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Aria of the Dutch North Sea

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Propositions belonging to the thesis (Aria of the Dutch North Sea) by H.Özkan Sertlek

- 1) Accurate estimates of depth-dependent sound propagation in shallow water can be obtained without complex propagation algorithms (this thesis, Chapter 2.3).
- 2) The anthropogenic sound levels close to the sea surface are often less than that at greater depths because of the surface decoupling effect at low frequencies (this thesis, Chapter 4.1).
- 3) Underwater explosions make a large sound energy contribution to the soundscape of the Dutch North Sea (this thesis, Chapter 3.4).
- 4) The underwater soundscape in the North Sea is dominated by wind at high frequencies (this thesis, Chapter 3.4).
- 5) Visualization of equations by sound maps is a strong communication tool in multidisciplinary collaborations.
- 6) The harmonization of problem-specific metrics provides a better understanding between researchers from different research disciplines
- 7) Deriving mathematical equations for the solution of physical problems makes their implementation and understanding easy although these solutions can require some assumptions and approximations.
- 8) Analytical solutions through derivations can take a long time, but they can help to minimize errors in implementation and still provide faster solutions than their numerical alternatives.
- 9) Choosing ways to solve a scientific problem is similar to choosing a particular type and style of mug to drink coffee.