

Analysis of Fracture Characteristic against Shape of Borehole Breakout

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In general, when fault is formed, the damage zone where includes many fractures will also be formed. Therefore, in previous research, it is known that stress field is disturbed by soft layer which is in fault zone. Thus, we consider that we can identify fractures derived from fault and its scale, shape, and other characteristics with comparing stress state and fracture distribution. Further, I think we can reveal which fracture affects the stress state. Then, I analyze the relationship between dip direction and strike azimuth of fractures and borehole breakout (BO). BO is the failure of borehole caused by stress concentration and it occur two positions separated 180 degree.

I classified the fractures into three patterns by near BOs shape. 1 BO direction is rotating. 2 BOs interval is not 180 degree. 3 No influence against BO shape.

Finally, I found the dip angle of fracture of pattern 2 is little higher than others. But, both dip angle and strike azimuth fractures of 3 distribute all around. So there are other factors affect BO shape. And around damage zone, I estimated from well data, amount of fractures of pattern 2 is much more other areas. I predict that is because the stress is released along fracture, especially near the fault from previous research result.

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