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The investigation of the skynoise parameter of the Sanae SuperDARN radar.

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The skynoise data is monitored by the Super Dual Auroral Radar Network (SuperDARN). It is anticipated that during the periods of increased solar activity, the ionospheric ionization increases, which results in the absorption of radio signals in the ionosphere, hence there would be an expected attenuation of skynoise and interference of the SuperDarn radars signal. This study intended to investigate the skynoise attenuation in the ionosphere measured by the SuperDARN radar at the SANAE IV station (the southern hemispheric SuperDARN radar located in Antarctica). The SANAE radar monitors the skynoise at approximately 12 MHz.

The two aspects of the skynoise: the effect of atmospheric wind and the solar proton events (SPEs) were investigated. The performance of the SANAE radar during the SPEs was evaluated by the number of return echoes for each scan. The skynoise attenuation during each month with SPE was estimated using the quiet day curve (QDC). The QDC was constructed based on the assumption that the days with wind speeds $v < 15\text{m.s}^{-1}$ and $K_p < 2o(A_p < 7)$ are quiet. The estimated skynoise attenuation at SANAE was also compared with the skynoise attenuation recorded from the Mawson riometer located at a similar magnetic latitude. The Fourier and Lomb-Scargle analysis of the skynoise and atmospheric wind speed was performed for months with SPEs.

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

YES

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

MSc

Primary author: Ms DLAMINI, Mbali

Presenter: Ms DLAMINI, Mbali

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