

BLAST WAVE GENERATION AND PROPAGATION

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This work presents results from simulations of high explosive detonations with the numerical method Regularized Smoothed Particle Hydrodynamics (RSPH). Our main interest is the effect of altering the shape and position of high explosives. The charges are detonated on the ground and for different heights of bursts. We use an explosive source model called the constant volume (CV) model. The CV model is based on the assumption that the explosion takes place within the initial volume of the solid high explosives. The CV model is implemented into RSPH. Additionally, RSPH allows for taking advantage of existing spherical or cylindrical symmetries in explosive charges and experimental setup when performing the actual numerical calculations. This ability allows for high-resolution computations of the important initial phase at a relatively low computational cost. The description allows for mapping into larger computational domains. Good agreement is found when the numerical results are compared to sensor readings of pressure-time history, as well as to other published empirical data.