

Fundamentals of shallow water acoustics

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Abstrak

Shallow water acoustics (SWA), the study of how low and medium frequency sound propagates and scatters on the continental shelves of the world's oceans, has both technical interest and a large number of practical applications. Technically, shallow water poses an interesting medium for the study of acoustic scattering, inverse theory, and propagation physics in a complicated oceanic waveguide. Practically, shallow water acoustics has interest for geophysical exploration, marine mammal studies, and naval applications. Additionally, one notes the very interdisciplinary nature of shallow water acoustics, including acoustical physics, physical oceanography, marine geology, and marine biology. In this specialized volume the authors, all of whom have extensive at-sea experience in US and Russian research efforts, have tried to summarize the main experimental, theoretical, and computational results in shallow water acoustics, with an emphasis on providing physical insight into the topics presented.