



Modal propagation models as potential benchmarks for infrasound propagation algorithms

Roger Waxler (1), Jelle Assink (2), Doru Velea (3), and Douglas Drob (4)

(1) NCPA, The University of Mississippi, University, MS, United States (rwax@olemiss.edu), (2) CEA/DAM/DIF/DASE, France (jelle.assink@gmail.com), (3) Science Applications International Corp., Reston, VA, United States (doru.velea@saic.com), (4) Navy Research Laboratories, Washington DC, United States (douglas.drob@nrl.navy.mil)

Propagation models built on eigenfunction expansions (modes) are, for long range propagation, numerical implementations of an exact solution. As such they are good candidates for benchmark codes. A suite of planar modal models have been developed: an effective sound speed model, a high Mach number high angle model, perturbative and full attenuation models, range dependent models and 2-way propagation models. These will be presented and their limitations discussed. Time domain simulations produced by Fourier superposition will be presented. Some benchmark cases are presented and the results of tests against other models, such as the PE, are discussed.