Velocity Independent Continuous Tracking Radar

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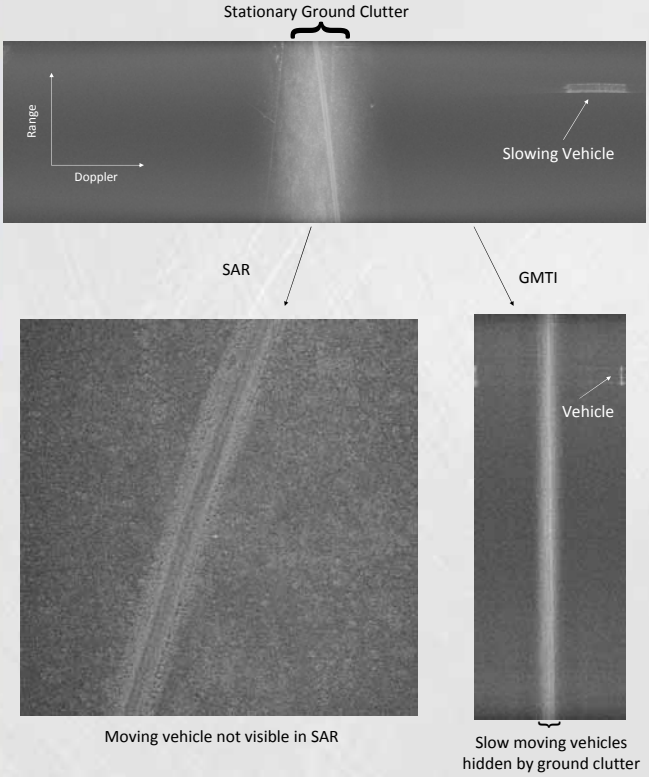
LDRD
LABORATORY DIRECTED RESEARCH & DEVELOPMENT

Problem

Airborne ground imaging radars typically process the available Doppler spectrum in either very short (< 0.25 s) intervals for Ground Moving Target Indication (GMTI), or longer intervals (~3-4 s) for stationary Synthetic Aperture Radar (SAR) images. This processing creates blind velocity regions where moving vehicles cannot be detected.

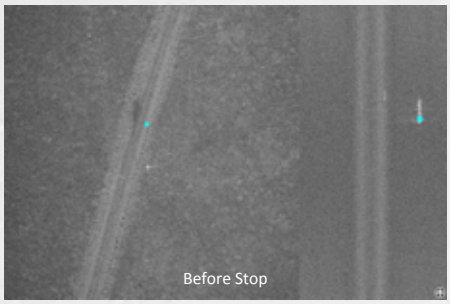


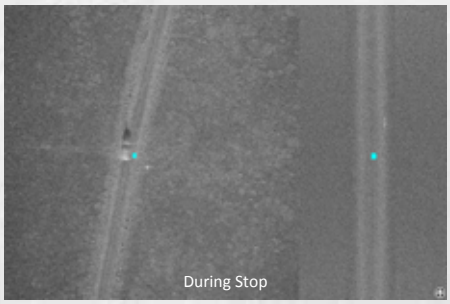
Approach

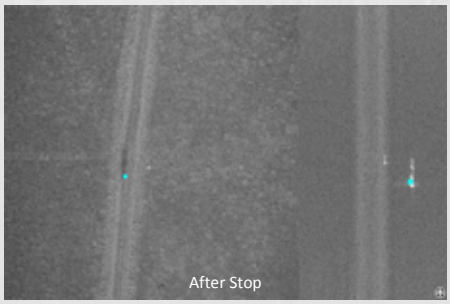
Simultaneously processing a single data stream into both VideoSAR and GMTI products, with an azimuth monopulse radar, eliminates blind velocities and enables tracking of a vehicle through all phases of motion, including stops.

Results

Combined VideoSAR GMTI Movie Frames with Tracking







Significance

This research is developing a new radar mode similar to optical full motion video, but with the capability of night & day all-weather vehicle tracking independent of target velocity.

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