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Title:	IC Project: W19 Nuclear Event Yearly Report Slides
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Los Alamos NATIONAL LABORATORY EST. 1943

IC Project: W19 Nuclear Event
Yearly Report Slides

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31 March 2020

IC Project: W19 Nuclear Event
HOSS (Hybrid Optimization Software Suite)

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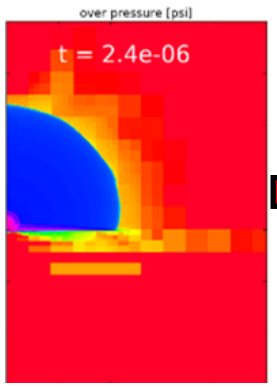
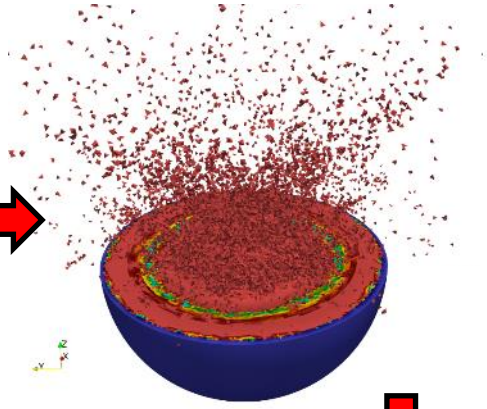
Application spaces for HOSS range from Underground Nuclear Event test containment, hypervelocity impact, earthquake faulting, hydraulic fracturing, etc. while other applications such as Survivability (lofted dust), High Explosive aging and performance, Nuclear Weapons Effects (cratering, facility defeat, Non-Ideal-Air-Blast pyroclastic flow), and weapons penetration affect weapon's mission spaces.

Campaign 7: Survivability (Lofted Dust)



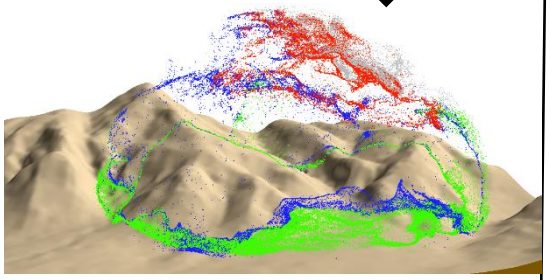
Source Modeling



HOSS

Fallout: No one code can do it all!

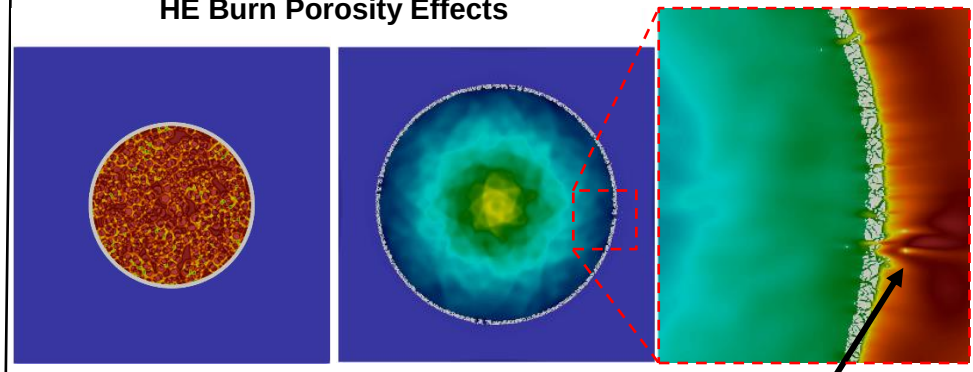
Process depicted here is directly applicable to Nuclear Weapons Effects Fallout



Material Lofting

Alternative Stockpile Assessment Tool High Explosive (HE) Sphere Performance

HE Burn Porosity Effects



Early Time

Later Time

HE Gas Jetting

HOSS FSIS (Fluid-Solid-Interaction-Solver) capabilities, created for Nuclear Weapons Effects analysis are easily extendable to other pertinent analysis arenas such as High Explosive performance.

NNSA National Nuclear Security Administration

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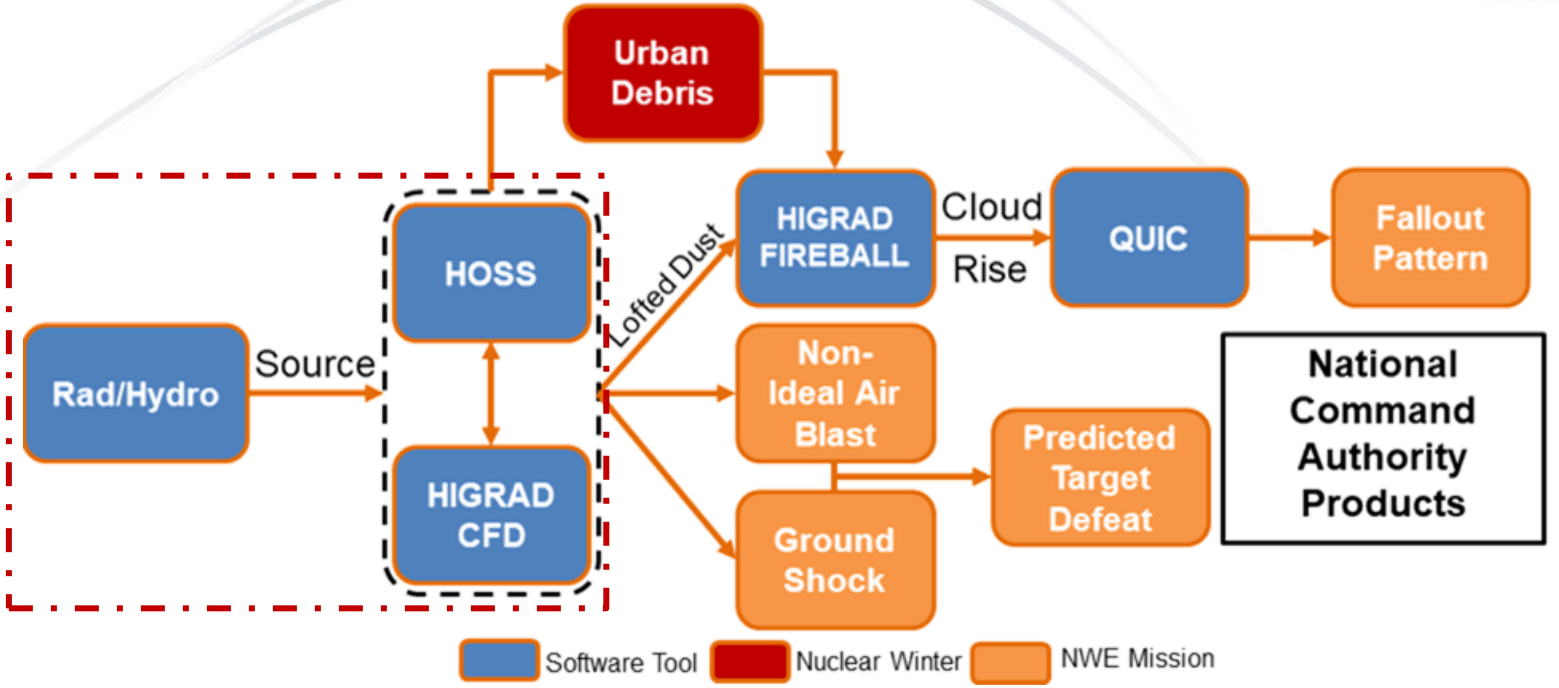
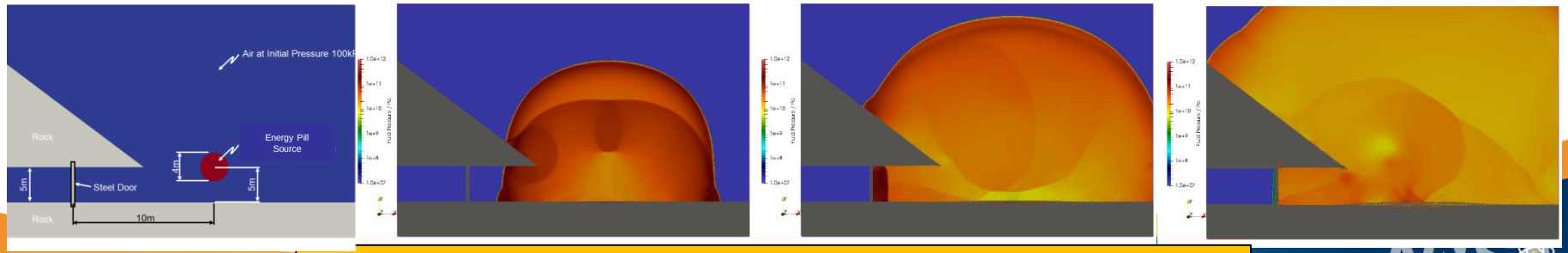


LANL researchers are well underway to create a world class first principle physics-based (2-way coupling) Nuclear Weapons Effects and Stockpile Assessment Analysis tool.



HOSS FSIS High Energy Source 5m HoB