

Abstract Submitted  
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**V3V Measurements on a Propeller in a Cavitation Water Channel**

DAN TROOLIN, WING LAI, TSI Incorporated — Cavitation around ship propellers occurs due to low pressure regions where cavitation bubbles form and collapse potentially causing severe damage to propeller blade surfaces through unequal loading, vibration, and pitting. In order to avoid cavitation damage care must be taken in the design, selection and operation of the propeller blades. A study was conducted in the West Japan Fluid Engineering Laboratory Co., Ltd. closed return cavitation water channel with a test section of 500 500 2000 mm of the flow downstream of a five-bladed, powered aquatic propeller at a freestream velocity of 4.0 m/s. A V3VFlex volumetric measurement system with four 4 megapixel cameras was used in order to provide high-resolution instantaneous and phase-averaged volumetric measurements. The measurements reveal the presence of tip vortex structures, locations and interactions. Results of the propeller wake will be presented and examined.

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