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Evidence of Mach-like Reflections From Exploding Balloons KEVIN M. LEETE, JONATHON R. PENDLEBURY, Brigham Young University, SARAH YOUNG, Brigham Young University-Idaho, KENT L. GEE, TRACIANNE B. NEILSEN, TADD T. TRUSCOTT, Brigham Young University — The transition from regular to Mach reflections has been studied for large amplitude explosions like nuclear blasts, but little is understood about this transition from linear to non-linear behavior for relatively weak shock waves where the acoustic Mach number is close to one. An experiment was performed at the Bonneville Salt Flats where large acetylene and oxygen filled balloons were exploded over a flat surface and the pressure waveform measured at different heights and distances from the explosion. From acoustic data and high speed footage that was taken of the explosions, strong preliminary evidence of the existence of Mach reflections was observed.

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