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**Determination of seabed scattering law from long range
reverberation**

Christopher Harrison

NATO Undersea Research Centre, Viale San Bartolomeo 400, 19138 La Spezia, Italy

Reverberation degrades sonar performance, and often the dominant cause in shallow water is scattering from the seabed. Usually scattering is weaker at low angles than at high whereas, in contrast, sound propagates better at low angles than at high. This, in turn, affects the range-dependence of signal-to-reverberation which influences the choice of source level. A better understanding of this scattering angle dependence (or scattering law) offers the potential of improved discrimination of targets against this reverberation background. This paper will discuss an experimental technique for deducing the scattering angle dependence and backscattering strength from long range reverberation (out to 25 km) measured on a vertical line array (VLA). Well-sampled near simultaneous angle-dependent propagation measurements out to comparable ranges are used to separate the propagation effects without the need for any modelling. Applying the technique to the Malta Plateau (during BOUNDARY2003 and BOUNDARY2004), firstly the method appears to work, and secondly it suggests that the scattering law is close to Lambert when the seabed is flat.