

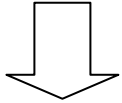
# Changes of PR HDF data structure from Version 6 to Version 7

1 July 2011

JAXA/EORC

# 1. Changes in Science Data Structure (SDS)

Data\_V6 : SDS, V



• No distinction between SDSdata and Vdata in V7

Data\_V7 : DATA

[Major changes]

 **Latitude and longitude data**

geolocation[49][2] → Latitude[49], Longitude[49]

 **Scan time data**

Accumulated seconds of the day:

scan\_time → scanTime\_sed

Date information: Addition of new ScanTime

Need revision of tools  
for V6 products

No deletion of items in SDS of 1B21 and 1C21 V7 products. Date information, however, is added for common use with other instruments and for improvement of convenience. Some parameters changes its type declaration (float, integer) and some parameter names are changed.

Similar changes are applies to 2A21, 2A23 and 2A25 V7 products along with changes of its own.

## 2. Comparison of data structure of 1B21 V6 and V7 products

V6\_HDF4 (TSDIS)

CoreMetadata.0	5.5 Kb
ArchiveMetadata.0	7.8 Kb
DATA_GRANULE	
SwathData	
SwathStructure	482 bytes
scan_time	72.2 Kb
pr_scan_status	144.5 Kb
pr_navigation	794.6 Kb
powers	72.2 Kb
geolocation	3.5 Mb
systemNoise	884.9 Kb
sysNoiseWarnFlag	442.4 Kb
minEchoFlag	442.4 Kb
binStormHeight	1.7 Mb
binEllipsoid	884.9 Kb
binClutterFreeBottom	1.7 Mb
binDIDHmean	884.9 Kb
binDIDHtop	1.7 Mb
binDIDHbottom	1.7 Mb
scLocalZenith	1.7 Mb
scRange	1.7 Mb
osBinStart	1.0 Mb
landOceanFlag	884.9 Kb
surfWarnFlag	884.9 Kb
binSurfPeak	884.9 Kb
normalSample	121.0 Mb
osSurf	2.6 Mb
osRain	5.4 Mb
PR_CAL_COEF	72 bytes
RAY_HEADER	2.9 Kb

V7\_HDF4 (PPSTK2009)

FileHeader	393 bytes
InputRecord	101 bytes
NavigationRecord	97 bytes
FileInfo	258 bytes
JAXAInfo	488 bytes
SwathHeader	169 bytes
pr_cal_coef	
ray_header	
Swath	
SwathHeader	169 bytes
ScanTime	←New!
scanStatus	
navigation	
powers	
scanTime_sec	72.2 Kb
Latitude	←New!
Longitude	
systemNoise	884.9 Kb
sysNoiseWarnFlag	442.4 Kb
minEchoFlag	442.4 Kb
binStormHeight	1.7 Mb
binEllipsoid	884.9 Kb
binClutterFreeBottom	1.7 Mb
binDIDHmean	884.9 Kb
binDIDHtop	1.7 Mb
binDIDHbottom	1.7 Mb
scLocalZenith	1.7 Mb
scRange	1.7 Mb
osBinStart	1.0 Mb
landOceanFlag	884.9 Kb
surfWarnFlag	884.9 Kb
binSurfPeak	884.9 Kb
normalSample	121.0 Mb
osSurf	2.6 Mb
osRain	5.4 Mb



### 3. Detailed information of data structure of 1B21 V7 product

pr\_cal\_coef, ray\_header

pr_cal_coef	
transCoef	4 bytes
receptCoef	4 bytes
fcifIOchar	64 bytes
ray_header	
rayStart	98 bytes
raySize	98 bytes
angle	196 bytes
startBinDist	196 bytes
rainThres1	196 bytes
rainThres2	196 bytes
transAntenna	196 bytes
recvAntenna	196 bytes
onewayAlongTrack	196 bytes
onewayCrossTrack	196 bytes
eqvWavelength	196 bytes
radarConst	196 bytes
prIntrDelay	196 bytes
rangeBinSize	196 bytes
logAveOffset	196 bytes
mainlobeEdge	49 bytes
sidelobeRange	147 bytes

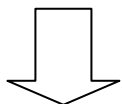
ScanTime, scanStatus, navigation, powers

ScanTime	
Year	18.1 Kb
Month	9.0 Kb
DayOfMonth	9.0 Kb
Hour	9.0 Kb
Minute	9.0 Kb
Second	9.0 Kb
MilliSecond	18.1 Kb
DayOfYear	18.1 Kb
scanStatus	
missing	9.0 Kb
validity	9.0 Kb
qac	9.0 Kb
geoQuality	9.0 Kb
dataQuality	9.0 Kb
SCorientation	18.1 Kb
acsMode	9.0 Kb
yawUpdateS	9.0 Kb
prMode	9.0 Kb
prStatus1	9.0 Kb
prStatus2	9.0 Kb
FractionalGranuleNumber	72.2 Kb
navigation	
scPosX	36.1 Kb
scPosY	36.1 Kb
scPosZ	36.1 Kb
scVelX	36.1 Kb
scVelY	36.1 Kb
scVelZ	36.1 Kb
scLat	36.1 Kb
scLon	36.1 Kb
scAlt	36.1 Kb
scAttRoll	36.1 Kb
scAttPitch	36.1 Kb
scAttYaw	36.1 Kb
SensorOrientationMatrix	325.1 Kb
greenHour Ang	36.1 Kb
powers	
radarTransPower	18.1 Kb
transPulseWidth	36.1 Kb

Data groups, which are classified as Vdata in V6, are treated as usual data groups in V7.

## 4. Changes in Metadata structure

Meta\_V6 : ArchiveMetadata.0, CoreMetadata.0



- Classification: from 2 to 6 groups
- Number of items: commonly used with other instruments, narrow down to essential parameters

Meta\_V7 : FileHeader, InputRecord, NavigationRecord,  
FileInfo, JAXAInfo, SwathHeader

### [Detailed information of Metadata in V7]

#### 【FileHeader】

AlgorithmID=1B21;  
AlgorithmVersion=6.34;  
FileName=1B21.HDF;  
GenerationDateTime=2009-03-25T13:17:56.000Z;  
StartGranuleDateTime=2008-12-10T11:15:23.053Z;  
StopGranuleDateTime=2008-12-10T12:47:46.286Z;  
GranuleNumber=63070;  
NumberOfSwaths=1;  
NumberOfGrids=0;  
GranuleStart=SOUTHERNMOST\_LATITUDE;  
TimeInterval=ORBIT;  
ProcessingSystem=;  
ProductVersion=;  
MissingData=0;

#### 【InputRecord】

InputFileNames=1A21.20081210.63070.DAT;  
InputAlgorithmVersions=1.00;  
InputGenerationDateTimes=2009-03-25T12:45:13.000Z;

#### 【NavigationRecord】

LongitudeOfMaximumLatitude=-23.441624;  
SolarBetaAngleAtBeginningOfGranule=-53.874912;  
SolarBetaAngleAtEndOfGranule=-53.856133;

#### 【FileInfo】

DataFormatVersion=a;  
TKCodeBuildVersion=1;  
MetadataVersion=a;  
FormatPackage=NCSA HDF Version 4.2 Release 1, February 17, 2005;  
BlueprintFilename=TRMM.V6.1B21.blueprint.xml;  
BlueprintVersion=BV\_2;  
TKIOVersion=1.0;  
MetadataStyle=PVL;  
EndianType=LITTLE\_ENDIAN;

#### 【SwathHeader】

NumberScansInSet=1;  
MaximumNumberScansTotal=10000;  
NumberScansBeforeGranule=0;  
NumberScansGranule=9248;  
NumberScansAfterGranule=0;  
NumberPixels=49;  
ScanType=CROSSTRACK;

#### 【JAXAInfo】

CalibrationCoefficientVersion=1;  
GranuleFirstScanUTCDate=2008/12/10;  
GranuleFirstScanUTCTime=11:15:23;  
GranuleFirstScanUTCMilliseconds=141;  
GranuleLastScanUTCDate=2008/12/10;  
GranuleLastScanUTCTime=12:47:46;  
GranuleLastScanUTCMilliseconds=172;  
SoftwareVersion=3;  
DatabaseVersion=5;  
TotalQualityCode=G;  
LongitudeOnEquator=-107.553055;  
UTCDateOnEquator=2008/12/10;  
UTCTimeOnEquator=11:38:29;  
UTCMillisecondsOnEquator=440;  
CenterScanUTCDate=2008/12/10;  
CenterScanUTCTime=12:01:34;  
CenterScanUTCMilliseconds=356;  
FirstScanLat=-35.112572;  
FirstScanLon=168.374023;  
LastScanLat=-35.113056;  
LastScanLon=144.775162;  
NumberOfRainScans=1896;