Effective under-water communication systems require detailed study of acoustic wave propagation in ocean. The preamplifier parameter tuning techniques for the under-water communication systems have been greatly affected by the recent information available on the respective area. Many investigators have studied the absorption of acoustic waves in ocean water and formulated empirical equations, however no one has made an attempt to offer the simulation model for the under-water acoustic propagation. This paper reports the comparative study of acoustic wave absorption carried out by means of modeling in MATLAB. The results of simulation have been compared with the practically measured values in the Arabian Sea near Goa and Atlantic Ocean. The model has been used to determine sound absorption for given values of depth (D), salinity (S), temperature (T), pH, and acoustic wave transmitter frequency (f). From the results a correction factor for faithful reception has been evaluated. Using the
correction factor, magnitude of the received signal has been corrected.

Reference


Index Terms

Computer Science Communications

Key words

Sound absorption simulation model Salinity
Temperature
Modeling of Acoustic Wave Absorption in Ocean

Pressure

Sound Speed

Depth

Frequency

Mathematical formulae