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The impact of the representation of the water surface temperature evolution on mesoscale modelling of the heat fluxes over lakes

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In a previous study, we have shown that the use of the FLake model (Mironov, 2008) coupled to the externalized surface scheme, SURFEX, used by Météo France atmospheric models improves surface temperature representation. It is known, that even a small discrepancy in lake surface temperature results in a relatively large error in the latent heat fluxes at the water-atmosphere interface. The impact of the improvement of surface temperature in mesoscale modelling of the air flow over an artificial lake in Southern Iberia is analysed. The non-hydrostatic MesoNH model is used to simulate some case studies. The results show that the use of FLake has a weak positive impact on the sensible heat flux and a greater one on the latent heat flux over the reservoir. In certain critical situations, like for example foggy events, this differences may have an considerable impact on near surface meteorological conditions.