ACOUSTICS2008/551
Examples of high frequency variability in underwater acoustic systems

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Invited paper for the structured (special) session UW09 High Frequency Variability
In this paper we will look at examples of high frequency variability encountered by the author during the
design and implementation of underwater acoustic systems over the last 20 years. These systems include those
for radiated noise measurements, short baseline tracking, tomographic correction of numerical ocean models,
marine mammal detection, and diver detection. The examples will highlight the different physical sources
of variability and their effects on system performance. Methods used for mitigating the effects both in the
physical design of the sensor system and in the signal processing will also be discussed.
Pacs Numbers 43.30.Pc, 43.30.Rc, 43.30.Sf, 43.30Vh