

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

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Dear Giovanni P. Gregori,

Thank you for the comments on the results of our paper. During the development of the registration system we consciously tried to cover the maximally possible frequency range of acoustic emission. It is pleasant that you appreciated our approach positively. In our conditions the strongest signals were registered in the range from hundreds of hertz to the first ten of kilohertz. It is possibly associated with the peculiarities of rock structure at the point of registration. We also think that one of the main reasons of emission generation is sedimentary rock compression. Just to testify this idea we carried

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out simultaneous observations of acoustic emission and rock deformation. In the result we established that during the deformations of 10^{-7} (by an order higher than earth tide deformations) we stably record acoustic emission signals. In order to understand the nature of appearance of acoustic emission anomalies before earthquakes, Prof. B.M. Shevtsov with the colleagues modeled the final stage of earthquake preparation applying the models of simple point force and double force without a moment. In the result, they discovered that during earthquake preparation, deformations of the order 10^{-7} may appear at the distance of the first hundreds of kilometers from a preparing epicenter. Of course, the distance much depends on the earthquake energy. But the modeling results explain why we register anomalous signals before earthquakes. They are determined by compression of rocks at large areas around an earthquake epicenter. We hope that the discussion of our paper allowed us to consider our results on acoustic emission and showed that we have common approaches and interpretation of the observed phenomena.

Best regards, Yury V. Marapulets, Igor A. Larionov and Boris M. Shevtsov.

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