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## Release of absolute elastic strain due to the 2011 Tohoku-oki earthquake and its geophysical implication

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The earthquake releases elastic strain accumulated on a fault, but only a part of it is released usually. So, absolute level of stress and strain have been very difficult to estimate, because seismic data only allow us to determine the stress drop of an earthquake. The 2011 Tohoku-oki earthquake appears to have exceptionally released all the accumulated elastic strain, as suggested from very long duration of slip-rate function, extensional aftershocks in a previously compressional stress regime, and so on. The earthquake provides us a precious opportunity to estimate the absolute level of stress and strain. Exceptional weakening of the fault strength seems to be due to some non-linear process, such as thermal pressurization. If so, the nonlinear nature of weakening would make prediction of the next big event very difficult.

Keywords: 2011 Tohoku-oki earthquake, absolute strain, absolute stress, earthquake cycle