



Contribution ID: 27

Type: Oral Presentation

SuperDARN RADAR Groundscatter Statistics Over Antarctica

Monday, 4 July 2022 15:00 (15 minutes)

The South African advanced Super Dual Auroral Radar Network (SuperDARN) radar has been in operation for over the decade now and is located at South African National Antarctica Expedition (SANAE) station in Antarctica. SANAE radar scans the polar ionosphere over much of Antarctica, mainly to observe and study ionospheric plasma convection. SuperDARN is designed such that it can estimate the horizontal vector of ionospheric plasma drift at ~250 km altitude based on the Doppler frequency shift of the ionospheric backscatter returns. In addition, due to ionospheric refraction, the SuperDARN also receive ground scatter echoes approximately 1500 - 2000 km downrange. This allows the study of distant over the horizon ground level features such as mountains and ocean surface. The SuperDARN radar scans all 16 beams every 2 minutes and 75 range gates out to 3500 km. We determine the statistics on how often ground scatter is observed for all beams and range gates over a period of six years (2010-2015). A ray tracing tool is used to obtain the location of ground scatter in order to determine its likely origin.

Apply to be considered for a student ; award (Yes / No)?

Yes

Level for award;(Hons, MSc, PhD, N/A)?

MSc

Primary author: Ms SOSIBO, Phakamile (University of KwaZulu-Natal)

Co-authors: KOSCH, Michael (SANSa); STEPHENSON, Judy (SAIP)

Presenter: Ms SOSIBO, Phakamile (University of KwaZulu-Natal)

Session Classification: Space Science

Track Classification: Track D2 - Space Science