

P6317 Ocean Acoustics (Winter 2022)

Outline

Text: Acoustical Oceanography, Medwin and Clay

- Background
 - ocean environment
 - sound propagation
- Basic Equations
 - wave equation
 - approximations
 - linear theory
 - sonar equation
 - ray tracing
 - wave guides
- Applications
 - echosounding systems
 - propagation systems (scintillation, ocean thermometry)
 - hydroacoustics
 - Doppler sonar
- Instrumentation
 - transducers and hydrophones
 - practical design considerations

Useful Reference Texts:

- 1 Clay and Medwin (1977 and 1998): Acoustical Oceanography.
- 2 Officer (1957): Introduction to the theory of sound transmission.
- 3 Burdic (1991 and 1984): Underwater Acoustic System Analysis.
- 4 Urick (1975): Principles of Underwater Sound.
- 5 Pierce (1981): Acoustics; An Introduction to its Physical Principles and Applications.
- 6 MacLennan and Simmonds (1993) Fisheries Acoustics
- 7 Jensen et al. (2011): Computational Ocean Acoustics: 2nd edition.