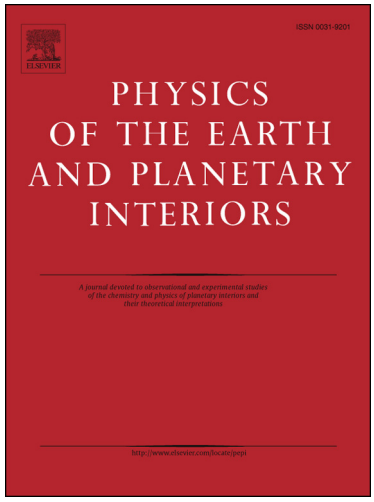

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Characterizations of Geothermal Springs along the Moxi Deep Fault in the Western Sichuan Plateau, China

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ABSTRACT**:** Abundant geothermal springs occur along the Moxi fault located in western Sichuan Province (the eastern edge of the Qinghai-Tibet plateau), highlighted by geothermal water outflow with an unusually high temperature of 218°C at 21.5 MPa from a 2010-m borehole in Laoyulin, Kangding. Earthquake activity occurs relatively more frequently in the region and is considered to be related to the strong hydrothermal activity. Geothermal waters hosted by a deep fault may provide evidence regarding the deep underground; their aqueous chemistry and isotopic information can indicate the mechanism of thermal springs. Cyclical variations of geothermal water outflows are thought to work under the effect of solid earth tides and can contribute to understanding conditions and processes in underground geo-environments. This paper studies the origin and variations of the geothermal spring group controlled by the Moxi fault and discusses conditions in the deep ground. Flow variation monitoring of a series of parameters was performed to study the geothermal responses to solid tides. Geothermal reservoir temperatures are evaluated with Na-K-Mg data. The abundant sulfite content, dissolved oxygen (DO) and oxidation-reduction potential (ORP) data are discussed to study the oxidation-reduction states. Strontium isotopes are used to trace the water source. The results demonstrate that geothermal water could flow quickly through the