

Abstract Submitted  
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**Analysis of Shock Motion in a Compression Ramp Configuration using DNS data**<sup>1</sup> MINWEI WU, PINO MARTIN, Princeton University — Large scale slow motion (LSSM) has been observed in shockwave and turbulent boundary layer interaction (STBLI) experimentally, while no evidence of LSSM has been found in numerical simulations. We perform a direct numerical simulation (DNS) of a 24° compression ramp configuration. The DNS is compared with experiments under the same flow conditions. Comparison shows good agreement in the mean wall-pressure distribution, the size of the separation bubble, and the velocity profile downstream of the interaction. Wall pressure signals near the separation point show evidence of large scale slow motions in the DNS. The relation of the LSSM and large scale structures in the incoming boundary layer is studied to verify if these structures are responsible for the LSSM.

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