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Interactive comment on "Hydrometeorological Data from Baker Creek Research Watershed, Northwest Territories, Canada" *by* Christopher Spence and Newell Hedstrom

Anonymous Referee #1

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Review of Hydrometeorological Data from Baker Creek Research Watershed, Northwest Territories, Canada. By: Christopher Spence and Newell Hedstrom This paper presents a hydrometeorogical dataset from Baker Creek in the northwest Territories. This dataset is a unique in that provides data for the sparsely sampled northern circumpolar region. Overall this paper is well written and worthy of publication in ESSD subject to minor revisions listed below. A general comment is there needs to be a more systematic description of all sensors and their deployment. The Table 4 list seems to not include everything. A master list would be beneficial. Line 33: clarify why northern flows are important for southern latitudes. Line 36-37: Sentence has two "predict.." Line 38-39: Where are these two stations? Will help to give context to how vast of

an area is being undersampled. Line 40: Do we need multiple stations to glean process information? Line 45: "include that describing" -> describe Line 48-49: ", and so represent. . .." This portion of sentence awkward Line 48-50: this sentence is repetitive to previous discussion Line 55-59: How big is the basin? 155km2 or 165 km2 Line 73: "can be used to characterize" -> characterize Line 75: is there no way of correcting for undercatch as this may be important. If the runoff ratio in Line 79 using the unadjusted precip? Without correcting for undercatch these numbers may be quiet off. At least discuss implications of this Line 87: Two landsat images were used from different years and different points in the phenology. Please elaborate on the challenges on this. How did the classification deal with this difference. Line 120: and fluxes "are" calculated. . .. Line 123: source for oxygen extinction correction? Line 124: here and elsewhere "dataset" rather than "data set" Line 129: what are "sound" conditions? Line 141-143: this sentence is complex. Please simplify 143-144: these albedos values are for the lake surface? Line 147-148: These are annual values even though the dataset is for non-winter periods? Line 149-150: monthly wind speed average is not a meaningful number for most. What about some description of wind speed distributions? Line 151-159: this paragraph may be better situated in the introduction as it helps set the stage and describe importance of the dataset Line 164-170: how was SWE calculated. From mean values or did it consider covariance of depth and density? Line 201-203: awkward sentence

Other comments Missing reference for the Pomeroy and Gray 1995 citation, check others Table 2: there is no description of how these soil properties where measured/observed. Please provide in next Climate tower descriptions are rather limited for the amount of data provided. Pictures? Is the landing lake station on a raft? Or shore? Table 4: model number for surface temperature sensor and licor pyranometers? How was roughness and displacement height calculated or observed? No precipitation storage gauge? Any way of determining phase? Figure 7: Remove basin average value and without doing a statistical analysis don't describe trends in the data Figure 9 and 10: These instruments are not included in Table 4. Are there more instruments

that need to be included.

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