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应用

## UWB机载SAR方位空变误差精确补偿方法

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摘要:

超宽带SAR高分辨成像需要较大的方位积累角,在宽波束情况下,机载平台的侧向扰动误差相对不同方位波束的目标存在较大的差异,即误差在存在方位空变性。成像过程中方位空变误差补偿非常困难,严重影响成像质量。本文提出了一种新的方位空变误差精确补偿方法,该方法利用回波方位谱与波束方位角的对应关系,采用DFT变换和运动误差补偿相结合,在回波方位谱形成时对不同方位角目标的误差精确补偿。经过仿真和实测试验数据验证,该方法在较大运动误差环境下,能有效补偿方位空变误差。结果证明该方法可以实现超宽带SAR的精确成像。

关键词: 运动误差;方位谱形成;方位空变误差;运动补偿

## Accuracy Compensation Method of Azimuth-variant Error in Airborne UWB SAR

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Abstract:

Ultra wideband high resolution SAR imaging requires more accumulation of azimuth angle. In the wide beam case, there is a great difference between the lateral airborne platform disturbance error relative to the different azimuth beam target, and the motion error of airborne platform usually

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exist azimuth-variant. The azimuth variant error of motion compensation is difficult to be eliminated in SAR imaging, and this error Seriously affected the imaging quality. In order to solved this problem, this paper proposed a new method which would be accurately compensate this error. This method made use of echo azimuth corresponding relation between the spectrum and beam angle. By using the combination of DFT transform and motion error compensation this method can accurately remove phase error of different azimuth of target during azimuth spectrum forming. Experimental results demonstrated that this algorithm can effectively compensate azimuth variant error during the instance of high motion errors. The results show that the method can realize accurate imaging UWB SAR.

Keywords: Motion error Azimuth spectrum forming Azimuth-variant error Motion compensation

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