



Urban rural evapotranspiration differences in central Poland – selected eddy covariance results

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Cities are the place where about 50% of human population lives and it is expected that next future this tendency increase. Due to many factors such as: city metabolism, urban geometry, urban fabric and cover the urban local climate differs from the climate of surrounding rural area. One of them is a humidity conditions and evapotranspiration. The high percentage of artificial surface (roofs, pavement, streets), reduced vegetated area created lower evaporation in city center. The most direct way of measuring evapotranspiration at urban area involves the eddy correlation approach. This method requires special sensor which measured rapid fluctuations (10 Hz) in the vertical velocity and moisture properties of air.

This study presents the comparison of urban surface and rural evapotranspiration. The urban surface evapotranspiration is assessed with two measurement stations located in the core of old center city of Łódź (Central Poland). The rural measurement point is located in the place Annosław, 60 km to the east from Łódź.

The analysis shows that the evapotranspiration in urban and rural area is characterized by clear diurnal course with maximum at noon (hot season). The comparison of the result confirms lower evapotranspiration from city surface. During the summer months the mean hourly sum of evapotranspiration, observed at noon, are in the range 0.12 – 0.16 mm/h. During the same period of time, on agriculture area, mean hourly sum of evapotranspiration exceed 0.2 mm/h.