

MODELLING & SIMULATION

MISSION IN BRIEF

Modelling & Simulation (M&S) is a critical technology for NATO and the Nations with applications to defence, homeland security and economics. Computer models are able to mime behaviours of existing real world systems, or hypothetical future systems. M&S enables experiments in a virtual environment with the potential to increase understanding and performance. New concepts can be explored and new technologies tested in these virtual environments. CMRE (Centre for Maritime Research and Experimentation) is currently expanding its M&S capabilities to address the needs of the Alliance and Nations over an extended maritime framework involving multidimensional domains: underwater, sea surface, air, littoral, space and cyberspace.

OVERVIEW

M&S has strategic relevance in several areas such as R&D (Research and Development), training, decision support, operational planning and operative support. CMRE has been active for many years in modelling the maritime environment and is currently developing M&S as a strategic asset to support a number of R&D initiatives as well as to provide services, tools, models and simulators as part of an extended maritime framework.

In fact, the maritime environment is a good example of strategic context where M&S can make an impact. Intelligent agents and interoperability simulation standards, rapid evolution of mobile technologies, cloud solutions, and synthetic environments for virtual and augmented reality are the key capabilities that make M&S effective across a broad sector of applications.

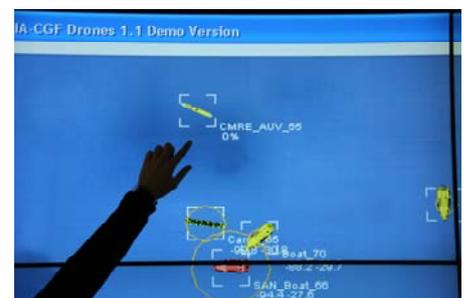
CMRE is developing a new interoperable simulation environment for federating different models and simulators. This simulation environment will support capability assessments and standardization across the extended maritime domain.

In addition, the Centre is active in the creation of a new generation of simulators, able to operate over mobile platforms, for innovative training and education. CMRE is currently developing a web-based multi-player serious game for addressing DAT (Defence Against Terrorism). While the serious game is an opportunity to reproduce relevant scenarios, it will also be a working framework for collecting and evaluating the expertise and analysis conducted in this area.

CMRE's goal is to meet the latest M&S standards (e.g. the high-level architecture) to pursue interoperability among computer simulations and real equipment. As a result of these activities CMRE is currently actively collaborating in effective networks with leading entities in the simulation community.

CONTACT

CMRE Public Affairs Office: pao@cmre.nato.int



Top: CMRE is conducting research on using mobile platforms for education, training and crowdsourcing within the maritime domain.

Bottom: In an interoperable simulation, autonomous systems collaborate and compete over a complex joint mission environment within the extended maritime framework.