

HYDROLOGY OF TWO SUBARCTIC WATERSHEDS

Robert E. Gieck Jr. and Douglas L. Kane¹

ABSTRACT: A water balance can provide information needed for sound water resource management. Two interior Alaskan watersheds located on Ester Dome west of Fairbanks, Alaska were studied from May 1982 to June 1984 to assess possible groundwater recharge. Numerous hydrologic measurements were made, but basically runoff and precipitation were measured and evapotranspiration was calculated using climatic variables. Generally, light showery precipitation and high evapotranspiration rates preclude or severely limit groundwater recharge during the summer months. Only during periods of substantial rainfall is groundwater recharge possible. During snowmelt every year, the groundwater recharge potential is quite high because of water stored in a snowpack that has accumulated over a 6 month period and evapotranspiration demands are minimal. (key terms: water balance; recharge; runoff; evapotranspiration; snowmelt)