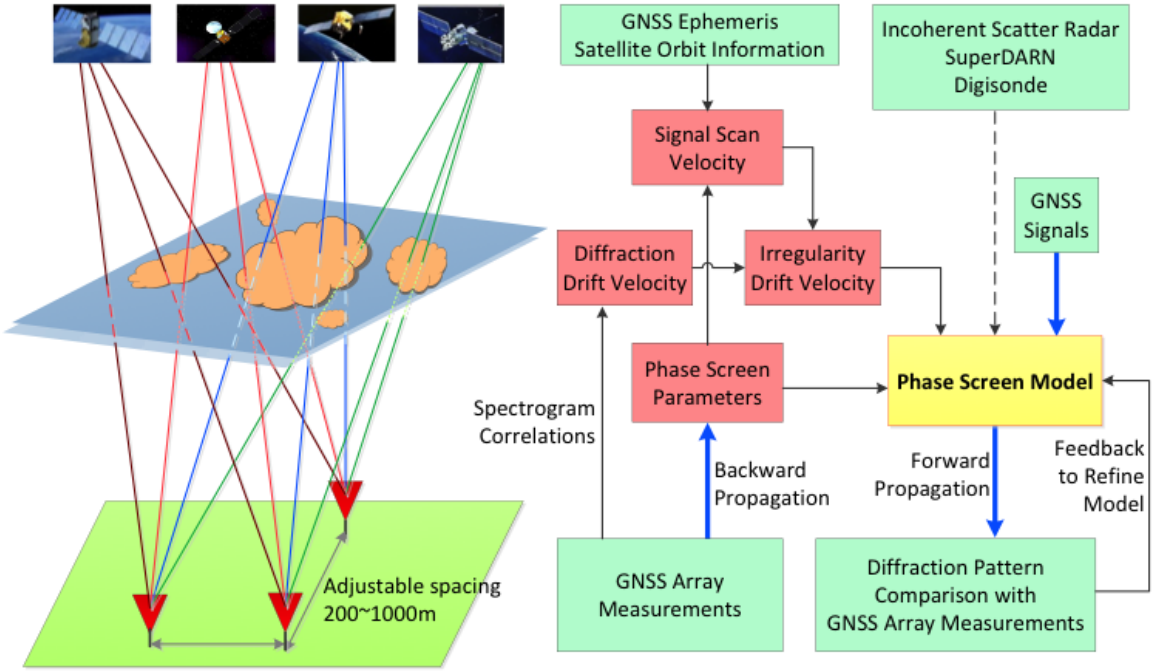
High Latitude Ionospheric Scintillation Studies Using Spaced Multi-Constellation Multi-Band Software GNSS Receivers

PI: Yu (Jade) Morton, Colorado State University
Sponsor: AFOSR



The high latitude ionosphere serves as a critical link in our geospace system as it provides a direct path for solar wind and magnetosphere disturbances to impact the Earth's upper atmosphere. It is home for many complex and interesting processes, some of which may create disturbances and irregularities in the ionosphere plasma. These irregularities affect trans- ionospheric radio wave propagation, causing scintillation of the radio signals. The objectives of the proposed project are to investigate the physical mechanisms responsible for the creation and evolution of high latitude ionosphere plasma irregularities, to utilize the ionosphere scintillation observations to infer background ionosphere irregularity morphology and climatology, to establish the relationship between ionosphere scintillation and geomagnetic field disturbances, and to evaluate the impact of high latitude scintillation on radio wave propagation.