

非匀速平飞模式下双基地SAR成像分析

彭岁阳 张军 胡卫东 卢大威 沈振康*

国防科技大学电子科学与工程学院ATR实验室 长沙 410073

The Imaging Analysis of Bistatic SAR With Parallel Track of Variable Velocity

Peng Sui-yang Zhang Jun Hu Wei-dong Lu Da-wei Shen Zhen-kang*

ATR Laboratory, National University of Defense Technology, Changsha 410073, China

摘要

参考文献

相关文章

Download: PDF (393KB) [HTML](#) 1KB Export: BibTeX or EndNote (RIS) [Supporting Info](#)

摘要 该文研究了收发平台非匀速平飞模式下的双基地SAR成像问题。首先构建收发非匀速平飞模式的几何场景，并通过对回波瞬时收发距离的分析得到了双基地SAR回波的近似模型。收发平台速度变化使得波束不同步，导致SAR数据在方位向非均匀采样，该文首先分析了将非匀速平飞双基地模型等效成单基地变速运动模型的方法，然后采用非均匀傅里叶变换处理变速运动引起的非均匀采样的问题。多组不同条件下的仿真实验表明双基地SAR图像质量较好，验证了该文方法的有效性。

关键词： 双基地SAR 非匀速平飞模式 等效场景 非均匀离散傅里叶变换 距离多普勒算法

Abstract: The asynchronous bistatic SAR imaging issue of variable velocity transceiver is studied in this paper. First of all, the geometric scene of the variable velocity transceiver model is constructed, and the approximation model of the echo of the bistatic SAR is obtained based on the analysis of the instantaneous transceiver distance of the echo. Variable velocity transceiver leads to transceiver position asynchronous, and cause that the SAR data in the azimuth position samples non-uniformly. This paper first analyzes the method with which asynchronous bistatic model equals to monostatic variable velocity motion model. Then with the non-uniform FFT, it resolves the non-uniform sample problems raised by variable velocity motion. The simulation experiments show that the bistatic SAR images have good quality, which verifies the effectiveness of the method provided in this paper.

Keywords: Bistatic Synthetic Aperture Radar (SAR) Parallel track of variable velocity Equivalent scene Non-uniform Discrete Fourier Transform (DFT) Range-Doppler algorithm

Received 2009-11-13;

通讯作者: 彭岁阳 Email: lvye002004@163.com

引用本文:

彭岁阳, 张军, 胡卫东, 卢大威, 沈振康. 非匀速平飞模式下双基地SAR成像分析[J] 电子与信息学报, 2010, V32(11): 2648-2654

Peng Sui-Yang, Zhang Jun, Hu Wei-Dong, Lu Da-Wei, Shen Zhen-Kang. The Imaging Analysis of Bistatic SAR With Parallel Track of Variable Velocity[J], 2010, V32(11): 2648-2654

链接本文:

<http://jeit.ie.ac.cn/CN/10.3724/SP.J.1146.2009.01461> 或 <http://jeit.ie.ac.cn/CN/Y2010/V32/I11/2648>

Service

- ▶ [把本文推荐给朋友](#)
- ▶ [加入我的书架](#)
- ▶ [加入引用管理器](#)
- ▶ [Email Alert](#)
- ▶ [RSS](#)

作者相关文章

- ▶ [彭岁阳](#)
- ▶ [张军](#)
- ▶ [胡卫东](#)
- ▶ [卢大威](#)
- ▶ [沈振康](#)