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Scholte wave models to determine S-velocities

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Abstract: The construction of S-velocity models of marine sediments down to 100m or more beneath the sea floor is important in a number of disciplines. One of the most significant trends in marine geophysics is to use interface waves to estimate shallow shear velocities which play an important role in determining the shallow crustal structure. In marine settings, the waves trapped near the fluid-solid interface are called Scholte waves, and this is the subject of the study.

In 1998, there were experiments on Ninetyeast Ridge (Central Indian Ocean) to study the shallow seismic structure at the drilled site. The data were acquired by both OBS (Ocean bottom seismograph) and OBH(Ocean bottom hydrophone). For OBS profiles with body and Scholte waves excited by seafloor implosion source, only body waves have been analyzed so far .

In this work, the Scholte waves are studied from real data. Shear wave velocities are inferred from the data. Comparisons are made between the observed and theoretical group velocity curves as well as the observed and synthetic seismograms.