



THE LOCAL HARMONIC DECOMPOSITION: A TOOL FOR EXTRACTING ANGLE INFORMATION FROM WAVEFIELDS (MonPmOR12)



★ **Author(s) :** Robert Soubaras (Compagnie Générale de Géophysique, France)

★ **Abstract :** This paper describes the local harmonic decomposition: it is an efficient algorithm which can be used to extract angle information from a wavefield. It is then shown that this algorithm can be used in the context of geophysical processing to produce reflection angle gathers during a shot-record migration. Shot-record wave-equation migration is a very accurate method for imaging geophysical data in complex propagation velocity media. However, producing one output image of the acoustic reflectors is not enough, multiple images where each image corresponds to a certain reflection angle with respect with the local dip of the reflector allows more information to be gained about this reflector. This angle information can also be used to check the validity of the velocity model used during the propagation. Tests performed on synthetic geophysical data proves the ability of the local harmonic decomposition to sort the reflected energy according to local reflection angle.