Transient Crustal Deformation around Kyushu district

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We investigate the temporal variation of fault slip distribution around Kyushu district with the Network Inversion Filter. We model the GPS time series by the secular deformation, transient deformation, coseismic deformation, benchmark motion, and reference frame correction.

The estimated fault slip rate demonstrates that the slip following the Hyuganada earthquakes propagated toward the deeper region and shallower region, and the slip associated with the STS event at the Bungo channel consists of two successive events. This kind of transient event may be responsible for the strain release instead of large earthquakes.

We investigate the temporal variation of fault slip distribution following the 1996 Hyuganada earthquakes and the Slow Thrust Slip (STS) event at the Bungo channel, using a continuous GPS record. We employed the Network Inversion Filter, originally developed by Segall and Matthews [1997] to infer the fault slip distribution.

We model the GPS time series by the secular deformation, transient deformation, coseismic deformation, benchmark motion, and reference frame correction that may appear in the GPS time series. Transient deformation is expressed by a linear combination of a series of spatial basis functions with time varying coefficients.

The estimated fault slip rate demonstrates that the slip following the series of Hyuganada earthquake propagated toward the deeper region and shallower region, and the slip associated with the STS event at the Bungo channel has a series of two events; the slip started beneath the Cape Ashizuri first, and another slip started at the Bungo channel just after the first STS event.This

kind of transient event may be responsible for the strain release instead of large earthquakes.