

xmrg File Format

Hourly precip estimates on an HRAP grid generated by MPE and Stage3 are written in xmrg format. The xmrg files used as input to the NWSRFS Operational Forecast System NEXRAD Mean Areal Precipitation (MAPX) Preprocessor [[Hyperlink](#)].

File Format

xmrg files are written row by row from within a 'do-loop' using a FORTRAN unformatted write statement (see 'Format of FORTRAN Unformatted Records' [[Bookmark](#)]). The loop is from 1 to MAXY which places the southernmost row as the first row of the file. Each file consists of a two record header followed by the data.

The first record of the header contains the following values:

<u>Field</u>	<u>Contents</u>
1	HRAP-X coordinate of southwest corner of grid (XOR)
2	HRAP-Y coordinate of southwest corner of grid (YOR)
3	Number of HRAP grid boxes in X direction (MAXX)
4	Number of HRAP grid boxes in Y direction (MAXY)

The values are written in integer*4 format and are in the file ../geo_data/ascii/coord_[sitename].dat where sitename is the site name.

The second record of the header was added in June 1997 and contains the following information:

<u>Field</u>	<u>Contents</u>	<u>Type</u>	<u>Description</u>
0	oper sys	char*2	'HP' or 'LX'
1	user id	char*8	LOGNAME of user that saved the file
2	saved date/time	char*20	ccyy-mm-dd hh:mm:ss (Z time)
3	process flag	char*8	see below [Bookmark]
4	valid date/time	char*20	ccyy-mm-dd hh:mm:ss (Z time)
5	maximum value	integer*4	in units of millimeters (MM)
6	version number	real*4	AWIPS Build number

Fields 4, 5 and 6 were added as part of the AWIPS Build 4.2 upgrade which was implemented during the summer of 1999. For gridded FFG data field 5 is not used and is set to -999 and field 6 is the file version number. At Build 5.2.2 the first field was split into two fields; field 0 of size char*2 and field 1 of size char*8. Previous to Build 5.2.2 the first field was char*10 so the total size of the second record was unchanged.

The precip data values are written to the file as integer*2 values in units of hundredths of MM. Data values for bins which have no radar coverage are set to -1. There are MAXY rows of data each with MAXX values.

Because the integer*2 data type can hold values only up to approximately 32,000 the xmrq format is not appropriate for large data values. Precip values greater than approximately 12 inches cannot be stored in this format.

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Process Flag

The process flag is defined as follows:

XXyHH

where XX = process code
y = A (automatic) or M (manual)
HH = duration in hours

Examples are:

auto_stageiii
S3A01
manual stageiii
S3M01
mpe_fieldgenMPA01
mpe_gui
MPM01

The process flag is used by the xmrq to grib encoder process for defining grib parameters.

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Format of FORTRAN Unformatted Records

FORTRAN unformatted records have a 4 byte integer at the beginning and end of each record that is equal to the number of 4 byte words contained in the record. When reading xmrq files through C using the fread function, the user must account for these extra bytes at the beginning and end of each record.