Supplement of

Operational water forecast ability of the iSnobal-HRRR coupling; an evaluation to adapt into production environments

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5.2 SNOTEL comparison



10 Figure S1 - SNOTEL snow depth comparison for the water years 2020 (top) and 2021 (bottom). The range for iSnobal values represents the chosen 2x2 grid around the SNOTEL site. ASO only surveyed the area once in 2020 and covered the area around the Butte SNOTEL site.



Figure S2 – Differences between iSnobal simulated mean snow depths (2x2 grid around the sites) to SNOTEL observed across all simulated years (2018 - 2021). The orange dashed lines are marking the peak snow depth measured at the sites.



5.3 ASO comparison

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Figure S3 – Spatial comparison of simulated iSnobal against observed ASO lidar-based snow depths for the early season survey (left) and the late season survey (right) in 2018. iSnobal values are subtracted from ASO on a grid-by-grid basis (50 m resolution).



Figure S4 – Spatial comparison of simulated iSnobal against observed ASO lidar-based snow depths for the early season survey (left) and the late season survey (right) in 2019. iSnobal values are subtracted from ASO on a grid-by-grid basis (50 m resolution).



Figure S5 – Spatial comparison of simulated iSnobal against observed ASO lidar-based snow depths for the single survey in 2020. iSnobal values are subtracted from ASO on a grid-by-grid basis (50 m resolution).



30 Figure S6 – Comparison of the SMRF distributed total annual HRRR precipitation amounts per pixel categorized by aspect across the years. Mean values are shown with the red diamond, while the dashed lines are the median values.



5.5 SNOW-17 comparison

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Figure S7 – Daily precipitation differences for SNOW-17 and HRRR categorized by HRU across all comparison years (2018 – 2021). The HRRR values were divided by the SNOW-17 values to get to the daily percentage differences.