Solid Earth Discuss., 3, C186–C187, 2011
www.solid-earth-discuss.net/3/C186/2011/

Solid Earth Discussions

Interactive comment on "Electromagnetic signals of crust creep motion" *by* V. N. Uvarov et al.

Anonymous Referee #2

Received and published: 26 May 2011

The manuscript presents a methodology to acquire seismoelectric signals and an application. The seismoelectric method was first described in 1936 by Thompson (first volume of Geophysics), and there have been several publications showing seismoelectric signals, but the method is limited by the lack of well-established experimental methods. To date there is one unique published manuscript in which it is presented a seismoelectric image of subsurface interfaces along with a theoretical modeling (Thompson and Gist, 1993). The present manuscript only shows some signal detected by a new methodology developed by the authors, who claim that its origin is caused by crustal creep.

The paper is written in very poor English and is difficult to follow and understand. There are missing references. Figures have no scale or labels, not even units.

It still remains unclear to me that the signals that the authors detect are caused by

crustal creep. Their arguments are not solid as they should in a scientific publication. They only claim that the most probable source is of Lithospheric origin, but there is no dicussion in which they present a solid proof of their claim.

The authors keep talking about the Lithosphere as if their work could be used to detect signals at a Lithospheric scale, when the case is that they can only measure signals located within a short distance (not indication in the manuscript of it) from the measuring antenna. This is also clear from the frequency range used (20 Hz-20 kHz) with associated skin depths from cm to a few hundreds of meters.

Further, the origin of those signals are attributed to crustal creep but there is no reasoning for this.

In the methodology section, I would like to see some comments on the effects that one can find using high frequency sampling, like for example, electrode coupling.

There has been recognized four origins for the seismoelectric phenomena (Russell et al. 1997), maybe the authors can try to analyze their findings within this framewor, or add some sort of groundtruthing that can test their findings.

All in all, I find it a very poor manuscript and not recommend its publication in its present form.

Interactive comment on Solid Earth Discuss., 3, 335, 2011.