

**ACOUSTICS2008/1630**  
**Computational Fluid Dynamic Analysis of Optimized Windscreens**  
**for UAV Based Acoustic Arrays**

Wayne Prather<sup>a</sup>, David Bridges<sup>b</sup>, Tom Edwards<sup>c</sup> and David Thompson<sup>b</sup>

<sup>a</sup>Miltec Research & Technology, 9 Industrial Park Dr., Oxford, MS 38655, USA

<sup>b</sup>Mississippi State University, Dept. of Aerospace Engineering, Mississippi State, MS 39762, USA

<sup>c</sup>Raspet Flight Research Laboratory, 114 Airport Road, Starkville, MS 39759, USA

As part of an overall effort to place acoustic sensors on airborne platforms for surveillance applications, analysis studies were performed of acoustic probe windscreens that could minimize wind noise and be made relatively insensitive to small angle of attack and sideslip excursions. Through a collaborative effort between Miltec Research & Technology, Mississippi State University Department of Aerospace Engineering, Raspet Flight Research Laboratory, and the Engineering Research Center several probe designs were developed and analyzed using inviscid and viscous simulations with the objective of characterizing their flow fields and identifying potential modifications that could improve suitability for use as acoustic measurement probes. Several of the recommended probe shapes were fabricated and tested under real world conditions on an acoustically optimized 1/3 scale Schleicher ASH26 glider test bed.