

## SWELL ANALYSIS IN PUNTA LANGOSTEIRA

### HPC-Competence Center

Galician Supercomputing Center (CESGA) is a public HPC Center; bringing HPC, High bandwidth communications, storage, and advanced services to the Galician research community, Galician university academic system, the Spanish National Research Council (CSIC) and industry, particularly small and medium enterprises (SMEs). It aims to contribute to the advancement of science and technology, through research and application of HPC and other information technology resources for the benefit of society as a whole.



### Enterprise

Established in 1998 INCAT (an engineering services SME in NW Spain) with ~5 employees dedicated to consulting, engineering, design and constructing in sectors such as logistics engineering, marine engineering, land use and architecture. Facing the challenge of being able to predict the action of the sea over a 3.200 meter long seawall, and to establish a system able to predict seawall overcoming based on weather forecasting, ensuring safety for personnel and machinery. This job had to be accomplished under a tight schedule. Results had to be turned in less than a month.

### How HPC makes the difference

INCAT estimated the time to accomplish all needed simulation with its own resources in one year, and with not a very good precision because the medium resolution of the finite element grid. They needed additional computational resources to perform the job.

So they contacted CESGA, CESGA provided HPC infrastructure and team expertise in order to run up to 16 different simulations in parallel, and with a better precision because of the higher resolution in the finite element grid.

INCAT 's CEO, Rafael Suárez claims that without CESGA's HPC infrastructure and expertise it would be impossible to successfully tackle the problem in the time allotted and with results so close to real life.



*Fig: The 3.200 meter long seawall*

