

Several Papers report well results using Duplex Wave Migration (DWM)

Several major oil companies have completed and published extensive studies that compared the accuracy and effectiveness of DWM technology to other currently available fracture detection methods that have illustrated the superior performance of this new technology. In some cases a direct and predictable relationship was proven to exist between the amplitudes observed on the DWM data cubes and the production rates (permeability) at the historic and recently drilled well bore locations. Those results confirm that Duplex Wave Migration is:

- ✓ ... a proven technology and the most precise method in *obtaining direct images of sub-vertical boundaries including fracture zones, faults, the walls of salt domes, etc.*
- ✓ Capable of *direct measurement of relative lateral heterogeneity (change in acoustic impedance)*
- ✓ Kirchhoff implementation *allows application on any land irregular geometry*
- ✓ Permitting to *focus on specific sub-vertical faults or fracture*
- ✓ Identifying of plays with *zero throw faulting*
- ✓ Determining *reservoir plumbing*
- ✓ Providing evidence of potentially highly productive reservoirs and significantly reduces the risk associated with drilling.

Lukoil drilling results: The well log results at right are from a 400 meter long section of a horizontal well. Three major fracture systems we encountered in otherwise tight limestone – all three were predicted within 25 meters of lateral accuracy.

