



ASYMMETRIC VORTEX MERGER

Submitted by C. Seren, M. V. Melander, and N. J. Zabusky (University of Pittsburgh)

The figure displays evolution of a fundamental interaction in two-dimensional incompressible turbulence. The visualization sequence shows the merger of vorticity obtained from a numerical simulation⁷ using a pseudospectral algorithm on a (256^2) 2-D mesh. The large centrally placed figure at $t = 17$ shows a near threefold symmetric core region and the fine underlying structure in the low-vorticity regions. The centrally placed color map shows colors assigned in a linear fashion with the vorticity (from left to right).

(Below this figure is the same function at $t = 17$ rendered with a different color map, which emphasizes low-lying levels.)

The simulation data were displayed on a color monitor, with a resolution of 480^2 , 8 bit deep pixels. The pictures were taken with a 135 mm lens.

The simulations in this study were made on the CRAY-1 computer at the National Center for Atmospheric Research, which is supported by the National Science Foundation. The research work in 2-D vortex dynamics is supported by the Army Research Office and the Office of Naval Research. The work station on which the images were created was provided by SUN Microsystems, Inc., with an additional grant by the National Science Foundation.