Journal of Visualization, Vol. 8, No. 4 (2005) 289

Excited Single-Phase (Liquid) Jets

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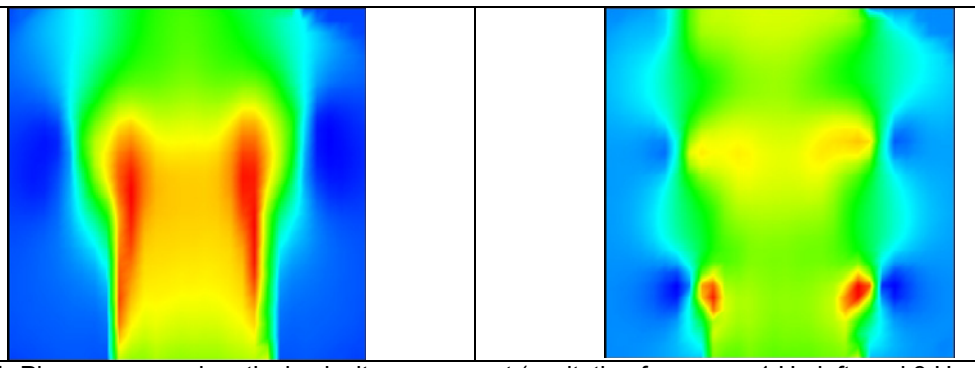

Fig. 1. Phase-averaged vertical velocity component (excitation frequency 1 Hz-left, and 3 Hz-right).

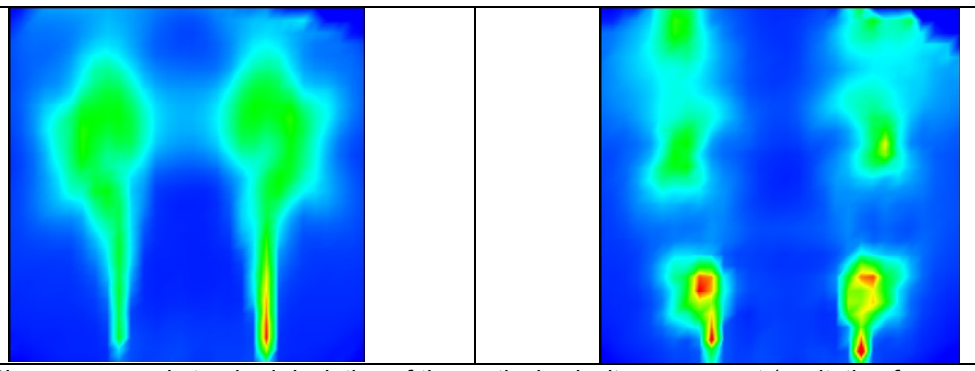

Fig. 2. Phase-averaged standard deviation of the vertical velocity component (excitation frequency 1 Hz-left, and 3 Hz-right).

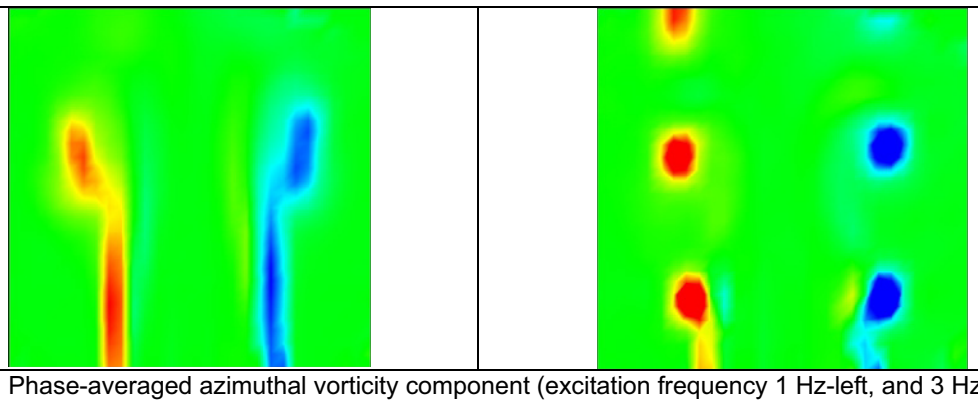

Fig. 3. Phase-averaged azimuthal vorticity component (excitation frequency 1 Hz-left, and 3 Hz-right).

The scalar maps show some phase-averaged quantities obtained by PIV in the developing region of a periodically triggered, axisymmetric liquid single-phase jet. Excitation frequencies are 1 Hz and 3 Hz, corresponding to Strouhal number St = 0.3 and 0.6, respectively. Triggering of the jet shear layer leads to concentration of the shear layer vorticity in the coherent vortex rings which travel downstream at about half of the jet velocity.