

Ice Draft Calculations

Sea level η is derived from the relationship

$$\eta = \left(\frac{P_{\text{btm}} - P_{\text{atm}}}{\rho g} \right) - \Delta D$$

Where

ΔD is the vertical spacing between the pressure sensor and the range (acoustic transducer) sensor,

ρ is the density of sea water,

g is the local acceleration due to gravity.

Ice draft (d) is computed as

$$d = \eta - \beta \cdot r \cdot \cos\theta$$

Where

β is the calibration factor for sound speed *

θ is the tilt angle.

* calibration factor for the actual mean sound speed relative to the initially assumed sound speed used in decoding the raw range data.

Reference: R. Birch, D. Fissel, H. Melling, K. Vaudrey, K. Schaudt, J. Heideman and W. Lamb, 1999. Ice Profiling Sonar. Sea Technology 1999 issue, 35 - 41.

