

Abstract Submitted
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An experimental investigation of the influence of particle displacement and image number on PIV uncertainty for two turbulent flows
RALPH BUDWIG, University of Idaho, CHRISTOPHER HOCUT, University of Notre Dame — In order to test sensitivity to particle displacement, the mean velocity and turbulent fluctuations were calculated from six sets of stereoscopic PIV images, each with a different average particle displacements. The first set of images had an average particle displacement of five pixels and in each subsequent set the displacement was increased by five pixels. In order to test sensitivity to image number, the number of images used for ensemble averaging was varied from 1000 to 4000 The first flow tested was a nearly fully developed turbulent open channel flow (moderate turbulence levels). The second was the turbulent wake immediately behind a circular cylinder that extended from just above the channel bottom through the water free surface (high turbulence levels). Comparisons to ADV measurements were made at selected points in both flows. ¹Center for Ecohydraulics Research
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