Title: **The Years of Experience from Acoustic Aided Inertial**

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Abstract

This paper focuses on the experiences gained from Kongsberg Maritime's 10 years of using acoustic aided inertial navigation (INS) for DP reference on different types of vessels. Acoustic and inertial systems are in general a perfect match, in that we manage to get the best of both worlds; the no drift of the acoustics and the low noise of the inertial.

Issues regarding the integration into DP will be discussed: the importance of acoustic/INS being independent of GNSS, the different failure modes of the INS compared to the acoustic positioning, and how to avoid common failure modes between INS and its aiding source in the DP interface.

The paper covers the advantages and problems discovered over the years. INS has provided higher DP weighting, more robust positioning, a stable reference at greater depths, and requirement for fewer transponders.

The paper also discusses how to operate the INS. The last ten years have also given a few problems in for instance export regulations and acoustic issues. The INS has on some installations revealed problems in the acoustic positioning normally hidden by acoustic measurement noise.

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