Precipitation products for Level II
Please note that these products are not standard MRMS. Significant processing is applied to MRMS to generate products specifically adapted to satellite purposes/needs.

Geographical domain: CONUS: Lon [130W - 60W] Lat [20N - 55N].
Resolution: 0.01° **/** 2-min (MRMS since 08/01/13) and 5-min (NMQ up to 07/31/13)

Precipitation rate product: PRECIPRATE.GC.20140204.224800.92410.dat.gz
PRECIPRATE. product type
. 20140204. year month day
. 224800. hour minute second
. 92410. TRMM orbit number
- gauge corrected when raining and radar-only when snowing

Precipitation type product: MASK.20140204.224800.92410.asc.gz
- liquid/frozen mask primarily
- more information is provided by type codes: -1 missing, 0 no precipitation, 1.0 warm stratiform rain, 2.0 warm stratiform rain at ground but radar data is in or above the melting layer, 3.0 snow, 4.0 snow at ground but radar data is 1.5km or higher above the ground, 6.0 convective, 7.0 hail, 91.0 tropical/stratiform rain mix, 96.0 tropical/convective rain mix, 10.0 cool stratiform rain.

Radar quality index: RQI.20140204.224800.92410.gz.asc.gz
- for quality control purposes
- ranges between 0 and 1 (best value)

Hourly radar-gauge ratios: 1HCF.20140204.230000.92410.asc.gz
- for quantity control purposes
- ratios between the hourly gauge-adjusted radar and the hourly radar-only products.
- ranges between 0.1 and 10

Details on processing:
- PRECIPRATE.GC is gauge-adjusted and a basic filtering is applied.
- precipitation phase identification uses surface temperature (< 2C) and wet bulb temperature (< 0C) for snow, and a fixed Z-S relationship $Z = 75 S^2$ is applied.
- bias correction: applied with multiplicative adjustment using hourly ratios 1HCF.HSR down to 5-min on the radar-only 5-min QPE for liquid rain rates only; no correction is applied for snow rates (this information is radar only).
- basic filtering: applied where there is too much quantitative disagreement between radar and gauges at the hourly time step (i.e. 1HCF.HSR is outside the [0.1–10] range); snow rates are filtered out when the radar beam is too high (>2.5km AGL) because the ice aloft might not have direct relationship with surface level falling snow.
- users are free to apply more conservative filtering using RQI and 1HCF.HSR by (i) discarding precipitation values where 1HCF.HSR is outside e.g. the range [0.5–2] and (ii) by quality filtering with RQI.

Precipitation products for Level III
Please note that these products are not standard MRMS. Significant processing is applied to MRMS to generate products specifically adapted to satellite purposes/needs.

Geographical domain: CONUS: Lon [130W - 60W] Lat [20N - 55N].
Resolution: 0.01° **/** 30mn

Precipitation rate product: 30MGCP.20140204.150000.asc.gz
30MGCP. product type
. 20140204. year month day
. 150000. hour minute second
- gauge corrected precipitation product

Precipitation type product: 30MTYPE##.20140204.150000.asc.gz
- proportion of occurrence in percent between 14:32 and 15:00.
- more information is provided by ## type codes: 00 no precipitation, 01 warm stratiform rain, 02 warm stratiform rain at ground but radar data is in or above the melting layer, 03 snow, 04 snow at ground but radar data is 1.5km or higher above the ground, 06 convective, 07 hail, 91 tropical/stratiform rain mix, 96 tropical/convective rain mix, 10 cool stratiform rain, M missing

Radar quality index: 30MRQI.20140204.150000.asc.gz
- for quality control purposes
- hourly accumulated radar quality index. It is the averaged RQI values between 14:32 and 15:00.
- ranges between 0 and 100 (best value).

Hourly radar-gauge ratios: 1HCF.20140204.150000.asc.gz
- for quantity control purposes
- ratios between the hourly gauge-adjusted radar and the hourly radar-only products.
- ranges between 0.1 and 10

Details on processing:
- 30MGCP is gauge-adjusted and a basic filtering is applied.
- basic filtering: applied where there is too much quantitative disagreement between radar and gauges at the hourly time step (i.e. 1HCF is outside the [0.1–10] range).
- users are free to apply more conservative filtering using 30MRQI and 1HCF by (i) discarding precipitation values where 1HCF is outside e.g. the range [0.5–2] and (ii) by quality filtering with 30MRQI.