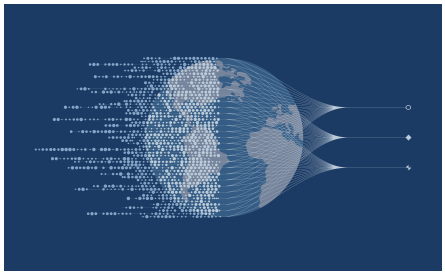

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# Structure of the atmosphere in the form of a 'head of cabbage' from acoustic sounding data

*Friday 12 September 2025 12:00 (1 hour)*

The results of theoretical and experimental studies of the fine-scale layered structure (anisotropic turbulence) of the middle atmosphere (20-140 km) using the acoustic method are presented. Based on the developed model, the possibility of formation of a fine-scale layered structure of the middle atmosphere by internal gravity waves from meteorological fronts is shown. Vertical and horizontal spectra of anisotropic inhomogeneities are presented. The vertical profiles of anisotropic inhomogeneities are reconstructed from the parameters of infrasound waves generated by explosions and volcanic eruptions. A new method of signal decomposition into separate pulses by the pattern recognition method was proposed. It was shown that the fine structure of the middle atmosphere can be stable for significant time intervals throughout the entire thickness of the middle atmosphere. At the same time, the large scale anisotropic structures themselves can be schematically represented as a superposition of separate 'pancakes' with different vertical temperature and wind gradients. This structure in the form of a 'head of cabbage' is characteristic of the whole atmosphere regardless of its spatial distribution and can be stable in general and in details over appreciable time intervals .

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