



HF Radar Backscatter Variability in an Antarctic Polynya

J. R. Buckley (1), D. Flocco (2), A. Thomson (3), P. Falco (4)

(1) Royal Military College of Canada, PO Box 17000, Stn Forces, Kingston, ON, Canada, K7K 7B4, buckley-j@rmc.ca

(2) CPOM, Dept. of Space & Climate Physics, University College London, UK,

(3) Defence Research and Development Canada

(4) ISMAR-CNR, Sezione Pesca Marittima, Ancona, Italy

In the southern winter of 1999-2000, an Ocean Surface Current Radar (OSCR) was deployed on the Antarctic coast by the Terra Nova Bay polynya. This experiment, carried out by the XV Expedition of the Italian National Programme for Antarctic Research (PNRA) and the Scott Polar Research Institute of Cambridge University, suffered some equipment malfunctions that prevented the radar from accomplishing its primary goal of monitoring surface currents in the polynya. We have, however, been able to recover estimates of total backscatter energy fields from the parameterized Doppler spectra recorded by the system. The spatial variability of these fields is consistent with the results of an electromagnetic propagation model run over an ocean of appropriate temperature and salinity, and containing sparse patches of sea ice. These results suggest that HF radar may form an effective tool for the estimation of the type and extent of sea ice in the coastal ocean.