Contribution ID: **1167** Type: **Oral (Student, In Competition) / Orale (Étudiant(e), inscrit à la compétition)**

Calculation and Analysis of High Rate Total Electron Content in the Canadian High Arctic

Monday 13 June 2016 14:00 (15 minutes)

The Canadian High Arctic Ionospheric Network (CHAIN) [1] includes Global Positioning System (GPS) receivers capable of sampling specific observables at very high rates, up to 100 Hz. With these high rate observables, 100 Hz Total Electron Content (TEC), and Rate of TEC index (ROTI), can be calculated. This study outlines the methods and limitations of calculating both relative and absolute 100 Hz TEC, specifically from the observables provided by the Septentrio PolaRxS Pro GPS. Spectral analyses of the high rate TEC and ROTI is also presented, determining whether important results can be obtained within the higher frequency data. The expected hardware noise is predicted to aid in the determination of important results in the data, in an attempt to extract ionospheric information from possible sources of noise.

[1] Jayachandran, P. T., R. B. Langley, J. W. MacDougall, S. C. Mushini, D. Pokhotelov, A. M. Hamza, I. R. Mann, D. K. Milling, Z. C. Kale, R. Chadwick, T. Kelly, D. W. Danskin, and C. S. Carrano (2009), The Canadian high arctic ionospheric network (CHAIN), Radio Sci., 44, RS0A03, doi:10.1029/2008RS004046, 2009.

Author: MCCAFFREY, Anthony (University of New Brunswick)

Co-author: THAYYIL, Jayachandran (University of New Brunswick)

Presenter: MCCAFFREY, Anthony (University of New Brunswick)

Session Classification: M2-6 Theory, Modelling, and Forecasting II (DASP) / Théorie, modélisation et prévisions II (DPAE)

Track Classification: Atmospheric and Space Physics / Physique atmosphérique et de l'espace (DASP-DPAE)