

Relationship between crevasse occurrence and terrain of the Coats Land, Antarctica

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The cloud coverage and Polar nights prevent us from obtaining good optical sensor images for the Antarctic ice sheet and glaciers. It is very useful to apply spaceborne SAR to observe the Antarctica. SAR observations are free from influence of weather or the Sunlight condition. We analyzed topography of ice in the Coats Land (20W-40W, 75S-80S), Antarctica. We included optical sensor (ASTER, LANDSAT-7 ETM+) images and compare with SAR images. Optical sensor images show only the outline of the characteristic topographic features and no crevasses. It proved the usefulness of the SAR images for the observation of the Antarctica. According to the time series analysis of the SAR images (ERS-1/2 AMI, JERS-1 SAR), the total area of crevasses around the characteristic topographic features increased. We also tried to generate DEM by InSAR analysis. This study was carried out as a joint scientific research program (2008-2011) of the National Institute of Polar Research, Tokyo, Japan.