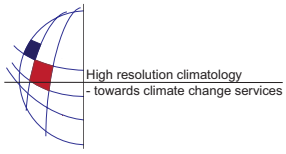
EMS Annual Meeting Abstracts
Vol. 7, EMS2010-370, 2010
10th EMS / 8th ECAC



Analysis of high temperature extremes and climatological drought long-term tendencies in Latvia

A. Briede (1) and L. Lizuma (2)

(1) University of Latvia, Faculty of Geography and Earth Sciences, Riga, Latvia (agrita.briede@lu.lv), (2) University of Latvia, Institute of Biology, Salaspils, Latvia (lita.lizuma@lvgmc.lv)

Drought is one of the major climatic hazard, which is can cause significant damage to the Latvia's agriculture, forestry, hydropower production, fire safety as well as ecology conditions. During warm season drought are usually related to extremely hot conditions which can additionally cause heat wave related mortality or human health problems. This study investigated long-term variability and trends in Latvia's drought and extremely hot conditions using meteorological data from 10 meteorological stations for the period 1925-2009 and from station Riga-University for the period 1850-2009. The set of long-term climatological indices characterized drought and extremely hot conditions (summer days, tropical nights, warm nights and day-times, warm spell days, number of constitutive dry days, standardized precipitation index and fire safety index) were used for this investigation. According to long-term data from the station Riga -University, the number of summer days was much higher in the 1850-60-ties. Many more summer days occurred in the 1930-ties and in the beginning of the 21st century. The tendency observed from the beginning of the 20th century is caused by warm summers, especially the summer of 2002 with 60 days of maximum air temperatures above 25 0C, the highest for the whole period of instrumental observations. Unusually warm nights that normally follow extremely hot days are one of the factors characteristic of hot waves that effect human health and general state. The marked increasing tendency has not been identified for extremely hot nights, yet from early 1990-ties, tropic nights have been registered more often than in the rest of the observation period. Over the whole observation period statistically significant increases in warm days, nights and day-times have been noted. The obtained results indicate that during the 20th century precipitation in warm period showed a decreasing tendency. On a country-wide scale, results indicate that more droughts happened at the end of the time series. There are spatial differences, but at most of the stations a general drying tendency is apparent in warm season.