Investigation of pollution of the lower atmosphere in the northern polar region by nitrogen oxides.

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**Aim.** Study of the frequency and intensity of pollution episodes in the neighborhood of station of Lovozero (68 N, 35 E).

**Basis.** High values of nitrogen oxides (NO, NO2) (~1 ppbv = 1 mol Nox per 1 billion air molecules) in the lower atmosphere are mainly related to anthropogenic sources. Nitrogen oxides NO and NO2 are short-living gases if considered separately. However, their sum (NO+NO2) has a significant life time to be transported for long distances. NO and NO2 can, in particular, be produced by decomposition more complicated nitrogen-containing compounds, which can be transported for long distances. Since NO and NO2 are closely related to each other, measurements of NO2 are effectively used in atmosphere pollution problem.

**Anticipated results.** NO2 abundances in surface atmospheric layer and in the lower troposphere at station of Lovozero. Pollution statistics. Trajectories of transport of pollution species into the region.

**Main kinds of investigations.** Spectrophotometer measurements of NO2 by zenith-scattered solar radiation in spectral range 435-450 nm. The method of NO2 observations used in IAP allows obtaining NO2 vertical profiles in the stratosphere and the troposphere, including NO2 abundances in the surface layer and in the lower troposphere (0-5 km).

**Time, place, and resources of field works.** Measurements will be carried out regularly excluding period of deep polar night.