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NLW Deployment in a Naval Scenario

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Maritime surface surveillance supports different types of operations, such as embargo operations, counterdrug operations, fishing inspections, and surface warfare. Its aim is to establish and maintain a recognised surface picture. SURPASS (acronym for ‘SURface Picture ASSEssment’) is a computer simulation model that describes the process of maritime surface surveillance in a sea area with several types of shipping.

On behalf of a Dutch national project on the use of Non-Lethal Weapons (NLW) in a naval scenario, the deployment of a High Power Microwaves (HPM) shell was implemented in SURPASS. Such a shell can be fired in the direction of a suspicious ship, so that functions like motor management, navigation, communication, etc. may fail, after which the ship can be seized. SURPASS enables analysing the effectiveness of the deployment of an HPM shell against for example a drug transporting powerboat that does not respond to communication like Identification Friend or Foe (IFF). Besides this, insight can be gained into the amount of risk run by the other shipping (the so-called ‘collateral damage’). Possible future extensions to SURPASS are deployment tactics improvements and deployment of other NLW, such as jammers (HPM transmitters), nets, noise, and laser.

This presentation addresses the possible consequences of NLW deployment against a suspicious powerboat that does not respond to IFF. With SURPASS, sensitivity analyses were carried out on a so-called base case scenario to assess the dependence of the effects of NLW deployment on variations of several input parameters (such as necessity of course and speed for NLW deployment, launch ranges, damage level ranges, powerboat speed, shell speed, launch error, sensor capabilities, required minimum recognition level for NLW deployment, and area size). In the base case scenario, surveillance is carried out by a frigate with or without an embarked helicopter in a sea area with several types of ships (among which the powerboat). After detection of the powerboat (by either the frigate or the helicopter), an HPM shell may be launched in its direction. Only the frigate is capable of launching.

Keywords:

Maritime surface surveillance, SURPASS, HPM, collateral damage