



Estimation of water vapour flux at the Zagreb-Maksimir Observatory

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The intention of this paper is to estimate the water vapour flux and compare this data with the daily measured evaporation data above the water surface at the Zagreb-Maksimir Observatory (Croatia). A simple empirical scheme, based on the Monin-Obukhov similarity theory is used, giving hourly estimates of the water vapour flux from special meteorological data set. The required input data are hourly observations of the wind speed at 2 m, hourly observations of air temperature at two levels ($z_1 = 0.05$ m and $z_2 = 2$ m) and hourly observations of the air pressure at two levels because of the potential air temperature calculations ($z_1 = 0.05$ m and $z_2 = 2$ m).

The daily values of water vapour flux are plotted against the corresponding observations of the evaporation at the Zagreb-Maksimir Observatory. A visual inspection of this figure reveals that there is a quite large scatter. In other words, estimated data of evaporation are overestimated. According to authors' opinion the main reason of these differences is the fact that the specific humidity at the lowest level ($z_1 = 0.05$ m) is estimated using the humidity gradient over the water surface.

The obtained results improve a knowledge on exchange of water vapour near the ground surface in the central Croatia. The adopted methodology could be applied for other weather stations in the country.

Key words: water vapour flux, Monin-Obukhov similarity theory, Croatia