



Unambiguous Range and Velocity Retrieval for Pulsed Dual Polarimetric Radars Software

A radar system determines the range and velocity of a target, in this case, an atmospheric structure. The radar system transfers two series of pulses with orthogonal polarizations. Both series of pulses have the same pulse repetition time but are offset by a predetermined amount of time. The target then reflects energy from both series of pulses to generate a series of echoes. The radar system then processes both series of echoes to determine the range and velocity of the target.

Examples of the invention include a radar system and its method of operation. The radar system comprises a transmission system and a reception system. The transmission system is configured to transfer a first series of pulses and a second series of pulses. The first series of pulses and the second series of pulses have orthogonal polarizations and the same pulse repetition time, offset by a time amount. A target reflects energy from the first series of pulses to generate a first series of echoes. The reception system is configured to process the first series of echoes and the second series of echoes to determine a range and a velocity of the target.

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