Abstracts

Application of Radar Technology to Aerial LIDAR Systems for Enhancement of Shallow Underwater Target Detection

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Since microwaves do not penetrate water, RADAR, the principal tool for remote sensing of the earth and atmosphere, cannot be used directly for the detection of underwater objects. Currently, aerial light detecting and ranging (LIDAR) systems are therefore preferred for the detection and ranging of objects submerged in the sea. LIDAR provides for large area coverage at high speed, but it lacks coherent detection capability, a short-coming that severely limits system sensitivity and underwater target contrast. In response to this problem, this paper details the merging of RADAR and LIDAR technologies in the constitution of a hybrid LIDAR-RADAR detection scheme. This new sensor configuration has reduced incoherent backscatter clutter by 17 dB in laboratory experiments and related computer simulations.

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