

Abstract Submitted
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Characterization of the Flow Field Over an Ablative Surface¹

MICHAEL ALLARD, CHRISTOPHER WHITE, University of New Hampshire, YVES DUBIEF, University of Vermont — Experiments are performed in a small-scale wind tunnel to investigate the complex coupling between an erodible surface and an eroding agent. The flow configuration is a spatially developing heated boundary layer flow over an ablative surface. Several variations of the inlet conditions, both for flow and temperature, are used to study the temporal and spatial development of ablation driven by coherent structures, such as vortices, and the response of turbulence to wall recession and emergence of roughness (ablation patterns). Characterization and comparison of velocity and thermal fields over ablative and non-ablative surfaces are reported in addition to qualitative observations of ablation patterns for vortex driven, laminar, and turbulent flow over an ablative surface.

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Michael Allard
University of New Hampshire

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