

Abstract Submitted
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Total Electron Content and Tomography of the Ionosphere¹

BRETT VELASQUEZ, EDGAR BERING, University of Houston — This research was conducted with the BARREL-4, 2016 campaign in Kiruna, Sweden by TEC/Tomography team within University of Houston's Undergraduate Scientific Instrumentation Project (USIP). Our team launched a balloon payload that monitored electron precipitation and microblasts along the van Allen probes on the radiation belts. The phenomena was measured with a dual frequency GPS receiver in conjunction with satellites within the atmosphere. The data from the receiver consisted of pseudorange measurements, doppler frequency, positional data of the payload, phase measurements, signal strength, and the corresponding satellite numbers for each data set. The .jps file from the receiver was the run through the program jps2RIN, taking the file from its original format to the RINEX data format. The resulting RINEX file was then run through GPS Tool Kit which calculated TEC values in TECU units and ionospheric intercept angles. The findings are presented as a latitude vs. longitude graph showing position of ionospheric interception of the signal between receiver and satellite, as well as the angle of interception the signal made with the ionosphere, where coloring represents density of electrons.

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