

## Observation of the ice sheet motion at the Coats Land, Antarctica by spaceborne SAR

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Changes in the Antarctic ice sheet and glaciers may reflect climate change around the region. It is very useful to apply spaceborne SAR to observe the Antarctic ice sheet and glacier in 2-dimensionally. 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. Now, relationship between the large scale topography and movements of topographic feature was pointed out by using a GIS system.

An ERS-1/2 AMI amplitude image mosaic (600km X 280km) was formed by using selected images from 89 scenes acquired for the region between 1990 and 2000. We estimated the local movement of ice by tracking the ice features in three regions where the characteristic topographic features were clearly shown in the image. Furthermore, the mosaic image was overlaid on the Radarsat Antarctic Mapping Project Digital Elevation Model Version 2 (1km DEM) (Liu et al., 2001). Then, it was demonstrated that the mosaic image covered the upstream of the large valley running from the Coats Land down to the Filchner Ice Shelf. The ice in the three regions showed local movement towards the downstream of the large valley. The change in the ice movement will be discussed in relationship with the climatic record.

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### [References]

Liu, H., K. Jezek, B. Li, and Z. Zhao. 2001. Radarsat Antarctic Mapping Project digital elevation model version 2. Boulder, CO: National Snow and Ice Data Center. Digital media.