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Research & Engineering

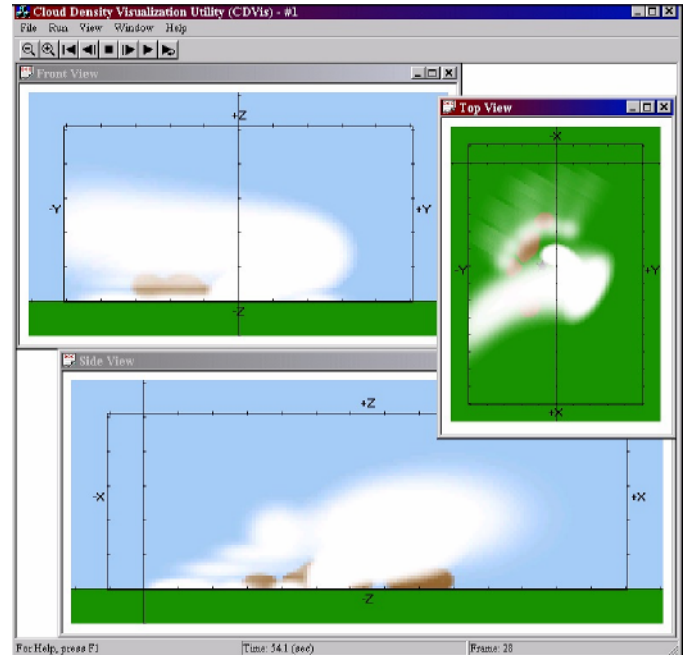
Modeling & Simulation Tools

Smoke and Obscurants

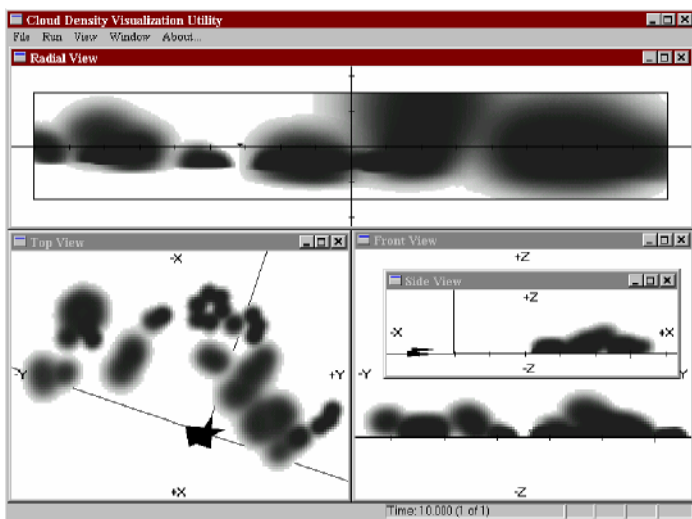
Smoke System Performance Model

The Smoke System Performance Model (SSPM) has been developed to provide a tool to assess the impact of battlefield smoke and obscurants on optical and electro-optical sensors. Designed as an object-oriented package, SSPM can be incorporated into diverse applications across the modeling and simulation domain. Developed for the U.S. Army Edgewood Chemical Biological Command (ECBC), SSPM uses the COMBIC model to simulate smoke and obscurants on the battlefield.

SSPM also includes detailed classes for selected items, such as vehicles, components, obscurant materials, and vehicular grenades. Each class contains the essential technical characteristics of the item it represents, as they relate to smoke and obscurant production. For example: vehicle classes include the type, mounting location, and orientation of their smoke grenade dischargers; material classes include mass extinction coefficients in twelve spectral bands; and, vehicular grenades include initial launch velocities. A smoke and obscurant item can be added to any application by simply instantiating one of its



Vehicle Self-Protective Smoke and Exhaust in the Visual Range



IR Obscuration from Vehicle Self-Protective Smoke

objects. That object will automatically exhibit all of the characteristics and implement all of the behaviors that have been defined for the item it represents.

The SSPM is routinely used to evaluate the performance of vehicle mounted self-protective systems. SSPM allows the user to reflect all the geometries inherent in the smoke systems mounting to the vehicle as well as the trajectories of projected obscurant canisters, their burn times and or bursting geometries.

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