Practical considerations in the identification of vortices amidst vortex interactions PINAKI CHAKRABORTY, S. BALACHANDAR, University of Illinois at Urbana-Champaign, RONALD ADRIAN, Arizona State University and University of Illinois at Urbana-Champaign — An isolated vortex is characterized by two features: the vorticity distribution and the concomitant strain distribution. Any vortex identification criterion determines the size of a vortex based on the relative variation of these two fields. In a flow composed of interacting vortices, the interaction modifies the distribution of vorticity and strain, and therefore affects the identification of these vortices using a vortex identification criterion. Considering flows resulting from superposition of vortices whose isolated fields are known *a priori*, we study the influence of vortex interactions in the context of using local vortex identification parameters—λ_{ci}, $\lambda_{cr}/\lambda_{ci}$, Δ, Q, and λ_2—to extract the individual vortices. Our results give useful guidelines for the application of local vortex identification criteria in complex flows.

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