Abstract View

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Observations of Long Nonlinear Internal Waves in a Lake

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ABSTRACT

This paper describes observations of large-amplitude, long internal waves in Babine Lake. A unique feature of the observations is that they were taken simultaneously at several different points along the major axis. This permits study of the formation and subsequent development of individual waves as they travel along the lake. The waves typically begin as depressions on the thermocline at the south end following strong westerly winds directed along the lake's major axis. A bend in the southern part of the lake, together with the influence of surrounding mountains, can introduce a divergence in the longitudinal component of the wind stress which in turn produces a thermocline elevation. These two effects then combine to form a northward traveling surge. Subsequent modification of the waveform is interpreted in terms of nonlinear steepening and dispersion.