



基于方位频率去斜的滑动聚束SAR成像算法

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Sliding Spotlight SAR Data Processing Using the Azimuth Frequency De-ramping Algorithm

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摘要

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摘要 方位频谱混叠是导致一般滑动聚束成像算法效率低下的主要原因, 针对这一问题, 该文将频率去斜原理应用于滑动聚束成像。经方位频率去斜处理的滑动聚束数据不仅方位处理长度大大减小, 天线方向图幅度校正也更易于实现。与传统算法相比, 运算复杂度降低。点阵目标的仿真结果验证了算法的有效性, 并且能够以最少的内存资源, 大幅提高成像处理效率。

关键词: 合成孔径雷达 滑动聚束 方位频率去斜 运算效率 天线方向图校正

Abstract: Standard sliding spotlight imaging algorithms are inefficient due to the additional processing to overcome the azimuth spectra aliasing. In this paper, based on azimuth frequency de-ramping principle, a novel processing approach is proposed. Compared with other algorithms it has two main advantages. The efficiency of the processor is improved, and the implement of azimuth antenna pattern correction becomes much easier. Computational complexity is analyzed and compared with other algorithms. Simulation results validate the effectiveness of presented processing approach.

Keywords: SAR Sliding spotlight Azimuth frequency de-ramping Processing efficiency Antenna pattern correction

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