

## 59. Three-dimensional acoustic radiation from directional cracks in fluid-loaded plate based on Global Matrix Method

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The formation of crack in elastic media such as fluid-load plate generates elastic waves in a radiation pattern being dependent on the actual fracture process and the stratification of medium. In case of horizontal stratification, this phenomenon can be idealized and mathematically modeled describing the directionality of the acoustic emission produced by compact cracks in such an environment.

The object of the research has been to develop an analytical and numerical model of the elastic wave field in range independent elastic environments for various seismic source mechanisms. The source types being considered are dip slip, strike slip and tensile crack. First, the compact source representations with fault surface in an arbitrary direction will be derived, and incorporated in a numerical model for propagation in stratified elastic media to yield the seismo-acoustic field produced by more complete cracking mechanisms.

The developed model is applied to the acoustic radiation from three directional crack in fluid-load plate. The developed model can be applied to the source inversion problem, i. e. the characterization from acoustic emission with the purpose of obtaining a better understanding of the ocean structure of self noise in fluid-load plate.

