ID: Type: **Oral**

T1.1-O3. Determination of vertical profiles of temperature and wind in the atmosphere using data from infrasound monitoring

The method to determine the vertical profiles of temperature and wind in the atmosphere using data from infrasound monitoring are proposed. The method to determine the average vertical profiles of temperature and wind are proposed. The method is based on the method Nealder-MFA (Multidimensional unconstrained nonlinear minimization) algorithm for finding the minimum of a function of several variables. The methods for the sounding of the fine-layered structure of the temperature and wind speed in the middle atmosphere (z=20-120 km) are proposed for the first time. The method are based on the method of decomposition of infrasonic signals from pulse sources. In this method, the recorded infrasonic signal is modeled by the sequence of single acoustic pulse having the form of a U and N waves. Each pulse U and N wave corresponds to the reflection of sound from atmospheric inhomogeneities at different altitudes in the atmosphere. By determining time intervals between such pulses U and N waves it is possible to determine vertical gradients of the effective sound speed at the different altitudes in the atmosphere. The obtained data are corresponds to the theory of the fine structure in the upper atmosphere.

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