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**Advances in the detection of transient seismic activity,  
Special focus of the *Seismological Research Letters* May/June issue**

SAN FRANCISCO -- The growing network of GPS stations has transformed the study of earthquakes, allowing scientists to observe and track very low frequency seismic activity associated with slow slip or “silent earthquakes.” A special collection of papers, published by the *Seismological Research Letters (SRL)*, focuses on new approaches to evaluating the expanding volume of data continuously collected by the GPS networks.

Slow slip earthquakes -- the transient release of strain over a timespan of days to years -- have been observed at subduction zones and other tectonic settings around the world. The transient release of strain may be associated with later, more significant seismic activity. Accurate detection and assessment of transient slip signals may inform the forecast of likely seismic activity.

But slow slip earthquakes are not the only source of low frequency seismic signals. Heavy traffic, weather, hydrological activity and other sources also generate low frequency seismic activity. Correctly detecting transient seismic activity in context poses a current challenge for seismologists.

The GPS network stations, which can accurately detect tiny ground movements that change the Earth’s landscape, can offer near-real time evidence of slow slip activity that seismometers don’t necessarily capture. As the network of GPS stations expands, the volume of data grows, making it necessary to develop automated, systematic search tools to monitor for ground deformation.



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This special *SRL* focus section explores in detail an exercise carried out by Southern California Earthquake Center (SCEC) to use the extremely accurate GPS networks in Southern California to detect transient seismic activity.

Papers in this special section include a description of the method used for generating the synthetic data and presentation of different approaches to the detection process itself.

The articles span a range of topics that includes the generation of synthetic GPS data with realistic noise and transient deformation signals to two very different approaches for identifying transients within a given set of GPS data.

Published by the Seismological Society of America, *SRL* serves as a general forum for informal communication among seismologists and a means for staying current on developments in earthquake seismology.