

Abstract Submitted
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Geometrical Scaling of an Ablative Bluff Body under Different Outer Flow Velocity and Temperature Configurations¹ MICHAEL ALLARD, CHRISTOPHER M. WHITE, University of New Hampshire, YVES DUBIEF, University of Vermont — Experimental results investigating the geometrical scaling and local properties of an eroding low temperature ablator (paradichlorobenzene) are presented. The bluff body is placed in a heated open-circuit wind tunnel and the effects of incoming outer flow velocity (uniform and spatially varying) and temperature on the ablation process are investigated. Image sequencing of the projected area in the streamwise-spanwise and streamwise-wall normal flow direction are used to quantify the time evolution of the geometrical shape and compute local recession rates and curvature. The geometrical self-similarity and local recession rates are evaluated and compared to Moore *et al.* (Phys. Fluids (2013) 25:116602) and Huang *et al.* (J. Fluid Mech. (2015) 765:R3) who investigated erosion under the action of fluid shear force and dissolution, respectively.

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