

Terrain Referenced Navigation System : Influence of the Fractal Dimension of a Terrain on the System Accuracy ?

Type de contenu : Texte

Titre(s) : Terrain Referenced Navigation System : Influence of the Fractal Dimension of a Terrain on the System Accuracy ? : Mémoire de fin d'étude - Acoustique sous-marine

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Editeur, producteur : Lanvéoc-Poulmic : Ecole navale, 2007

Description matérielle : 45 p.

: 30 cm

: figures

: tableaux

Note de thèses et écrits académiques : Netherlands Defence Academy

Résumé ou extrait : This project aims to stress a way of characterizing the shape of underwater terrains for the use of a Terrain Referenced Navigation (TRN) system. It deals with a system of underwater navigation using the seabed to know its position zeroing out Inertial Navigation System (INS) drift. In the various simulations studied, terrains are created with a fractal terrain generator program, that is why the fractal dimension of terrains is tested as a parameter to characterize the shape of a terrain. Indeed, the fractal dimension gives an idea of the roughness or the smoothness of a terrain. So the goal of all the simulations in this document is, using a Terrain Referenced Navigation algorithm and an algorithm calculating fractal dimension, to enhance a possible relation between the accuracy of the position given by the TRN system and the fractal dimension of the terrain above which the underwater platform navigates.

Sujet(s) : box counting
fractal terrain