Interactive comment on “Local evaporation controlled by regional atmospheric circulation in the Altiplano of the Atacama Desert” by Lobos-Roco et al.

This work presented at ACP deals with observations over heterogeneous surface (obtained during the E-DATA Experiment as well as airborne observations) and with numerical simulations run with the WRF model. The authors investigate the diurnal variability of evaporation over 3 different surfaces (water, wet-salt and desert) in the Altiplano of the Atacama Desert. The different processes and scales (regional and local mainly) controlling evaporation in arid regions, where some water environments can be present due to the large surface heterogeneity, are very relevant to understand the SEB at these zones of the Earth surface. The field experiment provides interesting data in order to answer the research question posed about the wind-induced turbulence in controlling the cycle of evaporation. With regards to the WRF simulations, in my opinion an important effort has done to get high vertical resolution simulations. I would like to underline the discussion on the influence of the different scales and physical processes on the evaporation rate at this site, which is really stimulating and well developed. I find the paper very interesting and well discussed and written, and I think it deserves to be published in ACP. Below there are some comments in order to improve the final version of the paper:

- It would be desirable than the authors discussed in a deeper way the uncertainty related to the SEB closure, especially those points related to advection and interaction between the local and regional scales. I know that this is quite a hard point to answer, but due to the open problem representing this SEB closure (or non-closure) it is necessary to face. This can be done in Appendix A, although the non-closure is not only a problem of uncertainty of observations. For example, the turbulence term in the equation (1) is usually a local term produced by local turbulence. How non-local turbulence produced by entrainment or advection can be considered in the evaporation rate?
- ERA-INTERIM from ECMWF is used for initial and boundary conditions (0.5º spatial resolution). Have you done any sensitivity test to use other source for initial and boundary conditions, as for example the NCEP-FNL data?
- I do not clearly find the average time used to evaluate the turbulent fluxes or parameters from the EC method. Have you done any sensitivity test to use different average times? This can be especially important for stable conditions at night (SBL) when using averaging times larger than 5 minutes can produce an overestimation of turbulent fluxes contaminated by sub-mesoscale (non-turbulent scales).
- The values of ground heat fluxes (G) showed on Table 2 are really large. I am surprised with these values. As you say in the manuscript these values are not the measured values by the instrument, but corrected by the storage term. I would like you to give more details about the way to evaluate the storage term and the value of this storage compared to G measured by the instrument, as important uncertainties can be in the evaluation of the storage term.