



SPATIAL ANALYSIS OF SAR IMAGE PHASE

Innovative process for measuring target speeds, via Spatial Analysis of the Phase, in submetric Synthetic Aperture Radar images

Technological advantages

A single acquisition mode

Movement estimating method that does not require a special sensor configuration
Speed estimation in standard imager mode

Estimation of two velocity components

With this process, by analysing a single THR image, the two velocity components of a moving target can be estimated: azimuthal and radial

Used on synthesised images

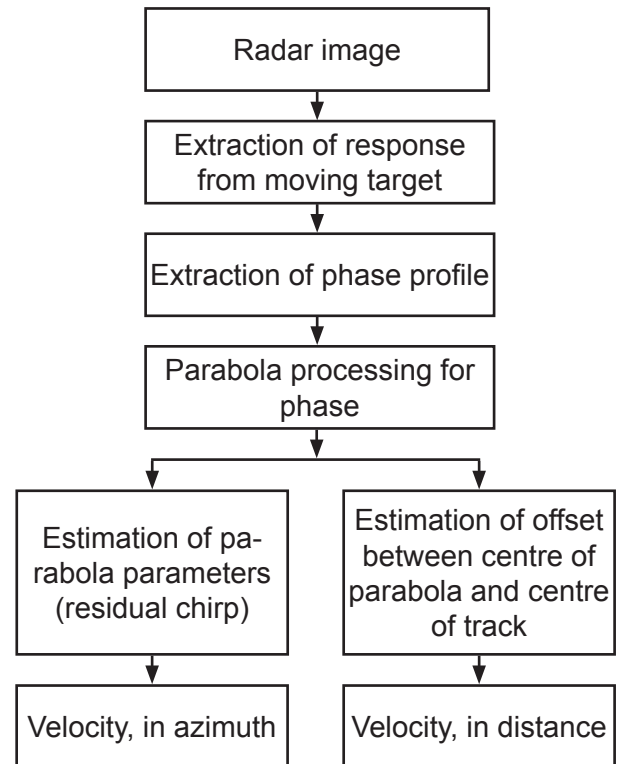
Method is based on a synthetic SAR image, whereas the existing algorithms require the raw radar signal

Overview of invention

Algorithm to estimate the velocity vector based on the amplitude and phase signature of the moving target.

After extracting the phase profile:

- The azimuthal component is deduced from the quadratic parameter of the phase parabola
- The radial component results from the difference in position between the centre of the track and the centre of the parabola



Primary steps of algorithm

Potential applications

Measuring velocity of moving targets via HR radar imaging:

- Civil and military drones
- Submetric space sensors

This method can be expanded to include all types of coherent imaging systems: laser, ultrasound

*Patented invention, available under license
Pre-industrialisation in progress*

Commercial benefits

Cost reduction

Simplified acquisition modes for SAR instruments
Simplified algorithm calculations for velocity estimates