

1. _FillValue in MMR cfradial files: Please capitalize the F and V.
2. Use -9999 as the no data / missing data flag.
 - a. Currently missing or no data is flagged as 0 (zero)
 - b. VEL and DBZ use 0 as meteorological data values as do other variables in the data (pitch and roll and others)
3. Nyquist Velocity (nyquist_velocity) data is incorrect (Jeff Price, stated via email this was filled with “doppler resolution” instead of nyquist_velocity as per cfradial 1.3, to be corrected) . We need to see this correction has been completed.
4. See file attached derived from CF Radial file of same name and make corrections as indicated. Red text and struck through should be deleted. If it is highlighted it either replaces what is to be deleted or is new. (HWX_2020_02_10_07_20_18.txt)
5. With regards to DBZ in the NAW files: Make the 4 values for each azimuth (which we understand is for the purpose of finer azimuthal spacing) be converted to ‘real’ as has been done for HWX DBZ variable. That is, the DBZ data format that we approved for HWX should also be applied to NAW.
6. The following needs to be added to the cfradial file, need to verify h/v beam width values.

variables:

```
float radar_beam_width_h ;
radar_beam_width_h:long_name = "half_power_radar_beam_width_h_channel" ;
radar_beam_width_h:units = "degrees" ; radar_beam_width_h:_FillValue = -9999.f ;
radar_beam_width_h:meta_group = "radar_parameters" ; float radar_beam_width_v ;
radar_beam_width_v:long_name = "half_power_radar_beam_width_v_channel" ;
radar_beam_width_v:units = "degrees" ; radar_beam_width_v:_FillValue = -9999.f ;
radar_beam_width_v:meta_group = "radar_parameters" ;
```

data:

```
radar_beam_width_h = 1.4 ;
radar_beam_width_v = 5 ;
```

7. Provide documentation on how the data is calculated from a radar engineering perspective and a table of MMR mode and key radar parameters for each mode. We would expect such documentation for any research radar (as one example, see Table 1 and Section 2 discussion of Jorgensen et al. 1983 “Feasibility test of an airborne pulse-Doppler meteorological radar” in J. of Climate and Applied Meteorology). While we have gleaned some information on the MMR system from our various queries, we remain confounded as to why something as simple as a “radar characteristics” table cannot be provided.
8. The netCDF file contains the fields northward_wind, eastward_wind, vericle_wind heading_rate, pitch_rate, roll_rate, are currently all 0’s (zeros). These data field should be populated with the correct values from the INU.
9. The netCDF file contains the fields power_reference and rcs_reference. They are also all 0’s (zeros). We are not sure what these values represent but currently they are all zero. Please correct to a proper value with proper units of measure.
10. Please verify antenna horizontal and vertical beam width data values.