

Interaction Between an Underwater Explosion (UNDEX) and a Vessel Wake

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Problem Statement:

The length and width of the bubbly wake behind the vessel depend mainly on its shape and the propeller speed. Such wakes can easily be detected and tracked by wake homing torpedoes because of the wake bubbles' large acoustic cross-section. A strong, shallow underwater explosion could disrupt the bubbly wake and confuse the torpedo.

Technical Approach:

The approach used was to calculate the interaction between the UNDEX and the bubbly wake in a 2D configuration using an Euler solver to compute the shock and fluid dynamics.

Benefit:

The efficiency of this method was investigated numerically. It shows that a large load is needed to disrupt the wake significantly.

