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# Infrasound as an upper atmospheric probe: review and recent results

J. D. Assink (1), J.-M. Lalande (2), C. Talmadge (1), R. Waxler (1), A. Le Pichon (2), E. Blanc (2), and Ph. Blanc-Benon (3)

(1) University of Mississippi (NCPA), National Center for Physical Acoustics, University, United States (jelle.assink@gmail.com), (2) CEA, DAM, DIF, Arpajon, France, (3) Centre Acoustique, LMFA, CNRS, Ecully, France

Specification of upper atmospheric properties is hampered by the relatively small amount of direct observations in comparison to the lower atmosphere. Methods to measure the properties of the atmosphere above the stratopause is an active area of scientific research.

In the past, a number of studies have focused on the use of infrasound as an upper atmospheric monitor, using naturally occurring infrasound from volcanoes and from microbaroms. It has been shown that infrasound propagation is sensitive to upper atmospheric dynamics, dominated by planetary waves, atmospheric tides, gravity waves and interactions of these phenomena. It has been found that upper atmospheric wind models are not always validated by infrasound data. Thus, infrasound measurements provide valuable information that can be used to validate and improve current understanding of winds in the mesosphere and lower thermosphere.

Development of inverse procedures will allow one to use infrasound data to update upper atmospheric horizontal wind models. In this presentation, we will present a review of previous work and the application of an inverse procedure. The method, based on linearization of ray theory, is applied to infrasound signals from detonation activities at the Utah Test and Training Range (UTTR), measured on a dense infrasound network in the American West.