

Application of PALSAR Multiple Aperture Interferometry to the 2008 Sichuan Earthquake, China

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Radar pulses radiated by SAR antenna is wide in azimuth direction as well as in cross-track direction. Thus a target on the ground is observed for a certain period of time, at different position in the pulse. It is possible to compose forward- and backward-looking SAR images by using only a portion of the radar echoes within the synthetic aperture time. Multiple Aperture Interferometry (MAI) is a technique to detect azimuth component of the surface displacement by differentiating the forward- and backward-looking interferograms (*Bechor and Zebker, 2006*). We created forward- and backward-looking single look complex (SLC) image by applying band-pass filter to the SLC (*Barbot et al., 2008*), and applied the technique to the surface deformation associated with the M_w 7.9 Sichuan Earthquake, 2008.

Obtained displacement maps show good agreement with the results of image matching, which is another technique to detect azimuthal displacement (*Tobita et al., 2001*).

We will also discuss about the relation between improvement of the sensitivity and the loss of SNR when the middle portion of the beam is excluded at the creation of forward- and backward-looking SLC images at presentation.