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SZ-2 Algorithm Updates for the NEXRAD Network



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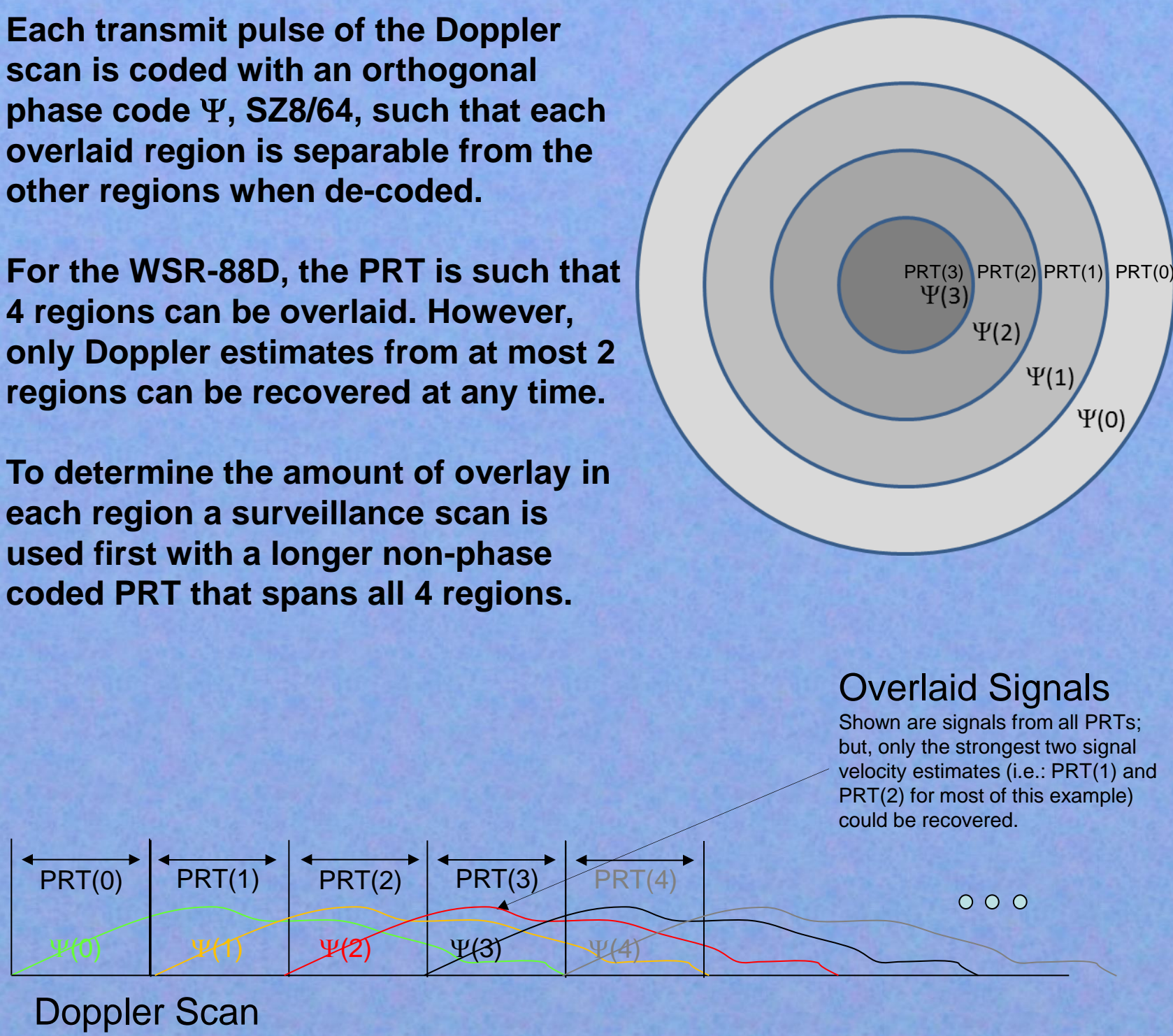


Abstract

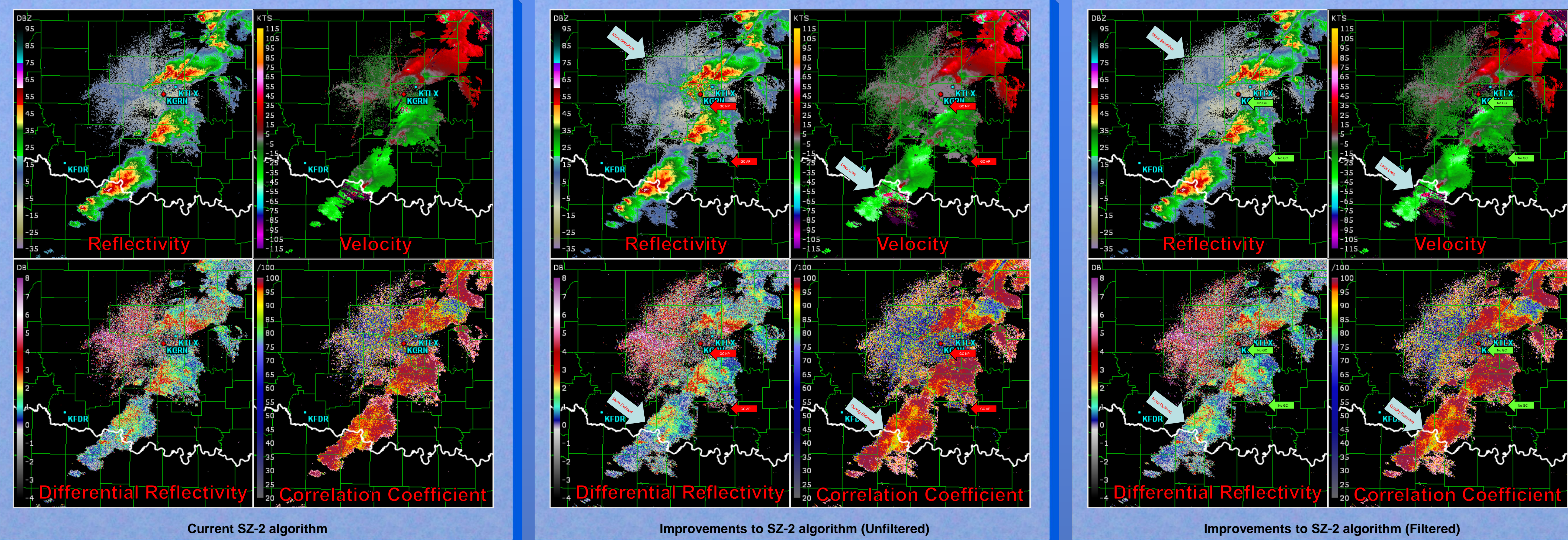
SZ-2 algorithm is currently used in the WSR-88D for Range/Velocity ambiguity mitigation. Here we illustrate the integration of new signal processing techniques for data quality improvement s within theSZ-2 algorithm.

- CLEAN-AP™/WET – Automated ground clutter mitigation with enhancement of weather detection
- Hybrid-Scan Estimators (HSE) – Improved polarimetric-variable estimates using non-overlaid phase coded signals from the Doppler scan
- Radial-by-radial noise – Improved noise estimation
- CBT – Improved sensitivity for coherent signals
- Hybrid-spectrum width – Improved spectrum width estimates
- Oversampling/Pseudo-Whitening – Reduced variance of estimates

SZ-2 – Phase Coding



Examples



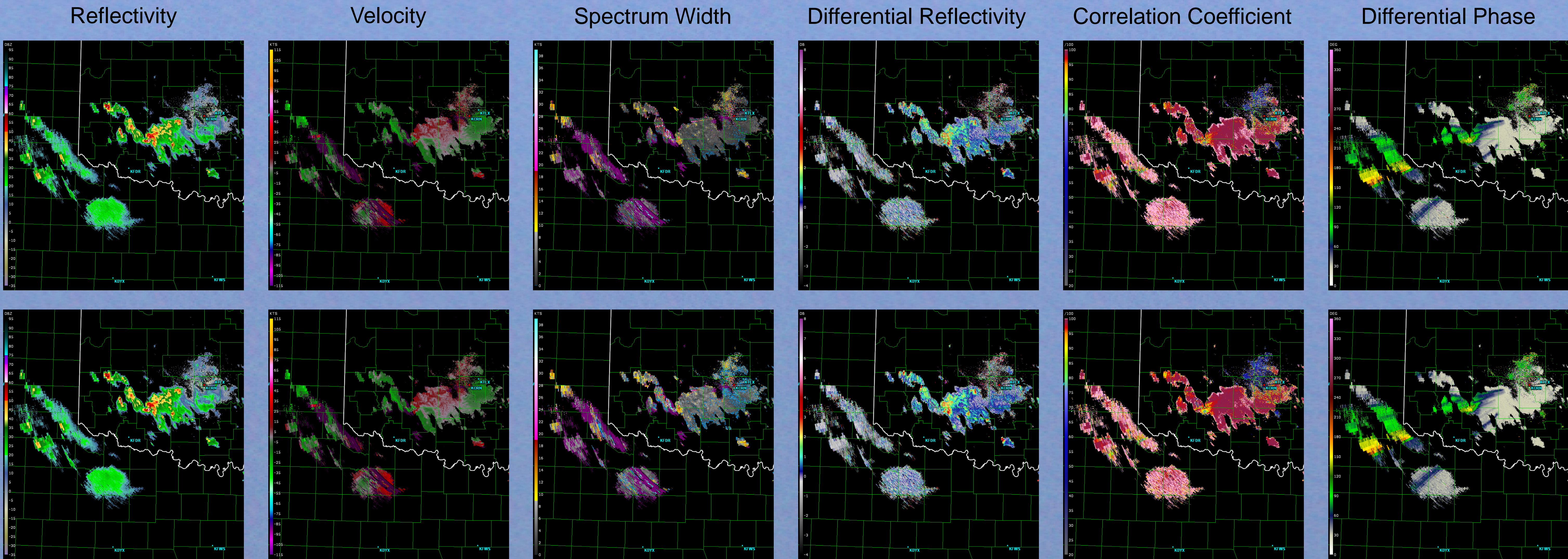
Summary

Recent innovations in the areas of ground clutter mitigation and radar-variable estimation are realized while reducing range and velocity ambiguities using SZ-2.

- ❖Improvement to Ground Clutter Mitigation
- ❖Improvement to Polarimetric-Variable Estimates
- ❖Improvements to Noise Estimates
- ❖Improvement to Detectability of Weak Echoes
- ❖Improvement to Doppler Estimates
- ❖Reduction in Variance of Estimates

Matched Filter

Maximizes signal-to-noise



Pseudo-Whitening

Minimizes variance