

Induced Seismicity and Casing Deformation Caused by Hydraulic Fracturing: An Overview in Sichuan Basin, Southwest China

*F. Zhang*¹

¹*Department of Geotechnical Engineering, Tongji University, Shanghai, China*

The Silurian Longmaxi shale formation is a widely distributed unconventional reservoir in the Sichuan Basin of southwest China. The thick clay rich shale has high organic content, is thermally mature and is a major target for China's shale gas production. Due to the complex geological conditions, in recent years the shale has become the host to an increasing number of induced earthquakes potentially linked to fluid injection related to hydraulic fracturing. These induced or triggered events are linked to the reactivation of faults and cause severe casing deformation. This talk will give an overview of induced seismicity and casing deformation caused by hydraulic fracturing in Sichuan basin, both technically and socially.

References

- [1] Zhang, F., M. An, L. Zhang, Y. Fang and D. Elsworth. "The Role of Mineral Composition on the Frictional and Stability Properties of Powdered Reservoir Rocks", *Journal of Geophysical Research-Solid Earth*, 124, 1-18, 2019.
- [2] Zhang, F., B. Damjanac, and S. Maxwell. "Investigating Hydraulic Fracturing Complexity in Naturally Fractured Rock Masses Using Fully Coupled Multiscale Numerical Modeling", *Rock Mechanics and Rock Engineering*, in print, 2019.