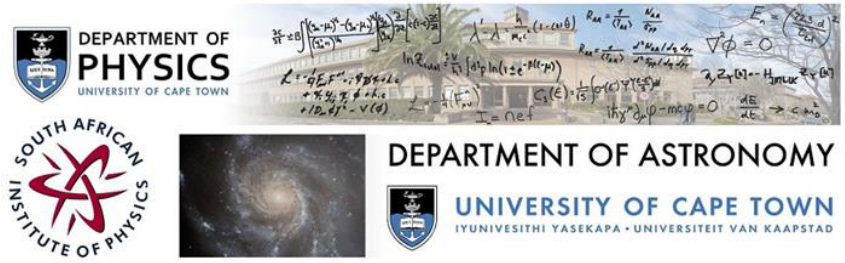

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Investigation of the number of time ground-backscatter occurs for all the beams and range gates using the SuperDARN SANAE HF radar data.

Wednesday, 6 July 2016 09:40 (20 minutes)

Abstract content
   (Max 300 words)
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Ray tracing is widely employed in the study of radio waves through the ionosphere. Radio signals are modelled as rays and traced through the ionosphere where they are reflected or refracted back to the earth. The SuperDARN radars can identify two types of backscatter, namely ionospheric and ground scatter. The ray reaching the ground after reflection in the ionosphere is identified as ground backscatter. Ionospheric scatter predictions are based on the relative orientation of the background magnetic field with each ray. The HF ray from the SuperDARN radar is subject to refraction in the ionosphere because of the varying electron density with altitude. The radar ray usually peaks at ˜300 km altitude before returning to the ground, about 1500 km down range. This ground-scatter is usually easily detected by the radar because the spectral width and Doppler shift of the ground scatter is zero. The exact location of the ground-scatter depends on the radar frequency and the ionospheric electron density profile downrange of the radar. We show initial results of ground scatter statistics over 5 years from the SANAE SuperDARN radar.

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