

Modified Range-Doppler Algorithm for High Squint SAR Imaging

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Abstract

A modified range-Doppler algorithm (M-RDA) for high squint synthetic aperture radar (SAR) imaging is proposed in this letter. In the M-RDA, the range walk (RW) is removed firstly by multiplying a preprocessing function in range frequency-azimuth time domain, which is the dominant component of the total range cell migration (RCM). There is no interpolation operation in the proposed M-RDA, which greatly improves its computational efficiency. To obtain a well-focused SAR image, the fourth-order phase error is considered to achieve accurate azimuthal compression. Finally, the effectiveness of the proposed algorithm is proved by the point target simulation results.

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