

Layered structure in ozone in the lowermost stratosphere over Alaska

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An intensive ozonesonde observation was conducted in Fairbanks, Alaska, in August 2003. Three-hourly ozone, temperature, humidity, and horizontal wind data with a high vertical resolution were obtained during 26-28 August. Layered structure with vertical scales of 1-2km in ozone mixing ratio was observed in the lowermost stratosphere.

The generation mechanism was discussed based on trajectory analysis and potential vorticity (PV) distribution. Time-height section of PV with high resolution reconstructed using reverse domain filling technique and NCEP reanalysis data suggests that the layered structure was caused by large-scale isentropic advection from different latitudes.