

Supershear rupture experiments with gels having surface asperities

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Since gel is a soft and transparent elastic material, we can track elementary rupture processes using standard high-speed cameras. Furthermore, we can easily design surface asperities and visualize stress fields. In this study, we conducted stick-slip experiments using gels having surface asperities. As a result, we could observe a wide variety of slip events including uni-lateral/bi-lateral ruptures and ranging from slow slip to supershear. We will discuss statistical properties as well as rupture mechanisms based on the stress visualization.

Keywords: supershear, stick-slip, laboratory experiment, analogue experiment, gel, slow slip