

WW2010

welcome
online guides
archives
educational cd-rom
current weather
about ww2010
index

Online Guides

introduction
meteorology
remote sensing
reading maps
projects, activities

Remote Sensing

introduction
radars
satellites

Radars

introduction
radar basics
imagery
velocity patterns
applications

Radar Basics

radar signals
wave properties
signal scattering
wavelength effects
ray paths
clear air returns
target location
scanning modes
radial velocity

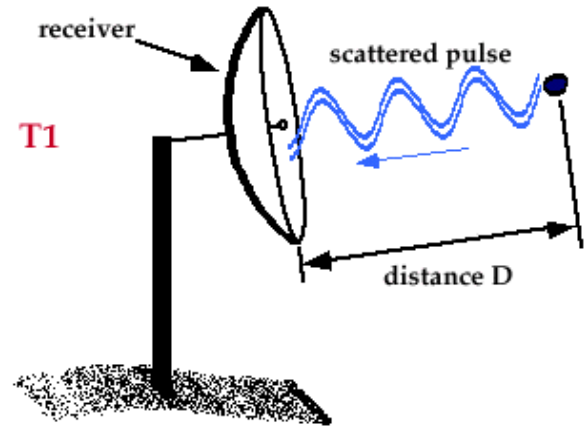
User Interface

graphics text

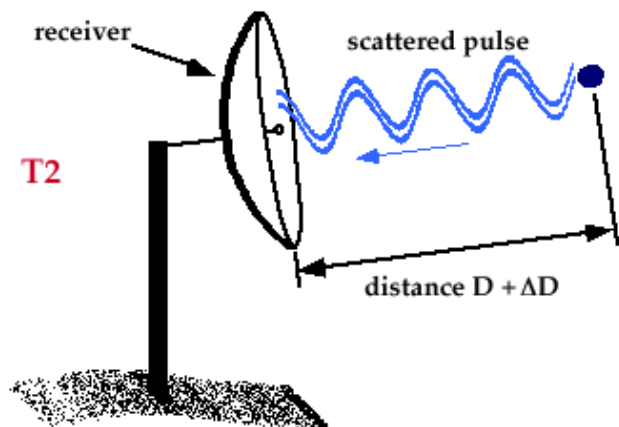
Principles of Doppler Radar for measuring target velocity

Doppler radars can measure the velocity of targets relative to the radar.

For example, at time T1 a pulse is sent towards a target and it returns a target distance "D".



2) At time T2, another pulse is sent towards the same target and returns a target distance " $D + \Delta D$ ".



The distance to target has changed from times T1 to T2, resulting in a phase shift between the two return signals, which Doppler radars are capable of measuring. By knowing the phase shift, the [wavelength](#) and the time interval from T1 to T2, the distance ΔD that the target has moved relative to the radar can be computed. These pieces of information are then used to compute the target velocity relative to the radar. If the target is moving sideways so that its distance relative to the radar does not change, the radar will record zero velocity for that target.

[Terms](#) for using data resources. [CD-ROM](#) available.
[Credits and Acknowledgments](#) for WW2010.
[Department of Atmospheric Sciences \(DAS\)](#) at
the University of Illinois at Urbana-Champaign.