

NUMERICAL SIMULATION OF GROUND SHOCK PHENOMENA

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CEG is leading numerical and experimental works which purposes are to determine vulnerability of underground structures subjected to a near-surface explosion blast loading. Wave propagation in air and surface-burst ground shock phenomenology in homogeneous soil are numerically investigated using two approaches:

- a simplified method,
- a numerical approach using three computer codes which are linked together to represent wave propagation from the surface explosion point to structures in the air and in different regions of the soil.

The paper to be presented gives results obtained both with the simplified method and the computer codes chain. For a given charge, simulations concern airblast propagation, source induced and airblast induced wave propagations in hydrodynamic and elastic-plastic domains in three types of soil. Some rheological models for soil have been tested. Results using the two methods are compared and the influence on ground motions of the mechanic properties of soil and some rheological mechanisms are shown.