



Physical mechanisms & operational effects of ionospheric interference on unencrypted navigation solution parameters

RESEARCH TOPICS INCLUDE:

➤ ORBITAL MECHANICS
➤ GPS DILUTION OF PRECISION

SPACE
WEATHER

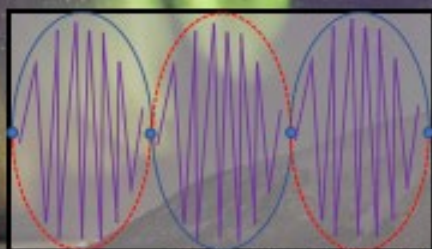
350 KM

150-200 KM

100 KM

AURORAL
SPECTROSCOPY

PLASMA PHYSICS



SIGNAL ANALYSIS

MODELLING & SIMULATIONS

SPACE POLICY
& OPERATIONS

➤ RADARS & EXPERIMENTAL
PROJECTIONS
➤ RECEIVERS & TEACHING LABS
➤ RADIO WAVE PHASE
SCINTILLATIONS

SPACE WEATHER RESEARCH AT USMA

SPACE WEATHER'S EFFECTS ON GPS SIGNALS IN THE AURORAL OVAL HAVE LED TO NUMEROUS ADVANCES IN HOW WE UNDERSTAND THE BEHAVIOR OF THE HIGH-LATITUDE IONOSPHERE.

OVERARCHING RESEARCH QUESTIONS:

- WHAT ARE THE UNDERLYING PHYSICAL MECHANISMS CAUSING OBSERVED UNENCRYPTED NAVIGATION SIGNAL SCINTILLATIONS IN THE AURORAL OVAL?
- CAN A GLOBALLY ACCEPTED METRIC BE DEvised TO REPRESENT THE OPERATIONAL IMPACT OF OBSERVED UNENCRYPTED NAVIGATION SIGNAL SCINTILLATIONS IN THE AURORAL OVAL?