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Hydrol. Earth Syst. Sci., 8, 79-87, 2004
www.hydrol-earth-syst-sci.net/8/79/2004/

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The trends and dependencies between air and water temperatures in lakes in northern Poland in 1961–2000

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Abstract. Over 40 years, from 1961–2000, daily mean values of surface lake water temperatures at 0.4 m depth in six lakes in northern Poland were recorded with nearby mean daily air temperatures at 2 m. Air temperatures increased on average from 0.020 to 0.025°C year⁻¹ while lake-water temperatures varied more but increased by 0.005 to 0.028°C year⁻¹. For shorter periods (for instance, for 10 days) the pattern of trend directions and values was more complex, depending on the morphometric and trophic conditions of the lakes. It has been concluded that changes in lake water temperatures during climate warming may be documented by studies of lakes located relatively closely together (up to 300 kilometres).

Keywords: physical limnology, climate changes, lake water, temperature

[Final Revised Paper](#) (PDF, 781 KB)

Citation: Dabrowski, M., Marszelewski, W., and Skowron, R.: The trends and dependencies between air and water temperatures in lakes in northern Poland in 1961–2000, Hydrol. Earth Syst. Sci., 8, 79-87, 2004. [Bibtex](#) [EndNote](#) [Reference Manager](#)

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