Parsivel Raw Data Format

The Parsivel data is recorded every 10 s and time stamped by the APU software. The data format is ASCII and organized as follows:

YYYYmmDDHHMMSS;APUXX,ST,TEMP,RAW_DATA

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where YYYY = 4-digit year;
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mm = 2-digit month

DD = 2-digit day

HH = 2-digit hour

MM = 2-digit minute

SS = 2-digit second

APUXX = station name (xx == 2-digit APU number)

ST = Parsivel sensor status ranging from 0-3

0 = Everything OK;

1 = Laser protective glass is dirty, but measurements still possible

2 = Laser protective glass is dirty, partially covered. No further measurements are possible

3 = Laser damaged

TEMP = 3-digit Sensor temperature in $^{\circ}$ C

RAW_DATA = particle counts in each bin of the 32 x 32 (diameter x velocity) matrix (see below)

Example:

New format as of Feb 25, 2011:

YYYYmmDDHHMMSS;APUXX,ST,TEMP,N,R,Z,VIS,WX4680,WX4677,RAW_DATA

where N = Number of detected particles

R = Rain intensity (32bit, mm/hr)

Z = Reflectivity factor (16bit, dBZ)

VIS = MOR Visibility in the precipitation (m)

WX4680 = 2-digit weather code according to SYNOP w_aw_a Tbl 4680

WX4677 = 2-digit weather code according to SYNOP w'w' Tbl 4677

parsivel1_*dsd.txt files:

DD, mm, YYYY, HHMM, SS, R (mm/hr), N, NWS weather code, Z (dBz), VIS (m), N(d), v(d), RAW_DATA, Rain accumulation (mm)

where N(d) = Number of detected particles in each 32 diameter class bin v(d) = Number of detected particles in each 32 velocity class bin

Note: This data was collected with the UAH Parsivel located at NSSTC.

Volume-equivalent diameter classification:

Class Number	Class Average (mm)	Class Spread (mm)
1	0.062	0.125
2	0.187	0.125
3	0.312	0.125
4	0.437	0.125
5	0.562	0.125
6	0.687	0.125
7	0.812	0.125
8	0.937	0.125
9	1.062	0.125
10	1.187	0.125
11	1.375	0.250
12	1.625	0.250
13	1.875	0.250
14	2.125	0.250
15	2.375	0.250
16	2.750	0.500
17	3.250	0.500
18	3.750	0.500
19	4.250	0.500
20	4.750	0.500
21	5.500	1.000
22	6.500	1.000
23	7.500	1.000
24	8.500	1.000
25	9.500	1.000
26	11.000	2.000
27	13.000	2.000
28	15.000	2.000
29	17.000	2.000
30	19.000	2.000
31	21.500	3.000
32	24.500	3.000

Velocity classification:

Class Number	Class Average (m/s)	Class Spread (m/s)
1	0.050	0.100
2	0.150	0.100
3	0.250	0.100
4	0.350	0.100
5	0.450	0.100
6	0.550	0.100
7	0.650	0.100
8	0.750	0.100
9	0.850	0.100
10	0.950	0.100
11	1.100	0.200
12	1.300	0.200
13	1.500	0.200
14	1.700	0.200
15	1.900	0.200
16	2.200	0.400
17	2.600	0.400
18	3.000	0.400
19	3.400	0.400
20	3.800	0.400
21	4.400	0.800
22	5.200	0.800
23	6.000	0.800
24	6.800	0.800
25	7.600	0.800
26	8.800	1.600
27	10.400	1.600
28	12.000	1.600
29	13.600	1.600
30	15.200	1.600
31	17.600	3.200
32	20.800	3.200
34	20.000	3.200