

**TROPICAL RAINFALL MEASURING MISSION
PRECIPITATION PROCESSING SYSTEM**

**File Specification
3H25**

Version 7

November 27, 2012

0.1 3H25 - Monthly Spectral Latent Heating

3H25, "Monthly 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 month. 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.

InputFileNames (Metadata):

InputFileNames contains a list of input file names for this granule. See Metadata for TRMM Products for details.

InputAlgorithmVersions (Metadata):

InputAlgorithmVersions contains a list of input algorithm versions for this granule. See Metadata for TRMM Products for details.

InputGenerationDateTimes (Metadata):

InputGenerationDateTimes contains a list of input generation datetimes. 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.

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

Latent heating conditional mean. Values range from -50 to 100 K/hr. Special values are

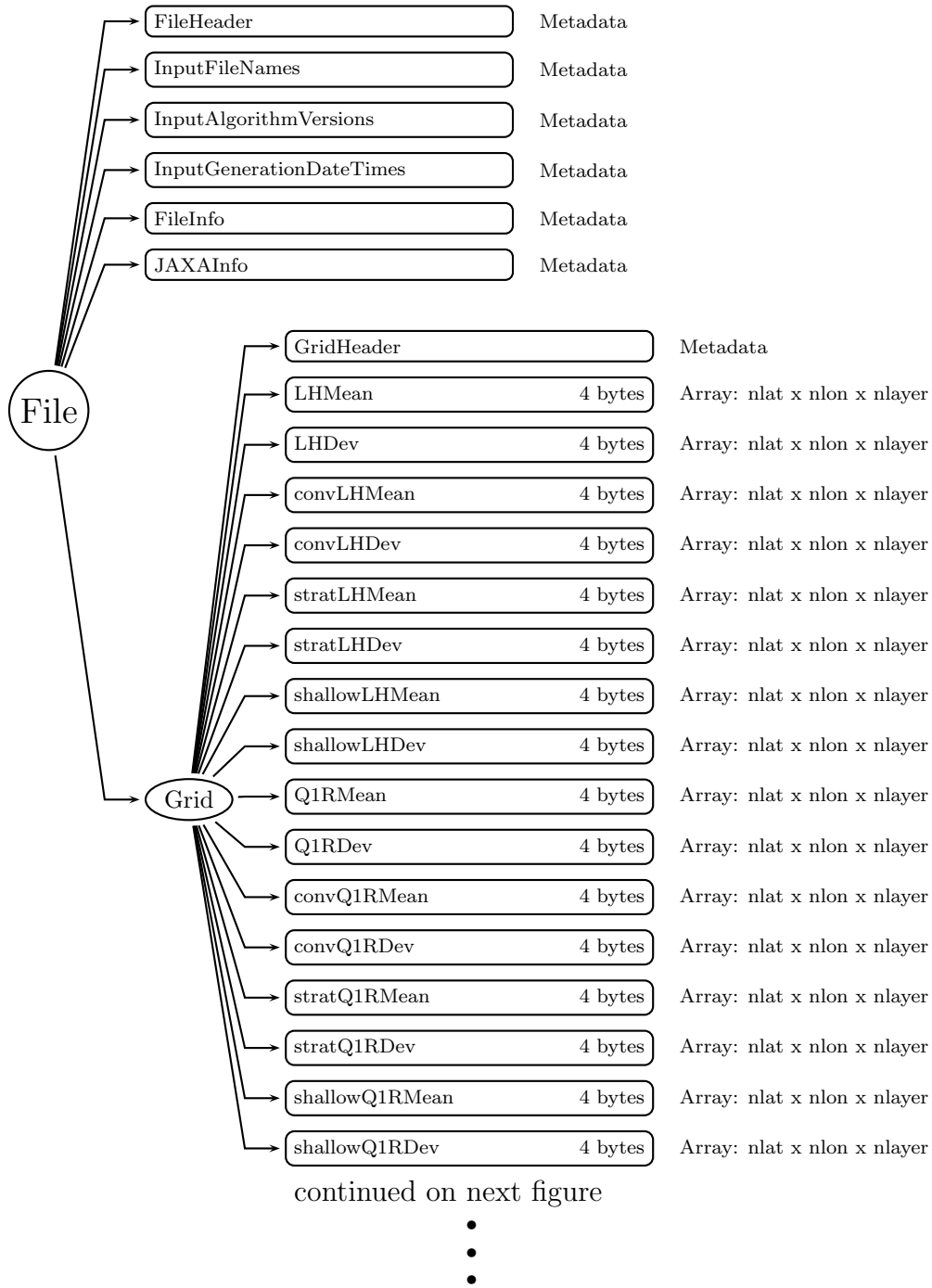


Figure 1: Data Format Structure for 3H25, Monthly Spectral Latent Heating

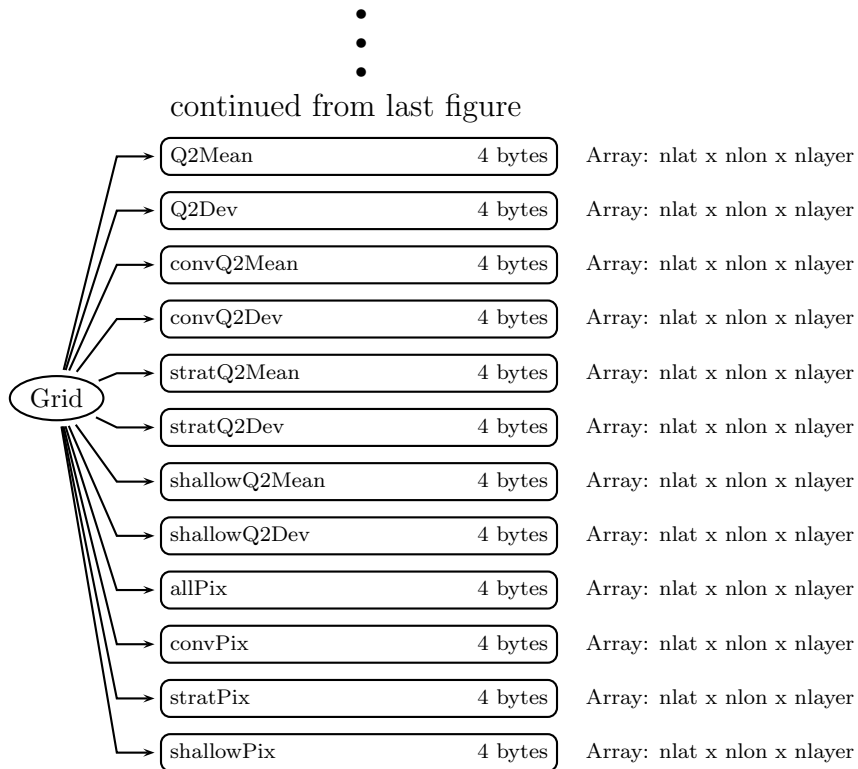


Figure 2: Data Format Structure for 3H25, Monthly Spectral Latent Heating

defined as:

-9999.9 Missing value

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

Latent heating conditional standard deviation. Values range from -50 to 100 K/hr. Special values are defined as:

-9999.9 Missing value

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

Latent heating convective conditional mean. Values range from -50 to 100 K/hr. Special values are defined as:

-9999.9 Missing value

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

Latent heating convective conditional standard deviation. Values range from -50 to 100 K/hr. Special values are defined as:

-9999.9 Missing value

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

Latent heating deep-stratiform conditional mean. Values range from -50 to 100 K/hr. Special values are defined as:

-9999.9 Missing value

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

Latent heating deep-stratiform conditional standard deviation. Values range from -50 to 100 K/hr. Special values are defined as:

-9999.9 Missing value

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

Latent heating shallow-stratiform conditional mean. Values range from -50 to 100 K/hr. Special values are defined as:

-9999.9 Missing value

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

Latent heating shallow-stratiform conditional standard deviation. Values range from -50 to 100 K/hr. Special values are defined as:

-9999.9 Missing value

Q1RMean (4-byte float, array size: nlat x nlon x nlayer):

Q1 - QR conditional mean. Values range from -50 to 100 K/hr. Special values are defined as:

-9999.9 Missing value

Q1RDev (4-byte float, array size: nlat x nlon x nlayer):

Q1 - QR conditional standard deviation. Values range from -50 to 100 K/hr. 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 -50 to 100 K/hr. Special values

are defined as:

-9999.9 Missing value

convQ1RDev (4-byte float, array size: nlat x nlon x nlayer):

Q1 - QR convective conditional standard deviation. Values range from -50 to 100 K/hr.

Special values are defined as:

-9999.9 Missing value

stratQ1RMean (4-byte float, array size: nlat x nlon x nlayer):

Q1 - QR deep-stratiform conditional mean. Values range from -50 to 100 K/hr. Special values are defined as:

-9999.9 Missing value

stratQ1RDev (4-byte float, array size: nlat x nlon x nlayer):

Q1 - QR deep-stratiform conditional standard deviation. Values range from -50 to 100 K/hr. Special values are defined as:

-9999.9 Missing value

shallowQ1RMean (4-byte float, array size: nlat x nlon x nlayer):

Q1 - QR shallow-stratiform conditional mean. Values range from -50 to 100 K/hr. Special values are defined as:

-9999.9 Missing value

shallowQ1RDev (4-byte float, array size: nlat x nlon x nlayer):

Q1 - QR shallow-stratiform conditional standard deviation. Values range from -50 to 100 K/hr. Special values are defined as:

-9999.9 Missing value

Q2Mean (4-byte float, array size: nlat x nlon x nlayer):

Q2 conditional mean. Values range from -50 to 100 K/hr. Special values are defined as:

-9999.9 Missing value

Q2Dev (4-byte float, array size: nlat x nlon x nlayer):

Q2 conditional standard deviation. Values range from -50 to 100 K/hr. 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 -50 to 100 K/hr. Special values are defined as:

-9999.9 Missing value

convQ2Dev (4-byte float, array size: nlat x nlon x nlayer):

Q2 convective conditional standard deviation. Values range from -50 to 100 K/hr. Special values are defined as:

-9999.9 Missing value

stratQ2Mean (4-byte float, array size: nlat x nlon x nlayer):

Q2 deep-stratiform conditional mean. Values range from -50 to 100 K/hr. Special values

are defined as:

-9999.9 Missing value

stratQ2Dev (4-byte float, array size: nlat x nlon x nlayer):

Q2 deep-stratiform conditional standard deviation. Values range from -50 to 100 K/hr.

Special values are defined as:

-9999.9 Missing value

shallowQ2Mean (4-byte float, array size: nlat x nlon x nlayer):

Q2 shallow-stratiform conditional mean. Values range from -50 to 100 K/hr. Special

values are defined as:

-9999.9 Missing value

shallowQ2Dev (4-byte float, array size: nlat x nlon x nlayer):

Q2 shallow-stratiform conditional standard deviation. Values range from -50 to 100 K/hr.

Special values are defined as:

-9999.9 Missing value

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

All pixel counts. Values range from 0 to 2000000000. Special values are defined as:

-9999.9 Missing value

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

Convective pixel counts. Values range from 0 to 2000000000. Special values are defined

as:

-9999.9 Missing value

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

Deep-stratiform pixel counts. Values range from 0 to 2000000000. Special values are

defined as:

-9999.9 Missing value

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

Shallow-stratiform pixel counts. Values range from 0 to 2000000000. Special values are

defined as:

-9999.9 Missing value

C Structure Header file:

```
#ifndef _TK_3H25_H_
#define _TK_3H25_H_

#ifndef _L3H25_GRID_
#define _L3H25_GRID_

typedef struct {
    float LHMean[19][720][148];
    float LHDev[19][720][148];
};
```

```

float convLHMean[19][720][148];
float convLHDev[19][720][148];
float stratLHMean[19][720][148];
float stratLHDev[19][720][148];
float shallowLHMean[19][720][148];
float shallowLHDev[19][720][148];
float Q1RMean[19][720][148];
float Q1RDev[19][720][148];
float convQ1RMean[19][720][148];
float convQ1RDev[19][720][148];
float stratQ1RMean[19][720][148];
float stratQ1RDev[19][720][148];
float shallowQ1RMean[19][720][148];
float shallowQ1RDev[19][720][148];
float Q2Mean[19][720][148];
float Q2Dev[19][720][148];
float convQ2Mean[19][720][148];
float convQ2Dev[19][720][148];
float stratQ2Mean[19][720][148];
float stratQ2Dev[19][720][148];
float shallowQ2Mean[19][720][148];
float shallowQ2Dev[19][720][148];
float allPix[19][720][148];
float convPix[19][720][148];
float stratPix[19][720][148];
float shallowPix[19][720][148];
} L3H25_GRID;

#endif

#endif

```

Fortran Structure Header file:

```

STRUCTURE /L3H25_GRID/
  REAL*4 LHMean(148,720,19)
  REAL*4 LHDev(148,720,19)
  REAL*4 convLHMean(148,720,19)
  REAL*4 convLHDev(148,720,19)
  REAL*4 stratLHMean(148,720,19)
  REAL*4 stratLHDev(148,720,19)
  REAL*4 shallowLHMean(148,720,19)
  REAL*4 shallowLHDev(148,720,19)

```



```
REAL*4 Q1RMean(148,720,19)
REAL*4 Q1RDev(148,720,19)
REAL*4 convQ1RMean(148,720,19)
REAL*4 convQ1RDev(148,720,19)
REAL*4 stratQ1RMean(148,720,19)
REAL*4 stratQ1RDev(148,720,19)
REAL*4 shallowQ1RMean(148,720,19)
REAL*4 shallowQ1RDev(148,720,19)
REAL*4 Q2Mean(148,720,19)
REAL*4 Q2Dev(148,720,19)
REAL*4 convQ2Mean(148,720,19)
REAL*4 convQ2Dev(148,720,19)
REAL*4 stratQ2Mean(148,720,19)
REAL*4 stratQ2Dev(148,720,19)
REAL*4 shallowQ2Mean(148,720,19)
REAL*4 shallowQ2Dev(148,720,19)
REAL*4 allPix(148,720,19)
REAL*4 convPix(148,720,19)
REAL*4 stratPix(148,720,19)
REAL*4 shallowPix(148,720,19)
END STRUCTURE
```