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Smoke on The Horizon

Authors: Frank E. Montgomery; Gary L. Broxton; NAVAL SURFACE WARFARE CENTER CRANE DIV IN

Abstract: The U.S. Navy has not operationally deployed obscurant smoke to hide capital ships from being targeted by enemy gunners for many years. One serious drawback to the use of a smoke cloud to cover a ship is that the obscured ship also cannot accurately target the enemy. However with the sensors and guidance systems of today's anti-ship missiles, the older obscurant clouds represented by fog oil type smoke pots will not be effective to mask a ship from many advanced sensors. With the use of new additives and/or new compositions, missiles' sensors can be blocked from achieving lock onto targets. Smoke deployment of the obscurant where the cloud passes over the ship is not advisable due to the effects on ship sensors, gun/missile defensive systems as well as toxic effects of the smoke cloud on ship's personnel. Smoke on the horizon will place the obscurant cloud at a distance between the ship and the threatening missile. With the advent of the Navy's cooperative engagement capability (CEC), multiple ship and air sensors' data are distributed throughout a battle fleet by a discrete data link. Engagements are moving from a platform centered logic to a network centered logic. A single ship now has sensor eyes both from its own onboard systems in addition to other sensors from other units of the battle group both in the air and on the surface. Threat data can be automatically integrated and implemented to either spoof the threat or destroy it based on a preset computational decision process. Threat speed, angle of arrival (AOA), time of arrival (TOA), and the situational awareness (SA) of the fleet units positions, speed and direction will be known as the threat data from multiple sensors are integrated. Decision processes will automatically take the most appropriate defensive actions based on continuous updates of the threat's position and heading direction. Smoke will be one component of a two component countermeasure system.

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