

Detection of change in characteristic topography at the Antarctic region by spaceborne SAR observations.

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It is very useful to apply spaceborne SAR to observe changes in Antarctic ice sheet and glacier 2-dimensionally. The observations are free from influence of weather or Sunlight condition. A characteristic oval shape topography in the Coats Land (20W-40W, 75S-80S), Antarctica, was noted. The change of the characteristic topography was analyzed by comparing SAR amplitude images acquired by the spaceborne SAR.

Firstly, a SAR mosaic image (425 km x 85 km) was composed with 9 amplitude images obtained by JERS-1 SAR in the March 1997. This image showed large mountainous topography and a part of the characteristic oval topography of 40 km in the diameter.

Secondly, change in the characteristic oval topography was detected by comparing SAR amplitude images acquired by ERS-1/2 AMI(Path:269-Row:438) in the period of 1997 and 2000. The characteristic topography moved downstream-ward about 300 m and its size was enlarged in about the three years. Simultaneously, the number of fractures around it was certainly increased.

These changes would be understood as a result of stress change induced by movements of the ice sheet and glaciers. And, they may be also have relationship between larger scale climatic condition changes.

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