2018 Workshop: eclipse

Long title
Upper atmospheric responses to the 21 August 2017 Solar Eclipse
Conveners
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Description

The 21 August 2017 Solar Eclipse has provided an unpreceded opportunity for the study of ionosphere and thermosphere fundamental processes and, in particular, their coupling, energetics, and dynamics. While the study of solar eclipse effects on the upper atmosphere has a 50+ year history, this current event is characterized with advanced sensitivity, spatial/temporal resolution and coverage available with modern observational techniques as well as sophisticated modeling tools. In fact, as of now, a number of publications and presentations have already revealed some completely new (sometime unexpected) results and new understanding regarding IT variations during and after the solar eclipse. They have been triggering further thoughts and scientific debate to clarify fundamental means of solar and IT connections. This session will review scientific results from the 21 August 2017 Solar Eclipse, and provide an important opportunity for interactive discussion. We welcome contributed presentations based on observations or/and modeling studies dealing with upper atmospheric responses to the 21 August 2017 solar eclipse. We strongly encourage audience participation in discussion.

Agenda

1. Gareth Perry (ePOP)

2. Nathaniel Frissell (HamSci)

3. Brian Harding (FPI)

4. Ingrid Cnossen (short)

5. Wenbin Wang (modeling)

6. Phil Richards (modeling)

7. Titus Yuan (Lidar)

8. Shunrong Zhang (GNSS)

9. Sebastijan Mrak (GNSS)

10. Marc Hairston (DMSP)

12. Larisa Goncharenko (ISR)

Justification

This session will address science questions related to how the upper atmosphere system responds to the rapid reduction and recovery of solar irradiation. Research indicates these solar irradiation changes lead to not only changes in ionospheric photochemistry but also the energetics and dynamics in the upper atmosphere, all of which are fundamental CEDAR themes. Some of the challenging science and observational questions include thermospheric variations and their ionospheric consequences as well as eclipse induced atmospheric and ionospheric waves. This session will address CEDAR Strategic Thrust #2: Explore Exchange Processes at Interfaces and Boundaries (Characterize sources and sinks internally and externally to the SAIR and their possible variations due to the coupling and complexity of the Sun-Earth system).

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