



## **Characteristic earthquakes at Parkfield, comparing recent and old seismograms**

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Bakun and McEvilly (1997, 1984) compared seismograms from the 1922, 1934 and 1966 Parkfield earthquakes as part of the evidence supporting the hypothesis that they are members of a sequence of characteristic earthquakes. They found similarities in waveforms for regional stations in California (e.g. BRK), but also for teleseismic recordings at station DBN in the Netherlands. In 2004 a new Parkfield event occurred, enabling a further test of the hypothesis. Since 1966 seismological instrumentation changed in terms of sensors and type of recording. We use digital recordings from broadband seismometers for the 2004 event, located at the same station sites, and simulate waveforms that can be compared with the old records. At the regional stations, there are clear differences in the waveforms, which are probably related to the differences in the hypocenter and rupture direction of the 2004 event. At DBN we note, especially for the 1966 event, variations in the amplitudes of different surface wave packets, although their phases seem to match those in the records from the earlier quakes. The 1922, 1934 and 2004 events are comparable in amplitude and phase, supporting the hypothesis of characteristic earthquakes.