



On the interaction between infrasonic waves and internal gravity waves perturbations.

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Infrasonic waves propagate at long range through atmospheric ducts resulting from the stratification of atmospheric properties. These ducts are characterized by their spatio-temporal variability. Hence, infrasonic waves integrate information upon the atmosphere along their propagation paths. In order to study infrasonic wave propagation, we resort to atmospheric specification combining Numerical Weather Prediction and climatological models. However, due to the lack of observations these models fail to describe small scale variability such as perturbations associated to the presence of internal gravity waves. These waves play an important role in the atmospheric dynamic by transferring momentum to the mean flow at critical levels and at wave-breaking altitudes.

In this study we intend to describe the interaction of infrasonic waves with internal gravity waves in order to understand the long-tail behavior observed in infrasound broadband signals. We developed a model for the propagation of internal waves used to generate realistic perturbations of the background atmospheric states. By using a linear full-wave model of infrasound propagation, our goal is to ultimately relate infrasound characteristics to internal waves properties.