

基于扩展波数域的机载双天线干涉SAR自配准成像算法

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Auto-registration Imaging Algorithm Based on Extended Wavenumber Domain for Airborne Dual-antenna InSAR

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摘要

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摘要 为减少机载双天线干涉SAR繁杂的图像配准处理过程, 该文提出了基于扩展波数域(ωK)的距离向自配准成像算法。该算法针对双天线因路径差引起的失配问题, 在成像处理阶段通过采用高阶多项式拟合的手段, 利用变标原理实现了图像对在距离向的精确配准。通过对仿真数据和X波段实际数据的处理, 获得了较好的干涉条纹图, 验证了算法的有效性。

关键词: 干涉合成孔径雷达 扩展波数域(ωK) 自配准 变标 成像算法

Abstract: In order to reduce the complex image registration processing for the airborne dual-antenna interferometric Synthetic Aperture Radar (SAR) system, the extended wavenumber domain ωK auto-registration imaging algorithm in the range is presented. For the mismatch caused by the path difference of two antennas, this algorithm realizes the precision registration of interferometric image in the range by means of high degree polynomial approximation using scaling principle in course of the imaging processing. Finally, through the processing of the simulation data and the X band's real interferometric data, better interferograms are obtained and the validity of the algorithm presented in the paper is proved.

Keywords: InSAR Extended wavenumber domain (ωK) Auto-registration Scaling Imaging algorithm

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