APL SSUSI EDR FILE FORMAT DOCUMENT

Document Version 1.4.8

# Change Log

|  |  |  |
| --- | --- | --- |
| **Revision** | **Date** | **Changes Made** |
| 1.4.8 | 8/18/16 | Complete review of document with many revisions. Rewrote dimension descriptions in introduction and product sections to make them clearer. Fixed typos in EDR-AURORA-PRED, changed aurora-pred product version to match the version in production. EDR-AURORA changes: added missing description of MLT variable in EDR-AURORA, added description of all array dimensions, fixed typos in the variable dimensions. EDR-IONO: fixed typos (dimensions of Bubble, name of DEP\_CONF variable to match production product. Fixed EDR-GAIM-DISK production version and typos in dimensions. Added missing variable descriptions to EDR-NIGHT-LIMB. Fixed typos about variables with calval correction factors and the effective look angle in EDR-NIGHT-DISK. Added missing variable descriptions (red leak & alternate\_tec) in EDR-DAY-DISK. Corrected uncertainty names in EDR-DAY-LIMB file. Separated Filenaming scheme into a different document. |
| 1.4.7 | 2/27/13 | Added EDR-AURORA-PRED description, removed Ionospheric bubble EDR as was no longer produced after release 5.0.0. Fixed typos in the description of the quality flags in the 3D ionosphere product. |
| 1.4.6 | 10/15/2012 | Updated documentation for EDR-GAIM files with Chapman intensity profile |
| 1.4.5 | 5/2/2012 | Updated documentation for 3D Ionosphere EDR |
| 1.4.4 | 10/11/11 | Made separate title page, table of contents page and change log pages. |
| 1.4.3 | 10/10/11 | Added Day Auroral GAIM data to edr-gaim disk files |
| 1.4.2 | 9/29/11 | Put back Bubble EDR for now until it is phased out next year. |
| 1.4.1 | 9/14/11 | Added new dayside topside limb variables to EDR-DAY-LIMB product |
| 1.4.0 | 8/8/11 | Added section for EDR-GAIM description |
| 1.3.0 | 6/15/11 | Added documentation for the 3D Ionosphere EDR, and removed documentation for the Ionosphere Bubble EDR |
| 1.2.3 | 7/6/10 | Fixed definitions of nadir and disk quality bits for night disk EDR |
| 1.2.2 | 3/5/10 | Added new fields to Ionosphere Bubble EDR for bubble characterization. These include NMF2, HMF2, MEAN\_BUBBLE\_ERROR, STD\_BUBBLE\_ERR, MEAN\_BUBBLE, and STD\_BUBBLE. |
| 1.2.1 | 9/23/09 | Reorganized Data quality flag bit order to make it more uniform. Dayside limb now has a standard data\_quality flag. Separate integer flags for HMF2, etc, will eventually be phased out. |
| 1.2.0 | 9/22/09 | Added documentation for the Ionosphere Bubble EDR. |
| 1.1.3 | 6/15/09 | Added PROTON\_FLAG\_NORTH/SOUTH and HEMISPHERE\_POWER\_NORTH/SOUTH to the auroral product. |
| 1.1.2 | 6/10/09 | Added MeV contamination flag to the data quality index |
| 1.1.1 | 10/3/08 | Added SAA data quality bits description for EDR night disk. Upped data product version numbers for full orbit |
| 1.1.0 | 9/24/08 | Added CALIBRATION\_PERIOD\_VERSION, and SOFTWARE\_VERSION\_NUMBER. Changed file naming to reflect new AFWA standard naming scheme. Fixed minor typos. |
| 1.0.10 | 8/1/08 | Changed filenaming conventions and realigned document to data products |
| 1.0.9 | 7/2/08 | Added new fields and flags to Nightside Limb product, now 0103 |
| 1.0.8 | 6/30/08 | Added new fields and flags to Nightside Disk Product, now 0103 |
| 1.0.7 | 11/16/07 | Filled in missing HmE, NmE fields in Auroral EDR description |
| 1.0.6 | 10/05/07 | Added Dayside limb description: added CalVal corrected NmF2 to nightside limb |
| 1.0.5 | 9/20/07 | Added CalVal Correction factor and values – fixed some typos |
| 1.0.4 | 8/23/07 | Modified Dayside Disk EDR description |
| 1.0.3  | 7/06/07 | Added Dayside Disk EDR table |
| 1.0.2 | 2/16/07 | Added magnetic local time to northern and southern auroral boundary. Added geographic lat/lon to northern and southern auroral boundary. |
| 1.0.1 | 1/29/07 | Changed names of geophysical parameters. Removed dimensions from global attribute sources. Updates to EDR Limb data product |
| 1.0.0 | 1/5/2007 | Initial Version of document. |

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# Introduction

The following tables describe the contents of the SSUSI EDR (Environmental Data Record) files produced by IDL code supplied by APL. The information content of the current IDL produced EDR file is very similar to that created by the older ADA code, with the exception of the newer the Ionosphere Bubble EDR. This document describes the format of the data only. For more information about how the quantities are derived, see the SSUSI Data Products Algorithms document.

## Indices used in file description

There are four types of EDR files: limb (nightside and dayside), disk (nightside and disk), auroral, and ionospheric bubble. All are ultimately derived from rebinned L1B radiance data. To distinguish between day, night and auroral grids on the disk the array sizes, the indices for across track ‘M’ and along tack, ‘N’ will be annotated with letters to indicate whether they are for aurora (with an ‘a’) or for disk (‘d’) or limb (‘l’) and for night (‘n’) or day (‘d’). These are outlined in the table below. At present there is no grid in the ionosphere EDR.

|  |
| --- |
| **Pixel Coordinate Indices Used in Tables Below** |
| Product | **Across Track Pixel Index** | **Along Track Pixel Index** |
| Nightside Disk | Mnd | Nnd |
| Nightside Limb | Mnl | Nnl |
| Dayside Disk | Mdd | Ndd |

|  |  |  |
| --- | --- | --- |
| Dayside Limb | Mdl | Ndl |

|  |  |  |
| --- | --- | --- |
| GAIM Disk | Mdda | Ndda |

|  |  |  |
| --- | --- | --- |
| GAIM Limb | Mnl |  |
| Pixels With Geomagnetic Pixels | **Geomagnetic Latitude** | **Geomagnetic Longitude** |
| Aurora | Ma | Na |

When the “color” dimension is used it is the same as defined for the Level 1B product:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Imaging Color Index Value | 0 | 1 | 2 | 3 | 4 |
| Wavelength | 121.6 nm | 130.4 nm | 135.6 nm | 140-150 nm | 165-180 nm |
| Significance | Lyman Alpha (Geocoronal Hydrogen) | Oxygen emission | Oxygen Recombination emission | N2 Lyman Birge Hopfield (LBH) short band | N2 Lyman Birge Hopfield (LBH) long band |

There are a set of global attributes common to all EDR files; these are described in the next section. This is followed by detailed descriptions of the remaining customized content of the EDR files: (Nightside Limb, Nightside Disk, Auroral, and Ionosphere).

The processing algorithms use the SSUSI SDR and L1B files previously generated to create separate limb and disk full orbit files for a given SSUSI orbit. The disk EDR files are re-binned onto a lower resolution grid, based on bin sizes proscribed by APL.

Those parameters not generated by the current build of the level EDR software marked by a ‘\*’. They may be included in a later version of the file. NetCDF attributes associated with variables are listed together with the variable and are indented.

The file naming scheme for the EDR products is described in a separate document. The version of this document for data products produced at AFWA is SSUSI\_GDAS\_AFWA\_Fata\_Product\_File\_Naming\_Scheme\_VVVV,doc, where VVVV is the version number of the document. Note that publicly available SSUSI data has a different naming scheme worked out with NASA’s Space Physics Data Facility titled “SSUSI Data Products for SPDF – vv.doc where vv is the version number.

# EDR Global File Attributes

These attributes are common to EDR disk, limb, aurora, GAIM, and ionosphere files.

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable Name** | **Type** | **Dimensions** | **Value/Comment** |
|  |  |  |  |
| **Global file attributes** |
| FILENAME | STRING | - | e.g., “[PS.APL\_V0102S010CD031\_SC.U\_DI.A\_GP.F16-SSUSI\_PA.APL-EDR-DAY-DISK\_DD.20050919\_SN.09913-01\_DF.NC](http://guvi.jhuapl.edu/ssusi_gdas/users/schaerk1/data/full_orbit/PS.APL_V0102S010CD031_SC.U_DI.A_GP.F16-SSUSI_PA.APL-EDR-DAY-DISK_DD.20050919_SN.09913-01_DF.NC)” |
| MISSION | STRING | - | e.g., “F16” |
| DATA\_PRODUCT\_TYPE | STRING | - | e.g., “EDR Aurora” |
| SOURCE | STRING | - | Names of the SDR and/or L1B File(s) used to generate this file. |
| SCAN\_TYPE | STRING | - | “DISK” or “LIMB” |
| REGION\_TYPE | STRING | - | “NIGHT” or “AURORA” or “DAY” or “TWILIGHT” |
| DATA\_PRODUCT\_VERSION | STRING | - | e.g., “0106” |
| DATA\_PRODUCT\_REVISION | STRING | - | e.g., “001” |
| DATA\_DOCUMENTATION\_VERSION | STRING | - | Version number of the SSUSI File Definition Data Document utilized, e.g., “0106” |
| SOFTWARE\_VERSION\_NUMBER | STRING | - | Sequence number of SSUSI GDAS release software e.g., “021” |
| SOFTWARE\_VERSION | STRING | - | e.g., “devel” |
| SOFTWARE\_NAME | STRING | - | “APL SDR to EDR algorithm X” |
| CALIBRATION\_TABLES\_NAMES | STRING | - | ‘;’ separated list of calibration files that were used to generate this EDR file. |
| CALIBRATION\_TABLES\_CREATED | STRING | - | Date when calibration table was created, e.g., “Thu Oct 13 16:15:05 2005”If more than one file is used, a semi-colon separated list is used. |
| CALIBRATION\_PERIOD\_VERSION | STRING | - | Letter indicating calibration period along with 3 digit number of the calibration version in relation to all possible calibration version files, e.g. D031 implies calibration period D and the calibration table is the 31st version of the calibration file. |
| DESCRIPTION | STRING | - | e.g., “EDR Imaging Mode Data – Nightside Disk” |
| COMMENT | STRING | - | e.g., “No comment” |
| HISTORY | STRING | - | e.g., “No revisions” |
| DATE\_GENERATED | STRING | - | e.g., “2005094213027” |
| STARTING\_TIME | STRING | - | e.g., “2004150100727” |
| STOPPING\_TIME | STRING | - | e.g., “2004150114908” |
| STARTING\_ORBIT\_NUMBER | FLOAT | - | Orbit number of the starting grid cell e.g., “3159.0” |
| STOPPING\_ORBIT\_NUMBER | FLOAT | - | Orbit number of the ending grid cell e.g., “3160.0” |
| NODAL\_CROSSING\_EPOCH | DOUBLE | - | The CDF EPOCH of the Nodal crossing data in the GWC ephemeris from the Prep file. e.g., “63273228090000.” |
| NODAL\_DAY | INTEGER | - | The day of month of the Nodal Crossing |
| NODAL\_MONTH | INTEGER | - | The month of the Nodal Crossing |
| NODAL\_YEAR | INTEGER | - | The year of the Nodal Crossing |
| NO\_DATA\_IN\_BIN\_VALUE | FLOAT | -  | The value placed in EDR grid cells with no L1B/SDR pixels, e.g., “fNaN” |
|  |  |  |  |
| **Geophysical information (if available)** |  |  |  |
| GEOPHYSICAL\_INFO\_UPDATE | STRING | - | Last update time, e.g., “20010418:0000” |
| DAY\_81\_F107 | STRING | - | 81 day average of F10.7 with current day as day 41,e.g., “ 0.000000” |
| DAILY\_F107 | STRING | - | Daily average of F10.7 e.g., “ 0.000000” |
| F10\_7\_SOURCE | STRING | - | Where the F10.7 parameter originated, e.g., “DYN\_PARAMS\_01108.TXT” |
| HOUR\_3\_KP | STRING | - | 3 hour average of Kp, e.g., “ 2.00000” |
| DAILY\_KP | STRING | - | Daily average of Kp, e.g., “ 2.00000” |
| KP\_AP\_SOURCE | STRING | - | Source of Kp, Ap indices, e.g., “DYN\_PARAMS\_01108.TXT” |
| DAILY\_AP | STRING | - | Daily average of Ap, e.g., “ 2.00000” |

# EDR Nightside Limb Data File

**PRODUCT VERSION 0105**

|  |  |  |
| --- | --- | --- |
| **Revision** | **Date** | **Changes Made** |
| 0104 | 08/01/08 | Realigned document to data products |
| 0103 | 7/1/08 | Added new fields for max radiance and altitude of max, and new DQI |
| 0102 | 10/5/07 | Added CalVal corrected NmF2 to file |
| 0101 | 1/29/2007 | Removed acrosspixelsize, alongpixelsize, effectivelookangle, acrosstrackangle, alongtrackangle. Changed dimensions on tangentpoint\_re and tangentpoint\_altitude. |
| 0100 | 1/5/2007 | Initial Version of nightside limb definition table |

The table below details the EDR Nightside Limb data files. The dimensional indices are as described in the Introduction in section Indices used in file description. The across track index Mnl goes from 0 to 13, while the along track index Nnl varies from file to file as it depends on how much of the orbit is contained in the file.

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable Name** | **Type** | **Dimensions** | **Value/Comment** |
|  |  |  |  |
| **Global Nightside Limb data file attributes** |  |
|  |  |  |  |
| **Time and Position Information** |
| TIME TIME\_TITLE TIME\_UNITS | DOUBLESTRINGSTRING | [Nnl]-- | The effective time of each scan.”Time of each scan””Seconds since the start of the day” |
| TIME\_EPOCH TIME\_EPOCH\_TITLE TIME\_EPOCH\_UNITS | DOUBLESTRINGSTRING | [Nnl]-- | The effective time of each scan.“Time of each scan”“Milli-seconds since 01-Jan-0000 00:00:00.000 (CDF epoch value)” |
| YEAR YEAR\_TITLE | INTSTRING | [Nnl]- | The year of each rebinned scan“Year of each scan” |
| DOY DOY\_TITLE | INTSTRING | [Nnl]- | The day of year of each rebinned scan.“Day of year of each scan” |
| LATITUDE LATITUDE\_TITLE LATITUDE\_UNITS | FLOATSTRINGSTRING | [Nnl]-- | DMSP spacecraft latitude“S/C geographic latitude at effective times”“Degrees” |
| LONGITUDE LONGITUDE\_TITLE LONGITUDE\_UNITS | FLOATSTRINGSTRING | [Nnl]-- | DMSP spacecraft longitude“S/C geographic longitude at effective times”“Degrees” |
| ALTITUDE ALTITUDE\_TITLE ALTITUDE\_UNITS | FLOATSTRINGSTRING | [Nnl]-- | DMSP spacecraft altitude“S/C altitude at effective times”“Kilometers” |
| TANGENTPOINT\_LATITUDE\_GEOGRAPHIC TANGENTPOINT\_LATITUDE\_GEOGRAPHIC \_TITLE TANGENTPOINT\_LATITUDE\_GEOGRAPHIC \_UNITS | FLOATSTRINGSTRING | [Nnl]-- | Pixel tangent point geographic latitude at approximately 300km“Tangent point geographic latitude”“Degrees” |
| TANGENTPOINT\_LONGITUDE\_GEOGRAPHIC TANGENTPOINT\_LONGITUDE \_GEOGRAPHIC \_TITLE TANGENTPOINT\_LONGITUDE\_GEOGRAPHIC \_UNITS | FLOATSTRINGSTRING | [Nnl]-- | Pixel tangent point geographic longitude“Tangent point geographic longitude”“Degrees” |
| TANGENTPOINT\_RETANGENTPOINT\_RE\_TITLETANGENTPOINT\_RE\_UNITS | DOUBLESTRINGSTRING | [Nnl]-- | Radius of earth at tangent point latitude“Earth radius at tangent point latitude”“km” |
| ALTITUDE\_MODEL\_GRIDALTITUDE\_ MODEL\_GRID \_TITLEALTITUDE\_ MODEL\_GRID \_UNITS | FLOATSTRINGSTRING | [Mnl]-- | Altitude at which MSIS is run“Model grid altitude”“km” |
| TANGENTPOINT\_ALTITUDE TANGENTPOINT\_ALTITUDE \_TITLE TANGENTPOINT\_ALTITUDE\_UNITS | FLOATSTRINGSTRING | [Nnl]-- | Pixel tangent point altitude“Tangent point altitude”“Kilometers” |
| TANGENTPOINT\_SZATANGENTPOINT\_SZA\_TITLETANGENTPOINT\_SZA\_UNITS | FLOATSTRINGSTRING | [Nnl]-- | Solar Zenith Angle at the tangent point“Solar Zenith Angle from tangentpoint” “Degrees” |
|  |  |  |  |
| **Calibration parameters** |
| DARK\_COUNT\_CORRECTION DARK\_COUNT\_CORRECTION\_TITLE | INTSTRING | -- | Correct counts for dark counts.“Corrected for Dark counts (0/1 – No/Yes).” |
| SCATTER\_LIGHT\_1216\_CORRECTION SCATTER\_LIGHT\_1216\_CORRECTION\_TITLE | INTSTRING | -- | Correct counts for 1216 scattered lights.“Corrected for 1216 scattered light (0/1 – No/Yes).” |
| SCATTER\_LIGHT\_1304\_CORRECTION SCATTER\_LIGHT\_1304\_CORRECTION\_TITLE | INTSTRING | -- | Correct counts for 1304 scattered lights.“Corrected for 1304 scattered light (0/1 – No/Yes).” |
| OVERLAP\_1304\_1356\_CORRECTION OVERLAP\_1304\_1356\_CORRECTION\_TITLE | INTSTRING | -- | Correct counts for 1304/1356 overlap.“Corrected for 1304/1356 overlap (0/1 – No/Yes).” |
| LONGWAVE\_SCATTER\_CORRECTION LONGWAVE\_SCATTER\_CORRECTION\_TITLE | INTSTRING | -- | Correct counts for long-wave scattered light.“Corrected for long-wave scattered light (0/1 – No/Yes).” |
|  |  |  |  |
| **Electron density profile data** |  |  |  |
| NUM\_VER\_NONZERO\_POINTS | INT | [Nnl] | Number of non-zero points in VER profile “Number of VER non-zero points” |
| VOLUME\_EMISSION\_RATE VOLUME\_EMISSION\_RATE\_TITLE VOLUME\_EMISSION\_RATE\_UNITS | FLOATSTRINGSTRING | [Nnl, Mnl]-- | Volume Emission Rate“Volume emission rate of monatomic oxygen”.“/sec/cc”. |
| VOLUME\_EMISSION\_RATE\_UNCERTAINTYVOLUME\_EMISSION\_RATE\_UNCERTAINTY\_TITLE VOLUME\_EMISSION\_RATE\_UNITS | FLOATSTRINGSTRING | [Nnl, Mnl]-- | Volume emission rate uncertainty.“Volume emission rate uncertainty”.“percent” |
| VOLUME\_EMISSION\_RATE\_CHISQUAREDVOLUME\_EMISSION\_RATE\_CHISQUARED\_TITLEVOLUME\_EMISSION\_RATE\_CHISQUARED\_UNITS | FLOATSTRINGSTRING | [Nnl]-- | Volume emission rate fit chi-squared“Volume emission rate chi-squared”.“” |
| CHAPMAN\_CHISQUARED CHAPMAN \_CHISQUARED\_TITLE CHAPMAN \_CHISQUARED\_UNITS | FLOATSTRINGSTRING | [Nnl]-- | Chapman fit chi-squared“Chapman fit chi-squared”.“” |
| EDP EDP \_TITLE EDP \_UNITS | FLOATSTRINGSTRING | [Nnl, Mnl]-- | Electron density profile.“Electron density profile”.“Cm\*\*-3” |
| EDP\_UNCERTAINTY EDP\_UNCERTAINTY\_TITLE EDP\_UNCERTAINTY\_UNITS | FLOATSTRINGSTRING | [Nnl, Mnl]- | EDP uncertainty“Electron density profile uncertainty”.“percent” |
| NMF2 NMF2\_TITLE NMF2\_UNITS | FLOATSTRINGSTRING | [Nnl]-- | NMF2.“Maximum number density of electrons”.“cm\*\*3” |
| NMF2\_UNCERTAINTY NMF2\_ UNCERTAINTY \_TITLE NMF2\_ UNCERTAINTY \_UNITS | FLOATSTRINGSTRING | [Nnl]-- | NMF2 uncertainty “Uncertainty in the maximum number density of electrons”.“percent” |
| CALVAL\_NMF2\_CORRECTION\_FACTOR | FLOAT | - | Factor to multiply NmF2 to match Ionosonde data in CalVal study |
| CALVAL\_CORRECTED\_NMF2 CALVAL\_CORRECTED\_NMF2\_TITLE CALVAL\_CORRECTED\_NMF2\_UNITS | FLOATSTRINGSTRING | [Nnl]-- | NMF2.“Maximum number density of electrons multiplied by the CALVAL correction factor”.“cm\*\*3” |
| CALVAL\_CORRECTED\_NMF2\_UNCERTAINTY CALVAL\_CORRECTED\_NMF2\_ UNCERTAINTY \_TITLE CALVAL\_CORRECTED\_NMF2\_ UNCERTAINTY \_UNITS | FLOATSTRINGSTRING | [Nnl]-- | NMF2 uncertainty “Uncertainty in the maximum number density of electrons multiplied by the CALVAL correction factor”.“percent” |
| HMF2 HMF2 \_TITLE HMF2\_UNITS | FLOATSTRINGSTRING | [Nnl]-- | HMF2.“Height of the peak F-region electron density”.“Km” |
| HMF2\_UNCERTAINTY HMF2\_ UNCERTAINTY \_TITLE HMF2\_ UNCERTAINTY \_UNITS | FLOATSTRINGSTRING | [Nnl]-- | HMF2 uncertainty “Uncertainty in the height of the F-region electron density”.“percent” |
| TOPH TOPH\_TITLE TOPH\_UNITS | FLOATSTRINGSTRING | [Nnl]-- | Top-side scale height.“Top side scale height”.“Km” |
| TOPH \_ UNCERTAINTY TOPH \_ UNCERTAINTY \_TITLE TOPH \_ UNCERTAINTY \_UNITS | FLOATSTRINGSTRING | [Nnl]-- | TOPH uncertainty “Uncertainty in the top side scale height”.“percent”  |
| MAXRAD\_1304 MAXRAD\_1304.TITLE  MAXRAD\_1304.UNITS | FLOATSTRINGSTRING | [Nnl]-- | Maximum Limb 1304 Radiance"Maximum 1304 radiance (from SDR)" "Rayleigh" |
| MAXRAD\_1356 MAXRAD\_1356.TITLE  MAXRAD\_1356.UNITS | FLOATSTRINGSTRING | [Nnl]-- | Maximum Limb 1356 Radiance"Maximum 1356 radiance (from SDR)" "Rayleigh" |
| MAXRAD\_LBHS  MAXRAD\_LBHS.TITLE  MAXRAD\_LBHS.UNITS | FLOATSTRINGSTRING | [Nnl]-- | Maximum Limb LBHS Radiance"Maximum LBHS radiance (from SDR)" "Rayleigh" |
| ZMAX\_1304 ZMAXRAD\_1304.TITLE ZMAXRAD\_1304.UNITS | FLOATSTRINGSTRING | [Nnl]-- | Altitude of Maximum Limb 1304 Radiance "Altitude of maximum 1304 radiance (from SDR)" "Km" |
| ZMAX\_1356.TITLE  ZMAXRAD\_1356.TITLE ZMAXRAD\_1356.UNITS | FLOATSTRINGSTRING | [Nnl]-- | Altitude of Maximum Limb 1356 Radiance "Altitude of maximum 1356 radiance (from SDR)" "Km" |
| ZMAX\_LBHS ZMAXRAD\_LBHS.TITLE ZMAXRAD\_LBHSUNITS | FLOATSTRINGSTRING | [Nnl]-- | Altitude of Maximum Limb LBHS Radiance "Altitude of maximum LBHS radiance (from SDR)" "Km" |
| TOP\_LBHS TOP\_LBHS.TITLE TOP\_LBHS.UNITS | FLOATSTRINGSTRING | [Nnl]-- | Top of the limb LBHS radiance"LBHS radiance at top of limb (from SDR)""Rayleigh" |
| DATA\_QUALITY | UNSIGNED SHORT | [Nnl] | Bit # Meaning if set to true1. VER fit unsuccessful (chi squared test: rchi2v>10)
2. Chapman fit unsuccessful (chi squared test: rchi2c>10)
3. NmF2 uncertainty > 50%
4. HmF2 < 0 km
5. HmF2 > 500 km
6. HmF2 uncertainty > 50%
7. NRP < 7
8. SZA < 105 degrees
9. MeV contamination
10. Mirror position unknown

10-15 Spare |
| XS\_1356 XS\_1356\_TITLE XS\_1356\_UNITS | FLOATSTRINGSTRING | [Nnl, Mnl]-- | Corrected cross section for 1356 Radiance which corrects for Mutual Neutralization contributions for each given pixel. "Corrected cross section for 1356" "cc^2/s" |
| SIGXS\_1356 SIGXS\_1356\_TITLE SIGXS\_1356\_UNITS | FLOATSTRINGSTRING | [Nnl, Mnl]-- | Uncertainty in Corrected cross section for 1356 Radiance "Corrected cross section for 1356 uncertaintly" "cc^2/s" |
|  |  |  |  |

# EDR Nightside Disk Data File

**PRODUCT VERSION 0105**

|  |  |  |
| --- | --- | --- |
| **Revision** | **Date** | **Changes Made** |
| 0104 | 8/1/08 | Realigned document to data products; DQI arrays are unsigned shorts, not BYTEs.  |
| 0103 | 6/30/08 | Added SZA and LBHS; added sza and LBHS flags |
| 0102 | 9/20/07 | Apparently went to 0102 with previous  |
| 0101 | 9/20/07 | CalVal corrected Densities added to product. |
| 0100 | 1/5/2007 | Initial Version of nightside disk definition table |

The table below details the EDR Nightside Disk file. The dimensional indices are as described in the Introduction in section Indices used in file description. The across track index Mnd goes from 0 to 12, while the along track index Nnd varies from file to file as it depends on how much of the orbit is contained in the file.

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable Name** | **Type** | **Dimensions** | **Value/Comment** |
|  |  |  |  |
| **Global Nightside Disk data file attributes** |
| ACROSSPIXELSIZE ACROSSPIXELSIZE\_TITLE ACROSSPIXELSIZE\_UNITS | INTSTRINGSTRING | --- | Across track pixel size for the grid.”Across track pixel size””km” |
| ALONGPIXELSIZE ALONGPIXELSIZE\_TITLE ALONGPIXELSIZE\_UNITS | INTSTRINGSTRING | --- | Along track pixel size for the grid.”Across track pixel size” ”km” |
| NIGHTSIDEDISK\_LOOKUP\_TABLE | UNSIGNED SHORT | - | Lookup table used for the nightside disk limb algorithm0 = JDO;1 = OO |
|  |
| **Time and Position Information** |
| TIME TIME\_TITLE TIME\_UNITS | DOUBLESTRINGSTRING | [Nnd]-- | The effective time of each rebinned scan.“Time of each rebinned scan””Seconds since the start of the day” |
| TIME\_EPOCH TIME\_EPOCH\_TITLE TIME\_EPOCH\_UNITS | DOUBLESTRINGSTRING | [Nnd]-- | The effective time of each rebinned scan.”Time of each rebinned scan””Milli-seconds since 01-Jan-0000 00:00:00.000 (CDF epoch value)” |
| YEAR YEAR\_TITLE | INTSTRING | [Nnd]- | The year of each rebinned scan.“Year of each rebinned scan” |
| DOY DOY\_TITLE | INTSTRING | [Nnd]- | The day of year of each rebinned scan.“Day of year of each rebinned scan” |
| LATITUDE LATITUDE\_TITLE LATITUDE\_UNITS | FLOATSTRINGSTRING | [Nnd]-- | DMSP spacecraft Latitude.“S/C geographic latitude at effective times”“Degrees” |
| LONGITUDE LONGITUDE\_TITLE LONGITUDE\_UNITS | FLOATSTRINGSTRING | [Nnd]-- | DMSP spacecraft Longitude.“S/C geographic longitude at effective times”“Degrees” |
| ALTITUDE ALTITUDE\_TITLE ALTITUDE\_UNITS | FLOATSTRINGSTRING | [Nnd]-- | DMSP spacecraft Altitude.“S/C altitude at effective times”“Kilometers” |
| PIERCEPOINT\_NIGHT\_LATITUDE PIERCEPOINT\_NIGHT\_LATITUDE \_TITLE PIERCEPOINT\_NIGHT\_LATITUDE\_UNITS | FLOATSTRINGSTRING | [Nnd, Mnd,]-- | Rebinned latitude of the pierce point, geolocated using the nightside reference altitude.“Nightside geographic latitude of the pierce point”“Degrees” |
| PIERCEPOINT\_NIGHT\_LONGITUDE PIERCEPOINT\_NIGHT\_LONGITUDE \_TITLE PIERCEPOINT\_NIGHT\_LONGITUDE\_UNITS | FLOATSTRINGSTRING | [Nnd, Mnd,]-- | Rebinned longitude of the pierce point, geolocated using the nightside reference altitude.“Nightside geographic longitude of the pierce point”“Degrees” |
| PIERCEPOINT\_NIGHT\_ALTITUDE PIERCEPOINT\_NIGHT\_ALTITUDE \_TITLE PIERCEPOINT\_NIGHT\_ALTITUDE\_UNITS | FLOATSTRINGSTRING | --- | Reference altitude for nightside“Nightside reference altitude for geolocation”“Kilometers” |
| EFFECTIVE\_LOOK\_ANGLE EFFECTIVE\_LOOK\_ANGLE\_TITLE EFFECTIVE\_LOOK\_ANGLE\_UNITS | FLOATSTRINGSTRING | [Nnd, Mnd]-- | Effective cross track look angle to night grid centers“Effective cross track look angle to night grid centers”“Degrees” |
|  |  |  |  |
|  |  |  |  |
| **Calibration parameters** |
| DARK\_COUNT\_CORRECTION DARK\_COUNT\_CORRECTION\_TITLE | INTSTRING | -- | Correct counts for dark counts.“Corrected for Dark counts (0/1 – No/Yes).” |
| SCATTER\_LIGHT\_1216\_CORRECTION SCATTER\_LIGHT\_1216\_CORRECTION\_TITLE | INTSTRING | -- | Correct counts for 1216 scattered lights.“Corrected for 1216 scattered light (0/1 – No/Yes).” |
| SCATTER\_LIGHT\_1304\_CORRECTION SCATTER\_LIGHT\_1304\_CORRECTION\_TITLE | INTSTRING | -- | Correct counts for 1304 scattered lights.“Corrected for 1304 scattered light (0/1 – No/Yes).” |
| OVERLAP\_1304\_1356\_CORRECTION OVERLAP\_1304\_1356\_CORRECTION\_TITLE | INTSTRING | -- | Correct counts for 1304/1356 overlap.“Corrected for 1304/1356 overlap (0/1 – No/Yes).” |
| LONGWAVE\_SCATTER\_CORRECTION LONGWAVE\_SCATTER\_CORRECTION\_TITLE | INTSTRING | -- | Correct counts for long-wave scattered light.“Corrected for long-wave scattered light (0/1 – No/Yes).” |
|  |  |  |  |
| **Electron density profile data** |
| NMF2\_DISK NMF2 \_DISK\_TITLE NMF2\_DISK\_UNITS | FLOATSTRINGSTRING | [Mnd, Nnd]- | NMF2 on the disk.“Peak F-region electron density on the disk”.“Cm\*\*-3”. |
| NMF2\_DISK\_UNCERTAINTY NMF2\_DISK\_ UNCERTAINTY \_TITLE NMF2\_DISK\_ UNCERTAINTY \_UNITS | FLOATSTRINGSTRING | [Mnd, Nnd]- | Uncertainty of NMF2 on the disk.“Uncertainty in the peak F-region electron density on the disk”.“percent” |
| SZA\_DISK SZA\_DISK.TITLE SZA\_DISK.UNITS | FLOATSTRINGSTRING | [Mnd, Nnd]- | Piercepoint Solar Zenith Angle on the disk.“Solar Zenith Angle at the night referenced disk piercepoint”.“degrees”. |
| LBHS\_DISK LBHS\_DISK.TITLE LBHS\_DISK.UNITS | FLOATSTRINGSTRING | [Mnd, Nnd]- | LBH short on the disk.“LBH short radiance geolocated to the nightside referenced disk”.“Rayleighs”. |
| NMF2\_NADIR NMF2\_NADIR \_TITLE NMF2\_NADIR \_UNITS | FLOATSTRINGSTRING | [Nnd]- | NMF2 on the nadir.“Peak F-region electron density on the nadir”.“Cm\*\*-3” |
| NMF2\_NADIR\_UNCERTAINTY NMF2\_NADIR\_ UNCERTAINTY \_TITLE NMF2\_NADIR\_ UNCERTAINTY \_UNITS | FLOATSTRINGSTRING | [Nnd]- | Uncertainty of NMF2 on the nadir.“Uncertainty in the peak F-region electron density on the nadir”.“percent” |
| CALVAL\_NMF2\_CORRECTION\_FACTOR | FLOAT | - | Correction factor to be applied to the NmF2 electron densities as recommended in the final CalVal report. |
| CALVAL\_CORRECTED \_NMF2\_DISK CALCAL\_CORRECTED \_NMF2\_DISK.TITLE CALVAL\_CORRECED \_NMF2\_DISK.UNITS | FLOATSTRINGSTRING | [Mnd,Nnd] | NmF2 with correction factor applied “CalVal corrected peak F-region electron density on the disk” “cm^-3" |
| CALVAL\_CORRECTED \_NMF2\_DISK\_UNCERTAINTY CALCAL\_CORRECTED \_NMF2\_DISK\_UNCERTAINTY.TITLE CALVAL\_CORRECED \_NMF2\_DISK\_UNCERTAINTY.UNITS | FLOATSTRINGSTRING | [Mnd,Nnd]-- | NmF2 with correction factor applied “CalVal corrected uncertainty in the peak F-region electron density on the disk” “cm^-6" |
| CALVAL\_CORRECTED\_NMF2\_NADIR CALVAL\_CORRECTED\_NMF2\_NADIR.TITLE CALVAL\_CORRECTED\_NMF2\_NADIR.UNITS | FLOATSTRINGSTRING | [Nnd]-- | Correction factor applied to nadir NmF2 densities "CalVal corrected Peak F-region electron density at nadir" "cm^-3" |
| CALVAL\_CORRECTED\_NMF2\_NADIR\_UNCERTAINTY\_\_CALVAL\_CORRECTED\_NMF2\_NADIR\_UNCERTAINTY.TITLE\_\_CALVAL\_CORRECTED\_NMF2\_NADIR\_UNCERTAINTY.UNITS | FLOATSTRINGSTRING | [Nnd]-- | Correction factor applied to nadir NmF2 densities "CalVal corrected uncertainty Peak F-region electron density at nadir" "cm^-6" |
|  |  |  |  |
| HMF2\_NADIR HMF2\_NADIR \_TITLE HMF2\_NADIR \_UNITS | FLOATSTRINGSTRING | [Nnd-- | HMF2 on the nadir.“Height of the peak F-region electron density at nadir”.“Km” |
| HMF2\_NADIR \_ UNCERTAINTY HMF2\_NADIR \_ UNCERTAINTY \_TITLE HMF2\_NADIR \_ UNCERTAINTY \_UNITS | FLOATSTRINGSTRING | [Nnd]-- | Uncertainty of HMF2 on the nadir “Uncertainty in the height of the F-region electron density at nadir”.“percent” |
| SZA\_NADIR SZA\_NADIRTITLE SZA\_NADIR.UNITS | FLOATSTRINGSTRING | [Nnd]-- | Nadir Piercepoint Solar Zenith Angle.“Solar Zenith Angle at the night referenced nadir piercepoint”.“degrees”. |
| LBHS\_NADIR LBHS\_NADIR.TITLE LBHS\_NADIR.UNITS | FLOATSTRINGSTRING | [Nnd]-- | LBH short at Nadir.“LBH short radiance geolocated to the nightside referenced nadir”.“Rayleighs”. |
| FoF2\_DISK FoF2\_DISK\_TITLE FoF2\_DISK\_UNITS | FLOATSTRINGSTRING | [Mnd, Nnd]- | FoF2 on the disk.“Plasma frequency on the disk”.“Hz” |
|  |  |  |  |
| FoF2\_DISK\_ UNCERTAINTY FoF2\_DISK\_ UNCERTAINTY \_TITLE FoF2\_DISK\_ UNCERTAINTY \_UNITS | FLOATSTRINGSTRING | [Mnd, Nnd]- | Uncertainty of FoF2 on the disk “Uncertainty in the plasma frequency on the disk”.“Hz\*\*2” |
| FoF2\_NADIR FoF2\_ NADIR \_TITLE FoF2\_ NADIR \_UNITS | FLOATSTRINGSTRING | [Nnd]- | FoF2 at nadir.“Plasma frequency at nadir”.“Hz” |
| FoF2\_ NADIR \_ UNCERTAINTY FoF2\_ NADIR \_ UNCERTAINTY \_TITLE FoF2\_ NADIR \_ UNCERTAINTY \_UNITS | FLOATSTRINGSTRING | [Nnd]- | Uncertainty of FoF2 at nadir  “Uncertainty in the plasma frequency at nadir”.“percent” |
| DATA\_QUALITY\_GLOBAL | UNSIGNED SHORT | [1] | 1 byte global data quality “Global data quality Flags – see EDR Format document for details”Bit # Meaning if set to true1. Northern Anomaly Crest Not Found
2. Southern Anomaly Crest Not Found
3. spare
4. spare
5. spare
6. spare
7. spare
8. spare
 |
| DATA\_QUALITY\_NADIR | UNSIGNED SHORT | [Nnd] | Bit # Meaning if set to true1. Nadir 1356 A Radiance undefined (NaN)
2. Solar Zenith Angle too small
3. LBH short exceeds limit
4. SAA contaminated radiances
5. Nadir NmF2 uncertainty > 50%
6. Nadir HmF2 uncertainty > 50%
7. Nadir 6300 A Radiance undefined (NaN)
8. Spare
9. MeV Noise contamination
10. Mirror position unknown
 |
| DATA\_QUALITY\_DISK | UNSIGNED SHORT | [Mnd, Nnd] | Bit # Meaning if set to true1. Nadir 1356 A Radiance undefined (NaN)
2. Solar Zenith Angle too small
3. LBH short exceeds limit
4. SAA Contaminated disk radiances
5. Disk NmF2 uncertainty > 50%
6. Spare
7. Spare
8. Spare
9. MeV Noise contamination
10. Mirror position unknown
 |

# EDR Dayside Disk Data File

**PRODUCT VERSION 0105**

|  |  |  |
| --- | --- | --- |
| **Revision** | **Date** | **Changes Made** |
| 0103 | 9/22/09 | Reordered data quality bits |
| 0102 | 08/1/2008 | Realigned document to data products |
| 0101 | 08/23/2007 | Updated to reflect file |
| 0100 | 1/5/2007 | Initial Version of nightside disk definition table |

The table below details the EDR Dayside Disk file. The dimensional indices are as described in the Introduction in section Indices used in file description. The across track index Mdd goes from 0 to 12, while the along track index Ndd varies from file to file as it depends on how much of the orbit is contained in the file.

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable Name** | **Type** | **Dimensions** | **Value/Comment** |
|  |  |  |  |
| **Global Nightside Disk data file attributes** |
| ACROSSPIXELSIZE ACROSSPIXELSIZE\_TITLE ACROSSPIXELSIZE\_UNITS | INTSTRINGSTRING | --- | Across track pixel size for the grid.”Across track pixel size””km” |
| ALONGPIXELSIZE ALONGPIXELSIZE\_TITLE ALONGPIXELSIZE\_UNITS | INTSTRINGSTRING | --- | Along track pixel size for the grid.”Across track pixel size” ”km” |
| ON2\_TABLE | STRING | - | e.g. “DTON2R\_TABLE\_V0100.sav” |
| QEUV\_TABLE | STRING | - | e.g. “DTQEUV\_TABLE\_V0100.sav” |
| EDPP\_TABLE | STRING | - | e.g. “EDPP\_TABLE\_V0100.sav” |
|  |
| **Time and Position Information** |
| TIME TIME\_TITLE TIME\_UNITS | DOUBLESTRINGSTRING | [Ndd]-- | Time of each newly rebinned along track day altitude pixel“Time of each newly rebinned along track day altitude pixel””Seconds since the start of the day” |
| TIME\_EPOCH TIME\_EPOCH\_TITLE TIME\_EPOCH\_UNITS | DOUBLESTRINGSTRING | [Ndd]-- | Time of each newly rebinned along track day altitude pixel” Time of each newly rebinned along track day altitude pixel””Milli-seconds since 01-Jan-0000 00:00:00.000 (CDF epoch value)” |
| YEAR YEAR\_TITLE | INTSTRING | [Ndd]- | Year of each newly rebinned along track day altitude pixel“Year of each newly rebinned along track day altitude pixel” |
| DOY DOY\_TITLE | INTSTRING | [Ndd]- | The day of year of each newly rebinned scan dayside along track pixel.“Day of year of each newly rebinned along track day altitude pixel” |
| LATITUDE LATITUDE\_TITLE LATITUDE\_UNITS | FLOATSTRINGSTRING | [Ndd]-- | DMSP spacecraft Latitude.“S/C geographic latitude, rebinned to the day altitude grid”“Degrees” |
| LONGITUDE LONGITUDE\_TITLE LONGITUDE\_UNITS | FLOATSTRINGSTRING | [Ndd]-- | DMSP spacecraft Longitude.“S/C geographic longitude, rebinned to the day altitude grid”“Degrees” |
| ALTITUDE ALTITUDE\_TITLE ALTITUDE\_UNITS | FLOATSTRINGSTRING | [Ndd]-- | DMSP spacecraft Altitude.“S/C altitude, rebinned to the day altitude grid”“Kilometers” |
| PIERCEPOINT\_DAY\_LATITUDE PIERCEPOINT\_DAY\_LATITUDE \_TITLE PIERCEPOINT\_DAY\_LATITUDE\_UNITS | FLOATSTRINGSTRING | [Ndd, Mdd]-- | Rebinned latitude of the pierce point, geolocated using the dayside reference altitude.“Geographic latitude of the pierce point; rebinned to the day altitude grid”“Degrees” |
| PIERCEPOINT\_DAY\_LONGITUDE PIERCEPOINT\_DAY\_LONGITUDE \_TITLE PIERCEPOINT\_DAY\_LONGITUDE\_UNITS | FLOATSTRINGSTRING | [Ndd, Mdd]-- | Rebinned longitude of the pierce point, geolocated using the dayside reference altitude.“Geographic longitude of the pierce point; rebinned to the day altitude grid”“Degrees” |
| PIERCEPOINT\_DAY\_ALTITUDE PIERCEPOINT\_DAY\_ALTITUDE \_TITLE PIERCEPOINT\_DAY\_ALTITUDE\_UNITS | FLOATSTRINGSTRING | --- | Reference altitude for dayside“Dayside reference altitudes for pierce point location calculations”“Kilometers” |
| PIERCEPOINT\_DAY\_SZA PIERCEPOINT\_DAY\_ SZA \_TITLE PIERCEPOINT\_DAY\_ SZA \_UNITS | FLOATSTRINGSTRING | [Ndd, Mdd]-- | Rebinned solar zenith angle of the pierce point, geolocated using the dayside reference altitude.“Dayside solar zenith angle for center of the new limb grid cell”“Degrees” |
| EFFECTIVE\_LOOK\_ANGLE EFFECTIVE\_LOOK\_ANGLE\_TITLE EFFECTIVE\_LOOK\_ANGLE\_UNITS | FLOATSTRINGSTRING | [Ndd, Mdd] | Effective look angle.“Effective cross track look angle to day grid centers”“Degrees” |
|  |  |  |  |
| **Calibration parameters** |
| DARK\_COUNT\_CORRECTION DARK\_COUNT\_CORRECTION\_TITLE | INTSTRING | -- | Correct counts for dark counts.“Corrected for Dark counts (1-Yes, 0-No).” |
| SCATTER\_LIGHT\_1216\_CORRECTION SCATTER\_LIGHT\_1216\_CORRECTION\_TITLE | INTSTRING | -- | Correct counts for 1216 scattered lights.“Corrected for 1216 scattered light (1-Yes, 0-No).” |
| SCATTER\_LIGHT\_1304\_CORRECTION SCATTER\_LIGHT\_1304\_CORRECTION\_TITLE | INTSTRING | -- | Correct counts for 1304 scattered lights.“Corrected for 1304 scattered light (1-Yes, 0-No).” |
| OVERLAP\_1304\_1356\_CORRECTION OVERLAP\_1304\_1356\_CORRECTION\_TITLE | INTSTRING | -- | Correct counts for 1304/1356 overlap.“Corrected for 1304/1356 overlap (1-Yes, 0-No).” |
| LONGWAVE\_SCATTER\_CORRECTION LONGWAVE\_SCATTER\_CORRECTION\_TITLE | INTSTRING | -- | Correct counts for long-wave scattered light.“Corrected for long-wave scattered light (1-Yes, 0-No).” |
| RED\_LEAK\_CORRECTION RED\_LEAK\_CORRECTION\_TITLE | INTSTRING | -- | Red Leak correction.“Correct for red light leak (1-Yes, 0-No)” |
|  |  |  |  |
| **Electron density profile data** |
| NMF2 NMF2 \_ TITLE NMF2\_ UNITS | FLOATSTRINGSTRING | [Ndd, Mdd]- | NMF2 on the disk.“Peak F-region electron density on the disk”.“Cm\*\*-3”. |
| NMF2\_ UNCERTAINTY NMF2\_ UNCERTAINTY \_TITLE NMF2\_ UNCERTAINTY \_UNITS | FLOATSTRINGSTRING | [Ndd, Mdd]- | Error of NMF2 on the disk.“Error in the peak F-region electron density on the disk”.“Cm\*\*-3” |
| HMF2 HMF2\_TITLE HMF2\_UNITS | FLOATSTRINGSTRING | [Ndd, Mdd]- | HMF2 on the disk.“Height of the peak F-region electron density on the disk”.“Km” |
| HMF2\_UNCERTAINTY HMF2\_UNCERTAINTY \_TITLE HMF2\_UNCERTAINTY \_UNITS | FLOATSTRINGSTRING | [Ndd, Mdd]- | Error of HMF2 on the disk “Error in the height of the F-region electron density on the disk”.“Km” |
| QEUV\_NADIR QEUV \_ NADIR \_TITLE QEUV \_ NADIR \_UNITS | FLOATSTRINGSTRING | [Ndd]- | QEUV at nadir.“Integrated solar irradiance from 5 to 45 nm at nadir”.“ergs^2 cm^-4 s^-2” |
| QEUV \_ NADIR \_ UNCERTAINTY QEUV \_ NADIR \_ UNCERTAINTY \_TITLE QEUV \_ NADIR \_ UNCERTAINTY \_UNITS | FLOATSTRINGSTRING | [Ndd]- | Error of QEUV at nadir  “Error in integrated solar irradiance from 5 to 45 nm at nadir”.“ergs^2 cm^-4 s^-2” |
| ON2\_NADIR ON2\_ NADIR \_TITLE ON2\_ NADIR \_UNITS | FLOATSTRINGSTRING | [Ndd]- | ON2 at nadir.“Ratio of the O to N2 vertical column densities at nadir”.“none” |
| ON2\_ NADIR \_ UNCERTAINTY ON2\_ NADIR \_ UNCERTAINTY \_TITLE ON2\_ NADIR \_ UNCERTAINTY \_UNITS | FLOATSTRINGSTRING | [Ndd]- | Error of ON2 at nadir  “Error in ratio of the O to N2 vertical column densities at nadir”.“none” |
| ON2 ON2\_ TITLE ON2\_ UNITS | FLOATSTRINGSTRING | [Ndd]- | ON2.on the disk“Ratio of the O to N2 vertical column densities on the disk”.“none” |
| ON2\_ UNCERTAINTY ON2\_ UNCERTAINTY \_TITLE ON2\_ UNCERTAINTY \_UNITS | FLOATSTRINGSTRING | [Ndd]- | Error of ON2 on the disk “Error in ratio of the O to N2 vertical column densities on the disk”.“none” |
| TEC TEC \_TITLE TEC \_UNITS | FLOATSTRINGSTRING | [Ndd]- | Total electron content“Total electron content”.“TECU (10^16 electron m^-2)” |
| TEC\_ UNCERTAINTY TEC\_ UNCERTAINTY \_TITLE TEC\_ UNCERTAINTY \_UNITS | FLOATSTRINGSTRING | [Ndd]- | Error of ON2 at nadir  “Error in total electron content”.“TECU (10^16 electron m^-2)” |
| ALTERNATE\_TEC ALTERNATE\_TEC \_TITLE ALTERNATE\_TEC \_UNITS | FLOATSTRINGSTRING | [Ndd, Mdd]- | APL Total electron content“Total electron content from APL mid-latitude algorithm”.“TECU (10^16 electron m^-2)” |
| ALTERNATE\_TEC\_UNCERTAINTY ALTERNATE\_TEC\_UNCERTAINTY \_TITLE ALTERNATE\_TEC\_UNCERTAINTY \_UNITS | FLOATSTRINGSTRING | [Ndd, Mdd]- | Standard Deviation of APL Total electron content“Standard Deviation of APL estimate of total electron content”.“TECU (10^16 electron m^-2)” |
|  |  |  |  |
| DATA\_QUALITY\_DISK | UNSIGNED SHORT | [Ndd] | 2 bytesBit # Meaning if set to true1. Spare
2. Spare
3. NmF2 uncertainty > 100%        signmf2/(1+nmf2) > 1.0
4. HmF2 <= 0 km            hmf2 <= 0.0
5. HmF2 > 500 km            hmf2 > 500.0
6. HmF2 uncertainty > 50%        sighmf2/(1+hmf2) > 1.0
7. spare
8. spare
9. MeV noise contamination
10. Mirror pointing unknown
 |
| DATA\_QUALITY\_NADIR | UNSIGNED SHORT | [Ndd] |  Dayside Nadir ProductsBit # Meaning if set to true1. Spare
2. Spare
3. NmF2 uncertainty > 100%        signmf2/(1+nmf2) > 1.0
4. HmF2 <= 0 km            hmf2 <= 0.0
5. HmF2 > 500 km            hmf2 > 500.0
6. HmF2 uncertainty > 50%        sighmf2/(1+hmf2) > 1.0
7. spare
8. spare
9. MeV noise contamination
10. Mirror pointing unkown
 |

# EDR Dayside Limb Data File

**PRODUCT VERSION 0105**

|  |  |  |
| --- | --- | --- |
| **Revision** | **Date** | **Changes Made** |
| 0105 | 9/20/11 | Added Topside Sunlit Electron densities |
| 0104 | 10/25/11 | Added Red Leak correction flag |
| 0103 | 9/22/09 | Redefined Data Quality bits |
| 0102 | 8/1/2008 | Realigned document to data products |
| 0100 | 10/5/2007 | Initial Version of nightside limb definition table |

The table below details the EDR Dayside Limb data files. The dimensional indices are as described in the Introduction in section Indices used in file description. The across track (or altitude for a limb file) index Mdl goes from 0 to 19, while the along track index Ndl varies from file to file as it depends on how much of the orbit is contained in the file.

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable Name** | **Type** | **Dimensions** | **Value/Comment** |
|  |  |  |  |
| **Global Dayside Limb data file attributes** |  |
|  |  |  |  |
| **Time and Position Information** |
| TIME TIME\_TITLE TIME\_UNITS | DOUBLESTRINGSTRING | [Ndl]-- | The effective time of each scan.”Time of each scan””Seconds since the start of the day” |
| TIME\_EPOCH TIME\_EPOCH\_TITLE TIME\_EPOCH\_UNITS | DOUBLESTRINGSTRING | [Ndl]-- | The effective time of each scan.“Time of each scan”“Milli-seconds since 01-Jan-0000 00:00:00.000 (CDF epoch value)” |
| YEAR YEAR\_TITLE | INTSTRING | [Ndl]- | The year of each rebinned scan“Year of each scan” |
| DOY DOY\_TITLE | INTSTRING | [Ndl]- | The day of year of each rebinned scan.“Day of year of each scan” |
| LATITUDE LATITUDE\_TITLE LATITUDE\_UNITS | FLOATSTRINGSTRING | [Ndl]-- | DMSP spacecraft latitude“S/C geographic latitude at effective times”“Degrees” |
| LONGITUDE LONGITUDE\_TITLE LONGITUDE\_UNITS | FLOATSTRINGSTRING | [Ndl]-- | DMSP spacecraft longitude“S/C geographic longitude at effective times”“Degrees” |
| ALTITUDE ALTITUDE\_TITLE ALTITUDE\_UNITS | FLOATSTRINGSTRING | [Ndl]-- | DMSP spacecraft altitude“S/C altitude at effective times”“Kilometers” |
| MEAN\_TANGENTPOINT\_LATITUDE\_GEOGRAPHIC \_TITLE \_UNITS | FLOATSTRINGSTRING | [Ndl]-- | Pixel averaged tangent point geographic latitude“Mean cross track tangent point geographic latitude”“Degrees” |
| MEAN\_TANGENTPOINT\_LONGITUDE\_GEOGRAPHIC \_TITLE \_UNITS | FLOATSTRINGSTRING | [Ndl]-- | Pixel averaged cross track tangent point geographic longitude“Mean cross track tangent point geographic longitude”“Degrees” |
| MEAN\_TANGENTPOINT\_LATITUDE\_GEOMAGNETIC \_TITLE \_UNITS | FLOATSTRINGSTRING | [Ndl]-- | Pixel averaged tangent point geomagnetic latitude“Mean cross track tangent point geomagnetic latitude”“Degrees” |
| MEAN\_TANGENTPOINT\_LONGITUDE\_GEOMAGNETIC \_TITLE \_UNITS | FLOATSTRINGSTRING | [Ndl]-- | Pixel averaged cross track tangent point geomagnetic longitude“Mean cross track tangent point geomagnetic longitude”“Degrees” |
| MEAN\_GEOMAGNETIC\_LOCAL\_TIME \_TITLE \_UNITS | FLOATSTRINGSTRING | [Ndl]-- | Pixel averaged tangent point geomagnetic local time“Mean cross track tangent point geomagnetic local time”“hours” |
| TANGENTPOINT\_LATITUDE \_TITLE \_UNITS | FLOATSTRINGSTRING | [Ndl] | Pixel tangent point geographic latitude“Tangent point geographic latitude”“Degrees” |
| TANGENTPOINT\_LONGITUDE \_TITLE \_UNITS | FLOATSTRINGSTRING | [Ndl] | Pixel tangent point geographic longitude“Tangent point geographic longitude”“Degrees” |
| TANGENTPOINT\_ALTITUDE TANGENTPOINT\_ALTITUDE \_TITLE TANGENTPOINT\_ALTITUDE\_UNITS | FLOATSTRINGSTRING | [Ndl] | Pixel tangent point altitude“Tangent point altitude”“Kilometers” |
|  |  |  |  |
| **Calibration parameters** |
| DARK\_COUNT\_CORRECTION DARK\_COUNT\_CORRECTION\_TITLE | INTSTRING | -- | Correct counts for dark counts.“Corrected for Dark counts (0/1 – No/Yes).” |
| SCATTER\_LIGHT\_1216\_CORRECTION SCATTER\_LIGHT\_1216\_CORRECTION\_TITLE | INTSTRING | -- | Correct counts for 1216 scattered lights.“Corrected for 1216 scattered light (0/1 – No/Yes).” |
| SCATTER\_LIGHT\_1304\_CORRECTION SCATTER\_LIGHT\_1304\_CORRECTION\_TITLE | INTSTRING | -- | Correct counts for 1304 scattered lights.“Corrected for 1304 scattered light (0/1 – No/Yes).” |
| OVERLAP\_1304\_1356\_CORRECTION OVERLAP\_1304\_1356\_CORRECTION\_TITLE | INTSTRING | -- | Correct counts for 1304/1356 overlap.“Corrected for 1304/1356 overlap (0/1 – No/Yes).” |
| LONGWAVE\_SCATTER\_CORRECTION LONGWAVE\_SCATTER\_CORRECTION\_TITLE | INTSTRING | -- | Correct counts for long-wave scattered light.“Corrected for long-wave scattered light (0/1 – No/Yes).” |
| RED\_LEAK\_CORRECTION RED\_LEAK\_CORRECTION.TITLE | INTSTRING | -- | Flag to indicate whether red leak correction has been applied."Corrected for red leaked light (0/1 - No/Yes)" |
|  |  |  |  |
| **Electron and Neutral density profile data** |  |  |  |
| QEUV QEUV\_TITLE QEUV\_UNITS | FLOATSTRINGSTRING | - | Mean Solar Qeuv averaged over all data in input SDR “Mean integrated solar irradiance from 5 to 45 nm” “ergs cm^-2 s^-1” |
| QEUV\_ VARIANCE QEUV\_ VARIANCE.TITLE QEUV\_ VARIANCE.UNITS | FLOATSTRINGSTRING | --- | Mean solar Qeuv uncertainty“Mean variance in integrated solar irradiance from 5 to 45 nm”“percent” |
| ON2 ON2.TITLE ON2.UNITS | FLOATSTRINGSTRING | [Ndl]-- | Oxygen to Nitrogen density ratio “Ratio of the O to N2 vertical column densities” “none” |
| ON2\_ VARIANCE ON2\_ VARIANCE.TITLE ON2\_ VARIANCE.UNITS | FLOATSTRINGSTRING | [Ndl]-- | Uncertainty of the Oxygen to Nitrogen density ratio “Variance in ratio of the O to N2 vertical column densities” “ergs^2 cm^-4 s^-2” |
| NMF2 NMF2.TITLE NMF2.UNITS | FLOATSTRINGSTRING | [Ndl]-- | Electron Number density at the F-region maximum “Maximum number density of electrons" "cm^-3" |
| NMF2\_ VARIANCE NMF2\_ VARIANCE.TITLE NMF2\_ VARIANCE.UNITS | FLOATSTRINGSTRING | [Ndl]-- | Variance of the electron number density variance at the F-region maximum “Variance in the height of the F-region electron density" " cm^-6 " |
| HMF2 HMF2.TITLE HMF2.UNITS | FLOATSTRINGSTRING | [Ndl]-- | Altitude of the NmF2 peak density “Height of the peak F-region electron  density" "km" |
| HMF2\_ VARIANCE HMF2\_ VARIANCE.TITLE HMF2\_ VARIANCE.UNITS | FLOATSTRINGSTRING | [Ndl]-- | Variance in the height of the F-region electron density" " Variance in the height of the F-region electron density" " " km^2 " |
| TEC TEC.TITLE TEC.UNITS | FLOATSTRINGSTRING | [Ndl]-- | Total electron column density "Total electron content" "TECU (10^16 electron m^-2)" |
| TEC\_VARIANCE TEC\_ VARIANCE.TITLE TEC\_ VARIANCE.UNITS | FLOATSTRINGSTRING | [Ndl]-- | Variance in total electron content " Variance in total electron content " " TECU^2 " |
| N2DP N2DP.TITLE N2DP.UNITS | FLOATSTRINGSTRING | [Ndl, Mdl]-- | Molecular nitrogen density "N2 density profile" "cm^-3" |
| N2DP\_ VARIANCE N2DP\_ VARIANCE.TITLE N2DP\_ VARIANCE.UNITS | FLOATSTRINGSTRING | [Ndl, Mdl]-- | Molecular nitrogen density variance " Variance in the N2 density profile " " cm^-6 " |
| O2DP O2DP.TITLE O2DP.UNITS | FLOATSTRINGSTRING | [Ndl, Mdl]-- | Molecular Oxygen density "O2 density profile" "cm^-3” |
| O2DP\_ VARIANCE O2DP\_ VARIANCE.TITLE O2DP\_ VARIANCE.UNITS | FLOATSTRINGSTRING | [Ndl, Mdl]-- | Molecular Oxygen density variance " Variance in the O2 density profile " " cm^-6 " |
| ODP ODP.TITLE ODP.UNITS | FLOATSTRINGSTRING | [Ndl, Mdl]-- | Atomic Oxygen density "O density profile" "cm^-3" |
| ODP\_ VARIANCE ODP\_ VARIANCE.TITLE ODP\_ VARIANCE.UNITS | FLOATSTRINGSTRING | [Ndl, Mdl]-- | Atomic Oxygen density variance " Variance in the O density profile " " cm^-6" |
| NMF2\_FLAG NMF2\_FLAG.TITLE NMF2.UNITS | FLOATSTRINGSTRING | [Ndl]-- | Data quality flagged as 1 if NmF2 is good "Data quality flag for NMF2" "none" |
| HMF2\_FLAG HMF2\_FLAG.TITLE HMF2\_FLAG.UNITS | FLOATSTRINGSTRING | [Ndl]-- | Data quality flagged as 1 if HmF2 is good "Data quality flag for HMF2" "none" |
| TEC\_FLAG TEC\_FLAG.TITLE TEC\_FLAG.UNITS | FLOATSTRINGSTRING | [Ndl]-- | Data quality flagged as 1 if TEC is good "Data quality flag for TEC" "none" |
| TOPSIDE\_Z0 TOPSIDE\_Z0.TITLE TOPSIDE\_Z0.UNITS | FLOATSTRINGSTRING | [Ndl]-- | Minimum altitude for fitting topside EDP “Minimum height acceptable for topside limb fitting”  “km” |
| TOPSIDE\_N\_AT\_Z0 TOPSIDE\_N\_AT\_Z0.TITLE TOPSIDE\_N\_AT\_Z0.UNITS | FLOATSTRINGSTRING | [Ndl]-- | The topside electron density at the minimum altitude “Electron density at Z0”“electrons per cc” |
| TOPSIDE\_N\_AT\_Z0\_UNCERTAINTY TOPSIDE\_N\_AT\_Z0\_UNCERTAINTY.TITLE TOPSIDE\_N\_AT\_Z0\_UNCERTAINTY.UNITS | FLOATSTRINGSTRING | [Ndl]-- | Estimated error in the topside electron density “uncertainty in Topside electron number density at Z0 “electrons per cc” |
|  TOPSIDE\_H TOPSIDE\_H.TITLE TOPSIDE\_H.UNITS | FLOATSTRINGSTRING | [Ndl]-- | atmospheric scale height“Scale height of exponential fit to the atmosphere”“km” |
| TOPSIDE\_H\_UNCERTAINTY TOPSIDE\_H\_UNCERTAINTY.TITLE TOPSIDE\_H\_UNCERTAINTY.UNITS | FLOATSTRINGSTRING | [Ndl]-- | Error estimate of the atmospheric scale height“Uncertainty in atmosphere scale height H”“km” |
| TOPSIDE\_EDP | FLOATSTRINGSTRING | [Nd,Nz] | Electron densities at topside altitudes“Electron Densities at topside\_altitudes”“electrons per cubic centimeter” |
| TOPSIDE\_ALTITUDES | FLOATSTRINGSTRING | [Nd,Nz] | Altitudes where topside electron densities are fit.“Altitudes where topside\_edp are fit”“km” |
| TOPSIDE\_CHISQ | FLOATSTRING | [Nd] | Chi-squared of the topside fit“The topside EDP fit chi-squared value” |
| TOPSIDE\_FIT\_Q | FLOATSTRING | [Nd] | Topside fit Q parameter“Indicates the quality of the topside EDP fit: 0 means a poor fit while 1 is an excellent fit.” |
| DATA\_QUALITY DATA\_QUALITY.TITLE DATA\_QUALITY.UNITS | FLOATSTRINGSTRING | [Ndl]-- | Bit # Meaning if set to true1. Topside EDP fit unsuccessful – did not converge
2. Topside EDP fit failed (singular matrix or unbounded chi-squared)
3. NmF2 is bad (outside physical limits)
4. Topside\_N\_at\_Z0 uncertatinty > Topside\_N\_at\_Z0
5. Topside\_H <10 km or Topside\_H > 200 km
6. HmF2 is bad ( < 0 or > 600 km)
7. TEC > 0.1 and TEC < 300
8. Not enough points to fit topside EDP
9. MeV noise contamination in pixel
10. Mirror pointing is unknown, so results are bad.
11. Topside\_H\_uncertaity > Topside\_H

 11-15 Spare“See EDR data document for description”“none” |

# EDR Aurora Data File

**PRODUCT VERSION 0105**

|  |  |  |
| --- | --- | --- |
| **Revision** | **Date** | **Changes Made** |
| 0106 | 2/28/2013 | Added discrete arc identification, poleward auroral boundary, and magnetic field visualization |
| 0105 | 5/12/12 | Added Radiance fields to EDR for auroral imagery |
| 0104 | 9/22/09 | Added global data quality flag  |
| 1.0.3 | 6/15/09 | Added PROTON\_FLAG\_NORTH/SOUTH and HEMISPHERE\_POWER\_NORTH/SOUTH |
| 1.0.2 | 8/1/08 | Realigned document to data products |
| 1.0.1 | 11/16/07 | Missing documentation for NmE, HmE |
| 1.0.0 | 1/5/2007 | Initial Version of Aurora definition table |

The table below details the EDR Auroral file. The dimensional indices for the binned mapped auroral quantities (e.g., energy flux) are as described in the Introduction in section Indices used in file description. These correspond to geomagnetic latitude (Ma) and longitude (Na). The imaging color dimension is also described in the Introduction. The auroral data contain many more dimensions to cover the varied quantities contained in the file. It is best to inquire from the files what the dimensions of these variables are as they vary according to the auroral conditions encountered in the data. The dimensions are as described in the table below.

|  |  |  |
| --- | --- | --- |
| **Dimension nickname for description** | **NetCDF dimension name** | **Meaning** |
| #scans | NUM\_SCANS | Number of SSUSI scans used in this product |
| Nbdn,Nbds | N\_NORTH\_BOUND, N\_SOUTH\_BOUND | Number of high resolution equatorward auroral boundary points in north or south polar regions, can vary between 0 and 999 |
| Nmbdn, Nmbds | N\_NORTH\_MODEL\_BOUND,N\_SOUTH\_MODEL\_BOUND | Number of points on the GUVI equatorward global auroral boundary in north or south, can vary between 0 and 999 |
| N\_NORTH\_POLAR\_BOUNDN\_SOUTH\_POLAR\_BOUND | N\_NORTH\_POLAR\_BOUNDN\_SOUTH\_POLAR\_BOUND | High resolution poleward auroral boundary points, can vary between 0 and 999 |
| N\_NORTH\_MODEL\_POLAR\_BOUND,N\_SOUTH\_MODEL\_POLAR\_BOUND | N\_NORTH\_MODEL\_POLAR\_BOUND,N\_SOUTH\_MODEL\_POLAR\_BOUND | Number of points on the empirical poleward global auroral boundary, can vary between 0 and 999 |
| N\_AUR\_ARC\_BOX\_VERTEX\_NORTH,N\_AUR\_ARC\_BOX\_VERTEX\_SOUTH | N\_AUR\_ARC\_BOX\_VERTEX\_NORTH,N\_AUR\_ARC\_BOX\_VERTEX\_SOUTH | Number of discrete aruroral arc bounding box vertices |
| N\_AUR\_ARC\_BOX\_ORIENT\_NORTH,N\_AUR\_ARC\_BOX\_ORIENT\_SOUTH | N\_AUR\_ARC\_BOX\_ORIENT\_NORTH,N\_AUR\_ARC\_BOX\_ORIENT\_SOUTH | Number of discrete aruroral arc bounding box vertices |
| N\_AUR\_ARC\_GROUP\_NORTHN\_AUR\_ARC\_GROUP\_SOUTH | N\_AUR\_ARC\_GROUP\_NORTHN\_AUR\_ARC\_GROUP\_SOUTH |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable Name** | **Type** | **Dimensions** | **Value/Comment** |
|  |  |  |  |
| **Global Auroral data file attributes** |
| AURORA\_EDRS\_MAXWELLIAN\_TABLE\_NAME | STRING | - | e.g. “SSUSIF16\_AURORA\_EDRS\_MAXWELLIAN\_TABLE\_v0000.dat” |
| AURORA\_EDRS\_MAXWELLIAN\_TABLE\_CREATED | STRING | - | Date when Aurora Maxwellian table created |
| AURORA\_EDRS\_GAUSSIAN\_TABLE\_NAME | STRING | - | e.g. “SSUSIF16\_AURORA\_EDRS\_GAUSSIAN\_TABLE\_v0000.dat” |
| AURORA\_EDRS\_GAUSSIAN\_TABLE\_CREATED | STRING | - | Date when Aurora Gaussian table created |
| DAYGLOW\_TABLE\_NAME | STRING | - | e.g. “SSUSIF16\_DAYGLOW\_TABLE\_v0000.dat” |
| DAYGLOW\_TABLE\_CREATED | STRING | - | Date when Dayglow table created |
| GEO\_MAG\_TABLE\_NAME | STRING | - | e.g. “SSUSIF16\_GEO\_MAG\_TABLE\_v0000.dat” |
| GEO\_MAG\_TABLE\_CREATED | STRING | - | Date when Geo Mag table created |
| L1B\_DAYGLOW\_TABLE\_NAME | STRING | - | e.g. “SSUSIF16\_L1B\_DAYGLOW\_TREATED\_TABLE\_v0000.dat” |
| L1B\_DAYGLOW\_TABLE\_CREATED | STRING | - | Date when L1B dayglow treated table created |
| MODEL\_MLAT\_MLT\_TABLE\_NAME | STRING | - | e.g. “SSUSIF16\_MODEL\_MLAT\_MLT\_TABLE\_v0000.dat” |
| MODEL\_MLAT\_MLT \_TABLE\_CREATED | STRING | - | Date when Model MLat MLT table created |
| MODEL\_BOUNDARY\_KP\_TABLE\_NAME | STRING | - | e.g. “SSUSIF16\_MODEL\_BOUNDARY\_KP\_TABLE\_v0000.dat” |
| MODEL\_BOUNDARY\_KP\_TABLE\_CREATED | STRING | - | Date when Model boundary Kp table created |
| QUIET\_NO\_NOISE\_TABLE\_NAME | STRING | - | e.g. “SSUSIF16\_QUIET\_NO\_NOISE\_TABLE\_v0000.dat” |
| QUIET\_NO\_NOISE\_TABLE\_CREATED | STRING | - | Date when Quiet no noise table created |
| SCAN\_TIME\_TABLE\_NAME | STRING | - | e.g. “SSUSIF16\_SCAN\_TIME\_TABLE\_v0000.dat” |
| SCAN\_TIME\_TABLE\_CREATED | STRING | - | Date when Scan time table created |
| PIXELSIZE\_GEOMAGNETIC\_LATITUDEPIXELSIZE\_GEOMAGNETIC\_LATITUDE\_TITLEPIXELSIZE\_GEOMAGNETIC\_LATITUDE\_UNITS | FLOATSTRINGSTRING | --- | Geomagnetic latitude pixel size “Geomagnetic latitude pixel size” “Degrees” |
| PIXELSIZE\_GEOMAGNETIC\_LONGITUDEPIXELSIZE\_GEOMAGNETIC\_ LONGITUDE \_TITLEPIXELSIZE\_GEOMAGNETIC\_ LONGITUDE \_UNITS | FLOATSTRINGSTRING | --- | Geomagnetic longitude pixel size “Geomagnetic longitude pixel size” “Degrees” |
|  |  |  |  |
| **Time and Position Information** |
| TIME TIME\_TITLE TIME\_UNITS | DOUBLESTRINGSTRING | --- | The effective time of each rebinned scan.“Average time of scans in image””Seconds since the start of the day” |
| YEAR YEAR\_TITLE | INTSTRING | -- | The year of each rebinned scan.“Year of each rebinned scan” |
| DOY DOY\_TITLE | INTSTRING | -- | The day of year of each rebinned scan.“Day of year of each rebinned scan” |
| LATITUDE LATITUDE\_TITLE LATITUDE\_UNITS | FLOATSTRINGSTRING | [#scans]-- | DMSP spacecraft Latitude.“S/C geographic latitude at effective times”“Degrees” |
| LONGITUDE LONGITUDE\_TITLE LONGITUDE\_UNITS | FLOATSTRINGSTRING | [#scans]-- | DMSP spacecraft Longitude.“S/C geographic longitude at effective times”“Degrees” |
| ALTITUDE ALTITUDE\_TITLE ALTITUDE\_UNITS | FLOATSTRINGSTRING | [#scans]-- | DMSP spacecraft Altitude.“S/C altitude at effective times”“Kilometers” |
|  |  |  |  |
| **Calibration parameters** | **Calibration parameters** | **Calibration parameters** | **Calibration parameters** |
| DARK\_COUNT\_CORRECTION DARK\_COUNT\_CORRECTION\_TITLE | INTSTRING | -- | Correct counts for dark counts.“Corrected for Dark counts (0/1 – No/Yes).” |
| SCATTER\_LIGHT\_1216\_CORRECTION SCATTER\_LIGHT\_1216\_CORRECTION\_TITLE | INTSTRING | -- | Correct counts for 1216 scattered lights.“Corrected for 1216 scattered light (0/1 – No/Yes).” |
| SCATTER\_LIGHT\_1304\_CORRECTION SCATTER\_LIGHT\_1304\_CORRECTION\_TITLE | INTSTRING | -- | Correct counts for 1304 scattered lights.“Corrected for 1304 scattered light (0/1 – No/Yes).” |
| OVERLAP\_1304\_1356\_CORRECTION OVERLAP\_1304\_1356\_CORRECTION\_TITLE | INTSTRING | -- | Correct counts for 1304/1356 overlap.“Corrected for 1304/1356 overlap (0/1 – No/Yes).” |
| LONGWAVE\_SCATTER\_CORRECTION LONGWAVE\_SCATTER\_CORRECTION\_TITLE | INTSTRING | -- | Correct counts for long-wave scattered light.“Corrected for long-wave scattered light (0/1 – No/Yes).” |
| RED\_LEAK\_CORRECTION RED\_LEAK\_CORRECTION\_TITLE | INTSTRING | -- | Correct counts for red leak contamination.“Corrected for red leaked light (0/1 - No/Yes).” |
|  |  |  |  |
| **Auroral Boundary South Data** |
| SOUTH\_DATASOUTH \_DATA\_TITLESOUTH \_DATA\_UNITS | BOOLEANSTRINGSTRING | --- | Data availability check “Data available check for south”.“0=w/out data, 1=w/data” |
| SOUTH\_SWATH\_BOUNDARYSOUTH \_SWATH\_BOUNDARY\_TITLESOUTH \_SWATH\_BOUNDARY\_UNITS | BOOLEANSTRINGSTRING | --- | Swath boundary data availability check “Data available check for south swath boundary”.“0=w/out data, 1=w/data” |
| SOUTH\_GEOMAGNETIC\_LATITUDESOUTH\_GEOMAGNETIC\_LATITUDE\_TITLESOUTH\_GEOMAGNETIC\_LATITUDE\_UNITS | FLOATSTRINGSTRING | [Nbds]-- | Southern Auroral boundary geomagnetic latitude “Southern auroral boundary geomagnetic latitude”“Degrees” |
| SOUTH\_GEOMAGNETIC\_LONGITUDESOUTH\_GEOMAGNETIC\_ LONGITUDE \_TITLESOUTH\_GEOMAGNETIC\_ LONGITUDE \_UNITS | FLOAT STRINGSTRING | [Nbds]-- | Southern Auroral boundary geomagnetic longitude“Southern auroral boundary geomagnetic longitude”“Degrees” |
| SOUTH\_MAGNETIC\_LOCAL\_TIMESOUTH\_MAGNETIC\_ LOCAL\_TIME \_TITLESOUTH\_MAGNETIC\_ LOCAL\_TIME \_UNITS | FLOATSTRINGSTRING | [Nbds]-- | Southern Auroral boundary magnetic local time “Southern auroral boundary magnetic local time”“Hours” |
| SOUTH\_GEOGRAPHIC\_LATITUDESOUTH\_ GEOGRAPHIC \_LATITUDE\_TITLESOUTH\_ GEOGRAPHIC \_LATITUDE\_UNITS | FLOATSTRINGSTRING | [Nbds]-- | Southern Auroral boundary geographic latitude “Southern auroral boundary geographic latitude”“Degrees” |
| SOUTH\_ GEOGRAPHIC \_LONGITUDESOUTH\_ GEOGRAPHIC \_ LONGITUDE \_TITLESOUTH\_ GEOGRAPHIC \_ LONGITUDE \_UNITS | FLOAT STRINGSTRING | [Nbds]-- | Southern Auroral boundary geographic longitude“Southern auroral boundary geographic longitude”“Degrees” |
| MODEL\_ SOUTH\_GEOMAGNETIC\_LATITUDEMODEL \_SOUTH\_GEOMAGNETIC\_LATITUDE\_TITLEMODEL\_ SOUTH\_GEOMAGNETIC\_LATITUDE\_UNITS | FLOATSTRINGSTRING | [Nmbds]-- | Model southern Auroral boundary geomagnetic latitude“Model southern auroral boundary geomagnetic latitude”“Degrees” |
| MODEL\_ SOUTH\_GEOMAGNETIC\_LATITUDE\_ERRORMODEL \_SOUTH\_GEOMAGNETIC\_LATITUDE\_ERROR\_TITLEMODEL\_ SOUTH\_GEOMAGNETIC\_LATITUDE\_ERROR\_UNITS | FLOATSTRINGSTRING | [Nmbds]-- | Model southern Auroral boundary geomagnetic latitude“Estimated Error in Model southern auroral boundary geomagnetic latitude”“Degrees” |
| MODEL\_ SOUTH\_GEOMAGNETIC\_LONGITUDEMODEL\_ SOUTH\_GEOMAGNETIC\_ LONGITUDE \_TITLEMODEL\_ SOUTH\_GEOMAGNETIC\_ LONGITUDE \_UNITS | FLOATSTRINGSTRING | [Nmbds]-- | Model southern Auroral boundary geomagnetic longitude“Model southern auroral boundary geomagnetic longitude”“Degrees” |
| MODEL\_ SOUTH\_MAGNETIC\_LOCAL\_TIMEMODEL\_ SOUTH\_MAGNETIC\_ LOCAL\_TIME \_TITLEMODEL\_ SOUTH\_MAGNETIC\_ LOCAL\_TIME \_UNITS | FLOATSTRINGSTRING | [Nmbds]-- | Model southern Auroral boundary magnetic local time “Model southern auroral boundary magnetic local time”“Hours” |
| MODEL\_SOUTH\_GEOGRAPHIC\_LATITUDEMODEL\_SOUTH\_ GEOGRAPHIC \_LATITUDE\_TITLEMODEL\_SOUTH\_ GEOGRAPHIC \_LATITUDE\_UNITS | FLOATSTRINGSTRING | [Nmbds]-- | Model southern Auroral boundary geographic latitude “Model southern auroral boundary geographic latitude”“Degrees” |
| MODEL\_SOUTH\_ GEOGRAPHIC \_LONGITUDEMODEL\_SOUTH\_ GEOGRAPHIC \_ LONGITUDE \_TITLEMODEL\_SOUTH\_ GEOGRAPHIC \_ LONGITUDE \_UNITS | FLOAT STRINGSTRING | [Nmbds]-- | Model southern Auroral boundary geographic longitude“Model southern auroral boundary geographic longitude”“Degrees” |
| SOUTH\_POLAR\_GEOMAGNETIC\_LATITUDE SOUTH\_POLAR\_GEOMAGNETIC\_LATITUDE\_TITLE SOUTH\_POLAR\_GEOMAGNETIC\_LATITUDE\_UNITS | FLOAT STRINGSTRING | [N\_SOUTH\_POLAR\_BOUND]-- | Southern auroral polar boundary geomagnetic latitude“Southern auroral polar boundary geomagnetic latitude”“Degrees” |
| SOUTH\_POLAR\_GEOMAGNETIC\_LONGITUDE SOUTH\_POLAR\_GEOMAGNETIC\_LONGITUDE\_TITLE SOUTH\_POLAR\_GEOMAGNETIC\_LONGITUDE\_UNITS | FLOAT STRINGSTRING | [N\_SOUTH\_POLAR\_BOUND]-- | Southern auroral polar boundary geomagnetic longitude“Southern auroral polar boundary geomagnetic longitude”“Degrees” |
| SOUTH\_POLAR\_MAGNETIC\_LOCAL\_TIME SOUTH\_POLAR\_MAGNETIC\_LOCAL\_TIME\_TITLE SOUTH\_POLAR\_MAGNETIC\_LOCAL\_TIME\_UNITS | FLOAT STRINGSTRING | [N\_SOUTH\_POLAR\_BOUND]-- | Southern auroral polar boundary magnetic local time“Southern auroral polar boundary magnetic local time”“Hours” |
| SOUTH\_POLAR\_GEOGRAPHIC\_LATITUDE SOUTH\_POLAR\_GEOGRAPHIC\_LATITUDE\_TITLE SOUTH\_POLAR\_GEOGRAPHIC\_LATITUDE\_UNITS | FLOAT STRINGSTRING | [N\_SOUTH\_POLAR\_BOUND]-- | Southern auroral polar boundary geographic latitude“Southern auroral polar boundary geographic latitude”“Degrees” |
| SOUTH\_POLAR\_GEOGRAPHIC\_LONGITUDE SOUTH\_POLAR\_GEOGRAPHIC\_LONGITUDE\_TITLE SOUTH\_POLAR\_GEOGRAPHIC\_LONGITUDE\_UNITS | FLOAT STRINGSTRING | [N\_SOUTH\_POLAR\_BOUND]-- | Southern auroral polar boundary geographic longitude“Southern auroral polar boundary geographic longitude”“Degrees” |
| MODEL\_SOUTH\_POLAR\_GEOMAGNETIC\_LATITUDEMODEL\_SOUTH\_POLAR\_GEOMAGNETIC\_LATITUDE\_TITLEMODEL\_SOUTH\_POLAR\_GEOMAGNETIC\_LATITUDE\_UNITS | FLOAT STRINGSTRING | [N\_SOUTH\_MODEL\_POLAR\_BOUND]-- | Geomagnetic latitude of the polar-ward auroral boundary “Model southern auroral polar boundary geomagnetic latitude”“Degrees |
| MODEL\_SOUTH\_POLAR\_GEOMAGNETIC\_LONGITUDEMODEL\_SOUTH\_POLAR\_GEOMAGNETIC\_LONGITUDE\_TITLEMODEL\_SOUTH\_POLAR\_GEOMAGNETIC\_LONGITUDE\_UNITS | FLOAT STRINGSTRING | [N\_SOUTH\_MODEL\_POLAR\_BOUND]-- | Geomagnetic longitude of the polar-ward auroral boundary “Model southern auroral polar boundary geomagnetic longitude”“Degrees |
| MODEL\_SOUTH\_POLAR\_MAGNETIC\_LOCAL\_TIMEMODEL\_SOUTH\_POLAR\_MAGNETIC\_LOCAL\_TIME\_TITLEMODEL\_SOUTH\_POLAR\_MAGNETIC\_LOCAL\_TIME\_TITLE | FLOAT STRINGSTRING | [N\_SOUTH\_MODEL\_POLAR\_BOUND]-- | Magnetic Local Time of the polar-ward auroral boundary“Model southern auroral polar boundary magnetic local time”“Hours” |
| MODEL\_SOUTH\_POLAR\_GEOGRAPHIC\_LATITUDEMODEL\_SOUTH\_POLAR\_GEOGRAPHIC\_LATITUDE\_TITLEMODEL\_SOUTH\_POLAR\_GEOGRAPHIC\_LATITUDE\_UNITS | FLOAT STRINGSTRING | [N\_SOUTH\_MODEL\_POLAR\_BOUND]-- | Geographic latitude of the polar-ward auroral boundary “Model southern auroral polar boundary geographic latitude”“Degrees” |
| MODEL\_SOUTH\_POLAR\_GEOGRAPHIC\_LONGITUDEMODEL\_SOUTH\_POLAR\_GEOGRAPHIC\_LONGITUDE\_TITLEMODEL\_SOUTH\_POLAR\_GEOGRAPHIC\_LONGITUDE\_UNITS | FLOAT STRINGSTRING | [N\_SOUTH\_MODEL\_POLAR\_BOUND]-- | Geographic longitude of the polar-ward auroral boundary “Model southern auroral polar boundary geographic longitude”“Degrees” |
| SOUTH\_DEFAULT\_EQUATORWARD\_MODELSOUTH\_DEFAULT\_EQUATORWARD\_MODEL\_TITLESOUTH\_DEFAULT\_EQUATORWARD\_MODEL\_UNITS | INTSTRINGSTRING | --- | Default used for southern equatorward aurora model boundary“Default used for southern equatorward aurora model boundary”“None” |
| SOUTH\_DATA\_QUALITYSOUTH\_DATA\_QUALITY\_TITLESOUTH\_DATA\_QUALITY\_UNITS | UNSIGNED SHORTSTRINGSTRING | --- | Data quality for southern aurora boundary“Data quality for southern aurora boundary”1-3 bytesByte 1 Southern Aurora BoundaryBit # Meaning if set to true1. TBD
2. TBD
3. TBD
4. Spare
5. Spare
6. Spare
7. Spare

Spare |
| DISK\_RADIANCEDATA\_INTENSITY\_SOUTHDISK\_RADIANCEDATA\_INTENSITY\_SOUTH\_TITLEDISK\_RADIANCEDATA\_INTENSITY\_SOUTH\_UNITS | FLOATSTRINGSTRING | [#colors, Na, Ma] | SOUTH Disk radiance data“SOUTH Disk radiance data”“rayleighs” |
| UT\_SUT\_S\_TITLEUT\_S\_UNITS | FLOATSTRINGSTRING | [Na, Ma] | UT South“UT South. Values are non-zero over SSUSI Swath”“Hours UT” |
| AUR\_ARC\_RADIANCE\_SOUTHAUR\_ARC\_RADIANCE\_SOUTH\_TITLEAUR\_ARC\_RADIANCE\_SOUTH\_UNITS | float | [Na,Ma] | south auroral arc radiance map"south auroral arc radiance map""rayleighs" |
| AUR\_ARC\_GROUP\_MAP\_SOUTH | short | [Na,Ma] | south auroral arc group number map |
| AUR\_ARC\_MEDIAN\_RAD\_SOUTHAUR\_ARC\_MEDIAN\_RAD\_SOUTH\_TITLEAUR\_ARC\_MEDIAN\_RAD\_SOUTH\_UNITS | float | N\_AUR\_ARC\_GROUP\_SOUTH | south auroral arc median radiance"south auroral arc median radiance""rayleighs" |
| AUR\_ARC\_BOX\_VERTEX\_SOUTH | float | N\_AUR\_ARC\_GROUP\_SOUTH,N\_AUR\_ARC\_BOX\_VERTEX\_SOUTH | south auroral arc bounding boxes vertex coordinates |
| AUR\_ARC\_BOX\_ORIENT\_SOUTH | float | N\_AUR\_ARC\_GROUP\_SOUTH,N\_AUR\_ARC\_BOX\_VERTEX\_SOUTH | south auroral arc bounding box size and orientation |
| **Auroral Boundary North Data** |
| NORTH\_DATANORTH\_DATA\_TITLENORTH\_DATA\_UNITS | BOOLEANSTRINGSTRING | --- | Data availability check “Data available check for north”.“0=w/out data, 1=w/data” |
| NORTH\_SWATH\_BOUNDARYNORTH\_SWATH\_BOUNDARY\_TITLENORTH\_SWATH\_BOUNDARY\_UNITS | BOOLEANSTRINGSTRING | --- | Swath boundary data availability check “Data available check for north swath boundary”.“0=w/out data, 1=w/data” |
| NORTH\_GEOMAGNETIC\_LATITUDENORTH\_GEOMAGNETIC\_LATITUDE\_TITLENORTH \_GEOMAGNETIC\_LATITUDE\_UNITS | FLOATSTRINGSTRING | [Nbdn]-- | Northern Auroral boundary geomagnetic latitude “Northern auroral boundary geomagnetic latitude”“Degrees” |
| NORTH \_GEOMAGNETIC\_LONGITUDENORTH \_GEOMAGNETIC\_ LONGITUDE \_TITLENORTH \_GEOMAGNETIC\_ LONGITUDE \_UNITS | FLOATSTRINGSTRING | [Nbdn]-- | Northern Auroral boundary geomagnetic longitude “Northern auroral boundary geomagnetic longitude”“Degrees” |
| NORTH \_MAGNETIC\_LOCAL\_TIMENORTH \_MAGNETIC\_ LOCAL\_TIME \_TITLENORTH \_MAGNETIC\_ LOCAL\_TIME \_UNITS | FLOATSTRINGSTRING | [Nbdn]-- | Northern Auroral boundary magnetic local time “Northern auroral boundary magnetic local time”“Hours” |
| NORTH \_GEOGRAPHIC\_LATITUDENORTH \_ GEOGRAPHIC \_LATITUDE\_TITLENORTH \_ GEOGRAPHIC \_LATITUDE\_UNITS | FLOATSTRINGSTRING | [Nbdn]-- | Northern Auroral boundary geographic latitude “Northern auroral boundary geographic latitude”“Degrees” |
| NORTH \_ GEOGRAPHIC \_LONGITUDENORTH \_ GEOGRAPHIC \_ LONGITUDE \_TITLENORTH \_ GEOGRAPHIC \_ LONGITUDE \_UNITS | FLOAT STRINGSTRING | [Nbdn]-- | Northern Auroral boundary geographic longitude“Northern auroral boundary geographic longitude”“Degrees” |
| MODEL\_ NORTH \_GEOMAGNETIC\_LATITUDEMODEL\_ NORTH \_GEOMAGNETIC\_LATITUDE\_TITLEMODEL\_ NORTH \_GEOMAGNETIC\_LATITUDE\_UNITS | FLOATSTRINGSTRING | [Nmbdn ]-- | Model northern Auroral boundary geomagnetic latitude“Model northern auroral boundary geomagnetic latitude”“Degrees” |
| MODEL\_ NORTH \_GEOMAGNETIC\_LONGITUDEMODEL\_ NORTH \_GEOMAGNETIC\_ LONGITUDE \_TITLEMODEL\_ NORTH \_GEOMAGNETIC\_ LONGITUDE \_UNITS | FLOATSTRINGSTRING | [Nmbdn]-- | Model northern Auroral boundary geomagnetic longitude“Model northern auroral boundary geomagnetic longitude”“Degrees” |
| MODEL\_NORTH\_GEOMAGNETIC\_LATITUDE\_ERRORMODEL \_NORTH\_GEOMAGNETIC\_LATITUDE\_ERROR\_TITLEMODEL\_NORTH\_GEOMAGNETIC\_LATITUDE\_ERROR\_UNITS | FLOATSTRINGSTRING | [Nmbdn]-- | Model northern Auroral boundary geomagnetic latitude“Estimated Error in Model northern auroral boundary geomagnetic latitude”“Degrees” |
| MODEL\_NORTH \_MAGNETIC\_LOCAL\_TIMEMODEL\_NORTH \_MAGNETIC\_ LOCAL\_TIME \_TITLEMODEL\_NORTH \_MAGNETIC\_ LOCAL\_TIME \_UNITS | FLOATSTRINGSTRING | [Nmbdn]-- | Model northern Auroral boundary magnetic local time “Model northern auroral boundary magnetic local time”“Hours” |
| MODEL\_NORTH\_GEOGRAPHIC\_LATITUDEMODEL\_ NORTH \_ GEOGRAPHIC \_LATITUDE\_TITLEMODEL\_ NORTH \_ GEOGRAPHIC \_LATITUDE\_UNITS | FLOATSTRINGSTRING | [Nmbdn]-- | Model northern Auroral boundary geographic latitude “Model northern auroral boundary geographic latitude”“Degrees” |
| MODEL\_ NORTH \_ GEOGRAPHIC \_LONGITUDEMODEL\_ NORTH \_ GEOGRAPHIC \_ LONGITUDE \_TITLEMODEL\_ NORTH \_ GEOGRAPHIC \_ LONGITUDE \_UNITS | FLOAT STRINGSTRING | [Nmbdn]-- | Model northern Auroral boundary geographic longitude“Model northern auroral boundary geographic longitude”“Degrees” |
| NORTH\_POLAR\_GEOMAGNETIC\_LATITUDENORTH\_POLAR\_GEOMAGNETIC\_LATITUDE\_TITLENORTH\_POLAR\_GEOMAGNETIC\_LATITUDE\_UNITS | FLOAT STRINGSTRING | [N\_ NORTH \_POLAR\_BOUND]-- | Northern auroral polar boundary geomagnetic latitude“Northern auroral polar boundary geomagnetic latitude”“Degrees” |
| NORTH \_POLAR\_GEOMAGNETIC\_LONGITUDENORTH\_POLAR\_GEOMAGNETIC\_LONGITUDE\_TITLENORTH\_POLAR\_GEOMAGNETIC\_LONGITUDE\_UNITS | FLOAT STRINGSTRING | [N\_ NORTH \_POLAR\_BOUND]-- | Northern auroral polar boundary geomagnetic longitude“Northern auroral polar boundary geomagnetic longitude”“Degrees” |
| NORTH\_POLAR\_MAGNETIC\_LOCAL\_TIMENORTH\_POLAR\_MAGNETIC\_LOCAL\_TIME\_TITLENORTH\_POLAR\_MAGNETIC\_LOCAL\_TIME\_UNITS | FLOAT STRINGSTRING | [N\_NORTH\_POLAR\_BOUND]-- | Northern auroral polar boundary magnetic local time“Northern auroral polar boundary magnetic local time”“Hours” |
| MODEL\_NORTH\_POLAR\_GEOMAGNETIC\_LATITUDEMODEL\_NORTH\_POLAR\_GEOMAGNETIC\_LATITUDE\_TITLEMODEL\_NORTH\_POLAR\_GEOMAGNETIC\_LATITUDE\_UNITS | FLOAT STRINGSTRING | [N\_NORTH \_MODEL\_POLAR\_BOUND]-- | Geomagnetic latitude of the polar-ward auroral boundary “Model northern auroral polar boundary geomagnetic latitude”“Degrees |
| MODEL\_NORTH\_POLAR\_GEOMAGNETIC\_LONGITUDEMODEL\_NORTH\_POLAR\_GEOMAGNETIC\_LONGITUDE\_TITLEMODEL\_NORTH\_POLAR\_GEOMAGNETIC\_LONGITUDE\_UNITS | FLOAT STRINGSTRING | [N\_NORTH \_MODEL\_POLAR\_BOUND]-- | Geomagnetic longitude of the polar-ward auroral boundary “Model northern auroral polar boundary geomagnetic longitude”“Degrees |
| MODEL\_NORTH\_POLAR\_MAGNETIC\_LOCAL\_TIMEMODEL\_NORTH\_POLAR\_MAGNETIC\_LOCAL\_TIME\_TITLEMODEL\_NORTH\_POLAR\_MAGNETIC\_LOCAL\_TIME\_TITLE | FLOAT STRINGSTRING | [N\_NORTH \_MODEL\_POLAR\_BOUND]-- | Magnetic Local Time of the polar-ward auroral boundary“Model northern auroral polar boundary magnetic local time”“Hours” |
| MODEL\_NORTH \_POLAR\_GEOGRAPHIC\_LATITUDEMODEL\_NORTH \_POLAR\_GEOGRAPHIC\_LATITUDE\_TITLEMODEL\_NORTH \_POLAR\_GEOGRAPHIC\_LATITUDE\_UNITS | FLOAT STRINGSTRING | [N\_NORTH \_MODEL\_POLAR\_BOUND]-- | Geographic latitude of the polar-ward auroral boundary “Model northern auroral polar boundary geographic latitude”“Degrees” |
| MODEL\_NORTH \_POLAR\_GEOGRAPHIC\_LONGITUDEMODEL\_NORTH \_POLAR\_GEOGRAPHIC\_LONGITUDE\_TITLEMODEL\_NORTH \_POLAR\_GEOGRAPHIC\_LONGITUDE\_UNITS | FLOAT STRINGSTRING | [N\_NORTH \_MODEL\_POLAR\_BOUND]-- | Geographic longitude of the polar-ward auroral boundary “Model northern auroral polar boundary geographic longitude”“Degrees” |
| NORTH\_DEFAULT\_EQUATORWARD\_MODELNORTH\_DEFAULT\_EQUATORWARD\_MODEL\_TITLENORTH\_DEFAULT\_EQUATORWARD\_MODEL\_UNITS | INTSTRINGSTRING | --- | Default used for northern equatorward aurora model boundary“Default used for northern equatorward aurora model boundary”“None” |
| NORTH\_DATA\_QUALITY | UNSIGNED SHORT | - | 2 bytesByte 1 Northern Aurora BoundaryBit # Meaning if set to true1. TBD
2. TBD
3. TBD
4. Spare
5. Spare
6. Spare
7. Spare

 7-15 Spare |
| DISK\_RADIANCEDATA\_INTENSITY\_NORTHDISK\_RADIANCEDATA\_INTENSITY\_NORTH\_TITLEDISK\_RADIANCEDATA\_INTENSITY\_NORTH\_UNITS | FLOATSTRINGSTRING | [#colors, Na, Ma] | NORTH Disk radiance data“NORTH Disk radiance data”“rayleighs” |
| UT\_NUT\_N\_TITLEUT\_N\_UNITS | FLOATSTRINGSTRING | [N\_GEOMAGNETIC\_LONGITUDE, N\_GEOMAGNETIC\_LATITUDE] | UT North“UT North. Values are non-zero over SSUSI Swath”“Hours UT” |
| AUR\_ARC\_RADIANCE\_NORTHAUR\_ARC\_RADIANCE\_NORTH\_TITLEAUR\_ARC\_RADIANCE\_NORTH\_UNITS | float | North GEOMAGNETIC LONGITUDE, North GEOMAGNETIC LATITUDE | north auroral arc radiance map"north auroral arc radiance map""rayleighs" |
| AUR\_ARC\_GROUP\_MAP\_NORTH | short | North GEOMAGNETIC LONGITUDE, North GEOMAGNETIC LATITUDE | north auroral arc group number map |
| AUR\_ARC\_MEDIAN\_RAD\_NORTHAUR\_ARC\_MEDIAN\_RAD\_NORTH\_TITLEAUR\_ARC\_MEDIAN\_RAD\_NORTH\_UNITS | float | N\_AUR\_ARC\_GROUP\_NORTH | north auroral arc median radiance"north auroral arc median radiance""rayleighs" |
| AUR\_ARC\_BOX\_VERTEX\_NORTH | float | N\_AUR\_ARC\_GROUP\_NORTH,N\_AUR\_ARC\_BOX\_VERTEX\_NORTH | north auroral arc bounding boxes vertex coordinates |
| AUR\_ARC\_BOX\_ORIENT\_NORTH | float | N\_AUR\_ARC\_GROUP\_NORTH,N\_AUR\_ARC\_BOX\_VERTEX\_NORTH | north auroral arc bounding box size and orientation |
|  |  |  |  |
| **Auroral Data** |
| ELECTRON\_MEAN\_NORTH\_ENERGY\_MAPELECTRON\_MEAN\_NORTH\_ENERGY\_MAP\_TITLEELECTRON\_MEAN\_NORTH\_ENERGY\_MAP\_UNITS | FLOATSTRINGSTRING | [Na, Ma]-- | Electron mean energy 2-D map for northern hemisphere in MLat-MLT“Electron mean northern energy map”.“keV” |
| ELECTRON\_MEAN\_SOUTH\_ENERGY\_MAPELECTRON\_MEAN\_ SOUTH \_ENERGY\_MAP\_TITLEELECTRON\_MEAN\_ SOUTH \_ENERGY\_MAP\_UNITS | FLOATSTRINGSTRING | [Na, Ma]-- | Electron mean energy 2-D map for southern hemisphere in MLat-MLT“Electron mean southern energy map”.“keV” |
| ENERGY\_FLUX\_NORTH\_MAPENERGY\_FLUX\_NORTH\_MAP\_TITLEENERGY\_FLUX\_NORTH\_MAP\_UNITS | FLOATSTRINGSTRING | [Na, Ma]-- | Electron energy flux 2-D map for northern hemisphere in MLat-MLT“Electron energy flux northern map”.“ergs/s/cm2” |
| ENERGY\_FLUX\_SOUTH\_MAPENERGY\_FLUX\_ SOUTH \_MAP\_TITLEENERGY\_FLUX\_ SOUTH \_MAP\_UNITS | FLOATSTRINGSTRING | [Na, Ma]-- | Electron energy flux 2-D map for southern hemisphere in MLat-MLT“Electron energy flux southern map”.“ergs/s/cm2” |
| ELECTRON\_FLUX\_NORTH\_BOUNDARY\_MAPELECTRON\_FLUX\_NORTH\_BOUNDARY\_MAP\_TITLEELECTRON\_FLUX\_NORTH\_BOUNDARY\_MAP\_UNITS | FLOATSTRINGSTRING | [Na, Ma]-- | Electron energy flux map with boundary for northern hemisphere“Electron energy flux northern map with boundary”.“ergs/s/cm2” |
| ELECTRON\_FLUX\_SOUTH\_BOUNDARY\_MAPELECTRON\_FLUX\_ SOUTH\_BOUNDARY\_MAP\_TITLEELECTRON\_FLUX\_ SOUTH\_BOUNDARY\_MAP\_UNITS | FLOATSTRINGSTRING | [Na, Ma]-- | Electron energy flux map with boundary for southern hemisphere“Electron energy flux southern map with boundary”.“ergs/s/cm2” |
| LATITUDE\_GEOMAGNETIC\_GRID\_MAPLATITUDE\_GEOMAGNETIC\_GRID\_MAP\_TITLELATITUDE\_GEOMAGNETIC\_GRID\_MAP\_UNITS | FLOATSTRINGSTRING | [Na, Ma]-- | Magnetic latitude for the above maps“Magnetic latitude grid map”.“degrees” |
| LONGITUDE\_GEOMAGNETIC\_NORTH\_GRID\_MAPLONGITUDE\_GEOMAGNETIC\_NORTH\_GRID\_MAP\_TITLELONGITUDE\_GEOMAGNETIC\_NORTH\_GRID\_MAP\_TITLE | FLOATSTRINGSTRING | [Na, Ma]-- | Magnetic longitude for the above maps“North Magnetic longitude grid map”.“degrees” |
| LONGITUDE\_GEOMAGNETIC\_SOUTH\_GRID\_MAPLONGITUDE\_GEOMAGNETIC\_SOUTH\_GRID\_MAP\_TITLELONGITUDE\_GEOMAGNETIC\_SOUTH\_GRID\_MAP\_TITLE | FLOATSTRINGSTRING | [Na, Ma]-- | Magnetic longitude for the above maps“South Magnetic longitude grid map”.“degrees” |
| MLT\_GRID\_MAPMLT\_GRID\_MAP\_TITLEMLT\_GRID\_MAP\_UNITS | FLOATSTRINGSTRING | [Na, Ma]-- | Magnetic local time in hours for the above maps“Magnetic local time grid map”.“hours” |
| ELECTRON\_ENERGY\_FLUX\_THRESHOLDSELECTRON\_ENERGY\_FLUX\_THRESHOLDS\_TITLEELECTRON\_ENERGY\_FLUX\_THRESHOLDS\_UNITS | FLOATSTRINGSTRING | [2]-- | Electron energy flux threshold (north, south) for boundary detection“Electron energy flux threshold”.“Ergs/s/cm2” |
| HME\_NORTH HME\_NORTH.TITLE HME\_NORTH.UNITS | FLOATSTRINGSTRING | [Na, Ma] | Height of the E-region peak in the north auroral region “HmE North” “km” |
| NME\_NORTH NME\_NORTH.TITLE NME\_NORTH.UNITS | FLOATSTRINGSTRING | [Na, Ma] | Peak electron density of the E-region in the north auroral region “NmE North” “cm^-3” |
| HME\_SOUTH HME\_SOUTH.TITLE HME\_SOUTH.UNITS | FLOATSTRINGSTRING | [Na, Ma] | Height of the E-region peak in the south auroral region “HmE South” “km” |
| NME\_SOUTH NME\_SOUTH.TITLE NME\_SOUTH.UNITS | FLOATSTRINGSTRING | [Na, Ma] | Peak electron density of the E-region in the south auroral region “NmE South” “cm^-3” |
| PROTON\_FLAG\_NORTHPROTON\_FLAG\_NORTH\_TITLEPROTON\_FLAG\_NORTH\_UNITS | FLOATSTRINGSTRING | [Na, Ma]-- | Proton flag for north auroral region (possible values = 0/1) “Proton flag north” “N/A” |
| PROTON\_FLAG\_SOUTHPROTON\_FLAG\_SOUTH\_TITLEPROTON\_FLAG\_SOUTH\_UNITS | FLOATSTRINGSTRING | [Na, Ma]-- | Proton flag for south auroral region (possible values = 0/1) “Proton flag south” “N/A” |
| HEMISPHERE\_POWER\_NORTHHEMISPHERE\_POWER \_NORTH\_TITLEHEMISPHERE\_POWER \_NORTH\_UNITS | FLOATSTRINGSTRING | --- | Hemisphere power for north auroral region “Hemisphere power north” “GW” |
| HEMISPHERE\_POWER\_SOUTHHEMISPHERE\_POWER \_SOUTH\_TITLEHEMISPHERE\_POWER \_SOUTH\_UNITS | FLOATSTRINGSTRING | --- | Hemisphere power for south auroral region “Hemisphere power south” “GW” |
| DATA\_QUALITY\_GLOBAL | UNSIGNED SHORT | - | Bit # Meaning if set to true1. Spare
2. Spare
3. Spare
4. Spare
5. Spare
6. Spare
7. Spare
8. Spare
9. Spare
10. Pointing unknown

 10-15 Spare |
| MagneticFieldLines | float | MagLinesItems, NumberLines, MaxElements | This is the array containing all information that can be used to visualize the magnetic field lines. The array is so structured:MagLinesItems – contains 5 items1. Geographic Longitude
2. Geographic Latitude
3. Geographic Altitude
4. Magnetic Field Lines Intensity
5. Flag for North=1, or South=2

NumberLines – number of magnetic field linesMaxElements – Max number of entries a magnetic field line can have |
|  |  |  |  |

#

# EDR Auroral Prediction File

**PRODUCT VERSION 0100**

|  |  |  |
| --- | --- | --- |
| **Revision** | **Date** | **Changes Made** |
| 1.0.0 | 2/27/2013 | Initial Version of Aurora Prediction Product |

The table below details the EDR Auroral Prediction file. Besides the geomagnetic bin indices Na,Ma, there is also a P index to specify the number of orbits predicted into the future. The current number of predicted orbits, P, is set to 15. This parameter is set in the SSUSI\_EDR\_AUR\_PRED\_parameters.config under num\_orb\_pred.

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable Name** | **Type** | **Dimensions** | **Value/Comment** |
| **Auroral North Predictions** |
| North\_Electron\_Energy\_Flux\_Pred North\_Electron\_Energy\_Flux\_Pred:TITLE  North\_Electron\_Energy\_Flux\_Pred:UNITS  | FLOATSTRINGSTRING | [P,Na,Ma]-- | Electron energy fluxes predicted by the algorithm"(Northern Hemisphere) Predictions of Auroral Electron Energy Flux""ergs/s/cm2" |
| North\_Electron\_Mean\_Energy\_Pred North\_Electron\_Mean\_Energy\_Pred:TITLE  North\_Electron\_Mean\_Energy\_Pred:UNITS  | FLOATSTRINGSTRING | [P,Na,Ma]-- | Predicted electron mean energy"(Northern Hemisphere) Predictions of Auroral Electron Mean Energy""keV" |
| North\_Time\_UT\_Pred North\_Time\_UT\_Pred:TITLE North\_Time\_UT\_Pred:UNITS | FLOATSTRINGSTRING | [P]-- | Universal Time of the Predictions"(Northern Hemisphere) Times of Predictions - UT"“hour” |
| North\_Time\_Year\_Pred North\_Time\_Year\_Pred:TITLE North\_Time\_Year\_Pred:UNITS | FLOATSTRINGSTRING | [P]-- | Year of the predicted oval"(Northern Hemisphere) Times of Predictions - Year"“calendar year” |
| North\_Time\_DOY\_Pred North\_Time\_DOY\_Pred:TITLE North\_Time\_DOY\_Pred:UNITS  | FLOATSTRINGSTRING | [P]-- | Day of year of the predicted oval"(Northern Hemisphere) Times of Predictions - DOY"“days” |
| North\_Flag\_Pred ; North\_Flag\_Pred:TITLE North\_Flag\_Pred:UNITS | SHORTSTRINGSTRING | -- | Indicates that there is a problem with the prediction "(Northern Hemisphere) Prediction flag" |
| Magnetic\_Latitude\_North Magnetic\_Latitude North:TITLE Magnetic\_Latitude:UNITS  | FLOATSTRINGSTRING | [Na,Ma]-- | Northern Magnetic Latitude "Magnetic Latitude" "degree" |
| Magnetic\_Local\_Time Magnetic\_Local\_Time:TITLE Magnetic\_Local\_Time:UNITS; | FLOATSTRINGSTRING | [P,Na,Ma]-- | Nothern Boundary Magnetic Local Time“Magnetic Local Time”= "hour" |
| Model\_Boundary\_Magnetic\_Latitude\_North Model\_Boundary\_Magnetic\_Latitude\_North:TITLE Model\_Boundary\_Magnetic\_Latitude\_North:UNITS | FLOATSTRINGSTRING | [P,Na,Ma] | Model Boundary Magnetic Latitude North"Model Boundary Magnetic Latitude North" "degree" |
| Model\_Boundary\_Magnetic\_Local\_Time\_North Model\_Boundary\_Magnetic\_Local\_Time\_North:TITLE Model\_Boundary\_Magnetic\_Local\_Time\_North:UNITS | FLOATSTRINGSTRING | [P,Na,Ma] | Model Boundary Magnetic Local Time North"Model Boundary Magnetic Local Time North" "hour" |
|  |  |  |  |
| **Auroral South Data** |
| South\_Electron\_Energy\_Flux\_Pred South\_Electron\_Energy\_Flux\_Pred:TITLE  South\_Electron\_Energy\_Flux\_Pred:UNITS  | FLOATSTRINGSTRING | [P,Na,Ma]-- | Electron energy fluxes predicted by the algorithm"(Southern Hemisphere) Predictions of Auroral Electron Energy Flux""ergs/s/cm2" |
| South\_Electron\_Mean\_Energy\_Pred South\_Electron\_Mean\_Energy\_Pred:TITLE  South\_Electron\_Mean\_Energy\_Pred:UNITS  | FLOATSTRINGSTRING | [P,Na,Ma]-- | Predicted electron mean energy"(Southern Hemisphere) Predictions of Auroral Electron Mean Energy""keV" |
| South\_Time\_UT\_Pred South\_Time\_UT\_Pred:TITLE South\_Time\_UT\_Pred:UNITS | FLOATSTRINGSTRING | [P]-- | Universal Time of the Predictions"(Southern Hemisphere) Times of Predictions - UT"“hour” |
| South\_Time\_Year\_Pred South\_Time\_Year\_Pred:TITLE South\_Time\_Year\_Pred:UNITS | FLOATSTRINGSTRING | [P]-- | Year of the predicted oval"(Southern Hemisphere) Times of Predictions - Year"“calendar year” |
| South\_Time\_DOY\_Pred South\_Time\_DOY\_Pred:TITLE South\_Time\_DOY\_Pred:UNITS  | FLOATSTRINGSTRING | [P]-- | Day of year of the predicted oval"(Southern Hemisphere) Times of Predictions - DOY"“days” |
| South\_Flag\_Pred ; South\_Flag\_Pred:TITLE South\_Flag\_Pred:UNITS | SHORTSTRINGSTRING | -- | Indicates that there is a problem with the prediction "(Southern Hemisphere) Prediction flag" |
| Magnetic\_Latitude\_South Magnetic\_Latitude South:TITLE Magnetic\_Latitude:UNITS  | FLOATSTRINGSTRING | [Na,Ma]-- | Southern Magnetic Latitude "Magnetic Latitude" "degree" |
| Model\_Boundary\_Magnetic\_Latitude\_South Model\_Boundary\_Magnetic\_Latitude\_South:TITLE Model\_Boundary\_Magnetic\_Latitude\_South:UNITS | FLOATSTRINGSTRING | [P,Na,Ma] | Model Boundary Magnetic Latitude South"Model Boundary Magnetic Latitude South" "degree" |
| Model\_Boundary\_Magnetic\_Local\_Time\_South Model\_Boundary\_Magnetic\_Local\_Time\_South:TITLE Model\_Boundary\_Magnetic\_Local\_Time\_South:UNITS | FLOATSTRINGSTRING | [P,Na,Ma] | Model Boundary Magnetic Local Time South"Model Boundary Magnetic Local Time South" "hour" |

# EDR Ionosphere Data File

**PRODUCT VERSION 0109**

|  |  |  |
| --- | --- | --- |
| **Revision** | **Date** | **Changes Made** |
| 1.0.2 (109) | 1/8/13 | Fixed typo in description of DATA\_QUALITY\_INDEX bit fields |
| 1.0.1 (109) | 5/2/2012 | Updated to reflect final content of May 2012 code delivery |
| 1.0.0 (100) | 6/15/2011 | Initial version of three dimensional ionosphere definition table |

The table below details the EDR Ionosphere file. The dimensions in the EDR-IONO file are as follows:

|  |  |  |
| --- | --- | --- |
| **Nickname in Table** | **NetCDF dimension name** | **Meaning** |
| L | lonsize | Number of longitudes in electron density data cube |
| A | altsize | Number of altitudes  |
| N | ngrids | Number of consecutive longitude-altitude strips (like number of latitudes) |
| Bc | bubble\_col\_size | Number of variables in Bubble array (values from 0 to 3) |
| Variable dimensions |
| Br | bubble\_row\_size | Number of points described in bubble (depends on bubble size) |
| Npeaks | npeaks | Number of density peaks identified in data |
| Ndeps | ndeps | Number of bubbles (electron density depletions) found in products |

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable Name** | **Type** | **Dimensions** | **Value/Comment** |
|  |  |  |  |
| **Global Ionosphere Bubble data file attributes** |
| DATA\_QUALITY\_INDEX | UNSIGNED INTEGER | - | Ionosphere Products quality informationBit # Meaning if set to true1. Spare
2. Spare
3. Spare
4. Spare
5. Spare
6. Spare
7. Spare
8. spare
9. Mev Noise
10. Mirror Pointing unknown
11. Spare
12. Spare
13. Spare
14. Spare
15. Spare
16. spare
 |
|  EPSR | FLOAT | - | Parameter for tomographic inversion algorithm |
| LAMBDA | FLOAT | - | Parameter for tomographic inversion algorithm |
| TPARAM | FLOAT | - | Parameter for tomographic inversion algorithm |
| CONF\_THRESHOLD | FLOAT | - | Minimum value of the Gaussian pdf function evaluated at the fraction of the difference between nmf2 and the tomographic projection and the error for a pixel to be considered part of a candidate bubble region. |
| EARTHRAD | DOUBLE | - | The radius of the earth used in processing (km). |
| ALTSIZE | INT | - | The number of altitude grids in the reconstruction. |
| LONSIZE | INT | - | The number of longitude grids in the reconstruction. |
| SCANTHRESH | INT | - | The minimum number of scans required in order to complete a three-dimensional reconstruction. |
| ALTRANGE | DOUBLE | - | The altitude range (km) for which the three-dimensional reconstruction is completed. |
| MINALT | DOUBLE | - | The minimum altitude value (km) for which the reconstruction is completed. |
| MINVALALT | DOUBLE | - | The minimum altitude for which a depleted region is detectable. |
| MAXVALALT | DOUBLE | - | The maximum altitude for which a depleted region is detectable. |
| VOLTHRESH | DOUBLE | - | The minimum volume a candidate depleted region has to have in order to be considered a depleted region. |
| SZALAT | DOUBLE | - | Nightside data is determined by sza > SZALAT  |
| MAGLATLIMIT | DOUBLE | - | The latitude bound for the geomagnetic reconstruction algorithm. |
| GEOLATLIMIT | DOUBLE | - | The latitude bound for the geographic reconstruction algorithm. |
| SCANSUSED | INTEGER | - | The number of scans used in the reconstruction. |
| STD\_DEP\_TH | DOUBLE | - | The minimum value of the standard deviation of the electron density inside a candidate depleted region for it to be considered a depleted region |
| DEPTH\_TH | DOUBLE | - | The minimum latitudinal depth a candidate depleted region has to have in order to be considered a depleted region |
|  |  |  |  |
| **Ionosphere Data** |
| NDEPS | INT | - | Number of depleted regions detected. |
| TIME TITLE DESCRIPTION | INTSTRINGSTRING | [NDEPS] | Time “Time” “The time associated with the scan nearest to the depleted region centroid. (seconds since start of the day)” |
| DOY | INT | [NDEPS] | Day of year  |
| CONFIDENCE TITLE UNITS | DOUBLESTRINGSTRING | [NDEPS] | Confidence of depleted region detection.  “Confidence of depleted region detection.” “percent” |
| CENTROID\_LAT TITLE UNITS | DOUBLESTRINGSTRING | [NDEPS] | Centroid geographic latitude “Centroid geographic latitude” “degrees” |
| CENTROID\_LON TITLE UNITS | DOUBLESTRINGSTRING | [NDEPS] | Centroid geographic longitude “Centroid geographic longitude” “degrees” |
| CENTROID\_ALT TITLE UNITS | DOUBLESTRINGSTRING | [NDEPS] | Centroid geographic altitude “Centroid geographic altitude” “km” |
| MEDIAN\_DEP TITLE UNITS | DOUBLESTRINGSTRING | [NDEPS] | Median electron density of depleted region. “Median electron density of depleted region.” “electrons per cubic cm” |
| STD\_DEP TITLE UNITS | DOUBLESTRINGSTRING | [NDEPS] | Standard deviation of depleted region electron density. “Standard deviation of depleted region”’ “electrons per cubic cm” |
| MEDIAN\_DEP\_ERROR TITLE UNITS | DOUBLESTRINGSTRING | [NDEPS] | Median uncertainty for reconstruction in depleted region. “Median uncertainty for reconstruction in depleted region” “electrons per cubic cm” |
| DVOL TITLE UNITS | DOUBLESTRINGSTRING | [NDEPS] | Volume of depleted region. “Volume of depleted region” “km^3” |
| DEPTH TITLE UNITS | DOUBLESTRINGSTRING | [NDEPS] | Latitudinal depth of depleted region “Latitudinal depth of depleted region” “degrees” |
| ORIENTATION TITLE UNITS | DOUBLESTRINGSTRING | [NDEPS] | Orientation of depleted region. “Orientation of depleted region” “degrees” |
| NPEAKS | INT | - | Number of peaks detected. |
| PEAKLATS TITLE UNITS | DOUBLESTRINGSTRING | [NPEAKS]-- | Geographic latitude of equatorial arc peak“Geographic latitude of equatorial arc peak”“Degrees” |
| PEAKLONS TITLE UNITS | DOUBLESTRINGSTRING | [NPEAKS]-- | Geographic longitude for peak latitude. “Geographic longitude for peak latitude”  “Degrees” |
| PEAKSCONT TITLE | INTSTRING | [NPEAKS]-- | Peak contained in data cube indicator “Equatorial arc contained in data cube, 1-yes, 0-no” |
| NMF2 TITLE UNITS  | DOUBLESTRINGSTRING | [N]-- | NMF2 for each 2D reconstruction in the data cube. “Maximum number density of electrons” “electrons per cubic meter” |
| HMF2 TITLE UNITS | DOUBLESTRINGSTRING | [N]-- | HMF2 for each 2D reconstruction in the data cube. “Height of the peak F-region electron density” “km” |
| SCANS TITLE  | LONGSTRING | [N] | The scan number of the center scan for each 2D reconstruction in the data cube. “The scan number of the center scan for each 2D reconstruction in the data cube” |
| MAGSTD TITLE UNITS | DOUBLESTRINGSTRING | [NDEPS] | Standard deviation of depleted region magnetic longitude centroid over depletion latitudes – measures field alignment. “Alignment deviation in depleted region”’ “degrees” |
| ED\_CUBE TITLE UNITS | DOUBLESTRINGSTRING | [L,A, N] | Three-dimensional electron density map. “Three-dimensional electron density map.” “electrons per cubic cm” |
| ED\_ERROR TITLE UNITS | DOUBLESTRINGSTRING | [L,A, N] | Three-dimensional electron density error map. “Three-dimensional electron density error map.” “electrons per cubic cm” |
| ED\_REGIONS TITLE UNITS | DOUBLESTRINGSTRING | [L,A, N] | Three-dimensional electron density region indicator map.  “Three-dimensional electron density region indicator map.” |
| DEP\_CONF TITLE UNITS | DOUBLESTRINGSTRING | [L,A, N] | Three dimensional confidence map. “Confidence of depleted region.” “percent” |
| ED\_LON TITLE UNITS | DOUBLESTRINGSTRING | [L,A, N] | Three-dimensional longitude map. “Three dimensional longitude map.” “degrees” |
| ED\_LAT TITLE UNITS | DOUBLESTRINGSTRING | [L,A, N] | Three-dimensional latitude map. “Three-dimensional latitude map.” “degrees” |
| ED\_MLON TITLE UNITS | DOUBLESTRINGSTRING | [L,A, N] | Three-dimensional geomagnetic longitude map. “Three dimensional geomagnetic longitude map.” “degrees” |
| ED\_MLAT TITLE UNITS | DOUBLESTRINGSTRING | [L,A, N] | Three-dimensional geomagnetic latitude map. “Three-dimensional geomagnetic latitude map.” “degrees” |
| ED\_ALT TITLE UNITS | DOUBLESTRINGSTRING | [L,A, N] | Three-dimensional altitude map. “Three-dimensional altitude map.” “km” |
| BUBBLE TITLE UNITS | DOUBLESTRINGSTRING | [Bc,Br] | The collection of (lon, lat, alt) points that indicate a depleted region. “Depletion area location [lon,lat,z, label]”  “[deg, deg, km, label number]” |
|  |  |  |  |

# EDR GAIM-LIMB Data File

**PRODUCT VERSION 0105**

|  |  |  |
| --- | --- | --- |
| **Revision** | **Date** | **Changes Made** |
| 1.1.0 | 10/15/2012 | Updated version that includes simulated Chapman intensity profile and derived quantities |
| 1.0.0 | 8/8/2011 | Initial Version of GAIM LIMB file definition table |

Note the changes from the SDR-LIMB are the addition of MN subtracted radiances and uncertainties for 1356, and a DQI bit for daylight contaminated data.

The GAIM EDR contains the lowest resolution gridded SSUSI radiances, time, and geolocation information. The raw radiances are taken directly from the SDR. Other corrections and flags are added to this SDR data, e.g., the estimated contribution from mutual neutralization to the 1356 radiance is removed and the result provided for ingestion into GAIM. Here the cross track dimension (NetCDF name: nCross\_G) represented by Mg in the table is the same size as nCross above, but the along track dimension (NetCDF name: nAlong\_G) represented by Ng is different.

There is a dimension (NetCDF name: nchan) for the waveband or “color” of the counts and radiance data. The color index is describe in section Indices used in file description in the Introduction.

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable Name** | **Type** | **Dimensions** | **Value/Comment** |
|  |  |  |  |
| **Time and Position Information** |
| TIME\_GAIM TIME\_GAIM.TITLE  TIME\_GAIM.UNITS | DOUBLESTRINGSTRING | [Ng]-- | The effective time of each rebinned pixel. “Time of each newly rebinned along track GAIM pixel” “Seconds since the start of the day” |
| TIME\_EPOCH\_GAIM TIME\_EPOCH\_GAIM.TITLE  TIME\_EPOCH\_GAIM.UNITS | DOUBLESTRINGSTRING | [Ng]-- | The effective time of each rebinned pixel. “Time of each newly rebinned along track GAIM pixel” “Epoch Milliseconds” (CDF epoch value) |
| YEAR\_GAIM YEAR\_GAIM.TITLE | INTSTRING | [Ng]- | The year of each rebinned pixel “Year of each newly rebinned GAIM pixel” |
| DOY\_GAIM DOY\_GAIM.TITLE | INTSTRING | [Ng]- | The day of year of each rebinned pixel. “Day of year of each newly rebinned GAIM pixel” |
| ORBIT\_GAIM ORBIT GAIM.TITLE | INTString | [Ng]- | Orbit numbers for each grid row. “Orbit number of each newly rebinned along track GAIM pixel” |
| LATITUDE\_GAIM LATITUDE\_GAIM.TITLE LATITUDE\_GAIM.UNITS | FLOATSTRINGSTRING | [Ng]-- | DMSP spacecraft latitude “S/C geographic latitude at the GAIM grid centers” “degrees” |
| LONGITUDE\_GAIM LONGITUDE\_GAIM.TITLE LONGITUDE\_\_GAIM.UNITS | FLOATSTRINGSTRING | [Ng]- | DMSP spacecraft longitude “S/C geographic longitude at the GAIM grid centers” “degrees” |
| ALTITUDE\_GAIM ALTITUDE\_GAIM.TITLE ALTITUDE\_GAIM.UNITS | FLOATSTRINGSTRING | [Ng]-- | DMSP spacecraft altitude “S/C geographic altitude at the GAIM grid centers” “kilometers” |
| TANGENTPOINT\_LATITUDE\_GAIM TANGENTPOINT\_LATITUDE\_GAIM.TITLE TANGENTPOINT\_LATITUDE\_GAIM.UNITS | FLOATSTRINGSTRING | [Mg,Ng]- | Rebinned pixel tangent point latitude “Tangent point GAIM geographic latitude” “degrees” |
| TANGENTPOINT\_LONGITUDE\_GAIM TANGENTPOINT\_LONGITUDE\_GAIM.TITLE TANGENTPOINT\_LONGITUDE\_GAIM.UNITS | FLOATSTRINGSTRING | [Mg,Ng]- | Rebinned pixel tangent point longitude “Tangent point GAIM geographic longitude” “degrees” |
| TANGENTPOINT\_ALTITUDE\_GAIM TANGENTPOINT\_ALTITUDE\_GAIM.TITLE TANGENTPOINT\_ALTITUDE\_GAIM.UNITS | FLOATSTRINGSTRING | [Mg,Ng]- | Rebinned pixel tangent point altitude “Tangent point GAIM geographic altitude” “kilometers” |
| TANGENTPOINT\_SZA\_GAIM TANGENTPOINT\_SZA\_GAIM.TITLE TANGENTPOINT\_SZA\_GAIM.UNITS | FLOATSTRINGSTRING | [Mg,Ng]-- | Tangent point solar zenith angle “solar zenith angle for the center of new limb GAIM grid cell.” “degrees” |
| IN\_SAA\_GAIM IN\_SAA\_\_GAIM.TITLE | INTSTRING | [Mg,Ng] | Indicator of whether any limb pixels in the bin may have SAA contamination ‘SAA flag: 1 any pixels in GAIM bin were observed while the S/C was in SAA, 0 if not” |
| ACROSSPIXELSIZE\_GAIM | INT | - | Number of across track pixels for the rebinned grid (M). |
| ALONGPIXELSIZE\_GAIM | INT | - | Number of along track pixels for the rebinned grid (N). |
| EFFECTIVELOOKANGLE\_GAIMEFFECTIVELOOKANGLE\_GAIM.TITLEEFFECTIVELOOKANGLE\_GAIM.UNITS | FLOATSTRINGSTRING | [Mg,Ng]-- | Effective scan mirror look angles for the rebinned DAY grid (in degrees).“Effective cross track look angle from S/C nadir to GAIM grid tangent points”“Degrees” |
|  |  |  |  |
| **Re-binned Data** |
| LIMBCOUNTSDATA\_GAIM LIMBCOUNTSDATA\_GAIM.TITLE | FLOATSTRING | [Mg, Ng, color]- | Rebinned raw pixel counts for the five SSUSI colors “Raw instrument counts in the limb; rebinned to the new GAIM grid” |
| LIMBDECOMP\_UNCERTAINTY\_GAIM LIMBDECOMP\_ UNCERTAINTY\_GAIM.TITLE | FLOATSTRING | [Mg, Ng, color]- | Decompression uncertainty associated with rebinned counts  “Decompression errors in the limb; rebinned to the new GAIM grid” |
| EXPOSURE\_GAIM EXPOSURE\_GAIM.TITLE  EXPOSURE\_GAIM.UNITS | FLOATSTRINGSTRING | [Mg, Ng]-- | How many L1B pixel exposures are contained in this grid cell "Number of L1B scan pixels in each limb GAIM grid bin" "Count” |
| SAA\_COUNT\_GAIM SAA\_COUNT\_GAIM.TITLE | INTSTRING | [Mg, Ng]- | Number of raw pixels in each bin having high 4278 photometer counts (a signature of the South Atlantic Anomaly)  “GAIM South Atlantic Anomaly count” |
|  |  |  |  |
| **Calibrated, background-corrected data** |
| LIMB\_INTENSITY\_GAIM LIMB\_INTENSITY\_GAIM.TITLE LIMB\_INTENSITY\_GAIM.UNITS | DOUBLESTRINGSTRING | [Mg, Ng, color]-- | Rebinned limb radiances (in Rayleighs)  “Imaging mode limb radiance data; rebinned to the new GAIM grid” “Rayleighs” |
| LIMB\_RADIANCE\_UNCERTAINTY\_GAIM LIMB\_RADIANCE\_UNCERTAINTY\_GAIM.TITLE  LIMB\_RADIANCE\_UNCERTAINTY\_GAIM.UNITS | DOUBLESTRINGSTRING | [Mg, Ng, color]-- | Uncertainty in rebinned limb radiances due to counting statistics and decompression (in Rayleighs) “Limb Radiance error; rebinned to the new GAIM grid” “Rayleighs” |
| LIMB\_INTENSITY\_MN\_SUBTRACTED\_GAIM LIMB\_INTENSITY\_MN\_SUBTRACTED\_GAIM.TITLELIMB\_INTENSITY\_MN\_SUBTRACTED\_GAIM.UNITS | DOUBLESTRINGSTRING | [Mg, Ng, color]-- | Rebinned limb radiances (in Rayleighs) with the estimated 135.6nm contribution from mutual neutralization emission subtracted “Imaging mode MN subtracted limb radiance data; rebinned to the GAIM grid”“Rayleighs” |
| LIMB\_RADIANCE\_MN\_SUBTRACTED\_UNCERTAINTY\_GAIMLIMB\_RADIANCE\_MN\_SUBTRACTED\_UNCERTAINTY\_GAIM.TITLELIMB\_RADIANCE\_MN\_SUBTRACTEDUNCERTAINTY\_GAIM.UNITS | DOUBLESTRINGSTRING | [Mg, Ng, color]-- | Uncertainty in rebinned limb radiances where the estimated MN contribution to 135.6 nm radiation has been subtracted, due to counting statistics, decompression, and error propagation “Limb MN subtracted Radiance error; rebinned to the GAIM grid” “Rayleighs” |
| LIMB\_CALIBRATION\_UNCERTAINTY\_GAIM LIMB\_CALIBRATION\_UNCERTAINTY\_GAIM.TITLELIMB\_CALIBRATION\_UNCERTAINTY\_GAIM.UNITS | DOUBLESTRINGSTRING | [Mg, Ng, color] | Calibration uncertainty in rebinned limb radiances (in Rayleighs)  “Rebinned limb radiance calibration uncertainty on GAIM grid”  “Rayleighs” |
| CHAPMAN\_INTENSITYCHAPMAN\_INTENSITY\_TITLECHAPMAN\_INTENSITY\_UNITS | DOUBLESTRINGSTRING | Mg, Ng]-- | Simulated Chapman intensity profile (in Rayleighs)"Simulated Chapman limb-scan radiance profile""Rayleighs" |
| CHAPMAN\_INTENSITY\_UNCERTAINTYCHAPMAN\_INTENSITY\_UNCERTAINTY \_TITLECHAPMAN\_INTENSITY\_UNCERTAINTY \_UNITS | DOUBLESTRINGSTRING | Mg, Ng]-- | Simulated Chapman intensity profile uncertainty(in Rayleighs)"Simulated Chapman limb-scan radiance profile uncertainty""Rayleighs" |
| DQI\_GAIM | INT | [Mg,Ng, color] | Data Quality Indicator for data in bins “Data Quality bitflag: * 0: MeV noise present in cell,
* 1: SAA contamination
* 2:Mirror pointing unknown bit position
* 3: LBHdayside dayglow indication threshold exceeded,region data
* 4: unable to subtract Mutual Neutralization correction failed
* 5: Bad Chapman profile
* 6: Not enough data for Chapman profile
* component
 |

# EDR GAIM-DISK Data File

**PRODUCT VERSION 0100**

|  |  |  |
| --- | --- | --- |
| **Revision** | **Date** | **Changes Made** |
| 1.0.0 | 8/8/2011 | Initial Version of GAIM-DISK file definition table |

Note the changes from the SDR2-DISK are the addition of MN subtracted radiances and uncertainties for 1356.

The GAIM EDR contains the lowest resolution gridded SSUSI radiances, time, and geolocation information. The raw radiances are taken directly from the SDR. Other corrections and flags are added to this SDR data, e.g., the estimated contribution from mutual neutralization to the 1356 radiance is removed and the result provided for ingestion into GAIM. In addition to the cross track and along track pixel numbers M and N, we also need S, the number of instrument scans in order to carry forward some L1B information. (Md,Nd) are the array sizes for the day (cross, along) track arrays, (Mn,Nn) are the array sizes for the night (cross, along) track arrays, qnd (Mdda, Ndda) are for the auroral (cross,along) track arrays.

The “color” dimension is defined in the Indices used in file description section of the Introduction.

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable Name** | **Type** | **Dimensions** | **Value/Comment** |
|  |  |  |  |
| **Time and Position Information** |
| TIME\_GAIM\_DAY TIME GAIM\_DAY\_TITLE TIME GAIM\_DAY\_UNITS | DOUBLESTRINGSTRING | [Nd]-- | The time of each newly re-binned along track day altitude pixel. ‘Time of each newly re-binned along track GAIM pixel’ ‘Seconds since the start of the day’ |
| YEAR GAIM\_DAY YEAR\_GAIM\_DAY TITLE | INTSTRING | [Nd]- | The year of each rebinned day pixel “Year of each newly rebinned for GAIM day pixel” |
| DOY\_GAIM\_DAY DOY GAIM\_DAY\_TITLE | INTSTRING | [Nd]- | The day of year of each rebinned day pixel. “Day of year of each newly rebinned for GAIM day pixel” |
| ORBIT GAIM\_DAY ORBIT GAIM\_DAY TITLE | INTString | [Nd]- | Orbit numbers for each day grid row. “Orbit number of each newly rebinned for GAIM along track day pixel” |
| LATITUDE\_GAIM\_DAY LATITUDE\_GAIM\_DAY\_TITLE LATITUDE\_GAIM\_DAY\_UNITS | FLOATSTRINGSTRING | [Nd]-- | DMSP S/C Latitude. “S/C geographic latitude, rebinned to the new GAIM day grid” “ degrees” |
| LONGITUDE\_GAIM\_DAY LONGITUDE\_GAIM\_DAY\_TITLE LONGITUDE\_GAIM\_DAY\_UNITS | FLOATSTRINGSTRING | [Nd]-- | DMSP S/C Longitude. “S/C geographic longitude, rebinned to the new GAIM day grid” “degrees” |
| ALTITUDE\_GAIM\_DAY ALTITUDE\_GAIM\_DAY\_TITLE ALTITUDE\_GAIM\_DAY\_UNITS | FLOATSTRINGSTRING | [Nd]-- | DMSP S/C Altitude. “S/C geographic altitude, rebinned to the new GAIM day altitudegrid” “km” |
| TIME\_GAIM\_DAY\_AURORAL TIME GAIM\_DAY\_AURORAL \_TITLE TIME GAIM\_DAY\_AURORAL \_UNITS | DOUBLESTRINGSTRING | [Ndda]-- | The time of each newly re-binned along track day altitude pixel. ‘Time of each newly re-binned along track dayside auroral GAIM pixel’ ‘Seconds since the start of the day’ |
| YEAR GAIM\_DAY\_AURORAL YEAR\_GAIM\_DAY\_AURORAL TITLE | INTSTRING | [Ndda]- | The year of each rebinned day pixel “Year of each newly rebinned for dayside auroral GAIM day pixel” |
| DOY\_GAIM\_DAY\_AURORAL DOY GAIM\_DAY\_AURORAL \_TITLE | INTSTRING | [Ndda]- | The day of year of each rebinned day pixel. “Day of year of each newly rebinned for GAIM dayside auroral pixel” |
| ORBIT GAIM\_DAY\_AURORAL ORBIT GAIM\_DAY\_AURORAL TITLE | INTString | [Ndda]- | Orbit numbers for each day grid row. “Orbit number of each newly rebinned for GAIM along track dayside auroral pixel” |
| LATITUDE\_GAIM\_DAY\_AURORAL LATITUDE\_GAIM\_DAY\_AURORAL \_TITLE LATITUDE\_GAIM\_DAY\_AURORAL \_UNITS | FLOATSTRINGSTRING | [Ndda]-- | DMSP S/C Latitude. “S/C geographic latitude, rebinned to the new GAIM dayside auroral grid” “ degrees” |
| LONGITUDE\_GAIM\_DAY\_AURORAL LONGITUDE\_GAIM\_DAY\_AURORAL \_TITLE LONGITUDE\_GAIM\_DAY\_AURORAL \_UNITS | FLOATSTRINGSTRING | [Ndda]-- | DMSP S/C Longitude. “S/C geographic longitude, rebinned to the new GAIM dayside auroral grid” “degrees” |
| ALTITUDE\_GAIM\_DAY\_AURORAL ALTITUDE\_GAIM\_DAY\_AURORAL \_TITLE ALTITUDE\_GAIM\_DAY\_AURORAL \_UNITS | FLOATSTRINGSTRING | [Ndda]-- | DMSP S/C Altitude. “S/C geographic altitude, rebinned to the new GAIM dayside auroral altitude grid” “km” |
| TIME\_GAIM\_NIGHT TIME GAIM\_NIGHT\_TITLE TIME GAIM\_NIGHT\_UNITS | DOUBLESTRINGSTRING | [Nn]-- | The time of each newly re-binned along track night altitude pixel. ‘Time of each newly re-binned for GAIM along track pixel’ ‘Seconds since the start of the day’ |
| YEAR GAIM\_NIGHT YEAR GAIM\_NIGHT\_TITLE | INTSTRING | [Nn]- | The year of each rebinned night pixel “Year of each newly rebinned for GAIM night pixel” |
| DOY GAIM\_NIGHT DOY GAIM\_NIGHT\_TITLE | INTSTRING | [Nn]- | The day of year of each rebinned night pixel. “Day of year of each newly rebinned for GAIM night pixel” |
| ORBIT GAIM\_NIGHT ORBIT GAIM NIGHT\_TITLE | INTString | [Nn]- | Orbit numbers for each night grid row. “Orbit number of each newly rebinned for GAIM along track night pixel” |
| LATITUDE GAIM\_NIGHT LATITUDE GAIM\_NIGHT\_TITLE LATITUDE GAIM\_NIGHT\_UNITS | FLOATSTRINGSTRING | [Nn]-- | DMSP S/C Latitude. “S/C Latitude, rebinned to the new GAIM night grid” “degrees” |
| LONGITUDE GAIM\_NIGHT LONGITUDE GAIM\_NIGHT\_TITLE LONGITUDE GAIM\_NIGHT\_UNITS | FLOATSTRINGSTRING | [Nn]-- | DMSP S/C Longitude. “S/C Longitude, rebinned to the new GAO< night grid” “degrees” |
| ALTITUDE GAIM\_NIGHT ALTITUDE GAIM\_NIGHT\_TITLE ALTITUDE GAIM\_NIGHT\_UNITS | FLOATSTRINGSTRING | [Nn]-- | DMSP S/C Altitude. “S/C Altitude, rebinned to the new GAIM night altitude grid” ‘km” |
| PIERCEPOINT GAIM\_NIGHT\_LATITUDE PIERCEPOINT GAIM\_NIGHT\_LATITUDE\_TITLE PIERCEPOINT GAIM\_NIGHT\_LATITUDE\_UNITS | FLOATSTRINGSTRING | [Mn, Nn]-- | Night Piercepoint latitude of each rebinned pixel center “Nightside latitude of the pierce point; rebinned to the new GAIM grid.” ‘degrees” |
| PIERCEPOINT GAIM\_NIGHT\_LONGITUDE PIERCEPOINT GAIM\_NIGHT\_LONGITUDE\_TITLE PIERCEPOINT GAIM\_NIGHT\_LONGITUDE\_UNITS | FLOATSTRINGSTRING | [Mn, Nn]-- | Night Piercepoint longitude of each rebinned pixel center “Nightside longitude of the pierce point; rebinned to the new GAIM grid.” “degrees” |
| PIERCEPOINT GAIM\_NIGHT\_ALTITUDE PIERCEPOINT GAIM\_NIGHT\_ALTITUDE\_TITLE PIERCEPOINT GAIM\_NIGHT\_ALTITUDE \_UNITS | FLOATSTRINGSTRING | [Mn, Nn]-- | Night Piercepoint altitude of each rebinned pixel center “Nightside pierce point altitude for the new GAIM night grid.” “km”  |
| PIERCEPOINT GAIM\_NIGHT\_SZA PIERCEPOINT GAIM\_NIGHT\_SZA.TITLE PIERCEPOINT GAIM\_NIGHT\_SZA.UNITS | FLOATSTRINGSTRING | [Md, Nd]-- | Night piercepoint solar zenith angle “Nightside solar zenith angle for the center of new GAIM grid cell.” “degrees” |
| PIERCEPOINT GAIM\_DAY\_LATITUDE PIERCEPOINT GAIM\_DAY\_LATITUDE\_TITLE PIERCEPOINT GAIM\_DAY\_LATITUDE\_UNITS | FLOATSTRINGSTRING | [Md, Nd]- | Day piercepoint latitude of each rebinned pixel center “Dayside latitude of the pierce point; rebinned to the new GAIM grid.” “degrees” |
| PIERCEPOINT GAIM\_DAY\_LONGITUDE PIERCEPOINT GAIM\_DAY\_LONGITUDE\_TITLE PIERCEPOINT GAIM\_DAY\_LONGITUDE\_UNITS | FLOATSTRINGSTRING | [Md, Nd]- | Day Piercepoint longitude of each rebinned pixel center “Dayside longitude of the pierce point; rebinned to the new GAIM grid.” “degrees” |
| PIERCEPOINT GAIM\_DAY\_ALTITUDE PIERCEPOINT GAIM\_DAY\_ALTITUDE\_TITLE PIERCEPOINT GAIM\_DAY\_ALTITUDE\_UNITS | FLOATSTRINGSTRING | [Md, Nd]- | Day piercepoint altitude of newly rebinned pixel center “Dayside pierce point altitudes for the new GAIM grid” “km” |
| PIERCEPOINT GAIM\_DAY\_SZA PIERCEPOINT GAIM\_DAY\_SZA.TITLE PIERCEPOINT GAIM\_DAY\_SZA.UNITS | FLOATSTRINGSTRING | [Md, Nd]-- | Day piercepoint solar zenith angle “Dayside solar zenith angle for the center of new GAIM grid cell.” “degrees” |
| PIERCEPOINT GAIM\_DAY\_AURORAL\_LATITUDE PIERCEPOINT GAIM\_DAY\_AURORAL \_LATITUDE\_TITLE PIERCEPOINT GAIM\_DAY\_AURORAL \_LATITUDE\_UNITS | FLOATSTRINGSTRING | [Mdda, Ndda]- | Day piercepoint latitude of each rebinned pixel center “Dayside latitude of the pierce point; rebinned to the new GAIM dayside auroral grid.” “degrees” |
| PIERCEPOINT GAIM\_DAY\_AURORAL \_LONGITUDE PIERCEPOINT GAIM\_DAY\_AURORAL \_LONGITUDE\_TITLE PIERCEPOINT GAIM\_DAY\_AURORAL \_LONGITUDE\_UNITS | FLOATSTRINGSTRING | [Mdda, Ndda]- | Day Piercepoint longitude of each rebinned pixel center “Dayside longitude of the pierce point; rebinned to the new GAIM dayside auroral grid.” “degrees” |
| PIERCEPOINT GAIM\_DAY\_AURORAL \_ALTITUDE PIERCEPOINT GAIM\_DAY\_AURORAL \_ALTITUDE\_TITLE PIERCEPOINT GAIM\_DAY\_AURORAL \_ALTITUDE\_UNITS | FLOATSTRINGSTRING | [Mdda, Ndda]- | Day piercepoint altitude of newly rebinned pixel center “Dayside pierce point altitudes for the new GAIM dayside auroral grid” “km” |
| PIERCEPOINT GAIM\_DAY\_AURORAL \_SZA PIERCEPOINT GAIM\_DAY\_AURORAL \_SZA.TITLE PIERCEPOINT GAIM\_DAY\_AURORAL \_SZA.UNITS | FLOATSTRINGSTRING | [Mdda, Ndda]-- | Day piercepoint solar zenith angle “Dayside solar zenith angle for the center of new GAIM dayside auroral grid cell.” “degrees” |
| IN\_SAA GAIM\_DAY IN\_SAA GAIM\_DAY\_TITLE | INTSTRING | [Md,Nd] | Indicator of whether any day pixels in the bin may have SAA contamination ‘SAA GAIM grid cell flag: 1 any pixels in bin were observed while the S/C was in SAA, 0 if not” |
| IN\_SAA GAIM\_DAY\_AURORAL IN\_SAA GAIM\_DAY\_AURORAL \_TITLE | INTSTRING | [Mdda,Ndda] | Indicator of whether any day pixels in the bin may have SAA contamination ‘SAA GAIM dayside auroral grid cell flag: 1 any pixels in bin were observed while the S/C was in SAA, 0 if not” |
| IN\_SAA GAIM\_NIGHT IN\_SAA GAIM\_NIGHT\_TITLE | INTSTRING | [Mn,Nn] | Indicator of whether any night pixels in bin may be contaminated by SAA ‘SAA GAIM grid cell flag: 1 if any binned pixels were observed while S/C was in SAA, 0 if not” |
|  |  |  |  |
| ACROSSPIXELSIZE GAIM\_DAY ACROSSPIXELSIZE GAIM\_DAY\_TITLE ACROSSPIXELSIZE GAIM\_DAY\_UNITS | FLOATSTRINGSTRING | [Md]-- | Arclength on the dayside piercepoint surface of across track pixels. “Piercepoint surface arclengths of across track GAIM day pixels" “kilometers” |
| ALONGPIXELSIZE GAIM\_DAY ALONGPIXELSIZE GAIM\_DAY\_TITLE ALONGPIXELSIZE GAIM\_DAY\_UNITS | FLOATSTRINGSTRING | --- | Arclength on the dayside piercepoint surface of along track pixels "Piercepoint surface arclength of along track GAIM day pixels" “kilometers” |
| ACROSSPIXELSIZE GAIM\_DAY\_AURORAL ACROSSPIXELSIZE GAIM\_DAY\_AURORAL \_TITLE ACROSSPIXELSIZE GAIM\_DAY\_AURORAL \_UNITS | FLOATSTRINGSTRING | [Mdda]-- | Arclength on the dayside piercepoint surface of across track pixels. “Piercepoint surface arclengths of across track GAIM dayside auroral pixels" “kilometers” |
| ALONGPIXELSIZE GAIM\_DAY\_AURORAL ALONGPIXELSIZE GAIM\_DAY\_AURORAL \_TITLE ALONGPIXELSIZE GAIM\_DAY\_AURORAL \_UNITS | FLOATSTRINGSTRING | --- | Arclength on the dayside piercepoint surface of along track pixels "Piercepoint surface arclength of along track GAIM dayside auroral pixels" “kilometers” |
| ACROSSPIXELSIZE GAIM\_NIGHT ACROSSPIXELSIZE GAIM\_NIGHT\_TITLE ACROSSPIXELSIZE GAIM\_NIGHT\_UNITS | FLOATSTRINGSTRING | [Mn]-- | Arclength on the nightside piercepoint surface of across track pixels. “Piercepoint surface arclengths of across track GAIM night pixels" “kilometers” |
| ALONGPIXELSIZE GAIM\_NIGHT ALONGPIXELSIZE GAIM\_NIGHT\_TITLE ALONGPIXELSIZE GAIM\_NIGHT\_UNITS | FLOATSTRINGSTRING | --- | Arclength on the nightside Piercepoint surface of along track pixels. "Piercepoint surface arclength of along track GAIM night pixels" “kilometers” |
| EFFECTIVELOOKANGLE GAIM\_DAYEFFECTIVELOOKANGLE GAIM\_DAY\_TITLEEFFECTIVELOOKANGLE GAIM\_DAY\_UNITS | FLOATSTRINGSTRING | [Md,Nd]-- | Effective scan mirror look angles for the rebinned DAY grid (in degrees).“Effective cross track look angle to day GAIM grid centers”“Degrees” |
| EFFECTIVELOOKANGLE GAIM\_DAY\_AURORALEFFECTIVELOOKANGLE GAIM\_DAY\_AURORAL \_TITLEEFFECTIVELOOKANGLE GAIM\_DAY\_AURORAL \_UNITS | FLOATSTRINGSTRING | [Mdda,Ndda]-- | Effective scan mirror look angles for the rebinned DAY grid (in degrees).“Effective cross track look angle to dayside auroral GAIM grid centers”“Degrees” |
| EFFECTIVELOOKANGLE GAIM\_NIGHTEFFECTIVELOOKANGLE GAIM\_NIGHT\_TITLEEFFECTIVELOOKANGLE GAIM\_NIGHT\_UNITS | FLOATSTRINGSTRING | [Mn,Nn]-- | Effective scan mirror look angles for the rebinned NIGHT grid (in degrees).“Effective cross track look angle to night GAIM grid centers”“Degrees” |
|  |  |  |  |
| **Re-binned Data** |
| DISKCOUNTSDATA GAIM\_DAY DISKCOUNTSDATA GAIM\_DAY\_TITLE DISKCOUNTSDATA GAIM\_DAY\_UNITS | FLOATSTRINGSTRING | [Md, Nd, color]-- | Raw pixel data that was re-binned onto the new dayside grid. “Dayside uncorrected decompressed counts in the disk; rebinned to the new GAIM grid.”“Uncorrected decompressed counts” |
| DISKDECOMP\_ UNCERTAINTY GAIM \_DAY DISKDECOMP\_ UNCERTAINTY GAIM\_DAY\_TITLE DISKDECOMP\_ UNCERTAINTY GAIM\_DAY\_UNITS | FLOATSTRINGSTRING | [Md, Nd, color]-- | Decompression error uncertainty that was re-binned onto the new grid. “Dayside Auroral decompression uncertainty for the disk; rebinned to the new grid.”“Uncorrected decompressed counts” |
| DISKCOUNTSDATA GAIM\_DAY\_AURORAL DISKCOUNTSDATA GAIM\_DAY\_AURORAL \_TITLE DISKCOUNTSDATA GAIM\_DAY\_AURORAL \_UNITS | FLOATSTRINGSTRING | [Mdda, Ndda, color]-- | Raw pixel data that was re-binned onto the new dayside grid. “Dayside uncorrected decompressed counts in the disk; rebinned to the new GAIM grid.”“Uncorrected decompressed counts” |
| DISKDECOMP\_ UNCERTAINTY GAIM \_DAY\_AURORAL DISKDECOMP\_ UNCERTAINTY GAIM\_DAY\_AURORAL \_TITLE DISKDECOMP\_ UNCERTAINTY GAIM\_DAY\_AURORAL \_UNITS | FLOATSTRINGSTRING | [Mdda, Ndda, color]-- | Decompression error uncertainty that was re-binned onto the new grid. “Dayside Auroral decompression uncertainty for the disk; rebinned to the new grid.”“Uncorrected decompressed counts” |
| EXPOSURE\_DAY\_GAIM EXPOSURE\_DAY\_GAIM.TITLE  EXPOSURE\_DAY\_GAIMUNITS | FLOATSTRINGSTRING | [Md,Nd, color]-- | How many L1B pixel exposures are contained in this grid cell "Number of L1B scan pixels in each dayside GAIM grid bin" "count” |
| EXPOSURE\_DAY\_GAIM\_AURORAL EXPOSURE\_DAY\_GAIM\_AURORAL.TITLE  EXPOSURE\_DAY\_GAIM\_AURORAL UNITS | FLOATSTRINGSTRING | [Mdda,Ndda, color]-- | How many L1B pixel exposures are contained in this grid cell "Number of L1B scan pixels in each dayside auroral GAIM grid bin" "count” |
| DISKCOUNTSDATA GAIM\_NIGHT DISKCOUNTSDATA GAIM\_NIGHT\_TITLE DISKCOUNTSDATA GAIM\_NIGHT\_UNITS | FLOATSTRINGSTRING | [Mn, Nn, color]-- | Raw pixel data that was re-binned onto the new nightside grid. “Nightside uncorrected decompressed counts in the disk; rebinned to the new GAIM grid.”“Uncorrected decompressed counts” |
| DISKDECOMP\_UNCERTAINTY GAIM\_NIGHT DISKDECOMP\_ UNCERTAINTY GAIM \_NIGHT\_TITLE DISKDECOMP\_ UNCERTAINTY GAIM\_NIGHT\_UNITS | FLOATSTRINGSTRING | [Mn, Nn, color]-- | Decompression error uncertainty that was re-binned onto the new grid. “Nightside decompression uncertainty for the disk; rebinned to the new GAIM grid.”“Uncorrected decompressed counts” |
| EXPOSURE\_NIGHT\_GAIM EXPOSURE\_NIGHT\_GAIM.TITLE  EXPOSURE\_NIGHT.\_GAIMUNITS | FLOATSTRINGSTRING | [Mn,Nn, color]-- | How many L1B pixel exposures are contained in this grid cell "Number of L1B scan pixels in each nightside GAIM grid bin" "Count” |
| SAA\_COUNT GAIM\_DAY\_AURORAL SAA\_COUNT GAIM\_DAY\_AURORAL \_TITLE | INTSTRING | [Mdda, Ndda]- | Number of raw pixels in each day bin having high 4278 photometer counts (a signature of the South Atlantic Anomaly)  “South Atlantic Anomaly count GAIM dayside auroral grid” |
| SAA\_COUNT GAIM\_DAY SAA\_COUNT GAIM\_DAY\_TITLE | INTSTRING | [Md, Nd]- | Number of raw pixels in each day bin having high 4278 photometer counts (a signature of the South Atlantic Anomaly)  “South Atlantic Anomaly count GAIM day grid” |
| SAA\_COUNT GAIM\_NIGHT SAA\_COUNT GAIM\_NIGHT TITLE | INTSTRING | [Mn, Nn]- | Number of raw pixels in each night bin having high 4278 photometer counts (a signature of the South Atlantic Anomaly)  “South Atlantic Anomaly count GAIM night grid” |
|  |  |  |  |
| **Calibrated, background-corrected data** |  |  |  |
| DISK\_INTENSITY GAIM\_NIGHT DISK\_INTENSITY GAIM\_NIGHT\_TITLE DISK\_INTENSITY GAIM\_NIGHT\_UNITS | DOUBLESTRINGSTRING | [Mn, Nn, color]-- | Re-calibrated disk radiances, re-binned onto the new grid. “Nightside Imaging Mode Disk Radiance data re-binned to new GAIM grid” “Rayleighs” |
| DISK\_INTENSITY\_MN\_SUBTRACTED GAIM\_NIGHT DISK\_INTENSITY\_MN\_SUBTRACTED GAIM\_NIGHT\_TITLE DISK\_INTENSITY\_MN\_SUBTRACTED GAIM\_NIGHT\_UNITS | DOUBLESTRINGSTRING | [Mn, Nn, color]-- | Re-calibrated disk radiances, re-binned onto the new grid. “Nightside Imaging Mode Disk Radiance data re-binned to new GAIM grid” “Rayleighs” |
| DISK\_INTENSITY GAIM\_DAY DISK\_INTENSITY GAIM\_DAY\_TITLE DISK\_INTENSITY GAIM\_DAY\_UNITS | DOUBLESTRINGSTRING | [Md, Nd, color]- | Re-calibrated disk radiances, re-binned onto the new grid. “Dayside Imaging Mode Disk Radiance data re-binned to new GAIM grid” “Rayleighs” |
| DISK\_INTENSITY GAIM\_DAY\_AURORAL DISK\_INTENSITY GAIM\_DAY\_AURORAL \_TITLE DISK\_INTENSITY GAIM\_DAY\_AURORAL \_UNITS | DOUBLESTRINGSTRING | [Mdda, Ndda, color]- | Re-calibrated disk radiances, re-binned onto the new grid. “Dayside AURORAL Imaging Mode Disk Radiance data re-binned to new GAIM grid” “Rayleighs” |
| DISK\_RADIANCE\_UNCERTAINTY GAIM\_NIGHT DISK\_RADIANCE\_UNCERTAINTY GAIM\_NIGHT .TITLE DISK\_RADIANCE\_UNCERTAINTY GAIM\_NIGHT .UNITS | DOUBLESTRINGSTRING | [Mn, Nn, color]-- | Uncertainty in disk values due to counting statistics and decompression, re-binned onto the new grid. “Nightside disk Counting Statistical Error; rebinned to new GAIM grid” “Rayleighs” |
| DISK\_RADIANCE\_MN\_SUBTRACTED\_ UNCERTAINTY GAIM\_NIGHT DISK\_RADIANCE\_MN\_SUBTRACTED \_UNCERTAINTY GAIM\_NIGHT .TITLE DISK\_RADIANCE\_MN\_SUBTRACTED \_UNCERTAINTY GAIM\_NIGHT .UNITS | DOUBLESTRINGSTRING | [Mn, Nn, color]-- | Uncertainty in disk values due to counting statistics and decompression, re-binned onto the new grid. “Nightside disk Counting Statistical Error; rebinned to new GAIM grid” “Rayleighs” |
| DISK\_RADIANCE\_UNCERTAINTY GAIM\_DAY DISK\_RADIANCE\_UNCERTAINTY GAIMDAY\_TITLE DISK\_RADIANCE\_UNCERTAINTY GAIM\_DAY\_UNITS | DOUBLESTRINGSTRING | [Md, Nd, color]-- | Uncertainty in disk values due to counting statistics and decompression, re-binned onto the new grid. “Dayside disk Counting Statistical Error; rebinned to new GAIM grid” “Rayleighs” |
| DISK\_RADIANCE\_UNCERTAINTY GAIM\_DAY\_AURORAL DISK\_RADIANCE\_UNCERTAINTY GAIMDAY\_AURORAL \_TITLE DISK\_RADIANCE\_UNCERTAINTY GAIM\_DAY\_AURORAL \_UNITS | DOUBLESTRINGSTRING | [Mdda, Ndda, color]-- | Uncertainty in disk values due to counting statistics and decompression, re-binned onto the new grid. “Dayside auroral disk Counting Statistical Error; rebinned to new GAIM grid” “Rayleighs” |
| DISK\_RECTIFIED\_INTENSITY GAIM\_NIGHT DISK\_RECTIFIED\_INTENSITY GAIM\_NIGHT\_TITLE DISK\_RECTIFIED\_INTENSITY GAIM\_NIGHT\_UNITS | DOUBLESTRINGSTRING | [Mn, Nn, color]- | Re-calibrated and rectified disk radiances, re-binned onto the new grid. “Nightside Imaging Mode Disk Radiance data – corrected for background and look angle, re-binned to new GAIM grid” “Rayleighs” |
| DISK\_RECTIFIED\_INTENSITY GAIM\_DAY  DISK\_RECTIFIED\_INTENSITY GAIM\_DAY\_TITLE DISK\_RECTIFIED\_INTENSITY GAIM\_DAY\_UNITS | DOUBLESTRINGSTRING | [Md, Nd, color]- | Re-calibrated and rectified disk radiances, re-binned onto the new grid. “Dayside Imaging Mode Disk Radiance data – corrected for background and look angle, re-binned to new GAIM grid” “Rayleighs” |
| DISK\_RECTIFIED\_INTENSITY GAIM\_DAY\_AURORAL  DISK\_RECTIFIED\_INTENSITY GAIM\_DAY\_AURORAL \_TITLE DISK\_RECTIFIED\_INTENSITY GAIM\_DAY\_AURORAL \_UNITS | DOUBLESTRINGSTRING | [Mdda, Ndda, color]- | Re-calibrated and rectified disk radiances, re-binned onto the new grid. “Dayside Auroral Imaging Mode Disk Radiance data – corrected for background and look angle, re-binned to new GAIM grid” “Rayleighs” |
| DISK\_RECTIFIED\_RADIANCE\_UNCERTAINTY\_ GAIM\_NIGHT  DISK\_RECTIFIED\_RADIANCE\_UNCERTAINTY\_ GAIM\_NIGHT\_TITLE  DISK\_RECTIFIED\_RADIANCE\_UNCERTAINTY\_ GAIM\_NIGHT\_UNITS | DOUBLESTRINGSTRING | [Mn, Nn, color]-- | Uncertainty in rectified disk values due to counting statistics and decompression, re-binned onto the new grid. “Nightside rectified disk Counting Statistical Error; rebinned to new GAIM grid”“Rayleighs” |
| DISK\_RECTIFIED\_RADIANCE\_UNCERTAINTY\_ GAIM\_DAY DISK\_RECTIFIED\_RADIANCE\_UNCERTAINTY\_ GAIM\_DAY\_TITLE  DISK\_RECTIFIED\_RADIANCE\_UNCERTAINTY\_ GAIM\_DAY\_UNITS | DOUBLESTRINGSTRING | [Md, Nd, color]-- | Uncertainty in rectified disk values due to counting statistics and decompression, re-binned onto the new grid. “Dayside rectified disk Counting Statistical Error; rebinned to new GAIM grid” “Rayleighs” |
| DISK\_RECTIFIED\_RADIANCE\_UNCERTAINTY\_ GAIM\_DAY\_AURORAL DISK\_RECTIFIED\_RADIANCE\_UNCERTAINTY\_ GAIM\_DAY\_AURORAL \_TITLE  DISK\_RECTIFIED\_RADIANCE\_UNCERTAINTY\_ GAIM\_DAY\_AURORAL \_UNITS | DOUBLESTRINGSTRING | [Mdda, Ndda, color ]-- | Uncertainty in rectified disk values due to counting statistics and decompression, re-binned onto the new grid. “Dayside Auroral rectified disk Counting Statistical Error; rebinned to new GAIM grid” “Rayleighs” |
| DISK\_CALIBRATION\_UNCERTAINTY GAIM\_NIGHT DISK\_CALIBRATION\_UNCERTAINTY\_ GAIM\_NIGHT\_TITLE | DOUBLESTRING | [Mn, Nn, color ]- | Disk calibration uncertainty, re-binned onto the new grid. “Nightside Disk Calibration Error; rebinned to new grid” |
| DISK\_CALIBRATION\_UNCERTAINTY GAIM\_DAY\_AURORAL DISK\_CALIBRATION\_UNCERTAINTY GAIM\_DAY\_AURORAL \_TITLE | DOUBLESTRING | [Mdda, Ndda, color ]- | Disk calibration uncertainty, re-binned onto the new grid.  “Dayside Auroral Disk Calibration Error; rebinned to new GAIM grid” |
| DISK\_CALIBRATION\_UNCERTAINTY GAIM\_DAY DISK\_CALIBRATION\_UNCERTAINTY GAIM\_DAY\_TITLE | DOUBLESTRING | [Md, Nd, color ]- | Disk calibration uncertainty, re-binned onto the new grid.  “Dayside Disk Calibration Error; rebinned to new GAIM grid” |
| DQI\_DAY\_GAIM DQI\_DAY.TITLE | SHORTSTRING | [Md,Nd, color ]- | Data Quality Indicator for data in dayside GAIM grid bins“Dayside GAIM Data Quality bitflag:* 0:MeV noise in cell,
* 1: SAA,
* 2: unknown mirror position”
 |
| DQI\_DAY\_AURORAL \_GAIM DQI\_DAY\_AURORAL.TITLE | SHORTSTRING | [Mdda,Ndda, color ]- | Data Quality Indicator for data in dayside GAIM grid bins“Dayside Auroral GAIM Data Quality bitflag:* 0:MeV noise in cell,
* 1: SAA,
* 2: unknown mirror position”
 |
| DQI\_NIGHT\_GAIM DQI\_NIGHT.TITLE | SHORTSTRING | [Mn,Nn, color ]- | Data Quality Indicator for data in nightside GAIM grid bins“Nightside GAIM Data Quality bitflag: * 0:MeV noise in cell,
* 1: SAA,
* 2: unknown mirror position
* 3: LBH dayglow indication threshold exceeded”
* 4: MN correction failed
 |
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