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Weather and active layer dynamics of a high-altitude, arid permafrost site, Tianshuihai Lake region, W-Tibetan Plateau

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The Tianshuihai Lake region is a low-latitude, high-cold desert landscape on the Aksai Chin Plain, W-Tibetan Plateau which is underlain by continuous permafrost. It is a rather unique permafrost environment with high diurnal temperature variations, strong radiative forcing, and very low precipitation. Vegetation is absent in this area.

We present a time series of high-resolution weather data along with active layer temperature and water content measurements from a monitoring station located in the Tianshuihai Lake region and discuss the seasonal and diurnal climate and active layer dynamics at this site. The thermal dynamics of the active layer are investigated in more detail using a one-dimensional numerical model.