



## **Using Near-Field Phases to Constrain the Slip-Rate Function and Rupture Velocity**

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We propose a new method that uses the sensitivity of the near-field phases to the moment accumulation in order to constrain the slip-rate function and rupture velocity. We show the sensitivity of the near-field phases to the moment accumulation, which in turn depends on slip, rupture velocity and slip-rate function. If the slip can be constrained from geodesy, the near-source strong-motion records can be used to retrieve the slip-rate function and rupture velocity. As a case example, we apply this technique to the record of the 2003, Mw6.6 Bam Earthquake. We use a Bayesian approach in order to obtain the average shape of the slip-rate function. Our results indicate an asymmetric slip-rate function, with acceleration duration of about 0.4 s, and deceleration duration of 1.4 s. The rupture velocity is about 82–90 per cent of the shear wave velocity, implying a sub-Rayleigh rupture velocity close to the Rayleigh wave speed.