

Analysis of Wallops Island Style Antennas for use in TIGER-3 Radar

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La Trobe University, the University of Newcastle and the University of Adelaide are planning to build a new digital SuperDARN HF radar at Buckland Park, near Adelaide in South Australia. Antennas are a major cost item in the construction of a SuperDARN radar. For our current two radars, Bruny Island, Australia and Unwin, New Zealand we used Sabre Communications Corporation designed log-periodic antennas, however, by moving to design similar to that used in the Wallops Island SuperDARN radar we believe that cost savings in the order of \$100k can be made.

We are investigating various alternate antenna designs for inclusion in the antenna arrays of the proposed new radar. One of the main antenna designs under consideration is the Wallops Island type bow-tie antenna, constructed and tested by Greenwald et al, at the Wallops Island radar site in 2005. In this poster we present our evaluations of various antenna wire models capable of being suspended from towers approximately 15 meters high. The software packages SuperNEC and Matlab have been used to produce various plots of single antennas and antenna arrays. Our objective is to produce a high performance, cost effective solution, optimised for the Buckland Park site.