

## Technical Page

This proposal has not been submitted before.

Proposal Type: Regular  
 General Category: Terrestrial Aeronomy  
 Sub-Category: Radar  
 Observation Category: Ionosphere  
 Total Time Requested: 40 Hours  
 Minimum Useful Time:

**Proposal Title:** Investigation of the Influence of Meteoric Smoke Particles on the Electron Density in the Lower Ionosphere

*ABSTRACT:*

This proposal focuses on the verification of meteor smoke particle (MSP) induced effects on the D-region ionosphere using the Arecibo radar. MSP have been included MSPs as an active component into the Sodankya Ion and Neutral Chemistry model (SIC). That enables the modelling of diurnal variation of the charged MSPs as well as ions and electrons. We find a nightly decrease of free electrons and negative ions between 95 and 55 km, the positive ion density is enhanced above 80 km and reduced below. Especially, during sunset and sunrise the electron density drops severely by attachment to neutral MSP which does not happen in the standard ionospheric model. The severe nighttime drop in electron density is a subject for a comparison between the model results and Arecibo measurements. Distinct measurements are expected to pin down still not well known but relevant parameters in the electron - neutral MSP interaction.

Name	Institution	E-mail	Phone	Student
Carsten Baumann	Institute of Atmospheric Physics	Carsten.Baumann@dlr.de		G

### Remote Observing Request

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

### Instrument Setup

430 CH receiver

### Atmospheric Observation Instruments:

**Special Equipment or setup:** none

**RFI Considerations**

**Frequency Ranges Planned**