**330**

## A PASSIVE AND ACTIVE MICROWAVE BASED INVESTIGATION OF THE SEASONAL AND LONG-TERM DYNAMICS OF THE SEA ICE EDGE AROUND ANTARCTICA

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The sea ice boundary, over the marginal ice zone, is a region of highly enhanced air-ocean-ice interaction compared to the interior region. Study of the long-term behavior N-S migration of the sea ice edge (SIE) may provide a clue to the changing climate on a regional basis.

This paper describes the rates of migration of SIE along different longitudes in different sectors of the Antarctic both from passive and active microwave observations. SIE is derived using brightness temperature thresholding, sea ice concentration and a new dual polarization QuikSCAT algorithm (Dash et al. 2006). The seasonal cycle is clearly observed, although different sectors show different rates of SIE advance and retreat. In certain sectors, the sea ice advance and retreat takes place at a very high rate reaching about 10º latitude per month. In some sectors the moving edge shows oscillatory behavior, particularly near the winter months, reflecting its dynamic interaction with the ACC. Besides seasonal variability, the migration rates are also observed to vary from one year to another.

We are currently in the process of an extensive investigation of the sea ice edge dynamics on seasonal, interannual and climatic time scales. The results from this comprehensive analysis would be presented at the Conference.

The paper would also present and highlight our plans for sea ice research based on high resolution data from two active microwave sensors to be launched in polar orbit by India during the IPY i.e. a Ku-band Pencil Beam Sccatterometer onboard OCEANSAT-II and a multi-mode C-band SAR onboard RISAT.