

SPace of Eulerian MeasureS (SPEMS) application to Oceanographic Flows

Kevin McIlhany (United States Naval Academy)

Through the application of multiple Eulerian measures of a fluid flow, a measurement space is created which is comprised of one axis for each measurement, where currently at least six Eulerian measures are being applied to oceanographic flows. The SPace of Eulerian MeasureS (SPEMS) is analyzed using high dimensional cluster analysis, where the data for the flows aggregate into clusters, which can then be interpreted more traditionally as gyres, steady flow, turbulence, hyperbolicity, etc... A novel approach to correlating the clusters from the SPEMS with Lagrangian techniques will be presented. Areas of interest include the mouth of the Chesapeake Bay and the Kuroshio.