx aeriengineerFn.b1, contains engineering data
xxx aerisummaryFn.b1, summary data

2.2 amfmet_ingest

Mentor: Mike Ritsche, ANL
Lead Developer: Sutanay Choudhury, PNNL
Backup Developer: Brian Ermold, PNNL
Current Version: 2.0-0, 2006/09/07
Status: Online
Recent BCRs: 1395

Description:

Database entries were updated.

The amfmet_ingest is used to read raw data generated by the ARM Mobile Facility (AMF) surface meteorology measurements. The following netCDF (i.e., network common data format) datastream is generated:

xxxmetFn.b1
xxxcmhFn.b1

2.3 aos_ingest

Mentor: John Ogren, NOAA
Lead Developer: Annette Koontz, PNNL
Backup Developer: Brian Ermold, PNNL
Current Version: 9.6-0, 2007/11/19
Status: Running
Recent BCRs: 1430, 1374, 1293, 1282

Description:

A new release of the aos_ingest (Baseline Change Request [BCR] 1430) corrects parsing of the missing value codes from the National Oceanic and Atmospheric Administration's (NOAA's) datastream, xxxaosccnFn.a1.

The following datastreams are generated:

xxxaosFn.a1
xxxaosauxFn.a1
xxxaosccnFn.a1

2.4 cmdlaos_ingest

Mentor: John Ogren, NOAA
Lead Developer: Annette Koontz, PNNL
Backup Developer: Brian Ermold, PNNL
Current Version: 9.8-0, 2008/01/23
Status: Running
Recent BCRs:

Description:

This ingest is run at the XDC to process AOS data that has been quality-checked by the mentor at NOAA. It is used to generate the following datastreams: The cmdlaos_ingest was recently updated to correct f(RH) logic. The cmdlaos_ingest generates the following datastreams:

xxxnoaaaosFn.b0
xxxnoaaaosavgFn.b0
xxxnoaaaosftrhFn.b0

2.5 cm_ingest

Mentor: To be determined (TBD)
Lead Developer: TBD
Backup Developer: TBD
Current Version: 7.7-0, 2003/10/09
Status: TBD

Description:

The cm_ingest processed data collected from chilled mirror instrumentation at the Southern Great Plains (SGP) site. It produced the following datastreams:

xxxcmFn.b1
xxxcm25mFn.b1
xxxcm60mFn.b1

2.6 cmh_ingest

Mentor: TBD
Lead Developer: TBD
Backup Developer: TBD
Current Version: 7.5-0, 2003/05/28
Status: TBD

Description:

The cmh_ingest processed data collected from chilled mirror hygrometer instrumentation at the North Slope of Alaska (NSA) Barrow (C1) and Atqasuk (C2) facilities. It produced the following datastreams:

xxxcmhFn.b1

2.7 disdrometer_ingest

Mentor: Mary Jane Bartholomew, BNL
Lead Developer: Sutanay Choudhury, PNNL
Backup Developer: Brian Ermold, PNNL
Current Version: 2.1-0, 2007/04/23
Status: Running
Recent BCRs: 1362, 1346, 1251, 1156

Description:

This ingest was upgraded to handle large files. 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:

xxxdisdrometerFn.b1

2.8 ebb_r_ingest

Mentor: David Cook, ANL
Lead Developer: Sutanay Choudhury, PNNL
Backup Developer: Brian Ermold, PNNL
Current Version: 8.1-0, 2006/09/05
Status: Running
Recent BCRs: 1036, 674

Description:

The ebb_r_ingest reads data from the Energy Balance Bowen Ratio (EBBR) system. The following datastreams are generated:

xxx5ebbrFn.b1, 5-minute data
xxx15ebbrFn.b1, 15-minute data
xxx30ebbrFn.b1, 30-minute data

2.9 ecor_ingest

Mentor: David Cook, ANL
Lead Developer: Sutanay Choudhury, PNNL
Backup Developer: Brian Ermold, PNNL
Current Version: 8.0-0, 2006/10/25
Status: Running
Recent BCRs: 1352, 1218, 1151, 1039, 1015

Description:

The ecor_ingest reads data from the Eddy Correlation Flux Measurement System (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:

xxx30ecorFn.b1

2.10 gvr_ingest

Mentor: Maria Cadeddu, ANL
Lead Developer: Annette Koontz, PNNL
Backup Developer: Brian Ermold, PNNL
Current Version: 1.3-0, 2007/02/20
Status: Running
Recent BCRs: 1344, 1338, 1329, 1287, 1255, 1189

Description:

The gvr_ingest reads data generated by the 183.3 GHz radiometer and generates netCDF datastreams. The G-Band Vapor Radiometer (GVR) is located at the NSA C1 site. Datastreams generated include the following:

xxxgvrFn.a0
xxxgvrFn.b1

2.11 gvrp_ingest

Mentor: Maria Cadeddu
Lead Developer: Sutanay Choudhury, PNNL
Backup Developer: Brian Ermold, PNNL
Version: N/A
Status: In development
Recent BCRs: 1455

Description: 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 nsagvrpC1.b1 and nsagvrpC1.a1.

2.12 iapmfr_ingest

Mentor: Gary Hodges, NOAA
Lead Developer: Annette Koontz, PNNL
Backup Developer: Brian Ermold, PNNL
Version: 1-2.0, 2008/01/11
Status: Running
Recent BCRs: 1422 – Approved

Description:

The datastreams are in final review by the mentor. As soon as the mentor approves the datastream structure, the iapmfr_ingest will be released. In preparation for this release, the zip2tar utility and the preprocess_IAPMFR utility have been released into production. The iapmfr_ingest requires that only the Global Positioning System (GPS) and Mutifilter Radiometer (MFR) data be extracted from the In-situ Aerosol Profiles (IAP) data. This is done via a combination of the zip2tar and preprocess_IAPMFR software to merge the GPS and MFR data into a single file for each flight.

We expect to generate the following datastream names:

sgpiapmfrC1.a0
sgpiapmfrC1.b1

Recently updated to trap and correct NaN and Inf values

2.13 irt_ingest

Mentor: Victor Morris, PNNL
Lead Developer: Brian Ermold, PNNL
Backup Developer: Sutanay Choudhury, PNNL
Current Version: 9.2-0, 2006/10/27
Status: Running
Recent BCRs: 1384, 988, 890, 777, 668

Description:

The irt_ingest, similar to the irthr_ingest, reads data from the Infrared Thermometer (IRT) instruments. However, this ingest is designed for the older IRTs that report data every 20 seconds. There is one IRT located on a tower at 10 meters above the ground and another at 25 meters above the ground. The tower-mounted instruments are pointed downward. Datastreams generated include the following:

xxxirt10mFn.b1, 10-meter tower data
xxxirt25m20sFn.a0, 25-meter tower data, 20-second interval
xxxirt25mFn.b1, 25-meter tower data, 1-minute averages

2.14 irthr_ingest

Mentor: Victor Morris, PNNL
Lead Developer: Sutanay Choudhury, PNNL
Backup Developer: Brian Ermold, PNNL
Current Version: 2.0-0, 2006/08/14
Status: Running
Recent BCRs: 1111

Description:

The irthr_ingest reads data from the high-resolution Infrared Thermometer (IRT) instruments distributed around the SGP. Datastreams generated are for 200-millisecond, 2-seconds, and 1-minute sample intervals and include the following:

xxxirt200msFn.a1, 200-millisecond data
xxxirt2sFn.b1, 2-second data
xxxirtFn.b1, 1-minute data

2.15 issonde_ingest

Mentor: Barry Lesht, ANL
Lead Developer: Brian Ermold, PNNL
Backup Developer: TBD
Version: 8.0-0, 2007/03/20
Status: Retired ingest being revised for historical data processing
Recent BCRs: 1337

Description:

The issonde_ingest development work was completed in March 2007. The data were reprocessed and archived in July 2007. This one should be removed from the “ingests in development” section. The ingest has been retired also.

2.16 issrwpcons_ingest

Mentor: TBD
Lead Developer: TBD
Backup Developer: TBD
Current Version: 7.1-0, 2001/02/23
Status: TBD

Description:

The issrwpcons_ingest was used to process data from an external rass wind profiler (RWP) located at the Tropical Western Pacific (TWP). It produced the following datastreams:

xxx915issrwpconFn.a1
xxx925issrwpwindconFn.a1

2.17 met_ingest

Mentor: Mike Ritsche, ANL
Lead Developer: Sutanay Choudhury, PNNL
Backup Developer: Brian Ermold, PNNL
Current Version: 7.8-0, 2001/10/20
Status: Running
Recent BCRs: 1335, 1232, 1163, 1059

Description:

The met_ingest processed data collected from conventional in situ sensors measuring meteorological data such as wind speed, barometric pressure, and so on. The following datastream is generated:

xxxmetFn.b1

2.18 metrad_ingest

Mentor: Mike Ritsche, ANL
Lead Developer: Sutanay Choudhury, PNNL
Backup Developer: Brian Ermold, PNNL
Current Version: 2.0-0, 2006/10/31
Status: Offline
Recent BCRs: None.

Description:

The metrad_ingest processes raw radiometer and meteorological data to produce NetCDF files. The following datastreams are generated:

nimmatS1.b1
nimradS1.b1

2.19 mettwr_ingest

Mentor: Mike Ritsche, ANL
Lead Developer: Brian Ermold, PNNL
Backup Developer: Sutanay Choudhury, PNNL
Current Version: 2.1-0, 2006/09/08
Status: Running
Recent BCRs: 1133

Description:

The mettwr_ingest processes data collected from conventional in situ sensors on the ground and on a tower at 10 meters and 40 meters above the ground. The sensors measure meteorological data such as wind speed, barometric pressure, and so on. The mettwr_ingest is used to process data collected at the NSA from surface and tower meteorological instrumentation. Datastreams generated include the following:

xxxmettwr2hFn.b1
xxxmettwr4hFn.b1
xxxmettwrFn.b1

2.20 mfr_ingest

Mentor: Gary Hodges, NOAA
Lead Developer: Annette Koontz, PNNL
Backup Developer: Brian Ermold, PNNL
Current Version: 7.19-0, 2006/09/18
Status: Running
Recent BCRs: 1297, 1177, 1145

Description:

Soon data from the Normal Incidence Multifilter Radiometer (NIMFR) will be processed via mfrcdl_ingest. The mfr_ingest is used to process NIMFR, MFR10m, and MFR25m data. The datastreams generated include the following:

xxxmfr10mFn.a0
xxxmfr10mFn.b1
xxxmfr25mFn.a0
xxxmfr25mFn.b1
xxxnimfrFn.a0
xxxnimfrFn.b1

2.21 mfrcdl_ingest

Mentor: Gary Hodges, NOAA
Lead Developer: Annette Koontz, PNNL
Backup Developer: Brian Ermold, PNNL
Current Version: 9.9-0, 2007/10/08
Status: Running
Recent BCRs: 1380, 1230

Description:

Most recently, changes made to the Multifilter Rotating Shadowband Radiometer (MFRSR) processing logic were retracted. Those changes marked data as "missing" that are basically non-physical. However, those changes caused difficulties for the Data Quality Office software, so they were retracted. Logic to handle the non-physical MFRSR data will eventually be handled via a value-added product (VAP).

The following datastreams are generated:

xxxmfrsrFn.a0
xxxmfrsrFn.b1, processed data
xxxmfrsrauxFn.a0

Several SGP MFRSRs have been converted to the Campbell Data Logger. Raw data are being collected. We can now process NIMFR data via this ingest.

2.22 mfrirt_ingest

Mentor: N/A
Lead Developer: Annette Koontz, PNNL
Backup Developer: N/A
Current Version: 8.1-0, 2006/03/06
Status: Offline

Description:

The mfrirt_ingest was used to process data collected from an IRT instrument that was included in an MFR datastream at SGP C1. It produced the following datastreams:

xxxmfrirt10mFn.b1
xxxmfrirt25mFn.b1

NOTE: These data have all been reprocessed and cloned to look like sgpirt10mC1.b1 and sgpirt25mC1.b1 data.

2.23 mmcr_ingest

Mentor: N/A
Lead Developer: Annette Koontz, PNNL
Backup Developer: N/A
Current Version: 8.0-0, 2006/11/01
Status: Retired, replaced by mmcrmom_ingest

Description:

The mmcr_ingest has been replaced by the mmcrmom_ingest. The mmcr_ingest was used to process data collected from the first generation of Millimeter Wavelength Cloud Radar (MMCR) instruments. It produced the following datastreams:

xxxmmrcalFn.a1
xxxmmcrmomentsFn.a1
xxxmmcrmonFn.a1

2.24 mmcr_spec_filter

Mentor: Karen Johnson, BNL
Lead Developer: Annette Koontz, PNNL
Backup Developer: Brian Ermold, PNNL
Version: 2.8-0, 2008/04/00
Status: Online at SGP C1
Recent BCRs: 1301

Description:

Recent changes were implemented to get the filtered data flowing. Currently, this is happening for SGP C1 data only, with filtered spectra data delivered directly to the ARM Archive. The mentor may be providing logic adjustments to better handle thin clouds in the future. The software has been updated to better handle bad files. Bad files recently caused a clog in the data flow at SGP.

2.25 mmcrmom_ingest

Mentor: Kevin Widener, PNNL, and Karen Johnson, BNL
Lead Developer: Annette Koontz, PNNL
Backup Developer: Brian Ermold, PNNL
Current Version: 8.5-1, 2007/06/6
Status: Running
Recent BCRs: 1382, 1203, 918, 899

Description:

The mmcrmom_ingest has been modified recently to better filter out not-a-number and infinity values. The mmcrmom_ingest is used to process data from the MMCR. Datastreams generated include the following:

xxxmmcrmomFn.b1

Per Engineering Change Order (ECO) 610, the raw and processed MMCR data will be undergoing another facelift. There is no news on when this will happen, but the Engineering Change Request (ECR) was approved.

2.26 mplpol_ingest

Mentor: Richard Coulter, ANL
Lead Developer: Annette Koontz, PNNL
Backup Developer: Brian Ermold, PNNL
Current Version: 9.3-1, 2008/01/07
Status: Running
Recent BCRs: 1392, 1315, 1233

Description:

The mplpol_ingest processes data from the Micropulse Lidar (MPL). Datastreams generated include the following:

xxxmplpolFn.b1

Since these data are used by several important “downstream” VAPs, a VAP to average the MPLPOL data has been released and is being run on the DMF. The corresponding averaged datastream names are the following:

xxxmplpolavgFn.c1

xxxmplpolavgFn.s1

The mplpol_ingest has been modified to handle fluctuating range-bins recently.

2.27 mplps_ingest

Mentor: Richard Coulter, ANL
Lead Developer: Annette Koontz, PNNL
Backup Developer: Brian Ermold, PNNL
Current Version: 8.0-0, 2006/10/27
Status: Retired

The mplps_ingest was used to process data collected from a prototype, a polarizing MPL, located at the NSA C1. It produced the following datastream:

xxxmplpsFn.a0

These data were subsequently used as input to the mplavg process, which produced

xxxmplFn.a1

which was used as input to the Active Remotely-Sensed Cloud Locations (ARSCL) VAP. This ingest was retired when the mplpol_ingest was put in production at the NSA C1.

2.28 mwr_ingest

Mentor: Maria Cadeddu, ANL
Lead Developer: Annette Koontz, PNNL
Backup Developer: Brian Ermold, PNNL
Current Version: 10.0-0, 2007/06/26
Status: Running
Recent BCRs: 1385, 1223

Description:

The mwr_ingest processes data from the Microwave Radiometer (MWR). Datastreams generated include the following:

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

The format of the MWRTIP files changed as a result of BCR 1385. The data are being reprocessed so that the MWRTIP files will have a consistent format.

2.29 mwrhf_ingest

Mentor: Maria Cadeddu, ANL
Lead Developer: Sutanay Choudhury, PNNL
Backup Developer: Brian Ermold, PNNL
Version: 1.1-0, 2007/06/25
Status: Offline
Recent BCRs: 1358, 1319, 1302

Description:

The mwrhf_ingest processes 90/150-GHz Microwave Radiometer - high frequency (MWRHF) data. This instrument has been installed at the SGP C1 and at the AMF deployment in Germany (FKB M1).

The ingest is being modified to make the file handling logic more robust (EWO 12253).

The following datastreams are generated:

xxxmwrhfFn.b1

2.30 mwrp_ingest

Mentor: Maria Cadeddu, ANL
Lead Developer: Annette Koontz, PNNL
Backup Developer: Sutanay Choudhury, PNNL
Current Version: 8.3-0, 2007/09/06
Status: Running
Recent BCRs: 1320, 1314, 1250, 1249, 1234

Description:

Recent changes were made to remove not-a-number and infinity values. The mwrp_ingest processes data collected from the Microwave Radiometer Profiler (MWRP). Datastreams generated include the following:

xxxmwrpFn.b1

2.31 nfov2ch_ingest

Mentor: Gary Hodges, NOAA
Lead Developer: Sutanay Choudhury, PNNL
Backup Developer: TBD
Current Version: 11.0-1, 2007/05/01
Status: Running
Recent BCRs: 1286, 1028, 1006

Description:

This ingest has been ported to the new database and is currently running for AMF deployment in Germany. The nfov2ch_ingest processes data collected from the Narrow Field of View, 2-channel radiometer (NFOV2).

The following datastream is generated:

xxxnfov2chFn.b1

The mentor indicates that the instrument is out for calibration and/or repair. No estimate is available at this time for its return to production. Also, the nfov2ch_ingest is being modified to use new databases and a new version will be released prior to the AMF deployment in Germany.

2.32 noaaaos_ingest

Mentor: John Ogren, NOAA
Lead Developer: Annette Koontz, PNNL
Backup Developer: N/A
Current Version: 2.2-0, 2006/12/22
Recent BCRs: 1374
Status: Retired, became aos_ingest

Description:

The noaaaos_ingest processed raw (not mentor reviewed) data collected from the NSA and the AMF AOS instruments. It produced the following datastreams:

xxxaosFn.a0
xxxaosauxFn.a0
xxxaosccnFn.a0

2.33 org_ingest

Mentor: Michael Ritsche, ANL
Lead Developer: Sutanay Choudhury, PNNL
Backup Developer: Brian Ermold, PNNL
Current Version: 1.0-0 1007/10/25
Status: Released, Instrument
Recent BCRs: 1389

Description:

The org_ingest processes optical rain gauge measurements. The first version of the org_ingest has been released into production.

Datastreams generated include the following:

xxxorgFn.b1

2.34 rain_ingest

Mentor: Mary Jane Bartholomew, BNL
Lead Developer: Sutanay Choudhury, PNNL
Backup Developer: Brian Ermold, PNNL
Current Version: 3.2-0, 2008/03/04
Status: Running
Recent BCRs: 1395, 1156

Description:

The rain_ingest processes tipping bucket measurements. The rain ingest was upgraded to implement a new interpolation algorithm and support a new optical rain gauge instrument (EWO 12168). The upgraded version was released to production.

Datastreams generated include the following:

xxxrainFn.b1

2.35 rss_ingest

Mentor: Piotr Kiedron, NOAA
Lead Developer: Brian Ermold, PNNL
Backup Developer: Sutanay Choudhury, PNNL
Current Version: 2.0-0, 2006/10/31
Status: Running
Recent BCRs: 1143, 1104

Description:

The rss_ingest is used to process data collected from Rotating Shadowband Spectroradiometer (RSS) instruments. The datastreams generated include the following:

xxxrssFn.b1

NOTE: Data are processed every couple of months, when the required inputs arrive.

2.36 rwp_ingest

Mentor: Richard Coulter, ANL
Lead Developer: Brian Ermold, PNNL
Backup Developer: Sutanay Choudhury, PNNL
Current Version: 8.1-0, 2007/4/11
Status: Running
Recent BCRs: 1353, 1246, 1186, 974

Description:

The rwp_ingest processes data collected from Radar Wind Profilers (RWPs). The datastreams generated include the following:

xxx50rwptempFn.a2
xxx50rwptempconFn.a1
xxx50rwptempmomFn.a0
xxx50rwptempspecFn.a0
xxx50rwpwindconFn.a1
xxx50rwpwindmomFn.a0
xxx50rwpwindspecFn.a0
xxx915rwptempFn.a2
xxx915rwptempconFn.a1
xxx915rwptempmomFn.a0
xxx915rwptempspecFn.a0
xxx915rwpwindconFn.a1
xxx915rwpwindmomFn.a0
xxx915rwpwindspecFn.a0
xxx1290rwpwindconFn.a1
xxx1290rwpwindmomFn.a0
xxx1290rwpwindspecFn.a0

For the next AMF installation, the rwp_ingest will require modification to handle the new configuration of RWP data.

2.37 sirs_ingest

Mentor: Tom Stoffel, NREL
Lead Developer: Brian Ermold, PNNL
Backup Developer: Sutanay Choudhury, PNNL
Current Version: 10.0-0, 2006/08/31
Status: Running
Recent BCRs: 1080, 1040

Description:

The sirs_ingest processes data collected from Solar Infrared Radiation Station (SIRS) instruments. Datastreams generated include the following:

xxxsirsFn.b1
xxxsirs20sFn.a0
xxxskyrad60sFn.b1
xxxskyrad20sFn.a0
xxxgndrad60sFn.b1
xxxgndrad20sFn.a0

2.38 smet_ingest

Mentor: Michael Ritsche, ANL
Lead Developer: Brian Ermold, PNNL
Backup Developer: Sutanay Choudhury, PNNL
Current Version: 8.1-0, 2006/10/04
Status: Running
Recent BCRs: 1213, 1048, 738

Description:

The smet_ingest processes data collected from Surface Meteorological Instruments for TWP (SMET). Datastreams generated include the following:

xxxsmet60sFn.b1

2.39 smor_ingest

Mentor: TBD
Lead Developer: Brian Ermold, PNNL
Backup Developer: Annette Koontz, PNNL
Version: 7.11-0, 2003/10/09
Status: Retired ingest being revised for reprocessing historical data from Sky Radiometers on Stand for Downwelling Radiation (SKYRAD) and Ground Radiometers on Stand for Upwelling Radiation (GNDRAD)
Recent BCRs: 738, 623, 522, 413, 397, 385

Description:

This ingest has been taken out of retirement. It will be used for reprocessing of historical SKYRAD, GNDRAD, and SMET data, but with the addition of logic to use new databases to improve performance and to generate new datastreams comparable to those currently being generated by the sirs_ingest. This reprocessing is needed, at least in part, for subsequent processing by one or more VAPs.

The following datastreams will be generated:

xxxskyrad20sFn.a0
xxxskyrad60sFn.b1
xxxgndrad20sFn.a0
xxxgndrad60sFn.b1
xxxsmet60sFn.b1

2.40 smos_ingest

Mentor: Michael Ritsche, ANL
Lead Developer: Brian Ermold, PNNL
Backup Developer: Sutanay Choudhury, PNNL
Current Version: 8.2-0, 2008/01/23
Status: Running
Recent BCRs: 1298, 1257, 1178

Description:

The smos_ingest processes data from the Surface Meteorological Observation System (SMOS) instruments. The ingest was updated to support new calibration variables and the changes were released to production. Datastreams generated include the following:

xxx1smosFn.b1
xxx30smosFn.b1

2.41 sonde_ingest

Mentor: Barry Lesht, ANL
Lead Developer: Annette Koontz, PNNL
Backup Developer: Brian Ermold, PNNL
Current Version: 8.1-0, 2006/09/28
Status: Running
Recent BCRs: 1245, 1229

Description:

The sonde_ingest processes data collected from Balloon-Borne Sounding System (sonde). Datastreams generated include the following:

xxxsondewnpnFn.b1

2.42 surthref_ingest

Mentor: Michael Ritsche, ANL
Lead Developer: Sutanay Choudhury, PNNL
Backup Developer: Brian Ermold, PNNL
Current Version: 2.0-0, 2006/11/01
Status: Running
Recent BCRs: 1124, 1106

Description:

The surthref_ingest processes data collected from Surface Temperature and Humidity Reference (SURTHREF) system instruments. Datastreams generated include the following:

xxxsurthrefFn.b1

2.43 swats_ingest

Mentor: John Harris, CIMMS
Lead Developer: Brian Ermold, PNNL
Backup Developer: Sutanay Choudhury, PNNL
Current Version: 10.0-0, 2006/09/07
Status: Running
Recent BCRs: 1017, 896

Description:

The swats_ingest processes data collected from the Soil Water and Temperature System (SWATS). Datastreams generated include the following:

xxxswatsFn.b1

xxxswatsspcpFn.b1

2.44 sws_ingest

Mentor: Alan Scott Kittelman, CU-Boulder
Lead Developer: Sutanay Choudhury, PNNL
Backup Developer: Brian Ermold, PNNL
Current Version: 4.1-2, 2008/03/28
Status: Running
Recent BCRs: 1406, 1347, 1288, 1216

Description:

The sws instrument was updated to implement new interpolation-based calibration algorithms. The changes also make the ingest more flexible so that minor changes can be made to the instrument configuration without impacting the archival process of calibrated sws data. The sws_ingest processes data collected from the Shortwave Spectroradiometer (SWS). Datastreams generated include the following:

xxxswsFn.b1
xxxswsauxFn.b1

2.45 thwaps_ingest

Mentor: Michael Ritsche, ANL
Lead Developer: Brian Ermold, PNNL
Backup Developer: Sutanay Choudhury, PNNL
Current Version: 8.0-0, 2006/08/14
Status: Running
Recent BCRs: 726

Description:

The thwaps_ingest processes data collected from Temperature, Humidity, Wind and Pressure Sensors (THWAPS) instruments. Datastreams generated include the following:

xxxthwapsFn.b1

2.46 tps_ingest

Mentor: Mark Ivey, SNL
Lead Developer: Sutanay Choudhury, PNNL
Backup Developer: Brian Ermold, PNNL
Version: 1.0-0, 2006/12/22
Status: Running
Recent BCRs: 1387, 1366

Description:

The tps_ingest processes data from the Total Precipitation Sensor (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).

xxxtpsFn.b1

2.47 tsi_ingest

Mentor: Victor Morris, PNNL
Lead Developer: Sutanay Choudhury, PNNL
Backup Developer: Brian Ermold, PNNL
Current Version: 10.1-0, 2006/11/07
Status: Running
Recent BCRs: 1294, 1247, 1206, 1107

Description:

The tsi_ingest processes data collected from the Total Sky Imager (TSI). Datastreams generated include the following:

xxxtsicldmaskFn.a1
xxxtsimovieFn.a
xxxtsiskycoverFn.b1
xxxtsiskyimageFn.a1

2.48 twr_ingest

Mentor: David Cook, ANL
Lead Developer: Brian Ermold, PNNL
Backup Developer: Sutanay Choudhury, PNNL
Current Version: 8.0-0, 2006/09/07
Status: Running
Recent BCRs: 727

Description:

The twr_ingest processes data collected from meteorological instruments located on towers above the ground. The datastreams generated include the following

xxx1440twr21xFn.b1
xxx1440twr25mFn.b1
xxx1440twr60mFn.b1
xxx1twr10xFn.b1
xxx1twr25mFn.b1
xxx1twr60mC1.b1
xxx30twr10xFn.b1
xxx30twr25mFn.b1
xxx30twr60mFn.b1

2.49 vceil_ingest

Mentor: Victor Morris, PNNL
Lead Developer: Brian Ermold, PNNL
Backup Developer: Annette Koontz, PNNL
Current Version: 8.1-0, 2006/09/08
Status: Running
Recent BCRs: 1295, 1132

Description:

The vceil_ingest processes data collected from Vaisala Ceilometers (VCEILs). Datastreams generated include the following:

xxxvceil25kFn.b1

2.50 wacr_ingest

Mentor: Kevin Widener, PNNL
Lead Developer: Annette Koontz, PNNL
Backup Developer: Brian Ermold, PNNL
Current Version: 8.1-0, 2006/09/11
Status: Running
Recent BCRs: 1357, 1263, 1242

Description:

The wacr_ingest processes data collected from W-Band (95 GHz) ARM Cloud Radar (WACR) instruments. Datastreams generated include the following:

xxxwacrFn.b1

2.51 wacr_spectra_filter

Mentor: Karen Johnson, BNL
Lead Developer: Annette Koontz, PNNL
Backup Developer: Brian Ermold, PNNL
Version: 3.5-0, 2007/12/31
Status: Installed
Recent BCRs: 1349

Description:

This ingest was tested on the AMF while it was operating in Germany and briefly at SGP C1. Hardware issues at SGP and at the AMF have been resolved, at least for now. We will begin shipping spectra data to the ARM Archive soon. The software will be used to generate spectra files that will be shipped directly to the Archive.

3. Future Ingest Development Needs

In the next few weeks, the underlying libraries used by the ingests will be updated to further standardize the quality check (QC) results and make QC attributes more consistent with recent VAP QC standards.

In future months, the latest generation of database software used by the ingest software will continue to be developed.