

SEASONAL SNOW AND AUFEIS IN ALASKA'S TAIGA

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ABSTRACT: The unglaciated taiga of central Alaska is subjected to seasonal snow and ice for 6 to 8 months of every year. Snow and ice thus play a major role in hydrologic regime. A typical taiga snowpack is less than 100 cm in depth, has a mean density at deposition of 0.05 to 0.10 g cm⁻³, and mean "ripe" density at time of spring snowmelt of less than 0.30 g cm⁻³. Low snowpack density (the result of intensive depth hoar formation in response to very steep vapor pressure gradients from base to surface of pack during the entire winter) contrasts with high-density (0.40 g cm⁻³) tundra snow at wind-affected taiga sites and in the high Arctic. Aufeis can occupy major sectors of stream channels and flood plains, and modifies hydrologic regime by temporary storage of groundwater (winter baseflow) and release of that water to streamflow after the snowmelt season. (KEY TERMS: snow; ice; aufeis; subarctic; taiga; hydrology.)