

Transpiration of urban forests in response to environmental conditions – implications for climate change

PRESS RELEASE

Within COST Action FP1204 funded STSM, Srdjan Stojnic (Institute of Lowland Forestry and Environment, Novi Sad, Serbia) was hosted by Mendel University in Brno, Faculty of Forestry and Wood Technology, in the period from 4th May – 18th May 2015. During the aforementioned STSM, Srdjan Stojnic processed and analyzed the data on tree sap flow from two urban forests.

Urban forests have a great importance in improvement of urban environment quality. The previous researches showed that these forests are a significant source of water vapour, which is generated through the processes of transpiration and evaporation. Climate change is expected to decrease summer rainfalls in parts of Central and Southern Europe, leading to increases of number and intensity of summer droughts. Drought results in the reduction of soil water availability which can further lead to the reduction of tree transpiration and, finally, disturbance of water balance in the entire urban area. Sap flow is a key indicator reflecting tree water status and plays a central role in plant drought research. Within the present STSM, the data on tree sap flow from two Sessile oak urban forests – Sobesice (Czech Republic) and Fruska Gora (Serbia), were processed and analyzed. The aim of the study was to quantify tree transpiration during summer period and examine an impact of summer drought on transpiration. The results showed that sap flow rates were low in the both forest during the entire observation periods. Also, the results evidenced that soil water deficit during mid-summer notably affected tree transpiration in Sobesice. In contrast, short periods of soil water deficit in the soil at Fruska Gora did not have large impact on transpiration. Furthermore, the results showed that relationship between sap flow and potential evapotranspiration was slight but significant at the both sites.