2016 Workshop: Gravity Waves in the MTI

Long title
Gravity Wave Sources, Interactions, Instabilities, and Propagation in the Mesosphere, Thermosphere, and Ionosphere
Conveners
Katrina Bossert
Jonathan Snively
Dave Fritts
Description

This session will include a series of short (≤10 minute) talks that address all aspects of GW dynamics, including their sources, propagation, instabilities, interactions, and effects employing a variety of data analyses and modeling studies. We will also include time for questions and answers between audience and speakers, and will facilitate further discussion as time permits.

Agenda

Monday

1. Joseph Huba
2. Matthew Zettergren
3. Cissi Lin
4. Nikolay Zabotin
5. Goderdzi Didebulidze
6. Brian Laughman
7. Steven Smith
8. Richard Walterscheid
9. David Fritts
10. Dominique Pautet

Thursday

1. Xian Lu
2. Gary Swenson
3. Titus Yuan

4. Christopher Heale
5. Ryan Agner
6. Tai-Yin Huang
7. Katrina Bossert
8. Aaron Ridley
9. Michael Taylor
10. Jonathan Snively
11. David Fritts

Justification

Gravity Waves (GWs) play key roles in the circulation, structure, and variability of the mesosphere and lower thermosphere (MLT). The important roles of waves are mentioned in the “CEDAR: The New Dimensions” strategic vision, which states that “the circulation and variability of the upper atmosphere are dramatically impacted by waves that carry energy and momentum upward from hurricanes, thermal tides, and surface features.” Despite the known aspects of GW influences in the MLT, there remain many questions regarding GW propagation environments, interactions with other GWs, instabilities associated with dissipation and breaking, and the effects of smaller-scale GWs (horizontal scales <100 km) that are believed to be very important, but which have been challenging to quantify in many data sets. Also needed is a more complete understanding of the coupling by GWs from lower altitudes into the MLT and the ionosphere as noted in New Dimensions document that “waves in particular are fundamental in boundary exchange processes as they can transport fluxes of energy, momentum and composition across great distances.” The proposed session aims to address questions related to GW propagation and influences throughout the mesosphere, thermosphere, and ionosphere.

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