TARGETBUILDER: BUILDING EO TARGETS FOR DESIGN STUDIES AND SIGNATURE MANAGEMENT

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Abstract

For all design studies of military platforms there is a need for modeling 3-dimensional (3D) physical targets. Nowadays the geometry of 3D objects can be quickly generated thanks to a number of commercial CAD (computer aided design) software packages. Nevertheless, the coupling between the physical shape and physical properties (such as reflectance) of the target is still required for an evaluation of the target thermal signature. A signature code coupled to such models allows the calculation of the heat balance of a target in a given (modeled) environment, thus predicting its vulnerability to detection under various operational conditions.

TargetBuilder is a program with an intuitive graphical user interface (GUI) that allows the user to build a target 3D geometry in a few steps using construction algorithms. It also takes into account EO physical properties related to target material, insulation, and coating. As a result, the user generates a target model that can be used by thermal signature calculation codes. Combined with the Electro-Optical Signature Model (EOSM), a thermal signature model developed at TNO, TargetBuilder can be used for design studies as well as thermal signature management.

The EOSTAR (Electro-Optical Signal Transmission and Ranging) model suite (www.tno.nl/eostar) is a software package that assesses the propagation environment in the maritime domain. It is developed at TNO (The Hague) in cooperation with SPAWAR Systems Center – San Diego. EOSTAR will utilize the targets built by TargetBuilder and provide, for example, coverage diagrams. Currently TargetBuilder is being developed for the design of ships, and subsequent efforts will produce airborne targets.

This presentation will concentrate on the salient features of TargetBuilder.

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