Github: WindCalibrate

Matlab code is presented to allow calibration of undersea hydrophones using wind noise. Data on wind speed at 10 m elevation is obtained from a global wind model (e.g. CCMPv2) and compared to undersea ambient noise data. For the band of frequencies that have high correlation between wind speed and average noise levels, it is possible to calibrate the hydrophone transfer function, based on the WindNoise model of Hildebrand et al. 2021 (also available as Github: WindNoise).

The first step uses WindTimeSeries.m to calculate an hourly time series of wind speed at the measurement site. The noise data are obtained from LTSA (Long-Term Spectral Averages) of the acoustic timeseries, calculated as hourly averages. One approach for calculating these is by use of the program Triton (available on Github).

These codes were developed and are maintained by members of the Scripps Whale Acoustics Laboratory – at the Scripps Institution of Oceanography of UC San Diego.