Characteristics of asperity contacts and its time dependency estimated from transmitted P-wave

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From the point of view that an earthquake is a friction on the fault, many studies on frictional behavior have been done, such as the experiments to obtain a constitutive friction law and numerical simulations standing on the constitutive law. In these studies, friction on the interface is treated as rigid motion, but it is necessary to be treated as continuous motion in time and space. In our experiments, the distribution of asperity contacts between samples are estimated with the amplitude of the 16 paths of P-waves transmitting the interface. It is observed that the amplitude of transmitted P-waves increases with time and varies in space. We discuss characteristics of asperity contacts and its relationship with the slip on the interface explaining the obtained data.