

Technical Page

This proposal has not been submitted before.

Proposal Type: Urgent
 General Category: Astronomy
 Sub-Category: Optical
 Observation Category: Thermosphere
 Total Time Requested: 10 Hours
 Minimum Useful Time: 3

Proposal Title: Ionospheric modification using dual-frequency S-band beat modulation
ABSTRACT:

We attempt to create accelerated electrons near the F2 peak using S-band transmission of two frequencies separated by a frequency close to the critical ionospheric frequency, f_{oF2} . Theory indicates that the amplitude of the RF frequency difference can be enhanced by small ionospheric irregularities, resulting in a very large, local (near H_{mF2}), power density input into the F2 region near f_{oF2} producing a population of accelerated electrons. These electrons would, in turn, produce 630 nm airglow and the elements of the theoretical "artificial ionospheric mirror". The objective of this experiment is to test that theory using dual-frequency S-band transmission, ISR diagnostics up the magnetic field line, and airglow diagnostics.

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Remote Observing Request

- Observer will travel to AO
- Remote Observing
- In Absentia (instructions to operator)

Instrument Setup

S-Band radar 430 CH receiver 430 Xmit

Atmospheric Observation Instruments:

Tilt-Photometer Fabry-Perot

Special Equipment or setup: FPI and S-band transmitter are required.

RFI Considerations

Frequency Ranges Planned