

Spherical explosions were detonated at varying heights above the ground and imaged with high-speed cameras. The high-speed images were processed using natural background oriented schlieren and background subtraction techniques to visualize shock wave propagation and reflection from the ground. Digital streak images were created from the high-speed video frames. Tracking the shock wave became more quantifiable with the streak images, which allowed data such as the shock velocity, shape, and interactions with the fireball to be collected. The images were also analyzed to measure the change in light intensity of the explosive fireball as the reflected ground shock wave passed through the fireball. Correlations between the height of burst, ground shock reflection velocity, and fireball illumination are presented.

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