ACRF Ingest Software Status:
New, Current, and Future

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DISCLAIMER

Introduction

The purpose of this report is to provide status of the ingest software used to process instrument data for the Atmospheric Radiation Measurement (ARM) 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.

Contents

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
amfmet_ingest
aos_ingest
disdrometer_ingest
ebbr_ingest
ecor_ingest
gvr_ingest
iapmfr_ingest
irt_ingest
irthr_ingest
met_ingest
metrad_ingest
mettwr_ingest
mfr_ingest
mfrcdl_ingest
mmcrspec_ingest
mmcrmom_ingest
mplpol_ingest
mwr_ingest
mwrp_ingest

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org_ingest
rain_ingest
rss_ingest
rwp_ingest
sirs_ingest
smet_ingest
smor_ingest
smos_ingest
sonde_ingest
surthref_ingest
swats_ingest
sws_ingest
thwaps_ingest
tps_ingest
tsi_ingest
twr_ingest
vceil_ingest
wacr_ingest
wacrspec_ingest

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: To be determined (TBD)

Description:

The Southern Great Plains (SGP) Central Facility (C1) Micropulse Lidar (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; these data are waiting for 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 the data loggers of the Solar Infrared Radiation Station (SIRS), Ground Radiometers on Stand for Upwelling Radiation (GNDRAD), and Sky Radiometers on Stand for Downwelling Radiation (SKYRAD) 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 ARM Mobile Facility (AMF) GNDRAD and SKYRAD reprocessing is complete. The Tropical Western Pacific (TWP) and North Slope of Alaska (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, TWP C3
Date range: end-to-end (through 2005/06)

Description:

The Microwave Radiometer (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 data object design (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 2006/07/03, 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 are being reprocessed 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 MWRTIP

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   1.3-0 2008/06/03 per Baseline Change Request (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   1.2-0 2008/06/03 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
In process: SGP E1
Date range: end-to-end (through 2007/08/31)

Description:

A new method of Multi-Filter Rotating Shadowband Radiometer (MFRSR) calibration adopted/finalized October 2007 resulted in a new DOD. The DMF reprocessed all MFRSR data for all sites beginning 2007/09/01 and all AMF Germany (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, SGP MFR10m, SGP MFR25m , TWP C2, TWP C1 (completed 2008/05/10), TWP C2 (completed 2008/05/12).

RID-358 SSS.Fn LANGLEY

Developer: Annette Koontz, PNNL
Reprocessor: Bill Jackson, ORNL
Status: Follow-on task to RID-352
In process: SGP C1, SGP E13 completed, in review; TWP C1 and TWP C2 being processed
Date range: end-to-end

Description:

This reprocessing task is to run the Langley value-added product (VAP) using new MFRSR and Normal Incidence Multi-Filter Radiometer (NIMFR) input following RID-352 completion.

RID-359 SSS.Fn MFRSR-OD

Developer: Annette Koontz, PNNL
Reprocessor: Bill Jackson, ORNL
Status: Follow-on task to RID-358
In process: SGP C1, SGP E13 completed, in review
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.

RID-360 SGP.C1 MWRHF

Developer: Sutanay Choudhury, PNNL
Reprocessor: TBD
Status: On hold pending resolution of duplicate sample times
Date range: 2006/11/03-2007/04/02

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 quality control (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 not-a-number values. The VAP is being modified to remove the not-a-number 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 is being conducted to result in a 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 2007/08/31)

Description:

A new method of Multi-Filter Radiometer (MFR) calibration adopted/finalized October 2007 resulted in a new DOD. The DMF reprocessed all NIMFR data beginning 2007/09/01. SGP C1 historical reprocessing has been completed on reproc1 but is waiting for mentor review before archival.

RID-441 TWP.C3 AERI

Developer:	Brian Ermold, PNNL
Reprocessor:	Dave Turner, UWISC, and Bill Jackson, ORNL
Status:	In process
Date range:	2007/10/07-2007/11/05

Description:

Timestamps are off by 12 +/- hours. Dave Turner corrected the time-offset in the netcdf files. There are several other variables in the netcdf files which record time. These will need to be corrected as well.

RID-446 NIM.M1 AOS NOAA-FitRH

Developer: Annette Koontz, PNNL
Reprocessor: Bill Jackson, ORNL
Status: Pending review
Date range: 2005/11/19-2006/12/31

Description:

An error was being corrected in the Aerosol Observing System (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: Pending review
Date range: 2007/05/19-2007/09/30

Description:

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

RID-471 SGP.C1 SWS

Developer: Sutanay Choudhury, PNNL
Reprocessor: Tonya Martin, PNNL
Status: 2007/10/24-2008/02/16 completed at DMF 2008/03/31. Remainder to be
                    processed on REPROC1.
Date range: 2006/04/30-2008/02/16

Description:

An 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 2008/01/31. Ingest is still missing some raw data files and metadata are not being properly filled in netcdf header.

RID-476 GEC.X1 OMI

Developer: Laurie Gregory, BNL
Reprocessor: Lynn Ma, PNNL
Status: Completed 2008/04/10
Date range: 2007/10/04-2007/12/07

Description:

Raw format.

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 1999/04/14-2000/12/31 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 ARM 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. Data are pending review following a second 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 2001/02/21-2001/03/31 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-488 SSS.Fn SONDE

Developer: Annette Koontz, PNNL
Reprocessor: Nicole Keck, PNNL
Status: Completed 2008/04/08
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: Completed 2008/04/08
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-493 SSS.Fn SONDE

Developer: Annette Koontz, PNNL
Reprocessor: Nicole Keck, PNNL
Status: Completed 2008/04/17
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.

RID-494 SSS.Fn SONDE

Developer: Annette Koontz, PNNL
Reprocessor: Nicole Keck, PNNL
Status: Completed 2008/05/26
Date range: 2008/04/04-2008/04/16

Description:

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

RID-499 SSS.Fn SONDE

Developer: Annette Koontz, PNNL
Reprocessor: Nicole Keck, PNNL
Status: Completed 2008/05/26
Date range: 2008/04/17-2008/04/27

Description:

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

RID-500 SSS.Fn SONDE

Developer: Annette Koontz, PNNL

Reprocessor: Nicole Keck, PNNL
Status: Completed 2008/06/04
Date range: 2008/04/29-2008/05/19

Description:

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

RID-501 SGP.B6 MWR

Developer: Annette Koontz, PNNL
Reprocessor: Annette Koontz, PNNL
Status: Completed 2008/06/05
Date range: 2008/04/14-2008/04/15

Description:

Recalibration

RID-502 NSA.C1 MWRP

Developer: Annette Koontz, PNNL
Reprocessor: Annette Koontz, PNNL
Status: Completed 2008/06/10
Date range: 2008/04/09-2008/05/01

Description:

Recalibration.

RID-503 SSS.Fn QCRAD

Developer: Yan Shi, PNNL
Reprocessor: Nicole Keck, PNNL, and Yan Shi, PNNL
Status: In process
Date range: All time

Description:

Data from TWP C1 and TWP C3 are being reprocessed to correct latitude and apply latest SWup algorithm. Data from SGP E2, SGP E10, SGP E12, SGP E16, SGP E18, SGP E19, and SGP E22 were reprocessed to correct qc_rh delta check.

RID-504 SGP.E1 MFRSR

Developer: Annette Koontz, PNNL
Reprocessor: Annette Koontz, PNNL, and Nicole Keck, PNNL
Status: Completed 2008/06/10
Date range: 2007/09/01-2008/06/01

Description:

Recalibration.

RID-505 SGP.C1 AOS CCN

Developer: Annette Koontz, PNNL
Reprocessor: Annette Koontz, PNNL
Status: Pending review
Date range: 2007/12/21

Description:

Not-a-number and infinity values.

1.4   Retired Ingests

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

cm_ingest
cmh_ingest
issrwpcons_ingest
isssonde_ingest
mfrirt_ingest
mmcr_ingest
mmcr_spec_filter
mplps_ingest
noaaaos_ingest
wacr_spec_filter

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:

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xxxaerich1Fn.b1, channel 1 data
xxxaerich2Fn.b1, channel 2 data
xxxaeriengineerFn.b1, contains engineering data
xxxaerisummaryFn.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 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 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: None.

Description:

This ingest is run at the External Data Center (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
xxxnoaaaosfitrhFn.b0

2.5   cm_ingest

Mentor: TBD
Lead Developer: TBD
Backup Developer: TBD
Current Version: 7.7-0, 2003/10/09
Status: TBD
Recent BCRs: None.

Description:

The cm_ingest processed data collected from chilled mirror instrumentation at the 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
Recent BCRs: None.

Description:

The cmh_ingest processed data collected from chilled mirror hygrometer instrumentation at the 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   ebbr_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 ebbr_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 nsagrvrpC1.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 not-a-number and infinity 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 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 isssonde_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.

2.16 issrwpcons_ingest

Mentor: TBD
Lead Developer: TBD
Backup Developer: TBD
Current Version: 7.1-0, 2001/02/23
Status: TBD
Recent BCRs: None.

Description:

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

xxx915issrwptempconFn.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:

nimmetS1.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:

Data from the Normal Incidence Multifilter Radiometer (NIMFR) are now 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

2.21 mfrcdl_ingest

Mentor: Gary Hodges, NOAA
Lead Developer: Annette Koontz, PNNL
Backup Developer: Brian Ermold, PNNL
Current Version: 9.10-0, 2008/05/06

Status: Running
Recent BCRs: 1380, 1230

Description:

A new release of the mfrcdl_ingest was done to add a command-line option. The new option allows the ingest to omit checks of computed offsets. Under normal conditions the ingest issues an error message and stops the ingest if computed offset values are too high. The mentor requested that the SGP E27 MFRSR data be processed without checking the computed offset values until the hardware can be updated. There are entries in the ingest log so that we have a record of all data processed in this manner.

The following datastreams are generated:

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

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
Recent BCRs: None.

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
Recent BCRs: None.

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:

xxxmmcrcalFn.a1
xxxmmcrmomentsFn.a1
xxxmmcrmonFn.a1

2.24 mcrmom_ingest

Mentor: Kevin Widener, PNNL, and Karen Johnson, BNL
Lead Developer: Annette Koontz, PNNL
Backup Developer: Brian Ermold, PNNL
Current Version: 8.6-0, 2007/12/4
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.

2.25 mmcrspec_ingest

Mentor: Karen Johnson, BNL
Lead Developer: Brian Ermold, PNNL
Backup Developer: Annette Koontz, PNNL
Version: 0.0
Status: Running at SGP C1
Recent BCRs: None.

Description:

The mmcr_spec_filter has been retired and replaced with mmcrspec_ingest. The mmcrspec_ingest works with new library functions to make logging of processing more streamlined and enables monitoring of dataflow via DSView possible. In addition, if the software encounters problem files, developers and others will be sent email notifications.

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 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
Recent BCRs: None.

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 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 is installed at the SGP C1 and was part of the AMF deployment in Germany (FKB M1). The ingest is being modified to make the file handling logic more robust (Engineering Work Order [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:

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. This ingest now uses the new database and ran during the 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

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
Status: Retired, became aos_ingest
Recent BCRs: 1374

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. However, we anticipate changes to the rain_ingest in the near future for supporting a new event-driven data format.

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 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 SKYRAD and 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_ingest processes data collected from the Shortwave Spectroradiometer (SWS). 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. 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).

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   wacrspec_ingest

Mentor: Karen Johnson, BNL
Lead Developer: Annette Koontz, PNNL
Backup Developer: Brian Ermold, PNNL
Version: 0.0
Status: Running at SGP C1
Recent BCRs: None.

Description:

The wacr_spec_filter has been retired and replaced with wacrspec_ingest. The wacrspec_ingest works with new library functions to make logging of processing more streamlined and enables monitoring of dataflow via DSView. In addition, if the software encounters problem files, developers and others will be sent email notifications.

3.   Future Ingest Development Needs

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

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