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Subsampled Numerical Experiments as a Guide for Field Deployment of Thermistor Chains[1] JUSTIN SHAW, MAREK STASTNA, University of Waterloo — Thermistor chains are a standard tool for recording temperature profiles in geophysical flows. Density values can be inferred from readings and the resulting density field analyzed for the passage of internal waves, Kelvin-Helmholtz billows, and other dynamic events. The number and spacing of the thermistors, both on and between chains, determines which events can be identified in the dataset. We examine the effect of changing these variables by subsampling a set of numerical experiments to simulate thermistor chain locations. A pseudo spectral method was used to solve the incompressible Navier-Stokes equations under the Boussinesq approximation. The resulting flows are a set of high resolution seiches where the depth was held constant across experiments, and the length was varied. Sampling a known, commonly occurring flow with relatively simple geometry allows for a clear analysis of the effects of thermistor placement in the capture of dynamic events. We will discuss three dimensional deployment strategies, as well as EOF and DMD analyses if there is time.

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