

WSR-88D ADAPTABLE PARAMETERS

SORTED BY ALGORITHM NUMBER THEN PARAMETER NAME (uppercase before lowercase)

<u>ALGORITHM NO</u>	<u>PARAMETER NAME</u>	<u>UNITS</u>	<u>DEFAULT VALUE</u>	<u>RANGE</u>
Mesocyclone				
2	THRESHOLD(Far Maximum Ratio)	unitless	4.0	0.1 - 10.1
2	THRESHOLD(Far Minimum Ratio)	unitless	1.6	0.1 - 10.1
2	THRESHOLD(Feature Height)	km	8.0	4.0 - 10.1
2	THRESHOLD(High Momentum)	km**2/hr	540.0	180.0 - 1080.0
2	THRESHOLD(Low Momentum)	km**2/hr	180	90.0 - 540.0
2	THRESHOLD(Maximum Ratio)	unitless	2.0	0.1 - 10.0
2	THRESHOLD(Mesocyclone Azimuth)	degrees	1.9	0.5 - 10.0
2	THRESHOLD(Mesocyclone-High Shear)	1/hr	14.4	7.2 - 28.8
2	THRESHOLD(Mesocyclone-Low Shear)	1/hr	7.2	3.6 - 14.4
2	THRESHOLD(Minimum Ratio)	unitless	0.5	0.1 - 10.0
2	THRESHOLD(Pattern Vector)	unitless	10.0	1 - 20
2	THRESHOLD(Radial Distance)	km	0.75	0.25 - 5.00
2	THRESHOLD(Range)	km	140	0 - 230
Velocity Azimuth Display				
7	FIT TESTS	unitless	2	1 - 5
7	THRESHOLD(Begin Azimuth)	degrees	0.0	0.0 - 359.9
7	THRESHOLD(Data Points)	unitless	25	1 - 360
7	THRESHOLD(End Azimuth)	degrees	0.0	0.0 - 359.9
7	THRESHOLD(Symmetry)	km/hr	25.2	0.0 - 72.0
7	THRESHOLD(Velocity)	km/hr	18	0.0 - 54.0
7	VAD RANGE	km	30.0	1.0 - 230.0
Storm Position Forecast				
8	ALLOWABLE ERROR	km	20	10 - 60
8	ERROR INTERVAL	hr	0.25	0.083 - 0.500
8	FORECAST INTERVAL	hr	0.25	0.083 - 0.500
Severe Weather Potential				
15	SEVERE WEATHER COEFFICIENT #1	unitless	5.82	-99.99 - +99.99
15	SEVERE WEATHER COEFFICIENT #2	unitless	-0.576	-99.99 - +99.99
15	SEVERE WEATHER COEFFICIENT #3	unitless	-0.964	-99.99 - +99.99
15	SEVERE WEATHER COEFFICIENT #4	unitless	0.0	-99.99 - +99.99
15	SEVERE WEATHER COEFFICIENT #5	unitless	0.046	-99.99 - +99.99
15	SEVERE WEATHER COEFFICIENT #6	unitless	0.0	-99.99 - +99.99
15	SWP BOX SIZE - COLUMN	km	28	12 - 100
15	SWP BOX SIZE - ROW	km	28	12 - 100
Precipitation Preprocessing				
17	REFLECTIVITY(Tilt Test)	dBZe	1.0	0.0 - 20.0
17	TILT TEST(Inner Range)	km	40	0 - 150
17	TILT TEST(Outer Range)	km	150	40 - 230
17	maximum AREA(percent reduction)	percent	75	0 - 100
17	maximum RANGE(Bi-Scan)	km	230	0 - 230

17	maximum THRESHOLD(Reflectivity-1)	dBZe	70	50 - 70
17	minimum AREA(Echo)	km**2	600	100 - 3000
17	minimum REFLECTIVITY(Area-Averaged)	dBZe	10.0	0.0 - 20.0
17	minimum THRESHOLD(Reflectivity-1)	dBZe	0	-10.0 - 20.0

Precipitation Rate

18	COEFFICIENT(Multiplicative Z-R)	unitless	300	50 - 500
18	COEFFICIENT(Z-R Power)	unitless	1.4	1.0 - 2.0
18	COEFFICIENTS(Range Effect)	dBR	0.0	0.0 - 3.0
18	COEFFICIENTS(Range Effect)	N/A	1.0	1.0 - 10.0
18	COEFFICIENTS(Range Effect)	dBR	0.0	0.0 - 1.0
18	PARAMETER(Time Continuity #1)	1/hr	24.0	0.1 - 99.9
18	PARAMETER(Time Continuity #2)	1/hr	13.2	0.1 - 99.9
18	RANGE(Cut-Off)	km	230	0 - 230
18	RATE(Zero Precipitation)	dBR	-17.5	N/A
18	THRESHOLD(Max Time Difference)	hr	0.25	0.167 - 0.500
18	maximum RATE(Echo Area Change)	km**2/hr	200	20 - 700
18	maximum SPEED(Storm)	km/hr	90	36 - 144
18	minimum AREA(Time Continuity)	km**2	200	50 - 1000

Precipitation Accumulation

19	THRESHOLD(Hourly Outlier)	millimeters	400	50 - 800
19	ending TIME(Gage Accumulation)	hours	0.0	0.0 - 1.0
19	maximum TIME(Interpolation)	hours	0.5	0.25-1.0
19	minimum TIME(Period)	hours	0.9	0.0 - 1.0

Precipitation Adjustment

20	SYSTEM NOISE	unitless	0.05	0.01 - 0.50
20	THRESHOLD(Gage Discard)	unitless	2.0	0.5 - 10.0
20	THRESHOLD(Number of Sets)	unitless	6	2 - 30
20	THRESHOLD(Time Difference)	hours	0.250	0.083 - 1.000
20	TIME(Bias Estimation)	minutes	50	50 - 59
20	TIME (reset BIAS)	hours	12.0	6.0 - 48.0
20	VARIANCE ADJUSTMENT FACTOR	unitless	0.5	0.0 - 10.0
20	ending TIME(Gage Accumulation)	minutes	0	0 - 59
20	maximum MEAN SQUARE ERROR	unitless	0.8	0.5 - 1.0
20	reset BIAS	unitless	1.0	0.5 - 2.0
20	reset MEAN SQUARE ERROR	unitless	0.50	0.10 - 0.80

Precipitation Products

21	FLAG (apply BIAS)	unitless	.FALSE.	.TRUE. - .FALSE.
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Combined Shear

33	DOMAIN(Resolution)	km	1.0	0.5,1.0,2.0,4.0
33	DOMAIN(X Minimum)	km	-116.0	-116.0 - 0.0
33	DOMAIN(X Size)	km	232.0	0.0 - 232.0
33	DOMAIN(Y Minimum)	km	-116.0	-116.0 - 0.0
33	DOMAIN(Y Size)	km	232.0	0.0 - 232.0
33	NUMBER(Filter)	unitless	9	1,9,25
33	NUMBER(Sample Volumes)	unitless	3	1,3,5
33	THRESHOLD(Combined Shear)	1/hr	8	8 - 16
33	THRESHOLD(Number)	unitless	.75	0.01 - 0.99

33	THRESHOLD(Velocity Power)	dB		5 - 10
Hail Core Aloft				
35	HEIGHT(0 degree C)	km	10.5	Set by user
35	HEIGHT(-20 degree C)	km	20.0	Set by user
35	HKE COEFFICIENT #1	N/A	0.5E-3	1E-10 - 1.0
35	HKE COEFFICIENT #2	N/A	0.084	0.005 - 0.5
35	HKE COEFFICIENT #3	N/A	10.0	1.0 - 100.0
35	POSH COEFFICIENT	N/A	29.0	1.0 - 100.0
35	POSH OFFSET	Percent	50	1 - 100
35	THRESHOLD(HKE Reflectivity Weighting Lower Limit)	dBZe	40	20 - 60
35	THRESHOLD(HKE Reflectivity Weighting Upper Limit)	dBZe	50	30 - 70
35	THRESHOLD(minimum Reflectivity POH)	dBZe	45	30 - 60
35	THRESHOLD(POH Height Difference #1)	km	1.625	0.0 - 20.0
35	THRESHOLD(POH Height Difference #2)	km	1.875	0.0 - 20.0
35	THRESHOLD(POH Height Difference #3)	km	2.125	0.0 - 20.0
35	THRESHOLD(POH Height Difference #4)	km	2.375	0.0 - 20.0
35	THRESHOLD(POH Height Difference #5)	km	2.625	0.0 - 20.0
35	THRESHOLD(POH Height Difference #6)	km	2.925	0.0 - 20.0
35	THRESHOLD(POH Height Difference #7)	km	3.300	0.0 - 20.0
35	THRESHOLD(POH Height Difference #8)	km	3.750	0.0 - 20.0
35	THRESHOLD(POH Height Difference #9)	km	4.500	0.0 - 20.0
35	THRESHOLD(POH Height Difference #10)	km	5.500	0.0 - 20.0
35	WARNING THRESHOLD SELECTION MODEL COEF)	J/(m*m sec)	57.5*10^2	0.0 - 500.0*10^2
35	WARNING THRESHOLD SELECTION MODEL OFFSET)	J/(m sec)	-121*10^5	-500 - +500*10^5
Storm Cell Segments				
36	MASS MULTIPLICATIVE FACTOR	(mm**6/m**3)	486.0	450.0 - 550.0
36	MASS MULTIPLICATIVE FACTOR(Con't)	(hr/mm)**PIE		
36	MASS WEIGHTED FACTOR	(hr)(kg)/km**4)	53x10**4	5.0*E4 - 6.0*E4
36	PRECIPITATION INTENSITY EXPONENT	N/A	1.37	1.20 - 1.50
36	REFLECTIVITY AVERAGING FACTOR	gates	3	1 - 5
36	THRESHOLD(Dropout Count)	gates	2	0 - 5
36	THRESHOLD(Dropout Reflectivity Difference)	dBZe	5	0 - 10
36	THRESHOLD(Segment Length #1)	km	1.9	1.0 - 5.0
36	THRESHOLD(Segment Length #2)	km	1.9	1.0 - 5.0
36	THRESHOLD(Segment Length #3)	km	1.9	1.0 - 5.0
36	THRESHOLD(Segment Length #4)	km	1.9	1.0 - 5.0
36	THRESHOLD(Segment Length #5)	km	1.9	1.0 - 5.0
36	THRESHOLD(Segment Length #6)	km	1.9	1.0 - 5.0
36	THRESHOLD(Segment Length #7)	km	1.9	1.0 - 5.0
36	THRESHOLDS(maximum Reflectivity Mass)	dBZ	80	N/A
36	THRESHOLDS(Reflectivity #1)	dBZ	60	0 - 80
36	THRESHOLDS(Reflectivity #2)	dBZ	55	0 - 80
36	THRESHOLDS(Reflectivity #3)	dBZ	50	0 - 80
36	THRESHOLDS(Reflectivity #4)	dBZ	45	0 - 80
36	THRESHOLDS(Reflectivity #5)	dBZ	40	0 - 80
36	THRESHOLDS(Reflectivity #6)	dBZ	35	0 - 80
36	THRESHOLDS(Reflectivity #7)	dBZ	30	0 - 80

Storm Cell Centroids

37	THRESHOLD(Azimuthal Separation)	degrees	1.5	1.5 - 3.5
37	THRESHOLD(Component Area #1)	km*km	10.0	10.0 - 30.0
37	THRESHOLD(Component Area #2)	km*km	10.0	10.0 - 30.0
37	THRESHOLD(Component Area #3)	km*km	10.0	10.0 - 30.0
37	THRESHOLD(Component Area #4)	km*km	10.0	10.0 - 30.0
37	THRESHOLD(Component Area #5)	km*km	10.0	10.0 - 30.0
37	THRESHOLD(Component Area #6)	km*km	10.0	10.0 - 30.0
37	THRESHOLD(Component Area #7)	km*km	10.0	10.0 - 30.0
37	THRESHOLD(Depth Delete)	km	4.0	0.0 - 10.0
37	THRESHOLD(Elevation Merge)	degrees	3.0	1.0 - 5.0
37	THRESHOLD(Height Merge)	km	4.0	1.0 - 8.0
37	THRESHOLD(Horizontal Delete)	km	5.0	3.0 - 30.0
37	THRESHOLD(Horizontal Merge)	km	10.0	5.0 - 20.0
37	THRESHOLD(Number of Segments)	unitless	2	1 - 4
37	THRESHOLDS(Reflectivity #1)	dBZ	60	0 - 80
37	THRESHOLDS(Reflectivity #2)	dBZ	55	0 - 80
37	THRESHOLDS(Reflectivity #3)	dBZ	50	0 - 80
37	THRESHOLDS(Reflectivity #4)	dBZ	45	0 - 80
37	THRESHOLDS(Reflectivity #5)	dBZ	40	0 - 80
37	THRESHOLDS(Reflectivity #6)	dBZ	35	0 - 80
37	THRESHOLDS(Reflectivity #7)	dBZ	30	0 - 80
37	THRESHOLDS(Search Radius#1)	km	5.0	1.0 - 10.0
37	THRESHOLDS(Search Radius#2)	km	7.5	1.0 - 12.5
37	THRESHOLDS(Search Radius#3)	km	10.0	1.0 - 15.0
37	THRESHOLD(Segment Overlap)	km	1.95	0.0 - 5.0

Storm Cell Tracking

38	CORRELATION (Speed)	dBZe	30.0	10 - 40
38	TIME(maximum)	min	20	10 - 60

Tornado Detection Algorithm

39	THRESHOLD(2D Vector Azimuthal Distance)	degrees	1.5	0.0 - 4.0
39	THRESHOLD(2D Vector Radial Distance)	km	0.5	0.0 - 3.0
39	THRESHOLD(Average Delta Velocity Height)	km	3.0	0.0 - 10.0
39	THRESHOLD(Circulation Radius1)	km	2.5	0.0 - 10.0
39	THRESHOLD(Circulation Radius2)	km	4.0	0.0 - 10.0
39	THRESHOLD(Circulation Radius Range)	km	80	0 - 230
39	THRESHOLD(Differential Velocity #1)	km/hr	39.6	39.6 - 270
39	THRESHOLD(Differential Velocity #2)	km/hr	54	54 - 288
39	THRESHOLD(Differential Velocity #3)	km/hr	72	72 - 306
39	THRESHOLD(Differential Velocity #4)	km/hr	90	90 - 324
39	THRESHOLD(Differential Velocity #5)	km/hr	108	108 - 342
39	THRESHOLD(Differential Velocity #6)	km/hr	126	126 - 360
39	THRESHOLD(maximum # 2D Features)	unitless	600	600 - 800
39	THRESHOLD(maximum # 3D Features)	unitless	35	30 - 50
39	THRESHOLD(maximum # ETVS)	unitless	0	0 - 25
39	THRESHOLD(maximum # Pattern Vectors)	unitless	2500	1500 - 3000
39	THRESHOLD(maximum # TVS)	unitless	15	0 - 25
39	THRESHOLD(maximum 2D Feature Aspect Ratio)	km/km	4.0	1.0 - 10.0
39	THRESHOLD(maximum Pattern Vector Height)	km	10.0	1.0 - 15.0

39	THRESHOLD(maximum Pattern Vector Range)	km	100	0 - 230
39	THRESHOLD(maximum Storm Association Distance)	km	20.0	0.0 - 20.0
39	THRESHOLD(minimum # 2D Features per 3D Feature)	unitless	3	1 - 10
39	THRESHOLD(minimum # Vectors Per 2D Feature)	unitless	3	1 - 10
39	THRESHOLD(minimum 3D Feature Depth)	km	1.5	0.0 - 5.0
39	THRESHOLD(minimum 3D Feature Low Level Delta Velocity)	km/hr	90	0 - 360
39	THRESHOLD(minimum Reflectivity)	dBZ	0	-20 - +20
39	THRESHOLD(minimum TVS Base Elevation)	degrees	1.0	0.0 - 10.0
39	THRESHOLD(minimum TVS Base Height)	km	0.6	0.0 - 10.0
39	THRESHOLD(minimum TVS Delta Velocity)	km/hr	129.6	0 - 360
39	THRESHOLD(Vector Velocity Difference)	km/hr	39.6	36 270

Clutter Removal

50	FLAG(Extend Clutter)	unitless	.TRUE.	.TRUE./FALSE.
50	FLAG(Filter Output Reflectivity)	unitless	.TRUE.	.TRUE./FALSE.
50	THRESHOLD(minimum Reflectivity)	dBZ	10.0	5.0 - 20.0
50	THRESHOLD(Altitude - Omit All)	km	1.0	0.0 - 5.0
50	THRESHOLD(Altitude - Accept If)	km	3.0	0.0 - 10.0
50	THRESHOLD(Range - Omit All)	km	45	1 - 45
50	THRESHOLD(Range - Accept If)	km	103	0 - 300
50	THRESHOLD(Range - Reject If)	km	230	0 - 300
50	THRESHOLD(Elevation Angle - Accept If)	degrees	0.5	0.0 - 5.0
50	THRESHOLD(Elevation Angle - Reject If)	degrees	5.0	0.0 - 15.0
50	THRESHOLD(Velocity - Weather)	km/hr	3.6	0.0 - 18.0
50	THRESHOLD(Spectrum Width - weather)	km/hr	1.8	0.0 - 18.0
50	THRESHOLD(Velocity - Clutter)	km/hr	3.6	0.0 - 18.0
50	THRESHOLD(Spectrum Width - Clutter)	km/hr	1.8	0.0 - 18.0
50	THRESHOLD(Extend - Range Gates)	gates	4	0 - 20
50	THRESHOLD(Extend - Reflectivity Difference)	dBZ	10.0	0.0 - 30.0
50	THRESHOLD(Filter - Number Range Gates)	gates	1	0 - 5
50	THRESHOLD(Filter - Cross Range)	km	2.0	0.0 - 10.0

Velocity Dealiasing (Short Pulse)

N/A	CURRENT RADIAL(nine point)	gates	4	-
N/A	FLAG(replace missing velocities)	N/A	.TRUE.	.TRUE./FALSE.
N/A	FLAG(use sounding)	N/A	.TRUE.	.TRUE./FALSE.
N/A	NUMBER(bins large azimuth jump)	gates	10	8 - 12
N/A	NUMBER(look back)	gates	30	5 - 45
N/A	NUMBER(look forward)	gates	15	10 - 20
N/A	NUMBER(radial)	gates	5	5 - 10
N/A	NUMBER(replace look back)	gates	4	4 - 10
N/A	NUMBER(replace look forward)	gates	10	5 - 20
N/A	NUMBER(reunfold current azimuth)	gates	15	15 - 50
N/A	NUMBER(reunfold previous azimuth)	gates	5	5 - 20
N/A	PREVIOUS RADIAL(nine point)	gates	5	-
N/A	THRESHOLD(azimuthal difference factor)	unitless	0.60	0.50 - 1.00
N/A	THRESHOLD(consecutive rejected)	gates	5	5 - 10
N/A	THRESHOLD(difference unfold)	m/s	10.0	1.0 - 15.0
N/A	THRESHOLD(maximum contiguous jumps)	radials	5	1 - 10
N/A	THRESHOLD(maximum missing)	gates	30	10 - 50
N/A	THRESHOLD(number of azimuth jumps)	gates	75	40 - 100

N/A	THRESHOLD(velocity jump factor)	unitless	0.75	0.50 - 1.00
N/A	THRESHOLD(scale difference unfold)	unitless	1.50	1.00 - 1.20
N/A	THRESHOLD(scale standard deviation)	unitless	0.40	0.00 - 1.00
N/A	THRESHOLD(sounding age)	hours	6.00	0.00 - 6.00

Velocity Dealiasing (Long Pulse)

N/A	CURRENT RADIAL(nine point)	gates	4	-
N/A	FLAG(replace missing velocities)	N/A	.TRUE.	.TRUE./FALSE.
N/A	FLAG(use sounding)	N/A	.TRUE.	.TRUE./FALSE.
N/A	NUMBER(bins large azimuth jump)	gates	10	8 - 12
N/A	NUMBER(look back)	gates	30	5 - 45
N/A	NUMBER(look forward)	gates	15	10 - 20
N/A	NUMBER(radial)	gates	10	5 - 10
N/A	NUMBER(replace look back)	gates	4	4 - 10
N/A	NUMBER(replace look forward)	gates	15	10 - 20
N/A	NUMBER(reunfold current azimuth)	gates	30	15 - 50
N/A	NUMBER(reunfold previous azimuth)	gates	10	5 - 20
N/A	PREVIOUS RADIAL(nine point)	gates	5	-
N/A	THRESHOLD(azimuthal difference factor)	unitless	0.60	0.50 - 1.00
N/A	THRESHOLD(consecutive rejected)	gates	5	1 - 10
N/A	THRESHOLD(difference unfold)	m/s	3.0	1.0 - 15.0
N/A	THRESHOLD(maximum contiguous jumps)	radials	2	1 - 10
N/A	THRESHOLD(maximum missing)	gates	30	10 - 50
N/A	THRESHOLD(number of azimuth jumps)	gates	40	40 - 100
N/A	THRESHOLD(velocity jump factor)	unitless	0.75	0.50 - 1.00
N/A	THRESHOLD(scale difference unfold)	unitless	1.20	1.00 - 1.20
N/A	THRESHOLD(scale standard deviation)	unitless	0.80	0.00 - 1.00
N/A	THRESHOLD(sounding age)	hours	6.00	0.00 - 6.00

NOTE: In algorithm #33, the Cartesian grid box described by DOMAIN(X Size) and DOMAIN(Y Size) should be centered on the radar.