

## **and Temporal Variations in the Fine Structure of the Middle Atmosphere According to Acoustic Sounding Data**

Spatial and temporal variations in the fine layered structure (scales 10m-1km) of the middle atmosphere (20-120 km) have been studied on the basis of data obtained from acoustic sounding within the range of infrasonic waves. Surface explosions equivalent to 10kg -70 t of TNT were the sources of infrasounds. These explosions were set off in different regions of Russia during different seasons. Data obtained from the 1981-2011 experiments have been analyzed. It has been found that the middle atmosphere has a fine layered structure during all seasons. It has been found that, on the whole, the vertical distribution of temperature and wind-velocity inhomogeneities, which are characteristic of the fine structure of the middle atmosphere, can be stable over a period of no less than a few hours. It has also been found that the numerical values of both layered temperature and wind-velocity inhomogeneities (absolute values, vertical gradients, etc.), which characterize the fine structure of the middle atmosphere, can be constant over a time period of no less than 10 minutes.

The data obtained suggest the presence of stable layered inhomogeneities in the middle atmosphere within the range of vertical scales from a few tens of meters to several kilometers.

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