Yu
Morton
University of Colorado at Boulder
Harrison Bourne, University of Colorado
Steve Taylor, University of Colorado
Rong Yang, University of Colorado
Dongyang Xu, Colorado State University
Frank van Graas, Ohio University
Neeraj Pujara, AFRL
Oral
We conducted a mountaintop based radio occultation (MRO) experiment, preliminary data processing results. The objective of this experiment is to capture high quality multi-GNSS, multi-frequency signals traversing ionosphere and troposphere structures. The experiment was conducted on the summit of Haleakala, Maui, Hawaii on April 20-26, 2015 and April 28-May 9, 2017. A high gain mesh dish antenna was steered towards the horizon to capture rising and setting GPS, GLONASS, Galileo, BeiDou, and QZSS satellite signals. Software-defined RF front ends and a commercial GNSS receiver are used to receive and process the signals. An adaptive carrier tracking, an open loop tracking, and conventional phase lock loop algorithms have been applied to some of the data to evaluate their performances. This presentation will discuss the detailed experiment setup and receiver signal processing techniques as well as processing results.
OSTS session
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