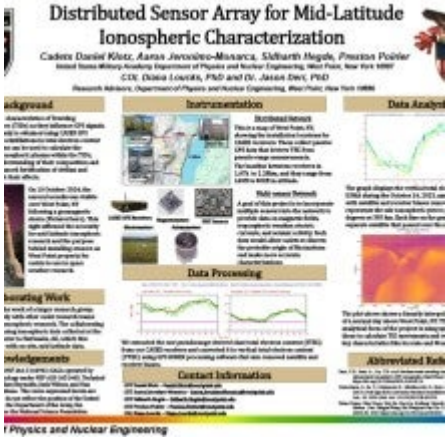
Diana
Loucks
United States Military Academy
Dr Jason Derr, USMA
Cadet Daniel Klotz, USMA
Cadet Joanna Halfhill, USMA
Cadet Aaron Jerobimo-Monarca, USMA
Cadet Sidharth Hegde, USMA
Cadet Preston Poirier, USMA
Poster
A variety of sensors and measuring devices, including GNSS receivers, ground magnetometers, radios, electrometers, and seismometers, are used to study ionospheric and geomagnetic variations caused by space weather. While research has primarily focused on polar and equatorial regions, mid-latitude regions have been less studied. At the United States Military Academy (USMA) in West Point, NY, a distributed network of these instruments is being deployed within a 3 x 3 km area of the West Point Military Reservation to investigate mid-latitude space weather effects. Observations from CASES GPS receivers will help infer total electron content variations, amplitude scintillation, and phase scintillation. Ground magnetometers will provide data on ground-induced currents, field-aligned currents, and local magnetic perturbations. This information will be used to characterize structures and causal pathways in the regional ionosphere and underground. During the workshop, any collected data on geomagnetic storms and other events using collocated receivers will be presented. This data will inform future analyses of expected phenomena recorded with the distributed operational system. The project aims to contribute valuable ionospheric data and a novel methodology to mid-latitude studies, document a method for creating a low-cost instrumentation network, and establish a distributed laboratory for future space weather and operational coursework at USMA.



Poster PDF
Loucks-Diana.pdf
Meeting homepage
Space Weather Workshop 2025
Download to PDF