

Abstract Submitted
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The flight of the Rufus hummingbird¹ HUMBERTO BOCANEGRA-EVANS, JEREMY PENA, SCOTT HIGHTOWER, New Mexico State University, BRET TOBALSKE, University of Portland, JAMES ALLEN, New Mexico State University — This paper will present preliminary experimental data for the flow field around a robotic model hummingbird “flying” in the New Mexico State large water channel. The Rufus hummingbird, which fly’s with a wing beat frequency of 45Hz, in the Reynolds number range of 8,000 and a Strouhal number of 0.3 is mimicked by a two degree of freedom mechanical model operating in a large water channel. Phase locked PIV data and flow visualization results for hovering and relatively slow forward flight will be presented. Non-intrusive techniques will be used to estimate the hummingbirds lift and drag.

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