RC1

The manuscript describes an interesting phenomenon -- but doesn't explore plausible explanations. One may expect that the water temperature in the Class A pan is influenced by sediment at the bottom of the pan, and by having waterplants that limit water circulation. The temperature at the water surface will influence evaporation. Even measurements of surface water temperature for a relatively short period could help quantify such effects. One expects the temperature differential to be highest under full-sun conditions and lowest with an overcast sky. So plotting the temperature differential to environmental conditions could give some indication of the mechanism involved.

The statistical toolbox used is rich -- but one wonders how replicable results might be under conditions beyond those of the experiment if there is no mechanistic understanding of the process. The 'machine learning' methods are deemed successful in 'fitting', but results are not presented in a way that allows others to use them in new settings.

Dear Reviewer,

thank you very much for your constructive comments.

The macrophytes seeded in the pans probably hinder the water circulation and the radiation penetration into the deeper water layers. This is the reason why the surface water temperature in seeded pans is higher than in empty A pan. This summer, water temperature layering was also detected in A pan. We plan to complete the manuscript with this new result. Comparison in temperature layering between seeded and empty pans highlights the macrophyte modified circulation patter.

Surface water temperature (T_w) of A pans was sensed with thermocouples (Delta Ohm HD-226-1) at 10-min intervals in 2015-2020.

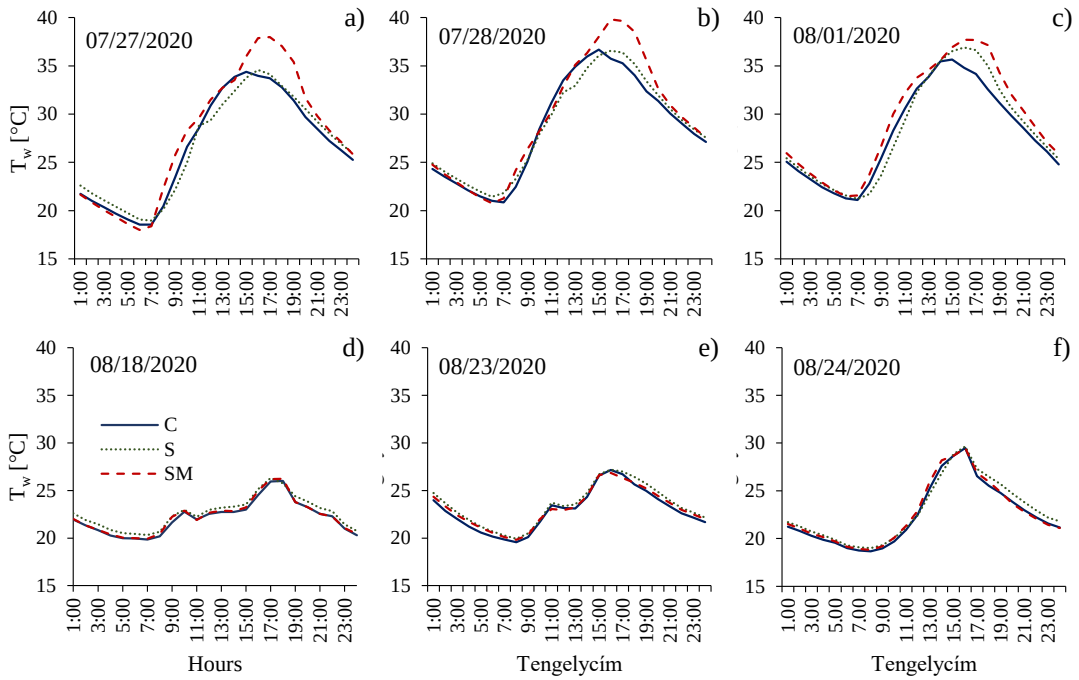

Figure. Water surface temperature (T_w) of different pan treatments (C – control, S – Class A pan with sediment cover bottom, SM – Class A pan with submerged macrophyte) in sample days: a), b) and c) days with clear sky; d), e) and f) days with overcast sky.

Differences detected in the E_p of A pan treatments could be explained by differences in T_w. Figure 5 illustrates the change in T_w within a day, on rainless days. Figures 5a-c show the T_w values measured on full-sun days in hourly terms. On clear days, T_w of C was lower from sunrise to sunset, compared to T_w S and SM. In summer, on full-sun days, the daily mean T_w of the water with submerged freshwater macrophytes was 2.73-4.09 and 3.38-4.82% higher, compared to T_w of C and S, respectively. The T_w of S was 0.68-1.25% higher compared to T_w of C.

The differences in T_w on overcast sky days are very small for A pan treatments (Fig. 5d-f), compared to clear sky days. These days T_w of C was 1.70-2.10 and 0.89-1.25% lower than T_w of S and SM, respectively. Based on the measurements, the T_w of S appeared higher even compared to T_w of SM, although the difference was very small (0.55-0.82%).

Higher evaporation measured of S and SM could be due to higher T_w. In the sheltered, shallow water bodies, the vegetation alters the radiation properties within the water, as a result in reducing stratification (Coates and Folkard, 2009). Furthermore, the submerged plants in water have obvious influences in modifying the water transparency, the heat transfer inside the water (Golosov and Kirillin, 2010) and eddy motion (Wang et al., 2019). The reason for the higher T_w above submerged macrophytes could be the more heat absorbed at the upper water column, while the bottom temperature falls (Sharip et al., 2012) than that of in comparison to empty pans. In the case of natural waters containing submerged macrophytes, the plants restrain the radiation transfer to the deep water and reduce it to 0 at a depth of 1 m (Wang et al., 2019).

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Sincerely,

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