Ocean tide-induced groundwater fluctuations in monitoring wells located near the Kenai River, Alaska

Simon Evans[1]

Water level records of a monitoring well located upstream of the confluence of the Kenai River with the Cook Inlet in south-central Alaska indicate that water levels fluctuations in the well occur as a function of earth tides. The fluctuations occur on a cyclic, semi-diurnal pattern with the earth tides. The tidal fluctuations are observed in the Kenai River, in the water table aquifer, and in the semi-confined flowing artesian aquifer at the study site. A phase lag exists between the tidal readings taken at the coastal tidal station located in Nikiski, and the observed data from the groundwater monitoring station located approximately 12 ½-miles upstream of the confluence of the river. This paper examines the relationship between phase and magnitude of tidal values recorded at the Nikiski tide station and groundwater values recorded at the study site.

[1] Graduate Student, School of Engineering, University of Alaska, Anchorage.