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Near real-time aftershock hazard maps for earthquakes

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Stress interaction modelling is routinely used to explain the spatial relationships between earthquakes and their aftershocks. On 28 October 2008 a M6.4 earthquake occurred near the Pakistan-Afghanistan border killing several hundred and causing widespread devastation. A second M6.4 event occurred 12 hours later 20km to the south east.

By making some well supported assumptions concerning the source event and the geometry of any likely triggered event it was possible to map those areas most likely to experience further activity. Using Google earth, it would further have been possible to identify particular settlements in the source area which were particularly at risk and to publish their locations globally within about 3 hours of the first earthquake. Such actions could have significantly focused the initial emergency response management. We argue for routine prospective testing of such forecasts and dialogue between social and physical scientists and emergency response professionals around the practical application of these techniques.