

## Technical Page

This proposal has not been submitted before.

Proposal Type:                    Urgent  
 General Category:                Astronomy  
     Observation Category:        Ionosphere  
 Total Time Requested:         16 Hours  
 Minimum Useful Time:         2

**Proposal Title:** Investigating the effects of High Power HF transmissions on TIDs.

**ABSTRACT:**

The objective is to better understand how high power radio waves interact with the ionosphere to produce and suppress Travelling Ionospheric Disturbances (TIDs) as well as generate structures that can lead to scintillation. Through varying pump rate and duration it is possible to generate ionospheric structures and gravity waves that could lead to TIDs. Through testing various pump rates and switching between on and off over prolonged periods it is hoped that we will further our understanding of how structures are created and their impact on propagation and navigation. We will want to use both the 5.1 and 8.175 MHz HF transmissions to research this. The ionosphere above Arecibo will need to be monitored with both the 430 MHz incoherent scatter radar at Arecibo and the TID network currently deployed near Arecibo. Using both these systems it will be possible to track the generation of TIDs as well as smaller structures that lead to scintillation.

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### Remote Observing Request

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

### Instrument Setup

430 G                                430 CH receiver    430 Xmit

### Atmospheric Observation Instruments:

Ionosonde

**Description of Observer Equipment:** TID network

**Special Equipment or setup:** none

**RFI Considerations**

**Frequency Ranges Planned**