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Interactive comment on "Features of the Earth surface deformations in Kamchatka peninsula and their relation with geoacoustic emission" *by* I. A. Larionov et al.

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This paper describes observation of the ground deformation in Kamchatka peninsula, and discusses relation of acoustic radiation to the deformation and local earthquakes. Although geophysical observations in the seismically active region are significant in understanding the physics of the earth, methods and data presented in this paper are not sufficient to lead to conclusions. Three major difficulties seem to be included in this paper. First one is the response of the laser strainmeter to the environmental parameters, especially air pressure and temperature. Second one is lack of supporting observation, such as deformation observation at other sites near the region along with regional meteorological data including the pressure and the temperature. These data are indispensable to rule out errors originated from the instrument and the local effects.

The last one is lack of statistical analyses. The authors referred to only indicated events, however quantitative significant level should be statistically shown if relations between the acoustic emissions and strain variations are claimed. Because of these serious problems, I think this paper cannot be accepted in the present form. Followings are specific points in question.

Figure 1 shows a setup of the laser interferometer. A light guide is shown in the figure, however in the text it was not used. Without it, the strainmeter will significantly respond to air pressure e$\sim$3x10^{-7}/hPa and produce large error.

The laser frequency has to be highly stabilized because relative frequency uncertainty df/f provides strain error. How much is the stability of the laser. It is crucial to evaluate reliability of the observed data.

The authors claim relations between the observed stain variation, its rate, and the acoustic pressure. Assuming barometric response of the straimeter as mentioned above, the relations may be explained as meteorological origin (wind-induced vibration and pressure change). Therefore, it is necessary to show meteorological data to compile the results.

In figures (4,5,6,etc.), acoustic pressures take only positive value. How were they processed ? In the text, it is only explained as digital filtration. Strangely, in figure 6(a) strain changes only negative sense in accordance with (c) while they could essentially change randomly. I wonder if this is the only case or sometimes occurs.

In figure 11(a), strain change 3.5x10^{-3} occurred for two years. This corresponds to incredibly large displacement, 6.3cm, for 18-m baseline, and may be caused by improper installation of the bases or by accumulation of fringe count errors.

Magnitude-scale (M) may be preferably used rather than energy class K.

Interactive comment on Solid Earth Discuss., 6, 2401, 2014.