

SSS035-02

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## Co- and postseismic deformation associated with the 2010 Maule, Chile, earthquake deduced from PALSAR ScanSAR images

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We investigate co- and postseismic deformation associated with the 2010 Maule, Chile, earthquake using ALOS/PALSAR ScanSAR images. ScanSAR images cover as wide region as 350km and enable detect the entire deformation associated with interpolate earthquakes of M8. The full aperture algorithm is applied to process ScanSAR images and the standard two-pass interferometry follows to produce interferograms. ScanSAR images were acquired several times including April 10, 2008 from the descending orbit, while post-earthquake images were acquired on March 1, April 16, June 1, and December 2. Overlap ratios between these images are not so good, but we obtain fairly good coherence including the pairs spanning the mainshock. The coseismic interferogram for the pair of April 10, 2008 and March 1, 2010 images shows more than 2m range increase which indicate westward motion of the crust. We recognize two peaks of deformations located near Constitucion and Concepcion. Inverting the coseismic interferogram with GPS displacements, we obtain two large slip zones on the plate interface. The maximum slip is estimated larger than 10m. The postseismic interferogram for the pair of March 1 and April 16, 2010, images shows postseismic deformation with the same sense as the coseismic one, but its peak may have shifted landward. This postseismic interferogram includes the coseismic deformation following the largest aftershock with normal faulting mechanism near Valparaiso on March 11.

Keywords: SAR, Maule earthquake, ScanSAR, InSAR, postseismic deformation, coseismic deformation