

## ***Interactive comment on “Integrated hydrometeorological – snow – frozen ground observations in the alpine region of the Heihe River Basin, China” by Tao Che et al.***

### **Anonymous Referee #2**

Received and published: 29 March 2019

Summary: this manuscript presents a comprehensive dataset of hydrological variables above and below the ground surface at the Heihe River Basin, in China. The breadth of the data collection effort is commendable, and the dataset is potentially very suitable as a contribution to ESSD.

### General Comments:

I agree with referee #1 in that a more thorough data quality assessment should be provided. If space is a concern, maybe an online supplementary material could be provided. Also, in a few instances it is mentioned that manual filtering was carried out before adopting a definitive dataset for a given variable. This is not unexpected, but

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if no information about which individual data points correspond to filtered values, then it becomes problematic. Perhaps both a "raw" and a "postprocessed" data products should be presented.

A couple other questions about instruments and data (I focus on snow, as this is my area of expertise): in your figures, only TI rain gages are depicted. I imagine that the Geonor instruments are those located inside the DFIR setups? The TI's are not expected to measure solid precipitation properly, but the Geonors are. However, your data plots show zero or close to zero precip in winter, at the same time when snow depth and water equivalent are positive. Must we conclude that your stations are unable to record solid precipitation?

Then, you talk about snow data, and state that depth and SWE were obtained from the SR50 and the CS725 sensors, respectively. The SPA did not work, apparently, and you link this malfunction to wind and conclude that for this reason snow density is unavailable. However, you do measure depth and SWE with the other sensors! On any case, as this is a dataset paper, I would not expect it to present estimated or derived information (such as density), but only measured data. Additionally, did you make manual depth and SWE measurements with snow probes, samplers or pits? do these match what was recorded by the sensors?

Finally, albedo data looks good, but a bit noisy. Please mention at what solar angle ranges was albedo recorded. Did you filter out values at high angles in the early morning and evening?

Specific comments:

L55. Replace "manipulate". Maybe "drive" or "modulate" would be better.

L83: delete "the" before "altitude".

L85: delete "the" before "alpine".

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Interactive comment on Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2019-11>, 2019.

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