

GPM/DPR ENV Product Format Documentation

Version 2.0

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Japan Aerospace Exploration Agency

Revision history

revision	date	section	content, reason
Version 1.0	Sept. 2 nd 2014	ALL	New
Version 2.0	Dec. 6 th 2021	ALL	Revise for the DPR and PR of Level2 products.

Reference

- (1) PRECIPITATION PROCESSING SYSTEM GLOBAL PRECIPITATION MEASUREMENT “File Specification for GPM Products”,
- (2) PRECIPITATION PROCESSING SYSTEM GLOBAL PRECIPITATION MEASUREMENT “Metadata for GPM Products”,
- (3) PRECIPITATION PROCESSING SYSTEM GLOBAL PRECIPITATION MEASUREMENT “File Specification for GPM Products”,

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1. Level 2 Data Format Structure

1.1. Dimension definition

Dimension definitions:

- nscan
 - Number of scans in the granule.
- nray
 - 49 Number of angle bins in each scan. (FS)
 - 24 Number of angle bins in each scan. (HS)
- nbin
 - 176 Number of range bins in each ray. (FS)
 - 88 Number of range bins in each ray. (HS)

“FS” is called as Full scan Swath in 2AKu, 2AKa and 2ADPR.

“HS” is called as High sensitivity beam scan Swath in 2AKa and 2ADPR.

1.2. Data Format Structure for 2AKu ENV

The Ku Level-2A Environment product, 2AKu ENV, is defined as a swath structure, which is called “FS”.

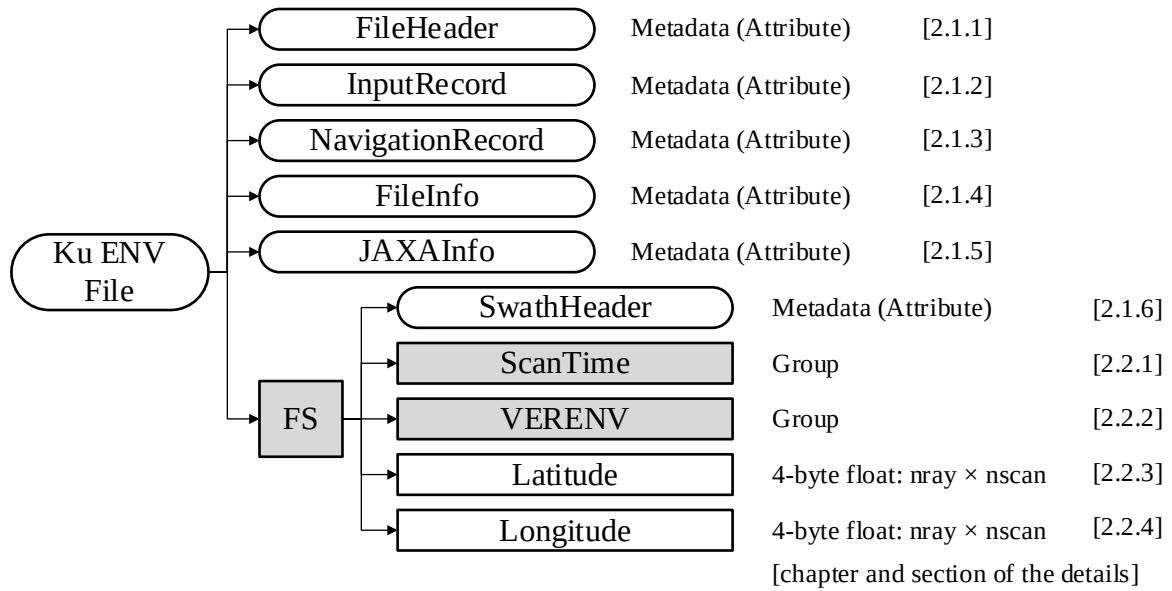


Figure 1.2-1 Data Format Structure for 2AKu ENV

1.3. Data Format Structure for 2AKa ENV

The Ka Level-2A Environment product, 2AKa ENV, is defined as two-swath structures, which are called “FS” and “HS”.

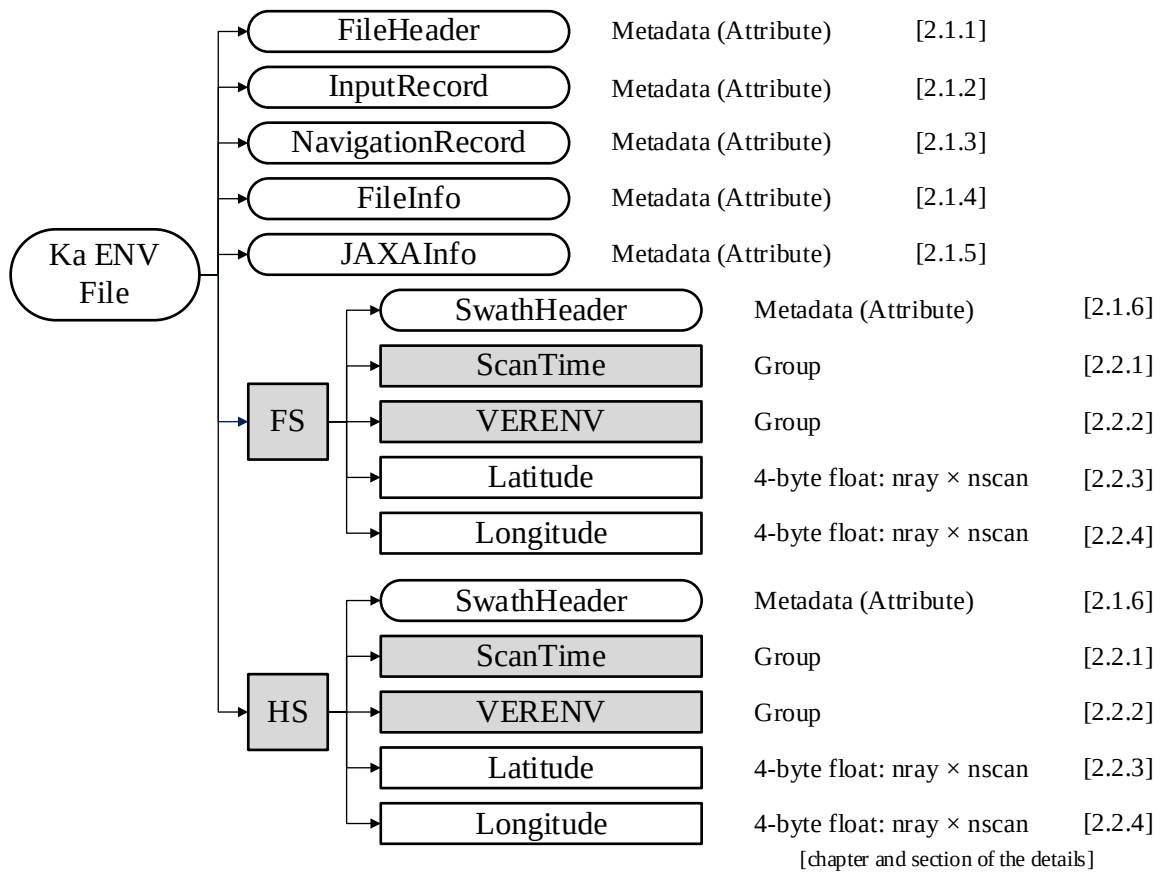


Figure 1.3-1 Data Format Structure for 2AKa ENV

1.4. Data Format Structure for 2ADPR ENV

The DPR Level-2A Environment product, 2ADPR ENV, is defined as two-swath structures, which are called “FS” and “HS”.

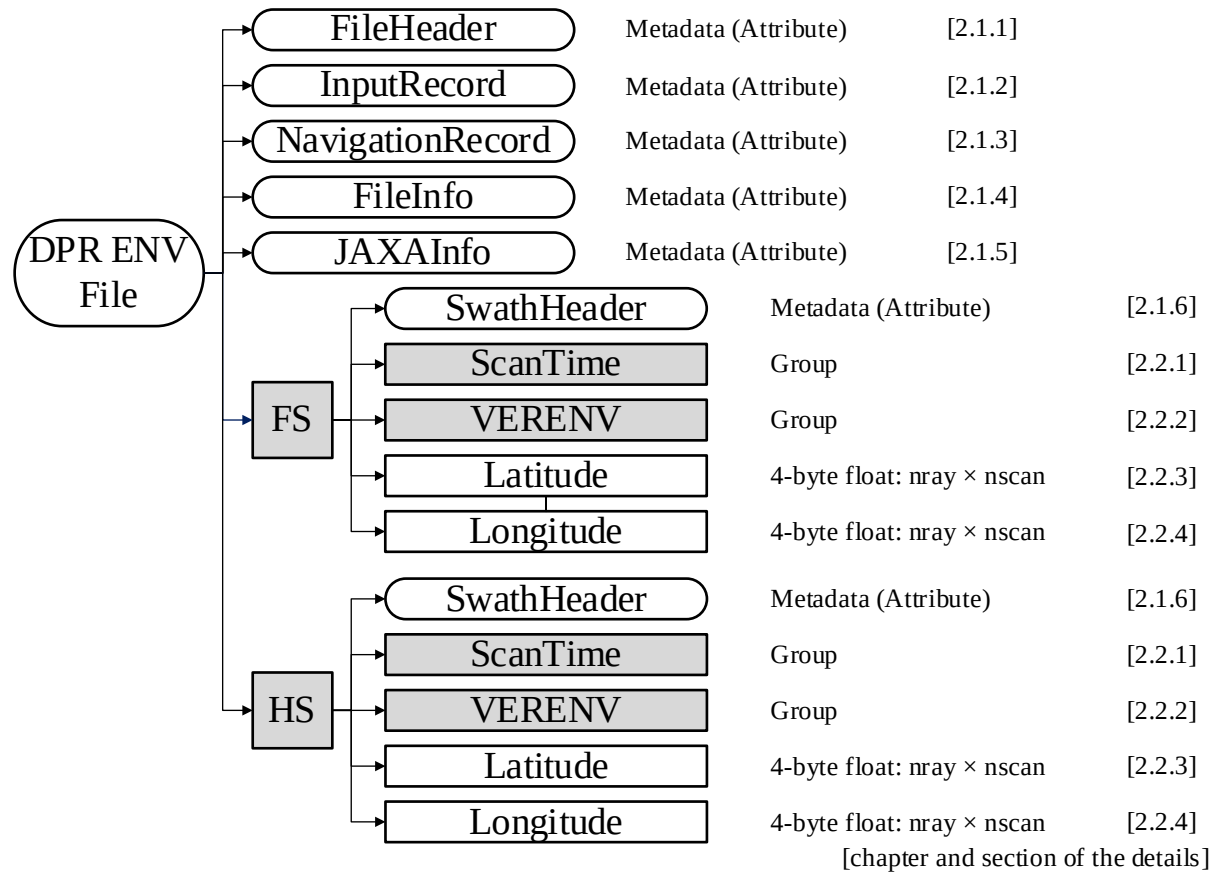


Figure 1.4-1 Data Format Structure for 2ADPR ENV

1.5. Data Format Structure for each Group

Each group's structure is shown in this section. Structures in each grid are common. However, the number of rays and range bins are different as shown in section 1.1.

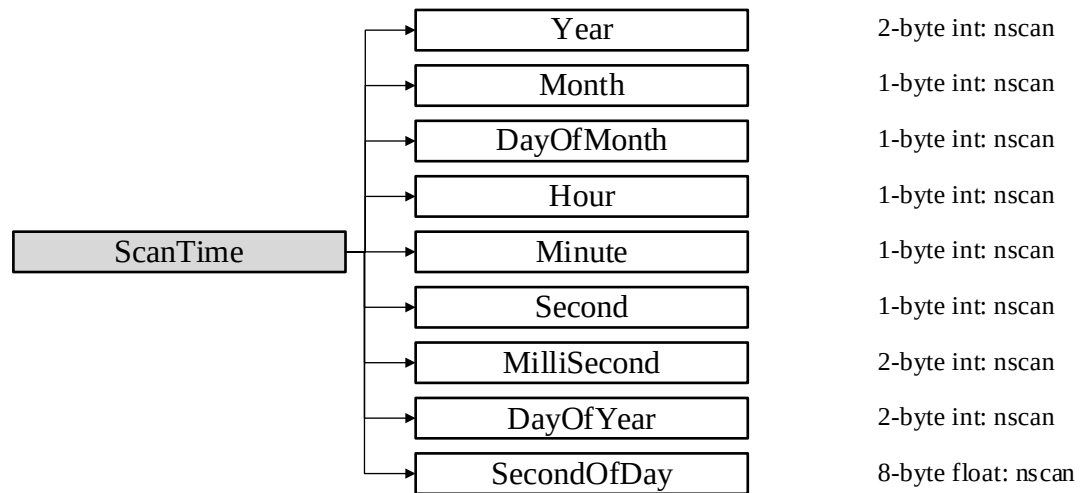


Figure 1.5-1 Data Format Structure for ScanTime Group

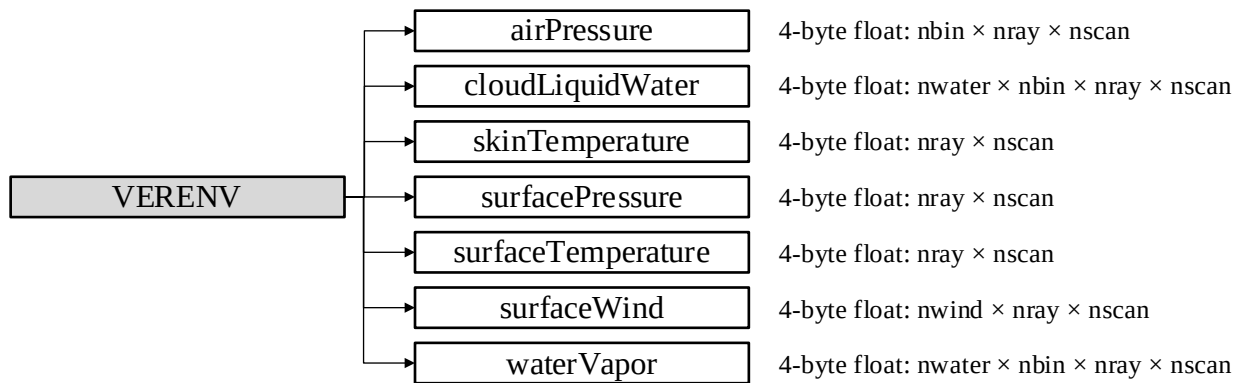


Figure 1.5-2 Data Format Structure for VERENV Group

2. Level 2 Contents of Objects in each Group

2.1. Metadata

Metadata has six elements. Figure 2.1-1 shows metadata structure.

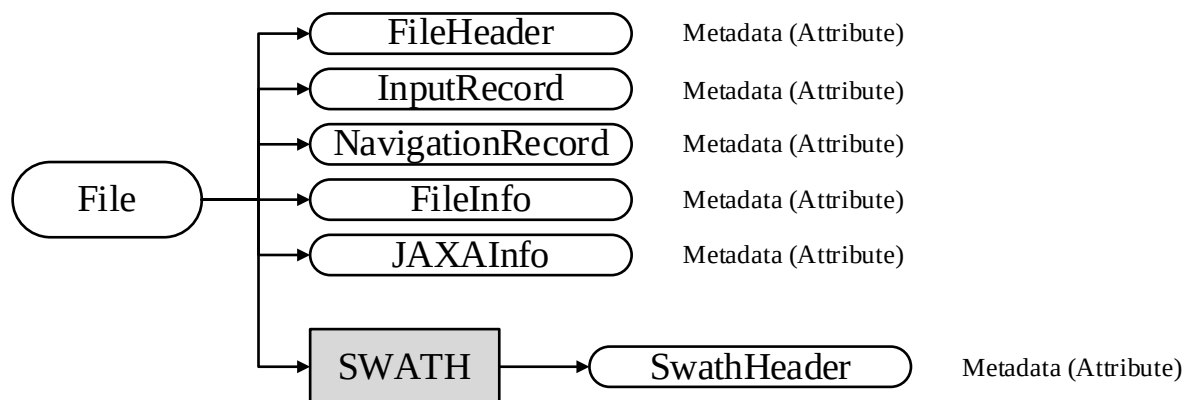


Figure 2.1-1 L2 ENV Metadata

2.1.1. FileHeader

FileHeader contains general metadata. Table 2.1-1 shows each metadata elements in FileHeader.

Table 2.1-1 FileHeader Elements

No	Element	Description	Data size (bytes)
1	DOI	Digital Object Identifier. *Value is blank currently.	256
2	DOIauthority	Digital Object Identifier Authority.	256
3	DOIshortName	Digital Object Identifier Short Name. *Value is blank currently.	256
4	AlgorithmID	The algorithm that generated this product, e.g., 2A12.	50
5	AlgorithmVersion	The version of the algorithm that generated this product.	50
6	FileName	The file name of this granule.	50
7	SatelliteName	Values are: TRMM GPM MULTI F10 ... F18 AQUA GCOMW1 CORIOLIS MT1 NOAA15 ... NOAA19 METOPA NPP. More values will be added as they are known.	10
8	InstrumentName	Values are: PR TMI VIRS PRTMI KU KA DPR GMI DPRGMI MERGED SSMI SSMIS AMSRE AMSR2 WINDSAT MADRAS AMSUA AMSUB SAPHIR MHS ATMS. More values will be added as they are known.	10
9	GenerationDateTime	The date and time this granule was generated. The format is YYYY-MM-DDTHH:MM:SS.sssZ, where YYYY is 4-digit year, MM is month number, DD is day of month, T is "T", HH is hour, MM is minute, SS is second, sss is millisecond, and Z is "Z". All fields are zero-filled. The missing value is constructed by replacing all digits with 9, i.e., 9999-99-99T99:99:99.999Z.	50
10	StartGranuleDateTime	The start time defining this granule. The format is the same as GenerationDateTime. DETAILS: An orbital granule starts when the satellite is at the position defined by GranuleStart. Thus the start time is not the first scan time. Some algorithms have overlap scans in the file before the start time as defined in SwathHeader. A monthly granule starts on the first ms of the month, for example March 1998 would be 1998-03-01T00:00:00.000Z.	50
11	StopGranuleDateTime	The stop time defining this granule. The format is the same as GenerationDateTime. DETAILS: An orbital granule stops when the satellite is at the position defined by GranuleStart. Thus the stop time is not the last scan time. Some algorithms have overlap scans in the file after the stop time as defined in SwathHeader. A monthly granule stops on the last ms of the month, for example March 1998 would be 1998-03-31T23:59:59.999Z.	50
12	GranuleNumber	The number of this granule, which starts as in GranuleStart. If the GranuleStart is identical to the orbit start, then the GranuleNumber will be the same as the orbit number. The GranuleNumber will have 6 digits, including leading zeroes, for example 001234.	50

2.1 Metadata

No	Element	Description	Data size (bytes)
13	NumberOfSwaths	The number of swaths in this granule.	50
14	NumberOfGrids	The number of grid structures in this granule.	50
15	GranuleStart	The starting place in the orbit of this granule. Currently defined values are "SOUTHERNMOST LATITUDE" and "NORTHBOUND EQUATOR CROSSING".	50
16	TimeInterval	The time interval covered by this granule. Values are "ORBIT", "HALF ORBIT", "HALF HOUR", "HOUR", "3 HOUR", "DAY", "DAY ASC", "DAY DES", "MONTH", "CONTACT".	50
17	ProcessingSystem	The name of the processing system, e.g., "PPS", "JAXA".	50
18	ProductVersion	The data version assigned by the processing system.	50
19	EmptyGranule	Whether a granule is empty. Values are "EMPTY" or "NOT EMPTY".	50
20	MissingData	The number of missing scans.	50

2.1.2. InputRecord

InputRecord contains a record of input files for this granule. Table 2.1-2 shows each metadata elements in InputRecord.

Table 2.1-2 InputRecord Elements

No	Element	Description	Data size (bytes)
1	InputFileNames	A list of input file names for this granule.	1000
2	InputAlgorithmVersions	A list of algorithm versions of the input files for this granule.	1000
3	InputGenerationDateTimes	A list of generation date times of the input files for this granule. The format is the same as GenerationDateTime.	1000

2.1.3. NavigationRecord

NavigationRecord contains navigation metadata for this granule. Table 2.1-3 shows each metadata elements in NavigationRecord.

Table 2.1-3 NavigationRecord Elements

No	Element	Description	Data size (bytes)
1	LongitudeOnEquator	The longitude where the satellite crosses the equator going from south to north.	50
2	UTCDateTimeOnEquator	The UTC time when the satellite crosses the equator going from south to north. The format is the same as GenerationDate Time.	50
3	MeanSolarBetaAngle	The average solar beta angle in this granule.	50
4	EphemerisFileName	Name of the ephemeris file input for processing.	50
5	AttitudeFileName	Name of the attitude file input for processing.	50
6	GeoControlFileName	Name of the GeoTK Control Parameters File input for processing.	50
7	EphemerisSource	Values are "0 CONSTANT INPUT TEST VALUE", "1 GROUND ESTIMATED STATE (GES)", "2 GPS FILTERED SOLUTION (GEONS)", "3 GPS POINT SOLUTION (PVT)", "4 ON BOARD PROPAGATED (OBP)", "5 OEM GROUND EPHEMERIS FILE", "6 GEONS WITH FALLBACK AS FLAGGED", "7 PVT WITH FALLBACK AS FLAGGED", "8 OBP WITH FALLBACK AS FLAGGED", "9 GES WITH FALLBACK AS FLAGGED".	50
8	AttitudeSource	values are "0 CONSTANT INPUTS FOR TESTING", "1 ON BOARD CALCULATED PITCH ROLL YAW"	50
9	GeoToolkitVersion	Version of the GeoToolkit.	50
10	SensorAlignmentFirstRotationAngle	Alignment angle, first rotation, in degrees. Rotation adjustment from sensor coordinates to the Attitude Control System Flight Coordinates.	50
11	SensorAlignmentSecondRotationAngle	Alignment angle, second rotation, in degrees.	50
12	SensorAlignmentThirdRotationAngle	Alignment angle, third rotation, in degrees.	50

2.1 Metadata

No	Element	Description	Data size (bytes)
13	SensorAlignmentFirstRotationAxis	Euler rotation sequence, first rotation axis. Values are "1","2", "3" (representing X, Y, Z).	50
14	SensorAlignmentSecondRotationAxis	Euler rotation sequence, second rotation axis. Values are "1","2", "3" (representing X, Y, Z).	50
15	SensorAlignmentThirdRotationAxis	Euler rotation sequence, third rotation axis. Values are "1","2", "3" (representing X, Y, Z).	50

2.1.4. FileInfo

FileInfo contains metadata used by the PPS I/O Toolkit (TKIO). This group appears in all data products. Table 2.1-4 shows each metadata elements in FileInfo.

Table 2.1-4 FileInfo Elements

No	Element	Description	Data size (bytes)
1	DataFormatVersion	The version of the data format used to write this file. This version is separate for each AlgorithmID. The order is: "a" "b" ... "z" "aa" "ab" ... "az" "ba" "bb".	50
2	TKCodeBuildVersion	Usually TK CodeBuildVersion is "1". If the I/O routines built by TKIO change even though the DataFormatVersion is unchanged, then TK CodeBuildVersion increments to "2", "3", ...If subsequently DataFormatVersion changes, TKCodeBuildVersion becomes "1" again.	50
3	MetadataVersion	The version of metadata used to write this file. This version is separate for each AlgorithmID. The order is: "a" "b" ... "z" "aa" "ab" ... "az" "ba" "bb" ...	50
4	FormatPackage	The underlying format of this granule. Values are "HDF4", "HDF5", "NETCDF", "TKBINARY".	50
5	BlueprintFilename	The filename of the primary blueprint file that defined the format used to write this file.	50
6	BlueprintVersion	The BlueprintVersion of the format definition.	50
7	TKIOVersion	The version of TKIO used to create I/O routines to write this file. TKIOVersion does not define the format used to write this file.	50
8	MetadataStyle	The style in which the metadata was written, e.g., "PVL". "PVL" means < parameter >=< value >.	50
9	EndianType	The endian type of the system that wrote this file. Values are "BIG ENDIAN" and "LITTLE ENDIAN".	50

2.1.5. JAXAInfo

JAXAInfo contains metadata requested by JAXA. Used by DPR algorithms and GSMaP. Table 2.1-5 shows each metadata elements in JAXAInfo.

Table 2.1-5 JAXAInfo Elements

No	Element	Description	Data size (bytes)
1	GranuleFirstScanUTCDateTime	The date and time of first scan (incl. missing scan). The format is YYYY-MM-DDTHH:MM:SS.sssZ, where YYYY is 4-digit year, MM is month number, DD is day of month, T is "T", HH is hour, MM is minute, SS is second, sss is millisecond, and Z is "Z". All fields are zero-filled. The missing value is constructed by replacing all digits with 9, i.e., 9999-99-99T99:99:99.999Z.	50
2	GranuleLastScanUTCDateTime	Granule Last Scan UTC Date. Date is a 24 character string. The format is YYYY-MM-DDTHH:MM:SS.sssZ, where YYYY is 4-digit year, MM is month number, DD is day of month, T is "T", HH is hour, MM is minute, SS is second, sss is millisecond, and Z is "Z". All fields are zero-filled.	50
3	TotalQualityCode	The total quality of product is defined based on the quality of input data. Quality meaning are (a) GPM KuPR/KaPR L2 product Good: The total quality of input data (Ku/Ka L1B) is Good. Fair: The GPM KuPR/KaPR L2 is not JMA's global weather forecast (FCST) or JMA's Global ANALsis model data (GANAL) but weather DB file. EG (Empty Granule): The total quality of input data (Ku/Ka L1B) is EG (b) GPM DPR L2 product Good: The total quality of both Ku L2 and Ka L2 is Good. Fair: (i)The total quality of either Ku L2 or Ka L2 is EG (ii)The input data used in GPM DPR L2 is not JMA's global weather forecast (FCST) or JMA's Global ANALysis model data (GANAL) but weather DB file. EG (Empty Granule): The total quality of both Ku L2 and Ka L2 is EG. (c) GPM DPR SLH L2 product Good: The total quality of input data (DPR L2) is Good Fair: The total quality of input data is Fair. EG (Empty Granule): The total quality of input data (DPR L2) is EG.	50
4	FirstScanLat	Latitude of orbit first scan.	50
5	FirstScanLon	Longitude of orbit first scan.	50
6	LastScanLat	Latitude of orbit last scan.	50
7	LastScanLon	Longitude of orbit last scan.	50
8	NumberOfRainPixelsFS	Number of rain pixels in the FS swath, judged at DPR L2 algorithm. At DPR L1, value is "-9999".	50

2.1 Metadata

No	Element	Description	Data size (bytes)
9	NumberOfRainPixelsHS	Number of rain pixels in the HS swath, judged at DPR L2algorithm. At DPR L1, value is "-9999".	50
10	ProcessingSubSystem	The name of the processing sub-system, e.g., "ALGORITHM","PCS".	50
11	ProcessingMode	The name of the processing mode, e.g., "STD","NRT".	50
12	Lightspeed	Constant value of light speed.	50
13	DielectricFactorKa	The parameter of dielectric for Ka.	50
14	DielectricFactorKu	The parameter of dielectric for Ku.	50

2.1.6. SwathHeader

SwathHeader contains metadata for swaths. Table 2.1-6 shows each metadata elements in SwathHeader.

Table 2.1-6 SwathHeader Elements

No	Element	Description	Data size (bytes)
1	NumberScansInSet	The scans read by TKreadScan are a "set". For single swath data, one scan is read so NumberScansInSet=1. For multiple swath data, one TKreadScan may read more than one scan. For example, for SSM/I data one TKreadScan reads one low frequency scan and two high frequency scans. Therefore NumberScansInSet=1 for the low frequency swath and Number-ScansInSet=2 for the high frequency swath.	50
2	MaximumNumberScansTotal	The maximum allowed number of total scans in this swath. Total scans = overlap scans before granule + scans in granule + overlap scans after granule.	50
3	NumberScansBeforeGranule	The number of overlap scans before the first scan of the granule in this swath.	50
4	NumberScansGranule	The number of scans in the granule in this swath.	50
5	NumberScansAfterGranule	The number of overlap scans after the last scan of the granule in this swath.	50
6	NumberPixels	The number of IFOV in each scan in this swath.	50
7	ScanType	The type of scan in this swath. Values are: "CROSSTRACK" and "CONICAL".	50

2.2. Data Group

Elements of data group are explained in detail in this section. Each swath has 2 data group and 2 data (Latitude and Longitude) commonly. Figure 2.2-1 shows data group structure.

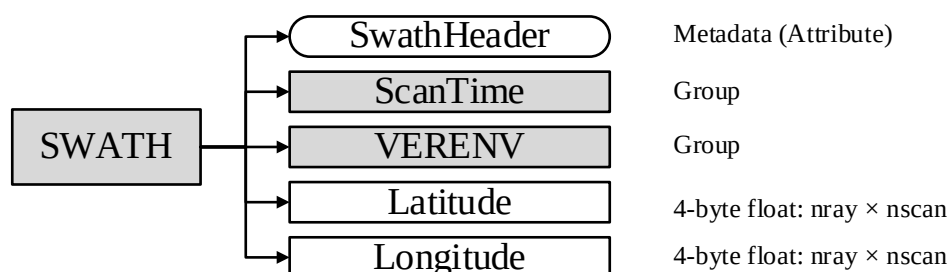


Figure 2.2-1 Data Format Structure for Data Group

2.2.1. ScanTime (Group)

(1) Year

Type	Array	Unit	Missing value
2-byte integer	nscan	year	-9999

4-digit year, e.g., 1998. Values range from 1950 to 2100 years:

(2) Month

Type	Array	Unit	Missing value
1-byte integer	nscan	month	-99

Month of the year. Values range from 1 to 12 months.

(3) DayOfMonth

Type	Array	Unit	Missing value
1-byte integer	nscan	day	-99

Day of the month. Values range from 1 to 31 days.

(4) Hour

Type	Array	Unit	Missing value
1-byte integer	nscan	hour	-99

UTC hour of the day. Values range from 0 to 23 hours.

(5) Minute

Type	Array	Unit	Missing value
1-byte integer	nscan	minute	-99

Minute of the hour. Values range from 0 to 59 minutes.

(6) Second

Type	Array	Unit	Missing value
1-byte integer	nscan	s	-99

Second of the minute. Values range from 0 to 60 s.

(7) MilliSecond

Type	Array	Unit	Missing value
2-byte integer	nscan	ms	-9999

Thousandths of the second. Values range from 0 to 999 ms.

(8) DayOfYear

Type	Array	Unit	Missing value
2-byte integer	nscan	day	-9999

Day of the year. Values range from 1 to 366 days.

(9) SecondOfDay

Type	Array	Unit	Missing value
8-byte float	nscan	s	-9999.9

A time associated with the scan. It is expressed as the UTC seconds of the day.

Values range from 0 to 86400 s.

2.2.2. VERENV (Group)

(1) airPressure

Type	Array	Unit	Missing value
4-byte float	nbin * nray * nscan	hPa	-9999.9

Vertical profile of air pressure inserted from the ancillary data.

(2) cloudLiquidWater

Type	Array	Unit	Missing value
4-byte float	nwater * nbin * nray * nscan	kg/m ³	-9999.9

Vertical profile of cloud liquid water.

nwater = 0: a value diagnosed by the algorithm.

nwater = 1: a value inserted from the ancillary data.

(3) skinTemperature

Type	Array	Unit	Missing value
4-byte float	nray * nscan	K	-9999.9

Surface skin temperature inserted from the ancillary data.

(4) surfacePressure

Type	Array	Unit	Missing value
4-byte float	nray * nscan	hPa	-9999.9

Surface pressure inserted from the ancillary data.

(5) surfaceTemperature

Type	Array	Unit	Missing value
4-byte float	nray * nscan	K	-9999.9

Surface (2 m) air temperature inserted from the ancillary data.

(6) surfaceWind

Type	Array	Unit	Missing value
4-byte float	nwind * nray * nscan	m/s	-9999.9

Surface wind.

nwind = 0: zonal direction.

nwind = 1: meridional direction.

(7) waterVapor

Type	Array	Unit	Missing value
4-byte float	nwater * nbin * nray * nscan	kg/m ³	-9999.9

Vertical profile of water vapor.

nwater = 0: a value diagnosed by the algorithm.

nwater = 1: a value inserted from the ancillary data.

2.2.3. Latitude

Type	Array	Unit	Missing value
4-byte float	nray * nscan	degrees	-9999.9

The earth latitude of the center of the IFOV at the altitude of the earth ellipsoid. Latitude is positive north, negative south. Values range from -90 to 90 degrees.

2.2.4. Longitude

Type	Array	Unit	Missing value
4-byte float	nray * nscan	degrees	-9999.9

The earth longitude of the center of the IFOV at the altitude of the earth ellipsoid. Longitude is positive east, negative west. A point on the 180th meridian has the value -180 degrees. Values range from -180 to 180 degrees.

3. The List of Data Group Element

3.1. Data Group Element (2AKu(DU2) ENV, FS)

Table 3.1-1 2AKu (DU2) ENV Data Group Element (FS)

Group	Element [Array]	Missing Value (_fillValue)	Min	Max	Unit	Type
ScanTime	Year [nscan]	-9999	1950	2100	[year]	2-byte integer
	Month [nscan]	-99	1	12	[month]	1-byte integer
	DayOfMonth [nscan]	-99	1	31	[day]	1-byte integer
	Hour [nscan]	-99	0	23	[hour]	1-byte integer
	Minute [nscan]	-99	0	59	[minute]	1-byte integer
	Second [nscan]	-99	0	60	[s]	1-byte integer
	MilliSecond [nscan]	-9999	0	999	[ms]	2-byte integer
	DayOfYear [nscan]	-9999	1	366	[day]	2-byte integer
	SecondOfDay [nscan]	-9999.9	0	86400	[s]	8-byte float
(N/A)	Latitude [nray][nscan]	-9999.9	-90	90	[degree]	4-byte float
(N/A)	Longitude [nray][nscan]	-9999.9	-180	180	[degree]	4-byte float
VERENV	airPressure [nbin][nray][nscan]	-9999.9			[hPa]	4-byte float
	cloudLiquidWater [nwater][nbin][nray][nscan]	-9999.9			[kg/m ³]	4-byte float
	skinTemperature	-9999.9			[K]	4-byte float

3.1 Data Group Element (2AKu(DU2) ENV, FS)

Group	Element [Array]	Missing Value (_fillValue)	Min	Max	Unit	Type
	[nray][nscan]					
	surfacePressure [nray][nscan]	-9999.9			[hPa]	4-byte float
	surfaceTemperature [nray][nscan]	-9999.9			[K]	4-byte float
	surfaceWind [nwind][nray][nscan]	-9999.9			[m/s]	4-byte float
	waterVapor [nwater][nbin][nray][nscan]	-9999.9			[kg/m ³]	4-byte float

3.2. Data Group Element (2AKa(DA2) ENV, FS)

Group	Element [Array]	Missing Value (_fillValue)	Min	Max	Unit	Type
ScanTime	Year [nscan]	-9999	1950	2100	[year]	2-byte integer
	Month [nscan]	-99	1	12	[month]	1-byte integer
	DayOfMonth [nscan]	-99	1	31	[day]	1-byte integer
	Hour [nscan]	-99	0	23	[hour]	1-byte integer
	Minute [nscan]	-99	0	59	[minute]	1-byte integer
	Second [nscan]	-99	0	60	[s]	1-byte integer
	MilliSecond [nscan]	-9999	0	999	[ms]	2-byte integer
	DayOfYear [nscan]	-9999	1	366	[day]	2-byte integer
	SecondOfDay [nscan]	-9999.9	0	86400	[s]	8-byte float
(N/A)	Latitude [nray][nscan]	-9999.9	-90	90	[degree]	4-byte float
(N/A)	Longitude [nray][nscan]	-9999.9	-180	180	[degree]	4-byte float
VERENV	airPressure [nbin][nray][nscan]	-9999.9			[hPa]	4-byte float

3.2 Data Group Element (2AKa(DA2) ENV, FS)

Group	Element [Array]	Missing Value (_fillValue)	Min	Max	Unit	Type
	cloudLiquidWater [nwater][nbin][nray][nscan]	-9999.9			[kg/m ³]	4-byte float
	skinTemperature [nray][nscan]	-9999.9			[K]	4-byte float
	surfacePressure [nray][nscan]	-9999.9			[hPa]	4-byte float
	surfaceTemperature [nray][nscan]	-9999.9			[K]	4-byte float
	surfaceWind [nwind][nray][nscan]	-9999.9			[m/s]	4-byte float
	waterVapor [nwater][nbin][nray][nscan]	-9999.9			[kg/m ³]	4-byte float

3.3. Data Group Element (2AKa(DA2) ENV, HS)

Table 3.3-1 Data Group Element (2AKa(DA2) ENV, HS)

Group	Element [Array]	Missing Value (_fillValue)	Min	Max	Unit	Type
ScanTime	Year [nscan]	-9999	1950	2100	[year]	2-byte integer
	Month [nscan]	-99	1	12	[month]	1-byte integer
	DayOfMonth [nscan]	-99	1	31	[day]	1-byte integer
	Hour [nscan]	-99	0	23	[hour]	1-byte integer
	Minute [nscan]	-99	0	59	[minute]	1-byte integer
	Second [nscan]	-99	0	60	[s]	1-byte integer
	MilliSecond [nscan]	-9999	0	999	[ms]	2-byte integer
	DayOfYear [nscan]	-9999	1	366	[day]	2-byte integer
	SecondOfDay [nscan]	-9999.9	0	86400	[s]	8-byte float
(N/A)	Latitude [nray][nscan]	-9999.9	-90	90	[degree]	4-byte float
(N/A)	Longitude [nray][nscan]	-9999.9	-180	180	[degree]	4-byte float
VERENV	airPressure [nbin][nray][nscan]	-9999.9			[hPa]	4-byte float

3.3 Data Group Element (2AKa(DA2) ENV, HS)

Group	Element [Array]	Missing Value (_fillValue)	Min	Max	Unit	Type
	cloudLiquidWater [nwater][nbin][nray][nscan]	-9999.9			[kg/m ³]	4-byte float
	skinTemperature [nray][nscan]	-9999.9			[K]	4-byte float
	surfacePressure [nray][nscan]	-9999.9			[hPa]	4-byte float
	surfaceTemperature [nray][nscan]	-9999.9			[K]	4-byte float
	surfaceWind [nwind][nray][nscan]	-9999.9			[m/s]	4-byte float
	waterVapor [nwater][nbin][nray][nscan]	-9999.9			[kg/m ³]	4-byte float

3.4. Data Group Element (2ADPR(DD2) ENV, FS)

Table 3.4-1 Data Group Element (2ADPR(DD2) ENV, FS)

Group	Element [Array]	Missing Value (_fillValue)	Min	Max	Unit	Type
ScanTime	Year [nscan]	-9999	1950	2100	[year]	2-byte integer
	Month [nscan]	-99	1	12	[month]	1-byte integer
	DayOfMonth [nscan]	-99	1	31	[day]	1-byte integer
	Hour [nscan]	-99	0	23	[hour]	1-byte integer
	Minute [nscan]	-99	0	59	[minute]	1-byte integer
	Second [nscan]	-99	0	60	[s]	1-byte integer
	MilliSecond [nscan]	-9999	0	999	[ms]	2-byte integer
	DayOfYear [nscan]	-9999	1	366	[day]	2-byte integer
	SecondOfDay [nscan]	-9999.9	0	86400	[s]	8-byte float
(N/A)	Latitude [nray][nscan]	-9999.9	-90	90	[degree]	4-byte float
(N/A)	Longitude [nray][nscan]	-9999.9	-180	180	[degree]	4-byte float
VERENV	airPressure [nbin][nray][nscan]	-9999.9			[hPa]	4-byte float

3.4 Data Group Element (2ADPR(DD2) ENV, FS)

Group	Element [Array]	Missing Value (_fillValue)	Min	Max	Unit	Type
	cloudLiquidWater [nwater][nbin][nray][nscan]	-9999.9			[kg/m ³]	4-byte float
	skinTemperature [nray][nscan]	-9999.9			[K]	4-byte float
	surfacePressure [nray][nscan]	-9999.9			[hPa]	4-byte float
	surfaceTemperature [nray][nscan]	-9999.9			[K]	4-byte float
	surfaceWind [nwind][nray][nscan]	-9999.9			[m/s]	4-byte float
	waterVapor [nwater][nbin][nray][nscan]	-9999.9			[kg/m ³]	4-byte float

3.5. Data Group Element (2ADPR(DD2) ENV, HS)

Table 3.5-1 Data Group Element (2ADPR(DD2) ENV, HS)

Group	Element [Array]	Missing Value (_fillValue)	Min	Max	Unit	Type
ScanTime	Year [nscan]	-9999	1950	2100	[year]	2-byte integer
	Month [nscan]	-99	1	12	[month]	1-byte integer
	DayOfMonth [nscan]	-99	1	31	[day]	1-byte integer
	Hour [nscan]	-99	0	23	[hour]	1-byte integer
	Minute [nscan]	-99	0	59	[minute]	1-byte integer
	Second [nscan]	-99	0	60	[s]	1-byte integer
	MilliSecond [nscan]	-9999	0	999	[ms]	2-byte integer
	DayOfYear [nscan]	-9999	1	366	[day]	2-byte integer
	SecondOfDay [nscan]	-9999.9	0	86400	[s]	8-byte float
(N/A)	Latitude [nray][nscan]	-9999.9	-90	90	[degree]	4-byte float
(N/A)	Longitude [nray][nscan]	-9999.9	-180	180	[degree]	4-byte float
VERENV	airPressure [nbin][nray][nscan]	-9999.9			[hPa]	4-byte float

3.5 Data Group Element (2ADPR(DD2) ENV, HS)

Group	Element [Array]	Missing Value (_fillValue)	Min	Max	Unit	Type
	cloudLiquidWater [nwater][nbin][nray][nscan]	-9999.9			[kg/m ³]	4-byte float
	skinTemperature [nray][nscan]	-9999.9			[K]	4-byte float
	surfacePressure [nray][nscan]	-9999.9			[hPa]	4-byte float
	surfaceTemperature [nray][nscan]	-9999.9			[K]	4-byte float
	surfaceWind [nwind][nray][nscan]	-9999.9			[m/s]	4-byte float
	waterVapor [nwater][nbin][nray][nscan]	-9999.9			[kg/m ³]	4-byte float

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