Observations of Atmospheric Waves in the Thermosphere from New Earth-Orbiting Spacecraft

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Atmospheric waves play an important role in coupling different regions of the atmosphere. Clear evidence of wave coupling from the troposphere to the thermosphere and from the thermosphere to the ionosphere have been seen. Prior observations had revealed significant perturbations to the ionosphere that result from atmosphere waves in the lower thermosphere region, where coupling to the ionosphere via the E-region dynamo can play a significant role. However, observations of atmospheric waves at altitudes above the lower thermosphere are comparatively rare and much about the nature of waves and their impacts at these higher altitudes is not known. Not only the dynamo coupling between the neutral thermosphere and ionosphere is expected to change between the lower and middle thermosphere, but also the nature of the waves themselves as diffusive separation and ion drag become increasingly important. New results of atmospheric waves at altitudes above the lower thermosphere from observations with ICON and GOLD will be presented.

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