

Candidate Radar Capability Improvements

mji June 1, 2005 rv2

	TITLE	Description	Priority								User Responses				
			ER	CR	SR	WR	AR	WDTB	HSD	OHD	OST	Rank	Avg	Min	Std
59	All Tilts Frames Expansion	Increase the number of frames used by all tilts feature to 64.	2	1	2		2	1				1	1.8	1	0.50
23	Super-Res Base Products	Super resolution (.5 deg, .25 km) base reflectivity and velocity products.	1	3	2	1	2	1			2	2	1.8	1	0.84
24	Super-Res: MDA	Modify MDA Algorithm to ingest super-resolution base data.	1	3	2		2	4			2	3	2.0	1	0.82
32	Dual Pol Base Products	Dual Polarization base data products (Zdr, Phi-dp, Rho-HV; derived: Kdp).	2	2	2		2	1			2	4	2.0	2	0.00
33	Dual Pol: HCA	Hydrometeor Classification Algorithm and graphic product (e.g., rain, hail, snow, sleet, freezing rain, etc..).	2	2	2		2	2	1	1	2	5	2.0	2	0.00
34	Dual Pol: QPE	New suite of precipitation products using dual polarization data. Legacy PPS would be removed after Dual-Pol PPS is accepted.	2	2	2		2	1	1	1	2	6	2.0	2	0.00
49	4-D Radar Display (NSSL FSI)	MDL integration of NSSLs 3D radar display into AWIPS.	2	3	2		2	3				7	2.3	2	0.50
51	Plan view display of VWP	All WSR-88D VWP data within the domain of the WFO's/RFC's Regional Scale will be ingested and displayable on D-2D.	3	3	2		2	1				8	2.5	2	0.58
60	All Tilts Navigation Tool	AWIPS tools to navigate and report the relative time and elevation of the current frame so that the user knows where they are in relation to other currently available products.	2	1	5		2	1				9	2.5	1	1.73
50	Interactive Cross Section	An element of the NSSL 3-D Radar Display that MDL implementing.	2	3	2	4	2	1				10	2.6	2	0.89
25	Super-Res: TVS	Modify TVS Algorithm to ingest super-resolution base data.	1	3	2		5	4			2	11	2.8	1	1.71
26	Super-Res: PPS	Modify PPS Algorithm to ingest super-resolution base data and modify products to provide super-resolution.	1	3	5		2	4	3		2	12	2.8	1	1.71
27	WSR-88D Data Quality Improvments	ORDA Signal Processing Techniques. A) SZ-2, B) SZ-1, C) Staggered-PRT, D) Oversampling, E) Whitening.	3	4	2	2	5	1				13	3.2	2	1.30
21	Lower Elevation Angles	Allow VCPs to scan at lower elevations and to be site specific.	1	4	8	1	2	1	4		2	14	3.2	1	2.95
52	Estimated Actual Velocity	Estimate Actual Wind tool would calculate the estimated actual wind speed at a point when the radar operator draws a line representing a wind direction.	3	3	5		2	4				15	3.3	2	1.26
1	MDA: Alerting, CR, RCM	To complete transition to MDA: a) begin central collection of MD, b) modify CZ and RCM to use new MDA algorithm data, c) add alerting for the new MDA algorithm, d) remove legacy M and MRU products.	5	4	2		2	4			8	16	3.3	2	1.50
19	New VCPs	Additional VCPs.	1	4	5	2	5	1	6		2	17	3.4	1	1.82
37	TDWR: SPG IOC	Initial Operational Capability of TDWR SPG products and AWIPS D2D.	1	3	2		8	1			2	18	3.5	1	3.11

46	TDWR: TVS	TVS algorithm/product using TDWR data. Optimization to TDWR data is pre-requisite.	1	4	2		8	4			5	19	3.8	1	3.10
39	TDWR: Use 88D Dealiasing	Modify TDWR SPG to use 88D dealiasing instead of TDWRs. Optimization to TDWR data is pre-requisite.	2	3	2		8	1				20	3.8	2	2.87
3	MIGFA	New algorithm/product to provide current/future gust front positions and post frontal wind speed/direction. A second phase could provide interest fields for additional processing.	3	5	5		2	7			5	21	3.8	2	1.50
38	TDWR: true 150m and 300m Z bins	Modify TDWR SPG to provide true 150m and 300m resolution reflectivity products	3	3	2		8	1			2	22	4.0	2	2.71
61	Integrated radar/enviroment tool	Radar product sampling readout would also list other (configurable) environmental data (temp, dew point, winds)	5	4	5	4	2	1			2	23	4.0	2	1.22
45	TDWR: MDA	MDA algorithm/product using TDWR data. Optimization to TDWR data is pre-requisite.	2	4	2		8	4			5	24	4.0	2	2.83
58	Freezing level ULR	AWIPS request (RPS, OTR) feature which would select altitude layers based on the altitude of current freezing level. The user would set the temperature level and relative min/max altitude.	5	4	5		2	7			2	25	4.0	2	1.41
2	Enviro Info from AWIPS	AWIPS would periodically (e.g., hourly) provide environmental data (temp, dew pt, winds, etc.) relevant to the radar coverage area. The source would be selectable (RUC, ETA, Obs, etc.) and would be provided on a TBD horizontal and vertical grid resolution.	5	5	2		5	5			2	26	4.3	2	1.50
53	Moving Point Meteogram	A meteogram or time height cross section from a moving point. Users would put the point on a feature and track it and get the value over that feature at different times. Right now, if you select a meteogram you select a point, and if that feature moves away from the point you are not measuring the value of the feature.	3	4	8		2	7				27	4.3	2	2.63
30	Extended Doppler Products	Modify base data and products to provide Doppler data to 300 km.	3	4	5		5	2			3	28	4.3	3	0.96
57	Prototype products and Other radars	Allocate a block of prototype product codes (e.g., Dual-Pol) and radar IDs (ARSR-4, ASR-11, CanRad, DOW) and implement request and display on AWIPS. As long as products followed the current WSR-88D ICD, AWIPS request and D2D displays would be available to evaluate new products and data.	3	4	5		5	2				29	4.3	3	0.96
11	Hail Tracks	NSSL WDSS-2 Gridded Hail Algorithm and Product. Including displays as an image of maximums (hail size, damage potntial) over time (e.g., 2 hours).	3	4	5		5	3			5	30	4.3	3	0.96
36	ASR-11: Base Reflectivity	Like TDWR SPG, would generate base reflectivity products for display in AWIPS D2D.	3	5	5		5	2			2	31	4.5	3	1.00
14	Enhanced DSP	Increase resolution of DSP from 2km to 1km.	3	5	5		5	5	3		5	32	4.5	3	1.00

66	Rain/Snow/Ice Discriminator	Would use surface observations of temperatures, dew points, and wet bulb temperatures to differentiate between type of precipitation	8	4	6	3	2	8	5	5				33	4.6	2	2.41
42	TDWR: VWP	VWP Product using TDWR data.	3	6	2		8	2					5	34	4.8	2	2.75
54	Radar Precipitation Nowcasts	AWIPS Strategic- 2nd Tier: Radar multisensor Quantitative Precipitation Nowcasts.	2	4	8		5	4	4	5	2			35	4.8	2	2.50
6	TVS Tracking	Enhance the TVS product to include speed/direction and past/future positions.	3	3	5		8	8					2	36	4.8	3	2.36
48	CANRAD: Base Products	Like the TDWR SPG, would generate base reflectivity products for display in AWIPS D2D.	2	5	8		5	1					5	37	5.0	2	2.45
9	DVL at a higher scale	Provide DVL using a scale that reports VIL values above 80. This may need to be a different product from the existing DVL	2	5	5		8	5						38	5.0	2	2.45
35	ARSR-4: Base Reflectivity	Like TDWR SPG, would generate base reflectivity products for display in AWIPS D2D.	5	5	5		5	2					2	39	5.0	5	0.00
47	TDWR: PPS	PPS algorithm/product using TDWR data. Optimization to TDWR data is pre-requisite.	1	4	8		8	6	2	2	5			40	5.3	1	3.40
44	TDWR: SCIT	STI Product using TDWR data. Optimization to TDWR data is pre-requisite.	2	6	5		8	6					5	41	5.3	2	2.50
31	Spectra-based TVS Info	The ORDA would provide Doppler spectra which could be used to locate sub-bin TVS location and maximum winds. Depends on ORDA system, algorithm development, ability to execute in real-time.	3	5	5		8	6					2	42	5.3	3	2.06
7	QC Input to storm algorithms	Modify MDA, TDA, SCIT processing to ingest data that has been edited via DQA or another QC process.	3	5	5		8	6					5	43	5.3	3	2.06
10	Rotation Tracks	NSSL WDSS-2 Algorithm and Product. Linear least squares rotation displayed as an image of maximums over time (e.g., 6 hours).	3	3	8		8	3					2	44	5.5	3	2.89
55	N. American-scale Precip Estimates	North American-scale Precipitation Estimates-will include Canadian radar, WSR-88D, satellite estimates	2	8	8		5	5	4	5	5			45	5.8	2	2.87
15	Probabilistic Radar based Precip	Probabilistic Radar based Precip Estimate. OHD said there are RPG and AWIPS parts	3	7	8		5	6	7	3	5			46	5.8	3	2.22
8	QC input to SuperOb	Modify SuperOb processing to ingest data that has been edited via DQA or another QC process.	5	5	8		5	7					5	47	5.8	5	1.50
4	SCIT Rapid Update	Would extend RU to SCIT and provide a data array product every elevation scan containing 2D components and 3D cell data. RU for SCIT needs to first get TAC review and to go through OSIP.	3	8	5		5	8	4				5	48	5.8	3	2.17
20	VCP Selection - Other Wx Type	Extend the Build 8 Mode Selection Function to deriving VCP usage recommendations for other types of weather (e.g., snow, rapidly evolving storms).	3	8	8		5	5	7					49	5.8	3	2.17
43	TDWR: VIL	VIL Product using TDWR data.	2	6	8		8	6					5	50	6.0	2	2.83

28	Refractivity derived Water Vapor	An RDA technique to estimate content of low level water vapor.	3	8	8	5	2			2	51	6.0	3	2.45
17	VWP improvement	A) correct low speed wind anomaly. B) Migrating bird bias	5	9	5	3	8	2		5	52	6.0	3	2.45
64	Multi-Doppler Wind Retrieval	Using 8-bit velocity products, it may be possible at times to compute dual doppler wind vectors.	3	7	6	8	5				53	6.0	3	2.16
65	GBVTD (trop cyclone info)	Ground Based Velocity Tracking Display. Computes two dimensional (vs. radial) velocities within tropical cyclones. Ref: Monthly Weather Review, Oct. 1999, Lee	5	7	6		5				54	6.0	5	1.00
13	REC - Precipitation Identifier	Extend the REC algorithm to evaluate each range bin and derive a likelihood that the data represents precipitation.	5	6	8	5	7	5	3	5	55	6.0	5	1.41
40	TDWR: CZ	Composite Reflectivity Product using TDWR data.	3	6	8	8	6			5	56	6.3	3	2.36
41	TDWR: ULR	User Layer Composite Reflectivity Product using TDWR data.	3	6	8	8	8			5	57	6.3	3	2.36
62	VWP Wind Averaging	Apply time averaging and time stepping to VWP winds	8	4	8	5	5				58	6.3	4	2.06
16	CSSA	OHD developed Convective Statiform Separation Algorithm.	5	7	8	5	8	5	4	5	59	6.3	5	1.50
56	National 3D Radar Grids	NSSL has prototyped a CONUS 3D grid. Regional tiles could be provided via SBN.	2	8	8	8	3				60	6.5	2	3.00
22	VAHIRR (anvil deck safety info)	The objective of Volume Averaged Integrated Radar Reflectivity (VAHIRR) is to tell the user which opaque anvils are safe and which are not, due to anvil electrification.	5	8	5	8	9			5	61	6.5	5	1.73
63	Storm Scale Models	Implement storm and cloud scale models.	5	8	6	8	6			2	62	6.8	5	1.50
12	Uniform Winds Algo	Implement the Uniform Winds Algorithm which would provide wind speed/direction data on a scale of 30km/30deg.	8	7	8	5	7			2	63	7.0	5	1.41
18	REC - RPG based AP identifier	Several enhancements to the existing AP detection algorithm are being evaluated.	5	7	8	8	7			5	64	7.0	5	1.41
29	REC - ORDA based AP identifier	Move the Anomalous Propagation identifier to the ORDA. To evaluate/evolve algorithm performance, this needs to be done in a way that will preserve the original basedata.	5	8	8	8	5			2	65	7.3	5	1.50
5	4km EET	Enhance the ET product to use the same techniques as EET but maintain the 4km resolution.	8	9	8	8	10			5	66	8.3	8	0.50
68	CANRAD: PPS	Canada radar rainfall accumulation						4	4		67			###
67	Range correction for precipitation	Range correction algorithm for bright band and long range shallow rain						5	4		68			###