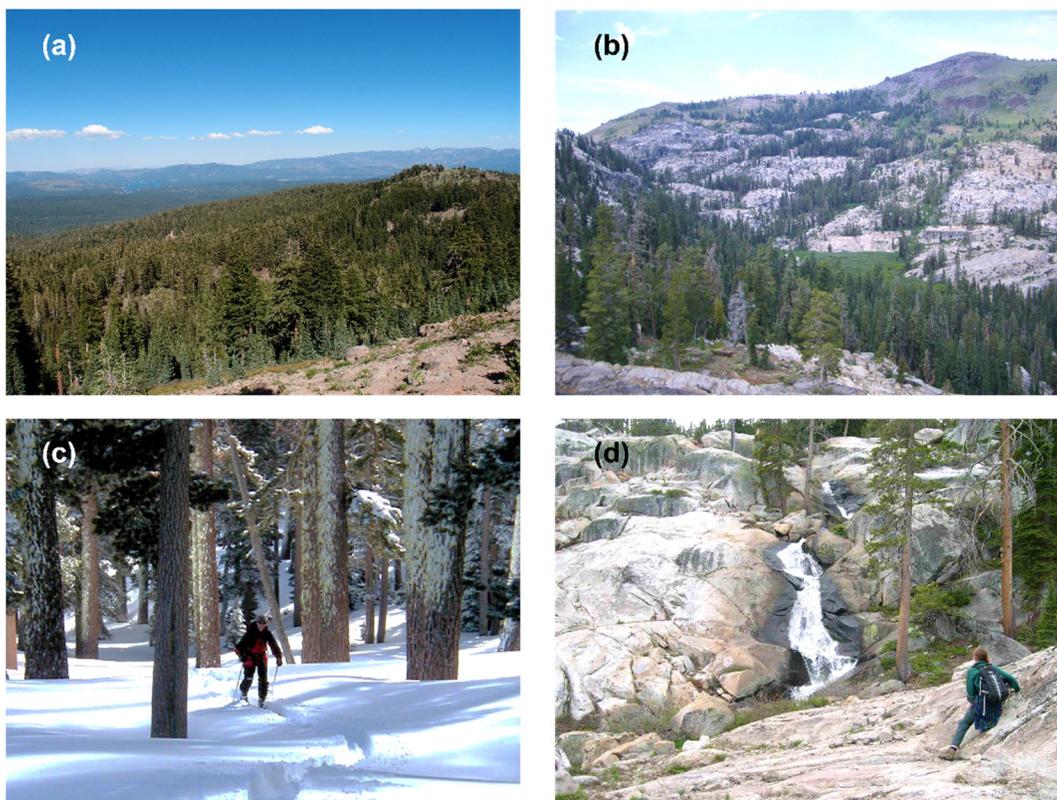
Supplementary information

5 **Figure S1. Visual impressions of the Sagehen and Independence basins. (a) The upper Sagehen basin as viewed from the divide (Carpenter Ridge). (b) The upper Independence basin as viewed from an outcrop near the southern boundary. (c) The upper Sagehen basin at about 2300 m in mid-February 2003. (d) The upper Independence basin at about 2300 m in early June 2004.**

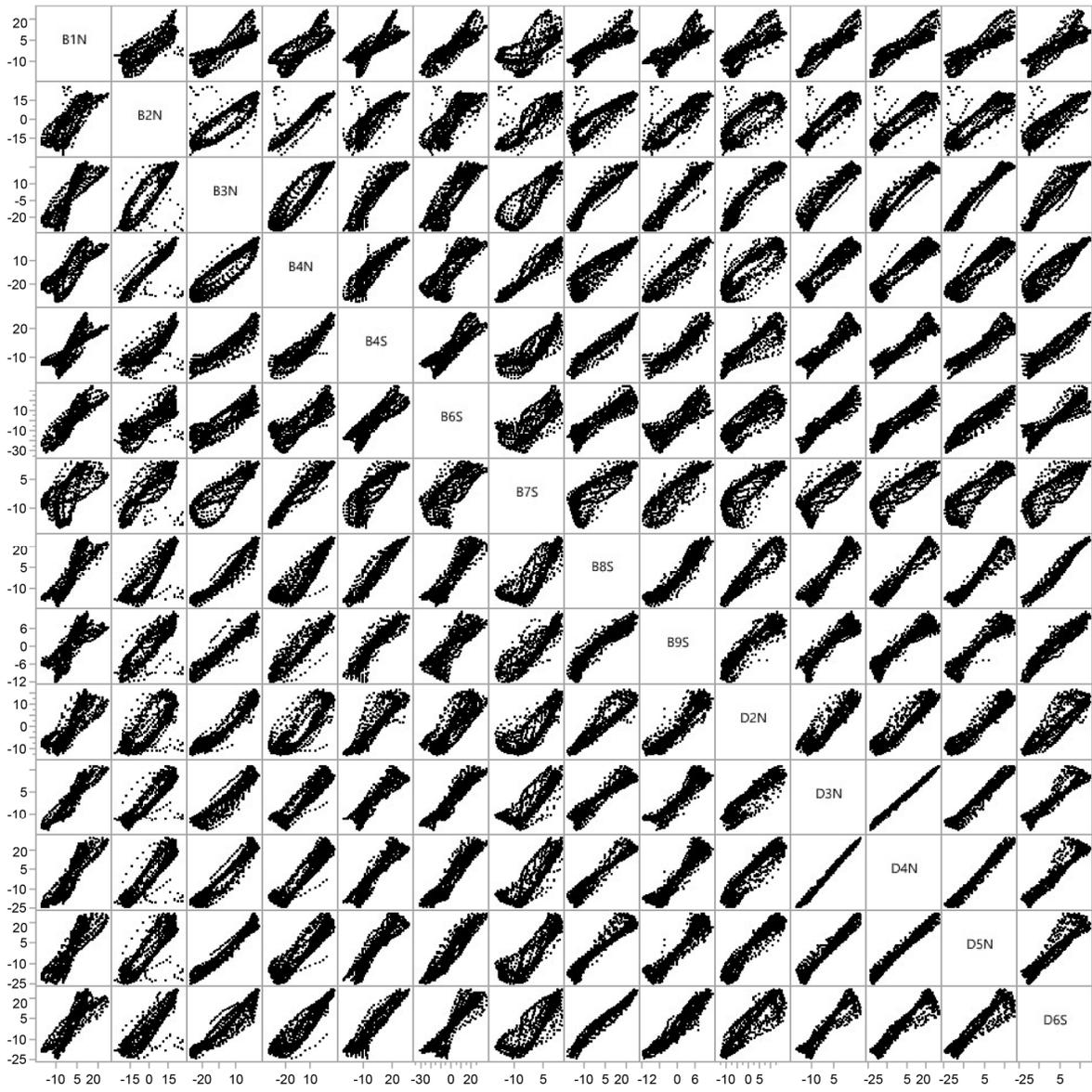



Figure S2. Correlations between daily water level anomalies (deviations from 24-hour average) in Sagehen shallow groundwater wells during a period dominated by evapotranspiration cycles (June 10-30, 2007). Several wells that had very small daily cycles (because they were nearly dry, or very close to the stream) have been omitted.

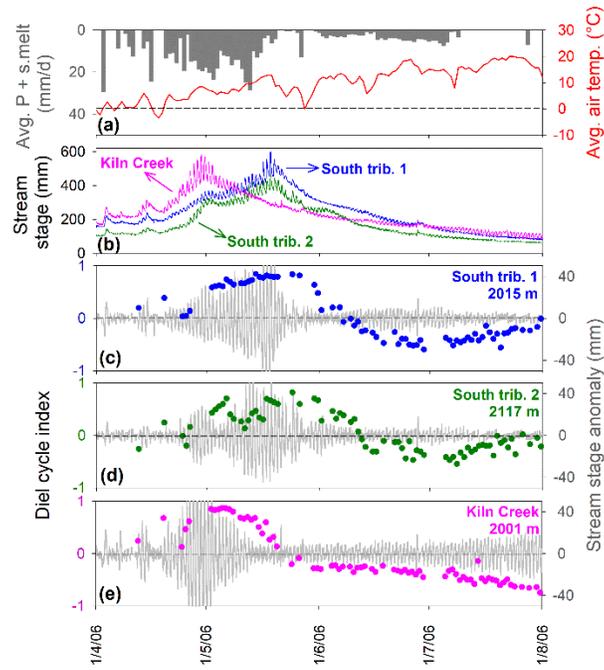



Figure S3. Onset and cessation of snowmelt-driven daily cycles in stream stage during summer 2006 in three tributaries to Sagehen Creek. Snowmelt cycles at Kiln Creek (e), which faces south, begin earlier and cease quicker than those at South Tributaries 1 and 2 (c-d), which face north. The snowmelt cycles in Kiln Creek end by mid-May, consistent with the loss of snow cover shown in Figs. 13c and 13e.

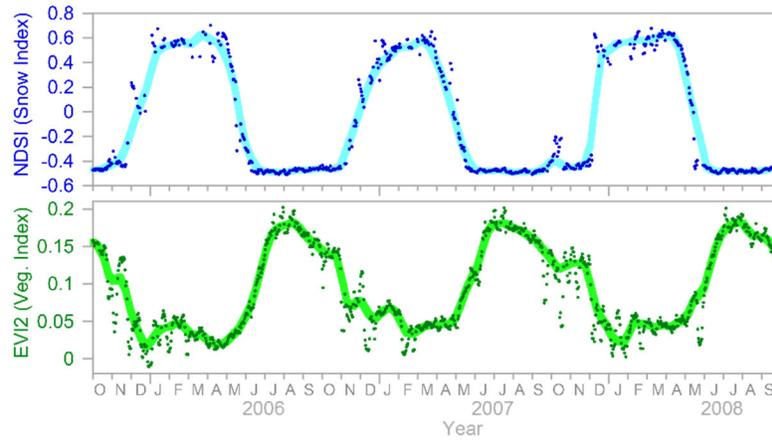



Figure S4. Daily MODIS Normalized Difference Snow Index (blue dots) and two-band Enhanced Vegetation Index (green dots), averaged over the contributing areas of the Sagehen Creek main gauge and Independence Creek, respectively. Loess robust local smoothing fits are shown by light blue and light green curves.