

CFD ANALYSIS OF THE BLASTWAVE GENERATED IN THE SHIELD-TEST

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Abstract: The SHIELD-test was conducted in August 2019 in Älvdalen, Sweden. A charge of approx. 37 t ANFO was assembled on a truck and initiated in close proximity to an 80 m long HESCO wall. A large array of pressure gauges had been set out on the ground in a polar grid and many of the structures built on the test site were equipped with pressure gauges, c.f. figure 1. The SHIELD-test thereby generated a valuable source of data which can be employed to assess the attainable predictive capability of modern CFD software for large scale ANFO explosions. We used the APOLLO Blastsimulator for a series of high-resolution simulations of the event. In these simulations the effects of spatial resolution, details of the charge (homogeneous vs inhomogeneous mass distribution) and the response of the HESCO wall on the computed pressure transients have been investigated. In our contribution we will present a systematic comparison of computed and measured pressure transients, analyze the aforementioned influences and assess the attainable accuracy of the simulation model.

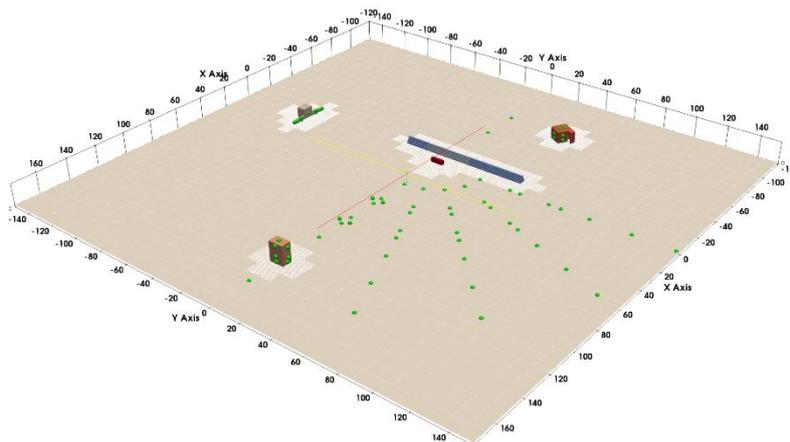


Figure 1: Simulation model of the SHIELD test, showing the charge, the HESCO wall, selected structures and positions of evaluated gauges.