Seismic data regularization for WATS data

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SUMMARY

The seismic data regularization, which maps the acquired irregularly sampled seismic traces to a regular grid, is an important processing for preparing the data for regular sampling based algorithm, such as wave equation migration, 3D SRME etc. The wide azimuth seismic data generally contains the shooting locations covering a patch over a 2D surface and the geophone locations as well. Combining with the recording time, the seismic data is fully represented in a five dimensional coordinate. Conventional data regularization scheme splits the five dimension problem in to two pass three dimensional procedures. The interpolation algorithm in higher dimension generally gives better chance to fill the acquisition holes. In this paper, we generalized the anti-leakage Fourier Transform algorithm to five dimensions, which regularizes the seismic data in one pass. The initial tests on Gulf of Mexico data demonstrate promising results.