



## **Statistical parameters and weather patterns of the daily air temperature oscillations around 0°C in Lithuania**

**A. Bukantis**, G. Stankunavicius, L. Valiuskeviciene,

1. Vilnius University, Lithuania, (2) Vilnius University, Lithuania, (3) Institute of Geology and Geography, Vilnius, Lithuania, (arunas.bukantis@gf.vu.lt / Fax: 370 5 2398292 / Phone: 370 5 2398292)

The purpose of the present study is to analyzing statistical parameters and atmospheric circulation situations of the air temperature oscillations around 0°C (ATO) in Lithuania. The ATO (i.e., events when the daily minimum of air temperature is lower, whereas the maximum – higher than 0°C) is an informative climatic index. According to it one may judge about the probability of occurrence of dangerous meteorological events-related with physical transformations of water (e.g., glazed frost, ice crusted ground, wet snow frost, frost), -about wintering condition for agricultural plants and traffic conditions for land transport. ATO were analyzed in Vilnius, Kaunas and Port of Klaipeda meteorological stations (MS) in 1951–2000. The ATO were analyzed in a few aspects. The annual and monthly recurrence, beginning and end of ATO for each year and duration were determined. As ATO may last for a few successive days the ATO of different length (1, 2, 3, 4 and more days) were analyzed. The ATO events were grouped according to the air temperature oscillation amplitude: 0–5, 5.1–10, 10.1–15 and > 15°C. During the chronological analysis of ATO in 1951–2000 the linear trends of different ATO successions, running five-year means, quasiperiodical constituent and recurrence were determined. The greatest number of ATO occurs in March. In 1951–2000 the recurrence of ATO in Kaunas and Klaipeda tended to decrease, in Vilnius it had been increasing. Analysis of recurrence trends of different duration ATO revealed that in 1951-2000 the recurrence of three days-long ATO showed a statistically significant positive trend in Vilnius and a negative in Klaipeda. All ATO cases were classified to the different weather types using H500 field, H850 temperature data and sea level pressure field.