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Open Access Earth System Science Data Discussions

Interactive comment on "Hydrometeorological Data from a Remotely Operated Multi- Parameter Station network in Central Asia" *by* Cornelia Zech et al.

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We thank Reviewer #4 for the constructive comments and suggestions. Concerning the ten comments, the authors answer as follows:

Comment 1: Firstly, all the figures and tables should be thoroughly revised to make them more readable.

We carefully revised parts of the figures and tables.

Comment 2: The captions of the tables and figures should be more concrete.

We follow the suggestion of the reviewer and extended the table/figure captions in the

manuscript.

Comment 3: Although the authors try to show that the stations are located in remote areas and high altitudes, it's hard to get this information from Figures 2 and 3. I suggest the authors provide additional information such as elevation, mean temperature, and mean precipitation on these two Figures.

We now included a table with station names and location information including the elevation to the supplementary material.

Comment 4: Since precipitation is the most difficult variable to measure, I suggest the authors provide clear figure about compact Weather Transmitter, especially precipitation sensor. Additionally, the authors should provide relevant parameters and measuring error of precipitation sensor.

Sensor-specific information of the precipitation sensor such as the measuring error and measuring range can be found in the manual of the sensor. We have extended the description of the sensor in the manuscript. Additionally, we have compiled all manuals and datasheets from the sensors to one compressed file to the supplementary material.

Comment 5: I also suggest the authors provide close-up of Snow Pack Analyzer, which is useful for understanding the description on how to measure snow depth/snow density and its possible error sources.

We follow the suggestions of the reviewer and have inserted a close-up picture of the Snow Pack Analyzer.

Comment 6: I think it's better to move Parts 7 to supplementary material, since it's not quite important for this manuscript.

We investigated various publications in this journal and found that the technical description of the data in the manuscript is quite typical for this journal. We have therefore decided not to move it to the supplementary material, as it is necessary to retrieve the data.

Comment 7: I suggest the authors add information such as elevation, longitude and latitude of all the stations into Table 2.

Although this information is part of the individual station documentation that is provided with the supplementary material, we have compiled a table with the locations of the stations and put it to the supplementary material to give a better overview. See also comment 3.

Comment 8: The authors stated that "the primary purpose of the network is to provide near realtime data for the Hydromet services without major time delay. A consistency or QC on this dataset is beyond the scope of the network operation". However, I think at least the systematic errors and apparent outliers of the data should be removed before the publishing.

Due to the symptoms of systematic errors (errors in the configuration or technical errors), these are difficult to detect automatically. Therefore, they can only be eliminated by complex post-processing, which in turn would result in a considerable time-delay. However, this is not the scope of a real-time network operation. When setting up the network, a conscious decision was made to provide near-real-time data without quality control instead of a system that provides quality-controlled data with a time delay of several months.

Comment 9: In lines 49-52, the authors pointed out that "The monitoring network degraded significantly after 1991 mainly due to economic shortening resulting in a lack of information urgently needed for water availability decisions". Do all the stations stop working since 1991? If not, please provide additional information about which stations are still working. Besides, are the 18 stations enough? How do you optimize the geographic locations of these stations?

The monitoring network degraded significantly (Unger-Shayesteh et al., 2015) but did not stop working completely. A more detailed percentage distribution over different years is given in Finaev, 2009 for Tajikistan, in Glazirin, 2009 for Uzbekistan and

Kuzmichenok, 2009 for Kyrgyzstan. Nevertheless, the provision of 18 stations are not enough but was a helpful support to the national Hydromet Services to extend the existing network with a special focus on remote areas with difficult access for local operators. The locations were selected together with the Hydromet Services.

Finaev, A.: Review of hydrometeorological observations in Tajikistan for the period of 1990–2005, Glazirin, G.E.: Hydrometeorological monitoring system in Uzbekistan, Kuzmichenok, V.: Monitoring of water, snow and glacial resources of Kyrgyzstan,

in: Assessment of Snow, Glacier and Water Resources in Asia, edited by: Braun, L. N., Hagg, W., Severskiy, I. V., and Young, G., Selected papers from the Workshop in Almaty, Kazakhstan, 2006, UNESCO-IHP and German IHP/HWRP National Committee, IHP/HWRP-Berichte 8, 55–64, Koblenz, 2009.

Comment 10: I suggest publishing a copy of this dataset in the National Tibetan Plateau/Third Pole Environment Data Center http://data.tpdc.ac.cn/en/. This could help facilitating the High Mountain Asia study.

We have published the data at the GFZ's central data service long-term archive at https://kurzelinks.de/romps-data and the http://sdss.caiag.kg. The SDSS can directly access the data stream from the stations. Creating a copy of the data at a different location carries the risk of inconsistencies.

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