

BURST MODE TO STRIP-MAP MODE SAR INTERFEROMETRY OF ALOS PALSAR

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1. ABSTRACT

Burst mode has been implemented in many spaceborne SAR instruments, such as Radarsat-1/2 SAR, Envisat ASAR and ALOS PALSAR, to achieve very wide swath coverage, which is the so called ScanSAR. Envisat ASAR also applies burst technique to its AP (Alternating Polarization) mode. Conventional SAR interferometry uses strip-map mode data, whereas, in our study, we try to make burst mode to strip-map mode interferometry possible, which will potentially provide many more choices of interferometry. Mixed-mode interferometry will highly improve the availability of current SAR dataset inventory, and therefore will be helpful for burst disaster monitoring, especially in the case of lacking suitable data. However, acquisitions of different modes can not be readily used for interferometry. Also to be considered is the improvement of coherence of the interferometric pair. In this paper, we propose a complete process to solve these problems. Burst mode raw data is focused using the Full-Aperture Algorithm [1]. An interferometric pair comprised of PLR (Polarimetry mode, belonging to strip-map mode) and WB1 (Wide observation mode, belonging to burst mode) mode of PALSAR is chosen to implement this process. The second problem is first analyzed theoretically and then solved by replacing the corresponding echo-lines with zero-lines. The resulting interferogram shows satisfactory fringes. In order to check the correctness of our results, the interferogram is compared with that of conventional strip-map mode.

2. REFERENCES

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