

### 高分辨率宽测绘带星载SAR距离向DBF处理

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## Range DBF Processing for High-resolution Wide-swath Spaceborne SAR

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摘要

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**摘要** 该文在研究星载SAR使用距离向数字波束形成(DBF)实现宽测绘带的基础上, 通过理论推导和仿真分析了仅做时域加权DBF处理对成像结果幅度和分辨率的影响, 并进一步针对DBF-SAR扫描接收方式研究了4种适用于不同发射信号脉宽的距离向DBF处理方法。仿真验证了4种处理方法在各自的前提下能有效实现距离向宽测绘带接收。

**关键词:** 合成孔径雷达 高分辨率宽测绘带 距离向数字波束形成 扫描接收

**Abstract:** This paper studies the principle of realizing wide swath of space-borne SAR by using range Digital Beam-Forming (DBF). Then the effect of the time domain DBF processing on the amplitude and resolution of spaceborne SAR image is summarized based on the theoretical analysis and simulation. Four range DBF processing methods corresponding to scan-on-receive are explored, which are suitable for different duration of transmit signals. Simulation results show that all methods can realize wide swath signal receiving effectively in its precondition.

**Keywords:** SAR High-resolution wide-swath Range digital beam-forming Scan-on-receive

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