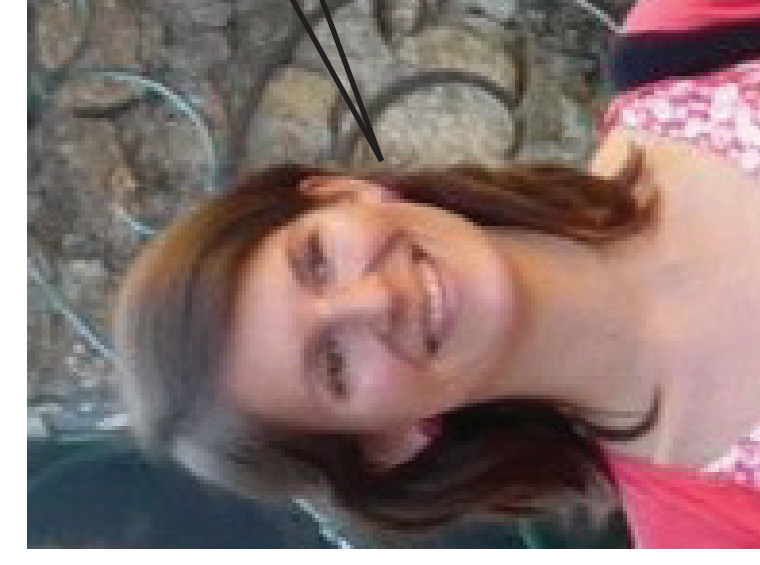


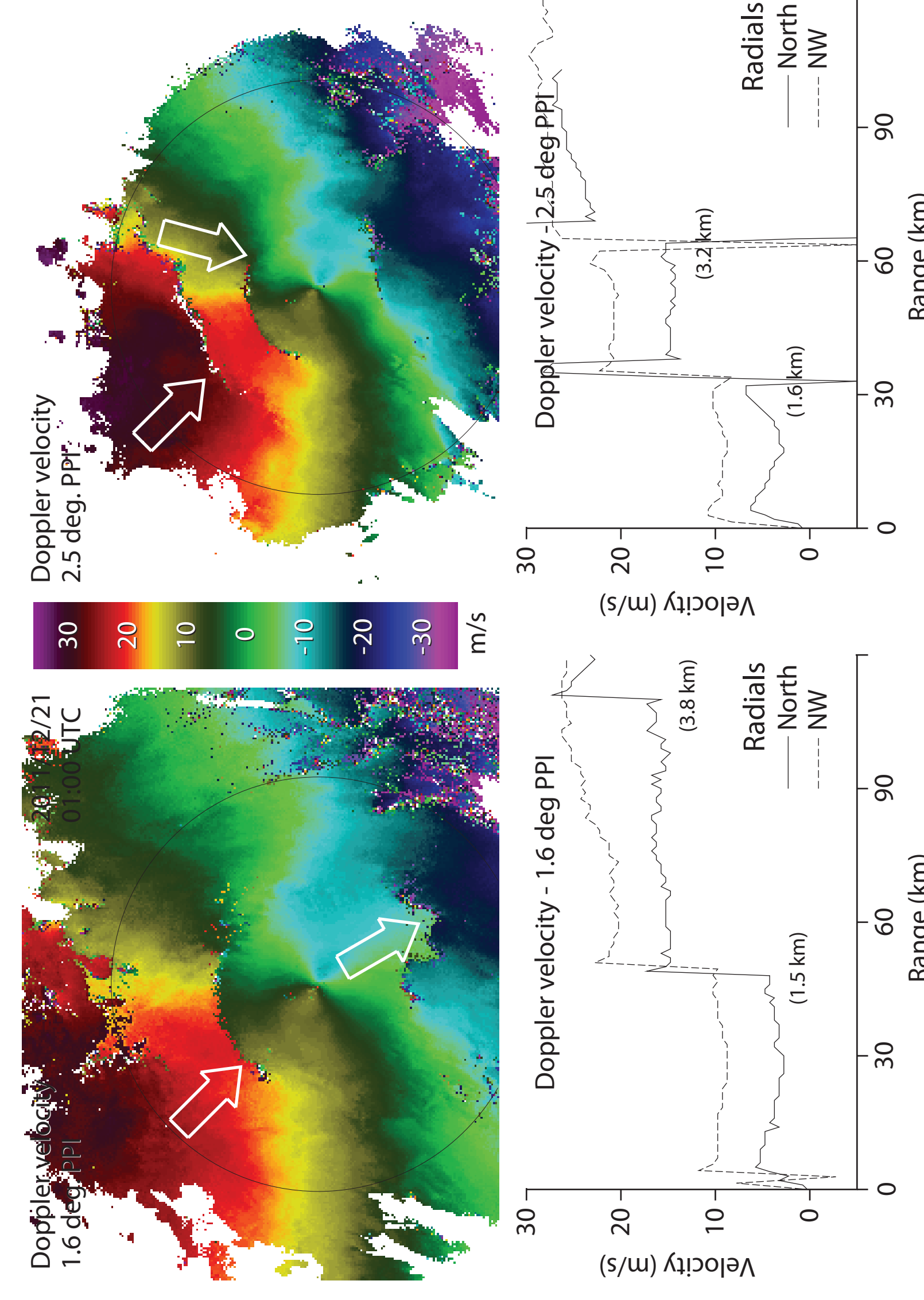
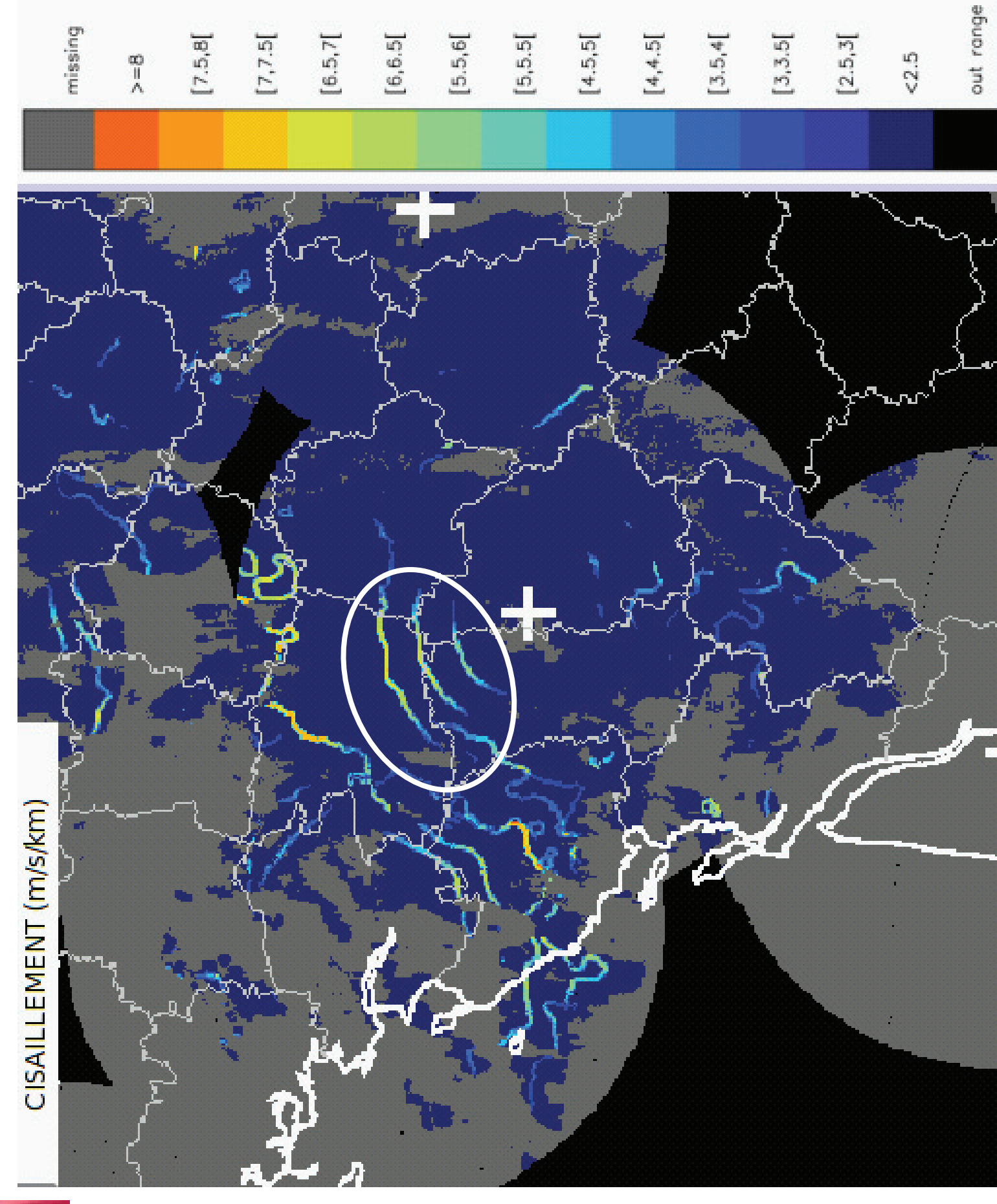


We have this new wind shear detection algorithm*; it works well, but sometimes we get shear detection in widespread rain.



Actually, our triple-PRT derived Doppler velocities themselves show shear.

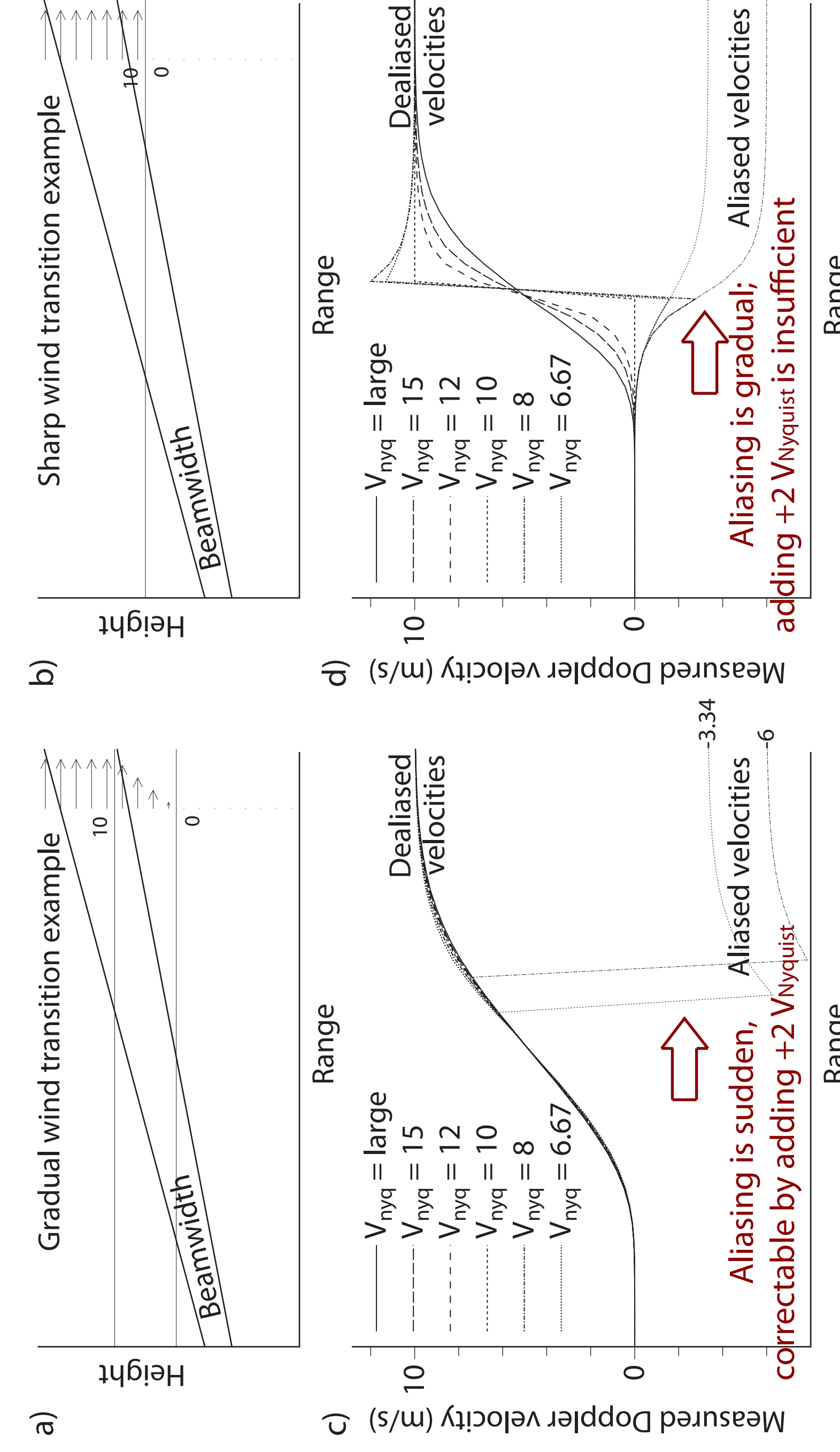
Ring signature on a PPI means vertical shear. But WHY?!? The beam should smooth them! Could their triple-PRT scheme do something funny? Or is it something more profound?



* Augros, C., P. Tabary, A. Anquez, J.-M. Moisselin, P. Brovelli, and O. Bousquet, 2013: Development of a nationwide, low-level windshear mosaic in France. *Weather and Forecasting*.

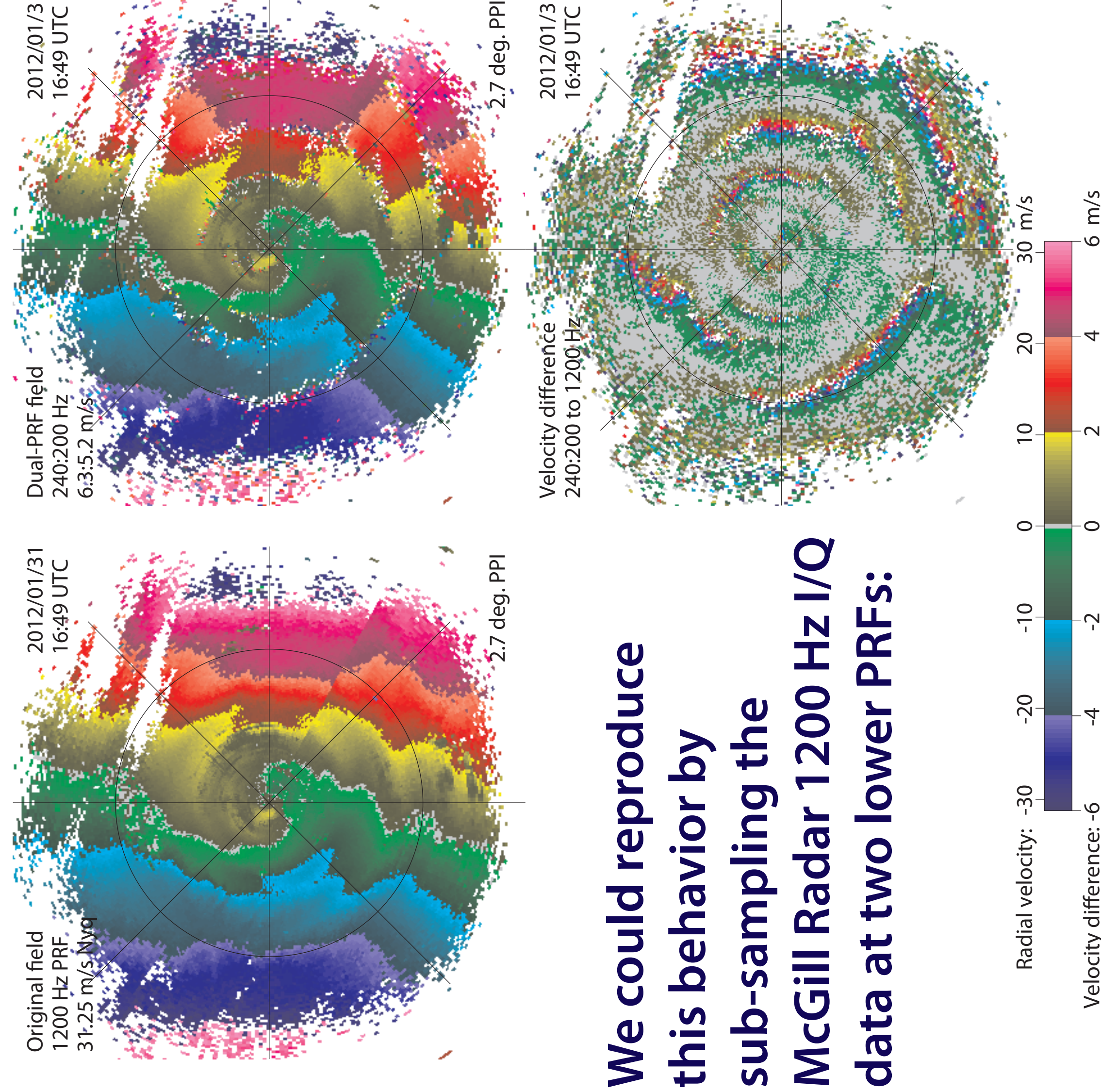
It was something more profound:

If a wind shear is *gradual*, or smaller than the Nyquist velocity of a base PRF, aliasing occurs *suddenly*, and dealiasing works fine.



If a wind shear is *sharp* and larger than the Nyquist velocity of a base PRF, aliasing occurs *smoothly*, partially defeating dealiasing, and creating a step velocity transition.

For details, see Fabry, F., C. Augros, and A. Bellon, 2013: The case of sharp velocity transitions in high vertical wind shear when measuring Doppler velocities with narrow Nyquist intervals. *J. Atmos. Oceanic Technol.*, **30**, 389-394.



We could reproduce this behavior by sub-sampling the McGill Radar 1200 Hz I/Q data at two lower PRFs: