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7.3 Radar Recordings Processed Using radR

1. Print the worksheet generated from Weather Events for Exclusion from Analysis for a Sampling Period (done by viewing the radar images through radR looking for precipitation events) to help define clear periods for radR to process, and keep track of the processing with written notes.
    - **Minutes of each hour processed through radR must be kept track of at the point of running radR. If no tracks are detected there is no radR output generated, but the inactive time must be accounted for as it contributes to passage rate.**
    - If processing portions of a nights recordings, please note that the radar image files are huge. Copying a block of them into another temporary directory for partial night processing is time consuming, and can lead to confusion with the output scan numbers. The first record read by radR is scan#1 in the output, without regard of the rec. number generated by WinHorizon at the time of recording. Also Track and Blip numbers are unique within a radR run, not between two radR runs. The timestamp generated by radR (–drawn from the rec number and the file name or input data) may have a glitch in it (yet to be determined –Jan24,2012).

North_Dokie_Radar_file_log

	A	B	C	D	E	F	G	H	I	J	K
1	Season and Location	Date and Time	rec number	time	precip	comments	degree1	degree2	km_dist1	km_dist2	overall comment
266	2011_fall_JC15_horiz	2011-08-29 20-13-14	13761	06:02	clear	Sunrise	0	360	0	1.5	
267	2011_fall_JC15_horiz	2011-08-29 20-13-14	14330	06:26	clear		0	360	0	1.5	very few targets
268	2011_fall_JC15_horiz	2011-08-29 20-13-14	19227	09:54	clear	end	0	360	0	1.5	
269	2011_fall_JC15_horiz	2011-08-30 20-05-39	1	20:05	rain		0	360	0	1.5	targets, few seen throu
270	2011_fall_JC15_horiz	2011-08-30 20-05-39	550	20:29	clear		0	360	0	1.5	
271	2011_fall_JC15_horiz	2011-08-30 20-05-39	612	20:32	shower		330	5	1.5	1.5	shower coming in and c
272	2011_fall_JC15_horiz	2011-08-30 20-05-39	1000	20:49	shower		0	360	0	1	targets seen in clear mi
273	2011_fall_JC15_horiz	2011-08-30 20-05-39	1500	21:10	clear		0	360	0	1.5	targets, full on
274	2011_fall_JC15_horiz	2011-08-30 20-05-39	13408	05:43	clear		0	360	0	1.5	fewer targets, still gooc
275	2011_fall_JC15_horiz	2011-08-30 20-05-39	13980	06:04	clear	Sunrise	0	360	0	1.5	
276	2011_fall_JC15_horiz	2011-08-30 20-05-39	18993	09:42	clear	end	0	360	0	1.5	more bugs? In first .5km
277	2011_fall_JC15_vert	2011-08-27 20-19-40	1	20:19	clear		270	90	0.25	1.5	consistent linear flares
278	2011_fall_JC15_vert	2011-08-27 20-19-40	198	20:28	clear		60	T	0.5	T	first clear target
279	2011_fall_JC15_vert	2011-08-27 20-19-40	1200	21:12	clear		270	90	0.25	1.5	steady targets
280	2011_fall_JC15_vert	2011-08-27 20-19-40	3400	22:49	clear		270	90	0.25	1.5	higher targets, steady
281	2011_fall_JC15_vert	2011-08-27 20-19-40	13131	05:58	clear	Sunrise	270	90	0.25	1.5	very few targets
282	2011_fall_JC15_vert	2011-08-27 20-19-40	16383	08:21	clear	end	270	90	0.2	1.5	
283	2011_fall_JC15_vert	2011-08-28 20-14-41	1	20:14	clear		270	90	0.2	1.5	empty sky

Raw Data Folders | radR precip & obs | Sheet3

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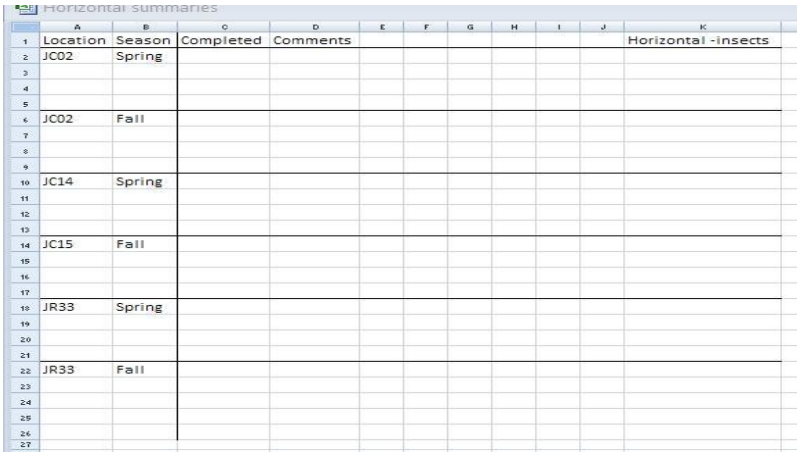
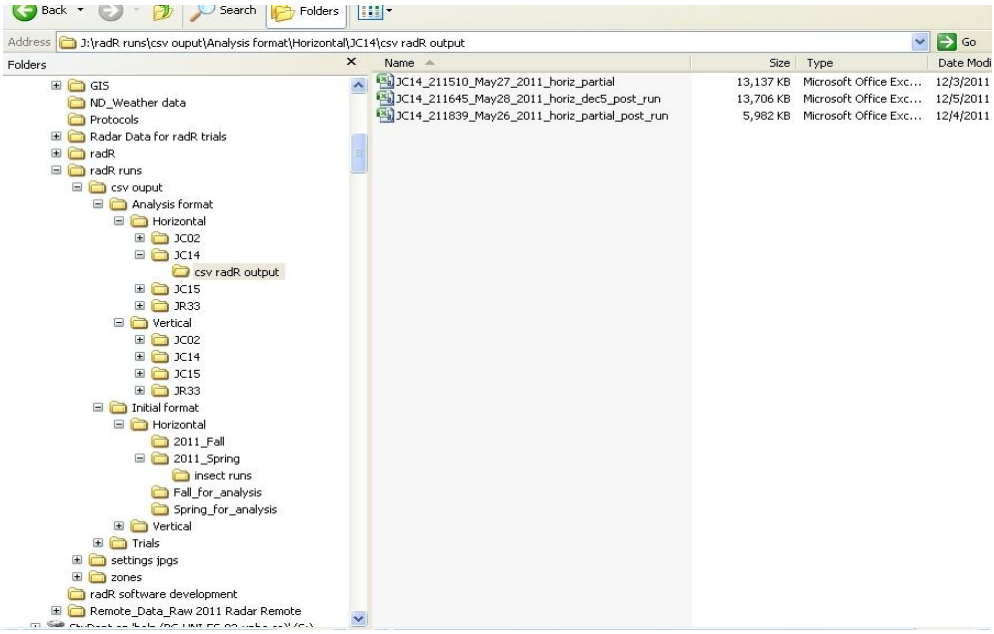
2. Create a table of the data sets (locations, seasons and comments) to help keep track of processing progress and any errors or problems you may encounter. These notes may be very useful if communicating about radR processing and problems, the program was actively being developed in 2012.



Location	Season	Completed	Comments	Horizontal -insects
JC02	Spring			
JC02	Fall			
JC14	Spring			
JC15	Fall			
JR33	Spring			
JR33	Fall			

3. Create file folders for radR output, using data set structure to help keep files in order as work progresses (in our study we used seasons, turbine locations, vertical and horizontal data, stage of processing). This is especially important if you plan to process the data using more than one set to blip and target filtering parameters. In December 2011 we ran the settings in the table below, but also had insect filtering parameters run for some nights and saved output by turbine in a separate directory.



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Confirm radR's blip filtering and tracking parameters to be used for processing of radar data. (December 2011 in table below).

Pop up window	Parameter	Value
Blip Processing	Noise cutoff	0
Blip Processing	Find Blips	Yes
Blip Processing	learning scans	15
Blip Processing	update stats every scan	No
Blip Processing	exclude blips from stats update	Yes
Blip Processing	old stats weighting	0.95
Blip Processing	hot score threshold high	2.5
Blip Processing	hot score threshold low	-128
Blip Processing	samples per cell	4
Blip Processing	pulses per cell	4
Blip Processing	blips extend diagonally	Yes
Blip Processing	blip centroids by area, not intensity	No
Blip Processing	filter blips	Yes
Blip Processing	min blip samples	40
Blip Processing	max blip samples	5000
Blip Processing	min blip area	100
Blip Processing	max blip area	20000
Blip Processing	min angular span	2
Blip Processing	max angular span	-1
Blip Processing	min radial span	1
Blip Processing	max radial span	-1
Blip Processing	also filter by logical expression	Yes *
Tracker controls	minimum number of blips required for a track	4
Tracker controls	maximum speed of tracked objects	100
Tracker controls	minimum number of blips before a track is plotted	3
Tracker controls	how long to retain plots of completed tracks	15
Multiframecorr contrls	number of scans to backtrack over in building tracks	3
Multiframecorr contrls	weight of directional coherence vs proximity to prediciton	0.5
Multiframecorr contrls	minimum gain for a blip to join a track	10
Multiframecorr contrls	small penalty for blips missing from tracks	0.01

* The logical expression used in December 2011 was: perim^2/(area * (4*pi)) <5 & int > 0.3

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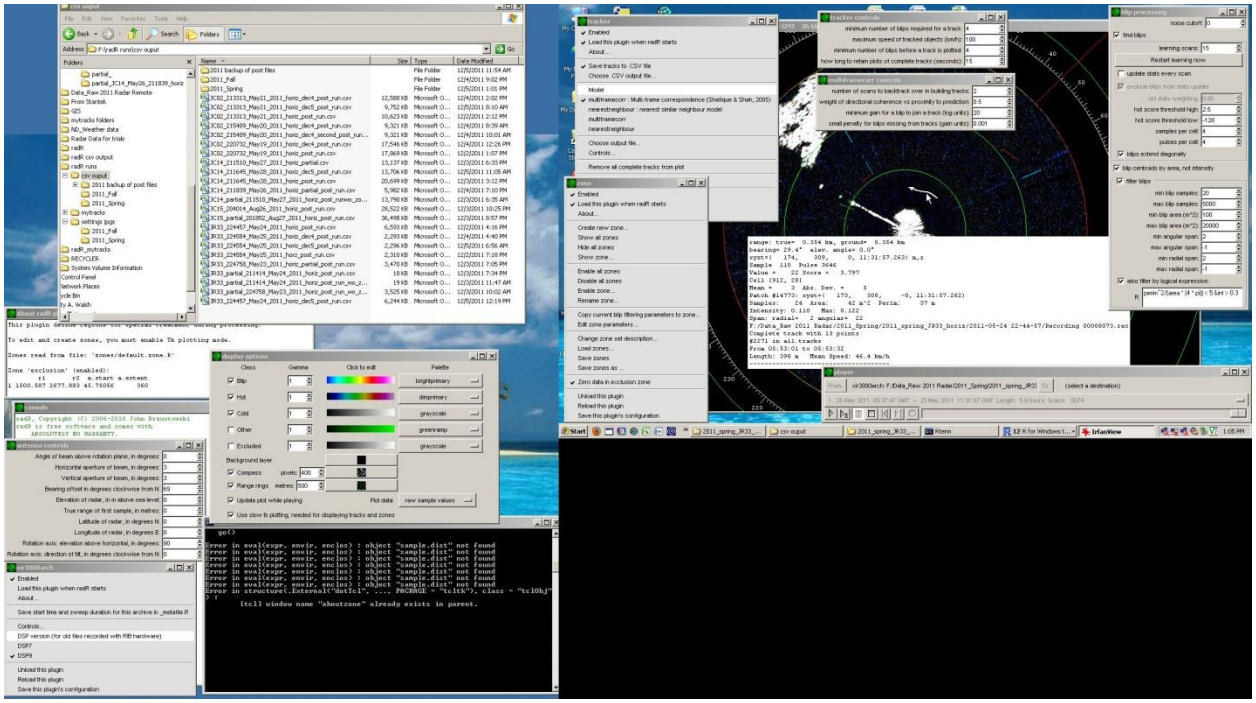
4. Screens set up using two monitors to accommodate the multiple pop-up menus of radR and the file management of data input and output. [Having the cursor on a target in the plot window at the time of screen capture, allowed the plot text box to display the full data input file structure in use. If exclusion zones are being used, it is important to have the "about" option displayed from the zone menu, as the r1 and r2 values of each exclusion zone are then displayed and made available through the screen capture for later area removal calculations.]



5. Run radR after carefully naming a .csv output file in the tracker menu, choose the folder for radR output you set up in step 3. When a run is complete, press the stop button on the player menu, and rename the output .csv file immediately (add "_post_run" to the file name so it cannot be overwritten by the radR tracker or player functions). This step of *clicking stop in the player menu* and *renaming the output file* is to save your output file from being overwritten accidentally. The overwriting happens when you activate a popup menu in radR, there is no fail safe on it, the file is overwritten with a new blank file. This will be fixed in future versions of radR. Do this for all the nights of radar data collected. Keep track of the .csv output files created and be ready to process the data using the R-script developed for that orientation of radar.