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The changes of seismic activity during the acceleration phase of a deep seated mass movement.

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The motion pattern of deep seated mass movements is dominated by episodic creep. In irregular time intervals, the slopes show phases of acceleration which are not always linked to a well defined triggering mechanism. The reasons for the most often following re-stabilization of the slope into a quasi-stationary creep movement also remain as an unanswered question.
At the deep seated mass movement Gradenbach, located in the Austrian Eastern Alps, a seismic monitoring network has been continuously operating since 2007. Geodetic- and meteorological monitoring networks have been existing for even a longer period at this slope. In spring 2009 an acceleration phase of the slope lasting for about 2 months with a total displacement of about 30cm and a maximum velocity of ca. 0.75 cm/day occurred. After this acceleration phase, the slope stabilized to it's typical average creep rate of $\sim$3cm/year.
We present the seismic characteristics which we observed during the acceleration phase itself and also during the important periods before and after the acceleration phase. We have recorded an increased seismic activity correlating well with the displacement of the slope. We discuss these changes of seismic activity and their potential use as an additional parameter for slope failure prediction.