Mitigating Ground-Clutter Contamination on Polarimetric Doppler Weather Radars



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Abstract

- Automate the detection/removal of ground clutter contamination
- More important for polarimetric Doppler weather radars Ground clutter contamination can
- ✓ Artificially inflate/deflate quantitative precipitation estimates
- ✓ Adversely affect polarimetric classification algorithms
- ✓ Obscure Doppler-velocity signatures of weather
- Miss-identified weather signals
- ✓ Stratiform rain/snow events (most noticeable)
- ✓ Exhibit similar clutter-characteristics as ground clutter contamination
- ✓ Loss of data
- **Dual-polarization information can assist in identification** ✓ More sensitive
- ✓ More descriminating

Weather Environment Thresholding (WET)

Identifies dual polarimetric characterisitcs of weather signals to mitigate miss-identification as ground clutter



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Filtered?

Yes/Filtered End

Ground Clutter

No Weather/No Ground Clutter







Snow Event: WSR-88D in Duluth, MN

Ground clutter contamination seen after applying ground clutter mitigation









Ground clutter contamination still a prime concern for the weather radar community

Data loss seen after applying ground clutter filter (No Detection)