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Interactive comment on "Soil Moisture and Hydrology Projections of the Permafrost Region: A Model Intercomparison" *by* Christian G. Andresen et al.

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Thank you for sharing your insight on relevant hydrological processes influencing soil moisture in permafrost landscapes. Your simulations with the PWB model raise interesting questions on seasonal rainfall changes and how this will influence soil moisture and soil thermal dynamics. It is interesting to see PWB model simulations in Rawlins et al 2013 which suggests that most of the increases in precipitation will occur in the winter/spring as snow and will be lost through spring melt runoff. Most of this water will not reach the soil given that the active layer has just started to thaw in the spring. This phenomenon also could enhance soil moisture decrease during summertime. Sea-

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Discussion paper

sonal dynamics between precipitation, runoff and evaporation is a topic that should be explored further particularly across different models. Reference: Rawlins, M.A., Nicolsky, D.J., McDonald, K.C. and Romanovsky, V.E., 2013. Simulating soil freeze/thaw dynamics with an improved panArctic water balance model. Journal of Advances in Modeling Earth Systems, 5(4), pp.659-675.

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