

## **STRUCTURAL STYLES AND FOCAL MECHANISM STUDIES IN THE KOHAT AREA**

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The structural traps have always been the prime targets in hydrocarbon hunt. More than 95% discovered pools so far in Pakistan are structural traps. Various techniques have been applied to identify these structural traps but none of the previous workers have used the field of earthquake seismology in the identification of these structural traps and determination of their nature and trend. In the present work we have for the first time tried to identify the surface/subsurface structural pattern with the help of focal mechanism studies- a technique that is widely known for interpreting structural traps at depth, for the study area. In future this technique can be used as integration with other geophysical methods.

As a first step, we compiled a seismicity map using the earthquake data of various international as well as the local seismic networks for the time span of 1904-2002. This seismicity map shows that the area is seismically less active as compared to the adjacent area of Potwar Plateau. Only prominent pattern of seismicity has been observed in the central Kohat whereas in the rest of the area the earthquakes seem to be scattered. A total of five earthquakes, including the 20th May 1992 devastating earthquake of 6.0 mb have been investigated. Four out of five focal mechanisms solutions (FMS) are left lateral strike slip whereas only one shows the reverse faulting, which confirms the presence of wrench faulting in the subsurface indicated by various workers. The present work suggests the presence of flower structures (thick-skinned tectonics) and involvement of basement in the deformation process.