Referee #2: Stephanie Kampf, stephanie.kampf@colostate.edu

The revised manuscript looks excellent, and I have only a few suggestions following on the previous review comments/responses>

We thank Dr. Kampf for her comments. They have improved the quality of our manuscript. Below, we answer her comments in blue font.

1. Regarding the quantity of evaporation from salt crusts, you could calculate what <50 W/m^2 represents in volume relative to volume of evaporation from the open water surface. Although the depth of evaporation from the crusts is small, the surface area of the crust relative to open water looks large. I would be curious to know approximate fractions of evaporation coming from open water vs crust, as that would give you an estimate of the uncertainty in this component of the water balance.

The wet-salt and open-water surfaces have a high seasonal variability, where surfaces continuously change between being open-water or wet-salt (see Fig. 1 in Lobos-Roco et al., 2021, see below). As a result, there is a large uncertainty associated to the contributions of open-water and wet-salt to the total evaporation (expressed as a volume of water) of the basin. We estimate that for November 2018, based on our flux data (4.3 mm/day for open water and 0.5 mm/day for wet-salt) and surface areas estimated from satellite remote sensing observations (1.8 km^2 for open water and 13.1 km^2 for wet-salt), the open-water evaporation is 7.8 m^3/day against 5.6 m^3/day for wet-salt.

In November, the open-water surface is at its minimum extent and the evaporation of the wet-salt reaches to ~40% of the total evaporation volume. We don't have wet-salt evaporation measurements of the summer season (the other extreme) but it is our estimate that the contribution of wet-salt in that season will be below 5% of the total.

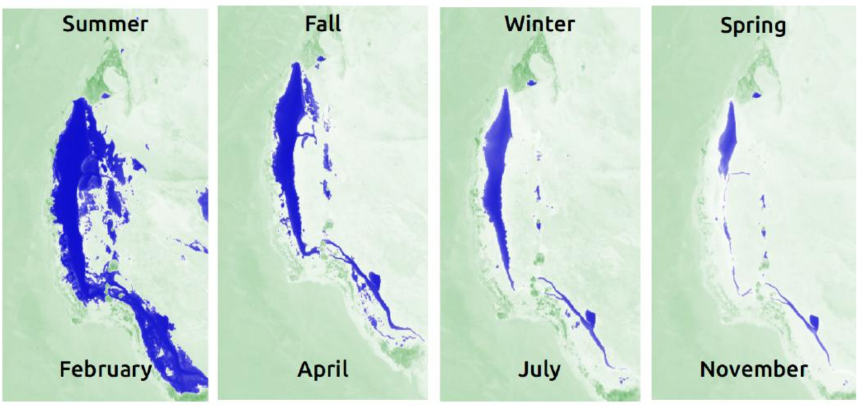

Figure 1. Shallow saline lake at Salar del Huasco as viewed by the normalized difference water index (NDWI) from Copernicus Sentinel data from 2019 processed by Sentinel Hub. This index combines infrared and visible bands, where dark blue represents water and light green the absence of water. The right-hand image shows the extent of the lake on 18 November 2018, during the field measurements shown in this work.

We have included this analysis in section 3.2.2 by adding the following piece of text in line 337-340:

"Before showing the results, it is interesting to mention the heterogeneous characteristics of open waters and different types of salty crusts (Kampf et al., 2005). These salty crusts cover larger areas than open water surfaces, contributing significantly to the basin's water balance. With respect to the wet/dry salt contribution, the salt crust found in the Salar del Huasco has particularly low evaporation (<50 Wm^2, Lobos et al., 2021). Despite this low rate, it is still relevant since the open-water/wet-salt surface proportion has high seasonal variability. Based on our flux data (4.3 mm day^{-1} for open water and 0.5 mm day^{-1} for wet-salt) and surface areas estimated from satellite remote sensing observations in November (1.8 km^2 for open water and 13.1 km^2 for wet-salt), we estimate that open-water evaporation is 7.8 m^3 day^{-1} against 5.6 m^3 day^{-1} for wet-salt. In the rest of the section, we focus on the saline lake water balance as an entity integrating the different contributions. Figure 9 shows ..."

2. Regarding showing time series of monthly data instead of monthly means for Fig 9: although the figure shown in the response is indeed busy as presented, I find it very interesting. The area of the lake is frequently lagged behind precipitation, but not always. Examples in 1987, 1993, 1999-2000, and some others where precipitation is associated with an increase in lake level. Some of these (e.g. 1993) have a precipitation-connected increase in lake level followed by a lagged peak in lake level. My interpretation of this would be that occasionally enough precipitation falls over the lake to increase its level; otherwise, the water source to the lake is groundwater that was recharged elsewhere, then gradually flowed to the lake. You may not wish to present these details in the paper, but pulling out a few example years would be informative to readers wanting to understand the water balance in more detail.

We agree with the observation of Dr. Kampf regarding the time-lag between precipitation and water surface of the lake . Precipitation in the Altiplano region is highly heterogeneous. It normally occurs in the surrounding mountains (Uribe et al., 2015), where rain infiltration in the soil and subsequent upwelling in the lake are months apart. Occasionally, however, as Dr. Kampf rightfully suggests, precipitation occurs close enough to the lake that the much quicker acting surface runoff impacts the lake surface directly. This topic indeed needs further research.

In order to highlight this saline lake water balance effect, we have included a new statement in line 356, including the following sentence:

"In February, the lake surface reaches a first maximum, which might be related to precipitation in the direct proximity of the lake that generates enough surface runoff to enhance the water amount of the lake. However, the highest values of the water-lake surface is reached 4 to 5 months after the rainy season."

3. Regarding the water balance calculation suggestion: Your calculations are well-explained. My confusion here related from bringing a watershed-scale perspective to my reading of this manuscript. I was curious about the size of the area potentially contributing groundwater to this lake and the range of elevation / precipitation differences within that contributing area. For other readers interested in potential groundwater sources, you could provide some context in the water balance description like (lines 231-232) "the additional water source represents groundwater inputs that originated from groundwater recharge in upslope areas of the contributing basin"

We understand the concern of Dr. Kampf related to groundwater. In the revised version of the manuscript, we included a modification in paragraph 2 of section 3.2.2 (see our response to point 2). We highlighted that lake recharge is indirectly related to precipitation if rain occurs in the surrounding mountains and takes 4-5 months to upwells in the lake.

Referee #1: Claudia Voigt, c.voigt@uni-koeln.de

The authors have done a good job and carefully revised the manuscript. I suggest to accept the manuscript as is after very minor technical corrections.

The authors have carefully revised the manuscript and well addressed the comments of both reviewers. This significantly improved readability and contributes to clarity of methodological approaches. I have only a few very minor suggestions below, mainly concerning typos. I think that the manuscript can be published in its current form after these minor changes have been made.

We thank Dr. Voigt for her detailed review that has led to improve the quality of our manuscript. Below, we have answered in blue font her comments.

Line 127: Change point to comma. "[…] to track the moisture source (Section 2.3.4), resulting in precipitation […]"

Changed as suggested

Line 226: suggested change: "observed and estimated LvE"

Changed as suggested

Line 232: "introduced and coefficients". Either a word is missing or the and should be removed.

The word "and" has been removed

Line 241: I think there is something missing in this phrase: "[…] when the radiation decreases yields of LvE."

The sentences has been modified by "The radiative energy control is more clearly observed from 14:00-15:00 LT when radiation decreases the L_vE yields"

Figure 4: Suggested change to "average and standard deviation of the diurnal cycle of […]" or "averaged diurnal cycle and standard deviation of […]".

The sentence has been modified by "Daily average and standard deviation of L_vE observed by the EC_{water} and calculated by P_{SDH} equation during the E-DATA period".

Line 247-248: Does this mean that 30% of the water surface is frozen or 30% of the total water amount?

The ice coefficient is applied to each single day, therefore the total water amount. The idea behind it is that the longer the freezing hours, the more time takes to melt the ice before evaporating water.

Line 326: suggested change "Amazon basin" (capital letters)

Changed as suggested

Line 359: suggested change "groundwater input" (remove space)

Changed as suggested

Line 360: suggested change "lake water balance" instead of mass balance in accordance with change in title of the subsection.

Changed as suggested

Figure 10: The red line shows not only the evaporation trend, but also that of precipitation. Suggestion to generalize: "The long-term trend is indicated by the red line."

Changed as suggested

Line 461: suggested change "errors of ~7%"

Changed as suggested

Line 467: suggested change: "are explained to 74%"

Changed as suggested

Line 480: suggest change: "an interannual variability"

Changed as suggested

Line 507: "[…] are implicitly included in the site-adapted Penman equation as […]" Missing phrase or remove "as".

We have removed the as and added the missing period.

Line 528: “and ___ are empirical constants”; Symbol missing

We have added the missing empirical constants as “ $c_1 = 0.05$ and $c_2 = 2.45$ are empirical constants”.