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Hydrology and Earth System Sciences
Discussions

Interactive comment on "Evaporation in a Mediterranean environment by energy budget and Penman methods, Lake Baratz, Sardinia, Italy" *by* F. Giadrossich et al.

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The referee remark three points.

To answer the referee's first remark we include below a drawing of the temperature sensors in the lake with depth. Each temperature sensor has been taken as a reference temperature of its layer. The thicknesses of the layers vary with depth. The first layer (at the top) is 0.5 meter thick and its reference temperature is measured at 5 centimeters below the surface. This is based on detailed temperature profile surveys taken during the first year of observation at depths of 0.05, 0.25, 0.50, 0.75 meter which found

remarkably little variation in water temperature. Note that we also found little variation in lake temperature across the lake surface (see also Crow and Hottman, 1973). The second layer is from 0.5 to 1.5 meter depth (1 meter thickness) and its temperature is measured at 1 meter depth (in the middle of the layer). For an easier explanation we refer to the schematic below. In equation 4 we use the A(t) because it is as function of lake depth and thus varies with time. Variations of the layers volume have been taken into account (see pag. 1909 line 5). h, the layer thickness is defined at page 1909 line 4. Actually the number of layers is 6: the number on page 1909 line 1 has to be corrected from five to six.

The second point refers to averaging BREB calculated on a hourly basis to get monthly evaporation. We calculated these values on a daily basis and compared with BREB in the graphic below (at the moment we can not use the hourly values because of our database setting). The differences are: monthly mean 0.14 mm/day, max monthly difference 0.5 mm/day, minimum difference -0.25 mm/day, standard deviation of the monthly difference 0.215 mm/day. Calculating each terms of energy budget on a daily basis and obtaining monthly BREB from monthly-averaged daily, the annual evaporation is 51 mm/year higher than when calculating evaporation using monthly averaged data.

For the third point see first paragraph.

We thank the referee for its comments and we are available for any further questions and suggestions.

Best regards, Filippo Giadrossich

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 12, 1901, 2015.

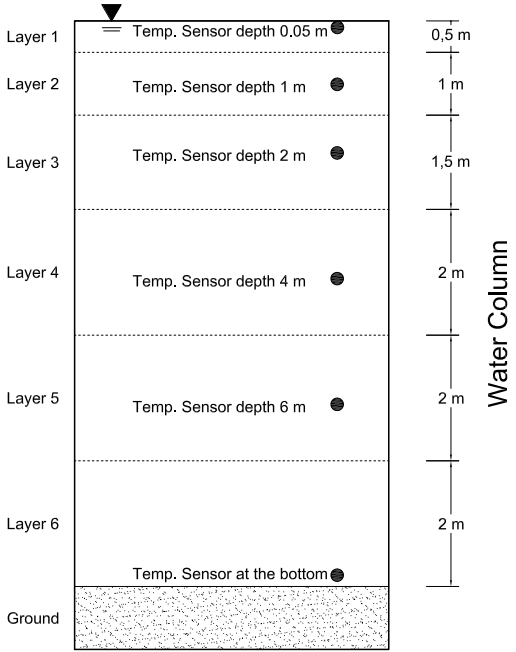

Fig. 1. Layers thickness and temperature sensors

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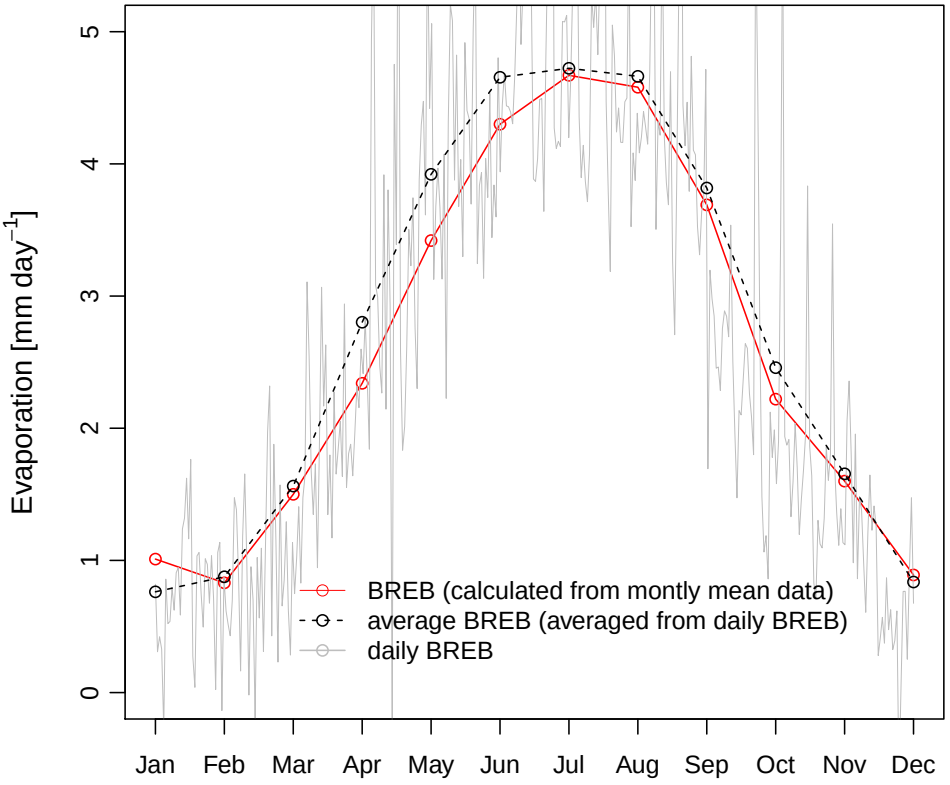

Fig. 2. Comparing BREB daily average

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