

## Abstract

The main goal of this paper is to examine trends in soil temperature for the Zagreb-Maksimir Observatory located in the suburban setting of the city of Zagreb (Croatia). For this purpose monthly, seasonal and annual average of soil temperature data at different depths (2, 5, 10, 20, 30, 50 and 100 cm) as well as other meteorological elements such as air temperature, cloudiness and number of days with snow depth  $\geq 1$  cm for the period (1963-2013) were used. Trends in these soil temperature series were examined using the Mann-Kendall non-parametric test and Sen's non-parametric method. A positive trend in soil temperature was detected at all depths and it can be associated with trends in air temperatures over the same period. A significant decreasing trend in number of days with snow depth  $\geq 1$  cm in winter and spring was associated with increasing air temperatures. The combination of two effects, the higher air temperatures and decreased number of days with snow depth  $\geq 1$  cm, probably resulted in an increasing trend in spring and winter soil temperatures.