

**STRESS ANALYSIS AND NUMERICAL VALUES OF MOMENT TENSOR SOLUTION
TO DRAW FOCAL MECHANISM FOR THE SIGNIFICANT EARTHQUAKES
($M_w > 6.0$) IN PAKISTAN**

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Abstract

A focal mechanism solution – result of the analysis of the wave form generated from an earthquake and recorded at seismological observatories – is an important tool to describe earthquake event, tectonic forces and the movement along the fault plane due to this event. Most specifically the fault geometrically is represented by the beach ball solution or focal mechanism. Fault plan solution is a powerful technique to show the stress orientation in the lithosphere and stress moment tensor values. In Pakistan, Northern area is seismically highly active due to ongoing collision of two crustal plates whereas the whole country is situated on active seismic belt and large-scale magnitude earthquake have been come. For this purpose an earthquake catalogue namely earthquake catalogue self-generated (ECSG) for magnitude $M_w > 6.0$ up to 300 km depth for the period Jan 1976 to December 2017 is generated. The stress map of Pakistan has generated through the CASMO stress model shows the stress analysis. Stress analysis and numerical values of moment tensor are analyzed for major earthquakes of Pakistan to understand the stress phenomenon and associated deformation. Matlab codes are generated to compute the fault parameters of nodal plane 2 or the auxiliary plane. Based on these results fault plane solutions have drawn to show the geometrical representation of fault on the earth. In this work using ECSG 14 number of earthquakes of $M_w > 6.0$ have utilized for the determination of the beach ball phenomena and values of the moment tensor for Pakistan region. These moment tensor values interpret the seismic source process to identify the earthquake source geometry.