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## The GPS Scintillations and TEC Variations in Association with A Polar Cap Arc

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The first example of a polar cap arc producing clear amplitude and phase scintillations in the GPS L-band is presented using observations from an all-sky imager and a GPS receiver at Resolute Bay and the SuperDARN Inuvik radar. The polar cap arc moved quickly from the dusk-side to the midnight auroral oval at a speed of  $\sim 700$  m/s, as revealed by all-sky 557.7 nm and 630.0 nm images. When it intersected the ray path of GPS signals, both amplitude and phase scintillations appeared, which is very different from previous results. Moreover, the scintillations were precisely determined through power spectral analysis. We propose that the strong total electron content (TEC) enhancement ( $\sim 6$  TECU) and flow shears in association with the polar cap arc were causing the scintillations. It provides instructive evidence for the existence of polar cap arc scintillations that may be harmful for satellite applications even through L-band signals.