



## Abstract View

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# The Spatial and Temporal Evolution of a Cluster of SOFAR Floats in the POLYMODE Local Dynamics Experiment (LDE)

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### ABSTRACT

Up to forty neutrally buoyant floats (20 at 700 m, 20 at 1300 m) were used in the POLYMODE Local Dynamics Experiment (LDE) to provide a quasi-Lagrangian description of the structure and evolution of the mesoscale eddy field in a limited region characterized by higher kinetic energy levels than those obtained in MODE. This paper is an overview and summary of the data collected.

The temporal development of the two-level float array is presented in a sequence of maps, each spanning five days. In these one readily notices an “oscillation” of floats at 1300 m in a NE-SW direction before the cluster breaks apart. At 700 m the float cluster subdivides much more rapidly. The first setting of 700-m floats drifts to the west; the second group, launched two months later, goes far to the east.

Ensemble averages as a function of time of the floats at 1300 m reveal great sensitivity to the “oscillatory” velocity field while the array is “tight” or coherent the corresponding 700-m averages, although noisy, show clearly the westward and eastward motion of the first and second clusters respectively. Grand averages for  $\mu$ ,  $\mathbf{v}$  ( $\text{cm s}^{-1}$ ), and kinetic energy ( $\text{ergs gm}^{-1}$ ) are  $(-1.8, 0., 80)$  and  $(-1.6, 0., 34)$  for the shallow and deep floats.

The spatial correlation functions show large scales of coherence. The zero-crossing of the transverse-velocity correlation function is about 100 km for both the 700- and 1300-m floats compared to 55 km for the 1500-m floats in MODE. The longitudinal correlation scale is also much larger.

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