Evaporation determined by the energy-budget method for Mirror Lake, New Hampshire

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Limnol. Oceanogr., 48(3), 2003, 995-1009 | DOI: 10.4319/lo.2003.48.3.0995

ABSTRACT: Evaporation was determined by the energy-budget method for Mirror Lake during the open water periods of 1982-1987. For all years, evaporation rates were low in spring and fall and highest during the summer. However,the times of highest evaporation rates varied during the 6 yr. Evaporation reached maximum rates in July for three of the years, in June for two of the years, and in August for one of the years. The highest evaporation rate during the 6-yr study was 0.46 cm d'' during 27 May-4 June 1986 and 15-21 July 1987. Solar radiation and atmospheric radiation input to the lake and long-wave radiation emitted from the lake were by far the largest energy fluxes to and from the lake and had the greatest effect on evaporation rates. Energy advected to and from the lake by precipitation, surface water, and ground water had little effect on evaporation rates. In the energy-budget method, average evaporation rates are determined for energy-budget periods, which are bounded by the dates of thermal surveys of the lake. Our study compared evaporation rates calculated for short periods, usually ~1 week, with evaporation rates calculated for longer periods, usually ~2 weeks. The results indicated that the shorter periods showed more variability in evaporation rates, but seasonal patterns, with few exceptions, were similar.

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