

论文

## 步进频率SAR快时间多普勒效应补偿新方法

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摘要

步进频率信号的长相参积累时间使传统SAR的“走-停-走”假设对步进频率SAR不再适用, 因此由平台运动而引入的快时间多普勒效应就不能忽略。该文提出了一种基于图像波数域的快时间多普勒补偿方法, 其通过二维傅里叶变换及反变换实现快时间多普勒补偿, 与基于回波的补偿方法相比, 新方法在保持补偿精度不变的基础上, 显著降低了计算量, 更符合步进频率SAR系统的实际应用要求。

关键词 [SAR](#) [步进频率](#) [快时间多普勒效应](#) [波数域补偿](#)

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## A New Fast-time Doppler Effect Compensation Method Applied to Step Frequency SAR System

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Abstract

The “go-stop” assumption applied to the conventional SAR can not be used in the SAR system using step frequency waveforms. For the reason that the time spent on the coherent processing is too long. Accordingly the fast-time Doppler effect induced by the movement of the radar platform can not be neglected as usual. In this paper, a new wavenumber domain based on fast-time Doppler effect compensation method is proposed. This new method is implemented through 2D-FFT and 2D-IFFT. Comparing with the time domain compensation method, the new method has almost the same compensation precision but with less processing time, which is more beneficial to the real-time compensation in the practical step-frequency SAR system.

Key words [SAR](#) [Step frequency](#) [Fast-time Doppler effect](#) [Wavenumber domain compensation](#)

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