2014 Workshop: Thermospheric composition and ionosphere

Long title
Thermospheric composition variations and their impact on the ionosphere
Conveners
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Description

The global thermosphere, especially its compositions (like O, N2, NO, H, He), changes continuously over different time scales from hours up to decades with various magnitudes, especially during magnetic storms. These variations in the thermosphere have significant impact on the ionosphere, such as ionospheric storms, cooling of the ionosphere due to enhanced NO, the O and He transition height and topside ionic species chemistry and dynamics, to name a few. The change in ionospheric density and/or temperature could have a large feedback effect on the thermosphere, not just in the high latitude region, but globally. The variations of the coupled thermosphere and ionosphere system depend on the current condition and history of the energy inputs into this coupled system. We welcome all short presentations that briefly review our current knowledge and discuss future plans (data analysis, modeling and measurement) to further advance our understanding of the chemical and dynamic processes of the globally coupled T-I system.

Agenda

- Introduction by Yongliang Zhang, Chaosong Huang, Wenbin Wang and Shurong Zhang
- Quasi-two day wave related variability in the background dynamics and composition of the mesosphere / thermosphere, and the ionosphere by Loren C. Chang, Jia Yue, Wenbin Wang, Qian Wu, R.R. Meier
- The importance of specifying thermospheric composition for ionospheric forecasting by Alex Chartier

- Energy input in the cusp and its influence on the thermosphere by Yue Deng, T. Fuller-Rowell, A. Ridley, D. Knipp, R. Lopez, Sheng, C., Q. Wu
- The solar cycle variation of the winter anomaly by A. G. Burns, W. Wang, L. Qian, S. C. Solomon, Y. Zhang, L. J. Paxton, and X. Yue
- Ingesting SSUSI observations into Ionospheric Data Assimilation Four Dimensional by Gary S. Bust and Lynette Gelinas
- Nitric Oxide Influences on Thermospheric Density: Coronal Mass Ejections and High Speed Streams by Delores Knipp, Ryan McGranaghan, Liam Kilcommons and Linda Hunt
- Joule heating impact on nitric oxide by Gang Lu
- Storm-time behaviors of the thermospheric O/N2 and NO variations by Yongliang Zhang, Larry Paxton, Danny Morrison, Hyosub Kil and Dan Marsh
- Discussion: (a) Outstanding questions, (b) Requirements for new measurements and simulations, (c) Collaborations by All

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