

**TROPICAL RAINFALL MEASURING MISSION
PRECIPITATION PROCESSING SYSTEM**

**File Specification
3G25**

Version 7

November 27, 2012

0.1 3G25 - Gridded Orbital Spectral Latent Heating

3G25, "Gridded Orbital Spectral Latent Heating", produces $0.5^\circ \times 0.5^\circ$ latent heating, Q1-QR, and Q2 profiles from PR rain. The PI is Dr. Takayabu and the Co-PI is Dr. Shige. The granule size is one orbit. The following sections describe the structure and contents of the format.

Dimension definitions:

nlat	148	Number of 0.5° grid intervals of latitude from 37°N to 37°S .
nlon	720	Number of 0.5° grid intervals of longitude from 180°W to 180°E .
nlayer	19	Number of layers at the fixed heights of 0.0-0.5 km, 0.5-1 km, 1-2 km, ..., 17-18 km above the sea level.

Figure 1 through Figure 2 show the structure of this product. The text below describes the contents of objects in the structure, the C Structure Header File and the Fortran Structure Header File.

FileHeader (Metadata):

FileHeader contains general metadata. This group appears in all data products. See Metadata for TRMM Products for details.

InputRecord (Metadata):

InputRecord contains a record of input files for this granule. This group appears in Level 1 and Level 2 data products. Level 3 time averaged products have the same information separated into 3 groups since they have many inputs. See Metadata for TRMM Products for details.

NavigationRecord (Metadata):

NavigationRecord contains navigation metadata for this granule. This group appears in Level 1 and Level 2 data products. See Metadata for TRMM Products for details.

FileInfo (Metadata):

FileInfo contains metadata used by the PPS I/O Toolkit (TKIO). This group appears in all data products. See Metadata for TRMM Products for details.

JAXAInfo (Metadata):

JAXAInfo contains metadata requested by JAXA. Used by PR algorithms only. See Metadata for TRMM Products for details.

Grid (Grid)

GridHeader (Metadata):

GridHeader contains metadata defining the grids in the grid structure. See Metadata for TRMM Products for details.

convLHMean (4-byte float, array size: nlat x nlon x nlayer):

Latent heating convective conditional mean. Values range from -400 to 400 K/h. Special values are defined as:

-9999.9 Missing value

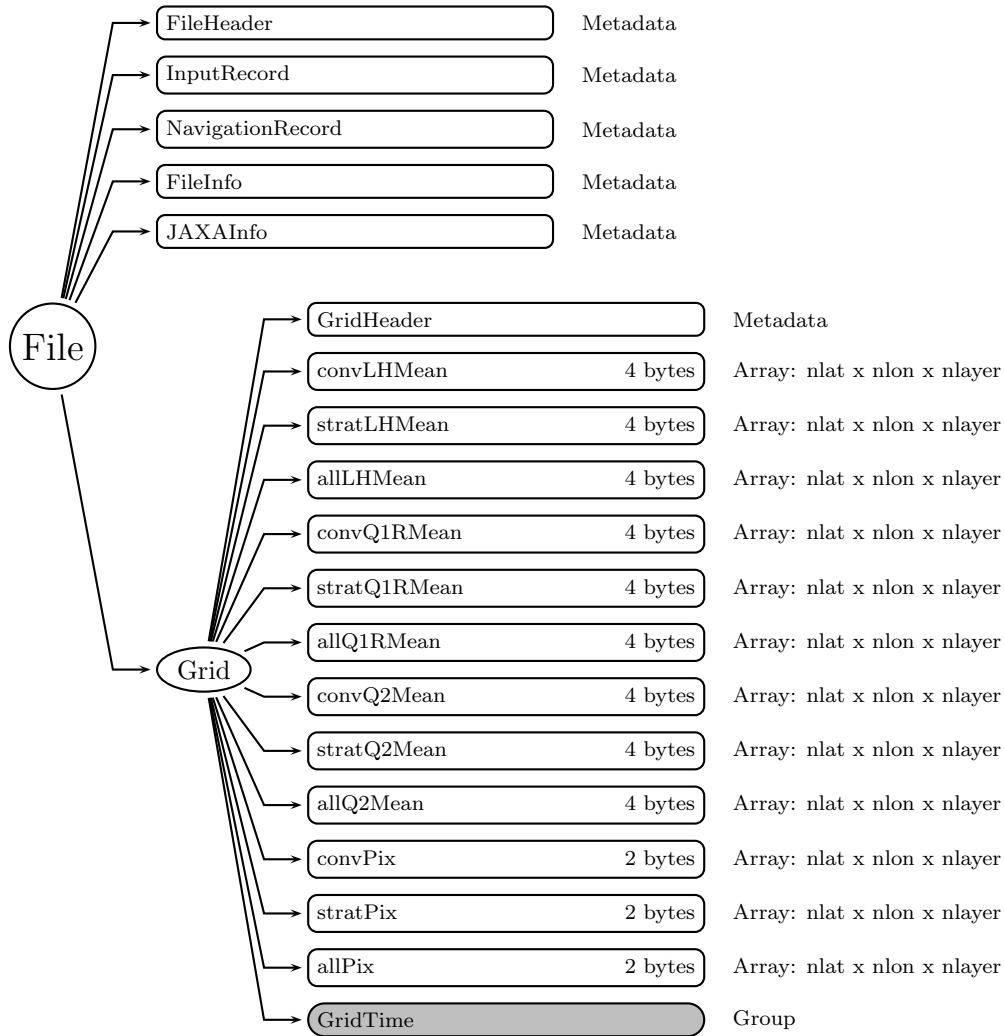


Figure 1: Data Format Structure for 3G25, Gridded Orbital Spectral Latent Heating

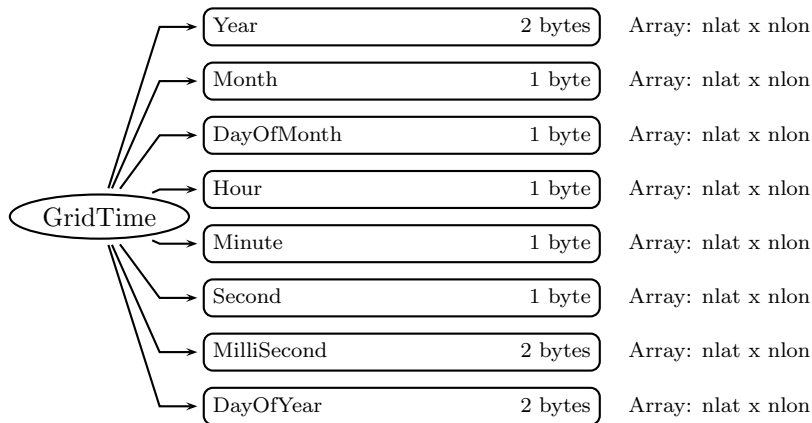


Figure 2: Data Format Structure for 3G25, GridTime

stratLHMean (4-byte float, array size: nlat x nlon x nlayer):
 Latent heating deep-stratiform and shallow-stratiform conditional mean. Values range from -400 to 400 K/h. Special values are defined as:
 -9999.9 Missing value

allLHMean (4-byte float, array size: nlat x nlon x nlayer):
 Latent heating all pixel mean. Values range from -400 to 400 K/h. Special values are defined as:
 -9999.9 Missing value

convQ1RMean (4-byte float, array size: nlat x nlon x nlayer):
 Q1 - QR convective conditional mean. Values range from -400 to 400 K/h. Special values are defined as:
 -9999.9 Missing value

stratQ1RMean (4-byte float, array size: nlat x nlon x nlayer):
 Q1 - QR deep-stratiform and shallow-stratiform conditional mean. Values range from -400 to 400 K/h. Special values are defined as:
 -9999.9 Missing value

allQ1RMean (4-byte float, array size: nlat x nlon x nlayer):
 Q1 - QR all pixel mean. Values range from -400 to 400 K/h. Special values are defined as:
 -9999.9 Missing value

convQ2Mean (4-byte float, array size: nlat x nlon x nlayer):
 Q2 convective conditional mean. Values range from -400 to 400 K/h. Special values are defined as:
 -9999.9 Missing value

stratQ2Mean (4-byte float, array size: nlat x nlon x nlayer):
 Q2 deep-stratiform and shallow-stratiform conditional mean. Values range from -400 to 400 K/h. Special values are defined as:
 -9999.9 Missing value

allQ2Mean (4-byte float, array size: nlat x nlon x nlayer):
 Q2 all pixel mean. Values range from -400 to 400 K/h. Special values are defined as:
 -9999.9 Missing value

convPix (2-byte integer, array size: nlat x nlon x nlayer):
 Convective pixel counts in the $0.5^\circ \times 0.5^\circ$ box. Values range from 0 to 500000. Special values are defined as:
 -9999 Missing value

stratPix (2-byte integer, array size: nlat x nlon x nlayer):
 Deep-stratiform and shallow-stratiform pixel counts in the $0.5^\circ \times 0.5^\circ$ box. Values range from 0 to 500000. Special values are defined as:
 -9999 Missing value

allPix (2-byte integer, array size: nlat x nlon x nlayer):

All pixel counts in the $0.5^\circ \times 0.5^\circ$ box. Values range from 0 to 500000. Special values are defined as:

-9999 Missing value

GridTime (Group)

Year (2-byte integer, array size: nlat x nlon):

4-digit year, e.g., 1998. Values range from 1950 to 2100 years. Special values are defined as:

-9999 Missing value

Month (1-byte integer, array size: nlat x nlon):

Month of the year. Values range from 1 to 12 months. Special values are defined as:

-99 Missing value

DayOfMonth (1-byte integer, array size: nlat x nlon):

Day of the month. Values range from 1 to 31 days. Special values are defined as:

-99 Missing value

Hour (1-byte integer, array size: nlat x nlon):

UTC hour of the day. Values range from 0 to 23 hours. Special values are defined as:

-99 Missing value

Minute (1-byte integer, array size: nlat x nlon):

Minute of the hour. Values range from 0 to 59 minutes. Special values are defined as:

-99 Missing value

Second (1-byte integer, array size: nlat x nlon):

Second of the minute. Values range from 0 to 60 s. Special values are defined as:

-99 Missing value

MilliSecond (2-byte integer, array size: nlat x nlon):

Thousandths of the second. Values range from 0 to 999 ms. Special values are defined as:

-9999 Missing value

DayOfYear (2-byte integer, array size: nlat x nlon):

Day of the year. Values range from 1 to 366 days. Special values are defined as:

-9999 Missing value

C Structure Header file:

```
#ifndef _TK_3G25_H_
#define _TK_3G25_H_
```

```
#ifndef _L3G25_GRIDTIME_
#define _L3G25_GRIDTIME_
```

```

typedef struct {
    short Year[720] [148];
    signed char Month[720] [148];
    signed char DayOfMonth[720] [148];
    signed char Hour[720] [148];
    signed char Minute[720] [148];
    signed char Second[720] [148];
    short MilliSecond[720] [148];
    short DayOfYear[720] [148];
} L3G25_GRIDTIME;

```

```

#endif

```

```

#ifndef _L3G25_GRID_
#define _L3G25_GRID_

```

```

typedef struct {
    float convLHMean[19] [720] [148];
    float stratLHMean[19] [720] [148];
    float allLHMean[19] [720] [148];
    float convQ1RMean[19] [720] [148];
    float stratQ1RMean[19] [720] [148];
    float allQ1RMean[19] [720] [148];
    float convQ2Mean[19] [720] [148];
    float stratQ2Mean[19] [720] [148];
    float allQ2Mean[19] [720] [148];
    short convPix[19] [720] [148];
    short stratPix[19] [720] [148];
    short allPix[19] [720] [148];
    L3G25_GRIDTIME GridTime;
} L3G25_GRID;

```

```

#endif

```

```

#endif

```

Fortran Structure Header file:

```

STRUCTURE /L3G25_GRIDTIME/
    INTEGER*2 Year(148,720)
    BYTE Month(148,720)
    BYTE DayOfMonth(148,720)
    BYTE Hour(148,720)

```

```

        BYTE Minute(148,720)
        BYTE Second(148,720)
        INTEGER*2 MilliSecond(148,720)
        INTEGER*2 DayOfYear(148,720)
END STRUCTURE

STRUCTURE /L3G25_GRID/
    REAL*4 convLHMean(148,720,19)
    REAL*4 stratLHMean(148,720,19)
    REAL*4 allLHMean(148,720,19)
    REAL*4 convQ1RMean(148,720,19)
    REAL*4 stratQ1RMean(148,720,19)
    REAL*4 allQ1RMean(148,720,19)
    REAL*4 convQ2Mean(148,720,19)
    REAL*4 stratQ2Mean(148,720,19)
    REAL*4 allQ2Mean(148,720,19)
    INTEGER*2 convPix(148,720,19)
    INTEGER*2 stratPix(148,720,19)
    INTEGER*2 allPix(148,720,19)
    RECORD /L3G25_GRIDTIME/ GridTime
END STRUCTURE

```