

Detection of Sporadic-*E* Structures Using an Imaging Riometer

B.J.Watkins¹, D.F.Bedey², T.J.Rosenberg³, A.T.Weatherwax³, P.Stauning⁴

¹Geophysical Institute, University of Alaska Fairbanks Email: ffbjw@uaf.edu

²US military Academy, West Point, NY

³University of Maryland at College Park

⁴Danish Meteorological Institute, Copenhagen

Abstract

The imaging riometer at Sondrestom, Greenland has been used to image two-dimensional structures of high-latitude sporadic-*E* layers. In this paper we present a case study using simultaneous observations with incoherent-scatter radar. A patch of sporadic-*E* ionization with approximately 50 km diameter is observed to move southward with a speed approximately 170 m/s. The radar data confirms the existence of the layer and estimates of cosmic noise absorption from the radar data are consistent with the riometer measurements. Future applications of imaging riometers, preferably at a lower frequency, and in conjunction with low-cost ionosondes or MF radars may provide new research directions for the study of sporadic-*E* structures.