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Rms Axial Velocity in the Wake of a Marine Propeller

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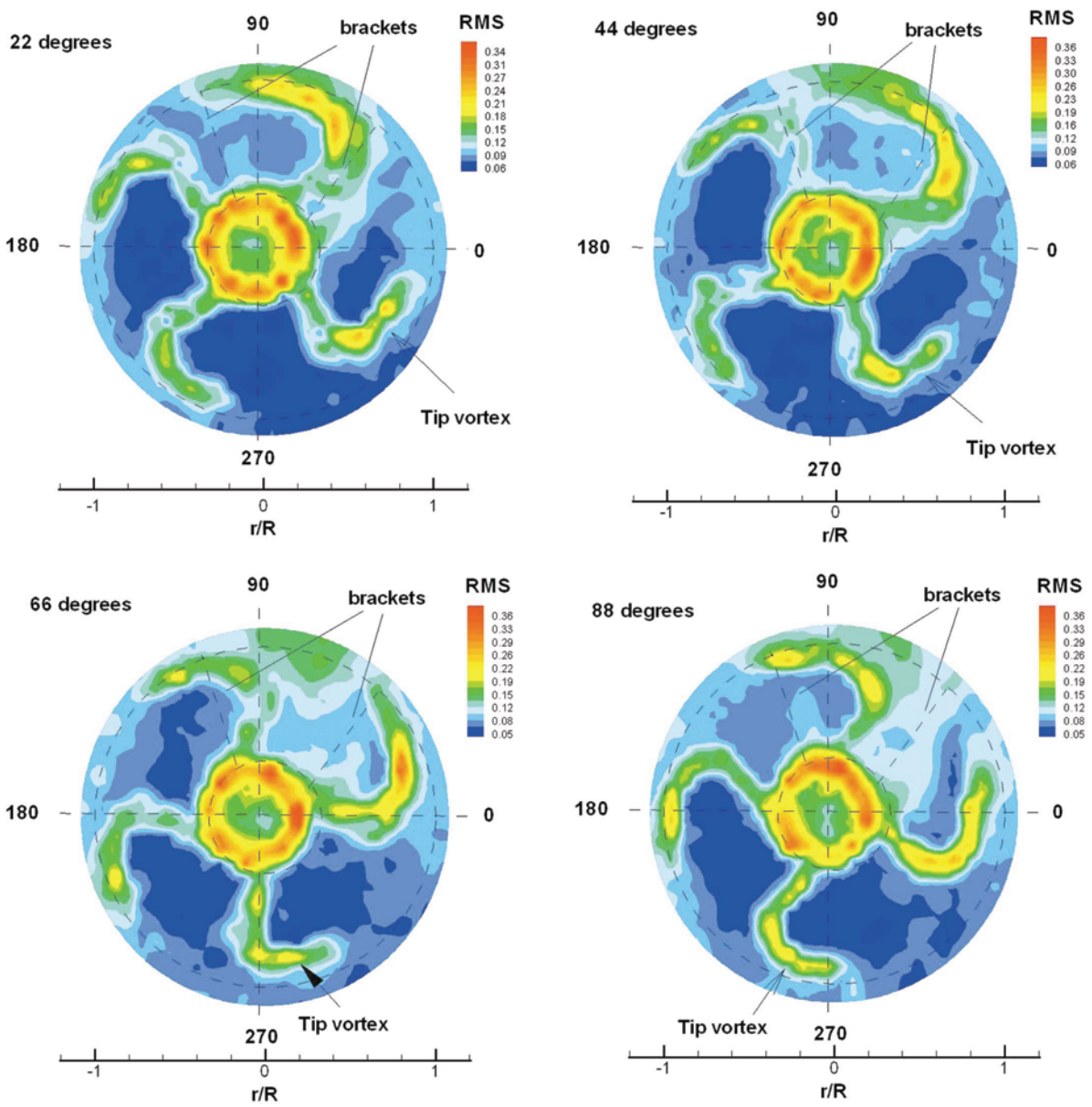

Three-dimensional measurements of the velocity field downstream of a marine propeller were performed at the circulation channel at INSEAN by means of a submerged LDA system. The free-stream velocity was 2.3 m/s corresponding to a Reynolds number (based on the propeller radius $R = 0.183$ m) equal to about 420000. The propeller has four blades and works at about 10 rounds/s. In the figure, the *rms* axial velocity (in m/s) measured at four angular positions (22°, 44°, 66° and 88°) at 0.2 R is given; these plots are derived by time histories of the velocity at each point by using a slotting technique. The position and motion of the four tip vortices and of the brackets are clearly pointed out. Further details on the experiments and on the measurements are in the Proceedings of the 9th International Symposium on Flow Visualization (Edinburgh, August 2000).