

Title: **Qualifications of a SIMOPS Management Tool**

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Abstract

This paper describes a new decision making tool for Simultaneous Operations (SIMOPS). The enabling technology for this tools and results from a full-scale Qualification program run during the summer of 2011 are presented.

In the context of this paper, SIMOPS are addressed from the perspective of the need for precise positioning and maneuvering of vessels. This is very challenging since large vessels are operating in near vicinity of each other. Distribution and visualization of relevant information in a multi-vessel scenario is also very important.

In this perspective, several conceptual elements are described, such as: SIMOPS Safest Mode of Operation (green, blue, yellow, red states), Responsibility Areas, Standby Areas, Safety Zones, Proximity Zones, Escape Sectors and No-Go Zones. The role of these elements in SIMOPS navigation is elaborated.

A main target for the SIMOPS Management Tool is to provide a <1m, steel-to-steel distance accuracy between any vessel with SIMOPS equipment onboard. The key technology elements to achieve this are relative GNSS, precise motion monitoring, utilization of AIS, utilization of 3D vessel models and a novel Maritime Broadband Radio. These technology elements, or building blocks, are integrated to provide a SIMOPS Management Tool.

Results from several months of operation of the SIMOPS Management Tool in the Gulf of Mexico during the summer of 2011 have verified that the technology elements and the integration of these have been successful. This has been verified both through analyzing logged data and following the operation remotely via a real-time, encrypted Internet connection.

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