

## **OURANOS CODE: SHOCK AND BLAST EFFECTS STUDIES CAPABILITY**

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We validate the use of the OURANOS hydrodynamic code for the study of shock and blast effects.

For this purpose we realize two virtual experimentations representative of the domain : the diffraction of a shock wave around a fixed rectangular cross section target and the detonation of an explosive sphere inside a parallelepipedic room.

Reference data are obtained from two types of experiments realized at Centre d'Etudes de Gramat, the first one in the ZEPHIRE laboratory shock tube, the second one on the VESUVE facility.

The comparisons between experiments and simulations lead to pressure-time histories obtained from experimental sensors or from numerical measurements points.

### Introduction

The contribution of numerical simulations to the understanding of the mechanisms gives today to the numerical tool a main role for the future's preparation in the field of structures vulnerability against conventional weapons. That is the reason why CEG has used for many years numerical simulations in complement of detonics experimentations. We validate the use of the OURANOS hydrodynamic code for the study of shock and blast effects [1].

For this purpose we realize two virtual experimentations representative of the domain : the diffraction of a blast shock wave around a fixed rectangular cross section target and the detonation of an explosive sphere inside a parallelepipedic room.

Two types of experiments have been realized at CEG to get the reference data, the first one in the shock tube ZEPHIRE laboratory, the second one on the VESUVE facility.

We compare the results obtained from the OURANOS code with those given by experiments and the SHARC code, reference code in the domain.