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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Man-made earthquakes prevention through monitoring and discharging their causative stress-deformed states" *by* Oleg Kuznetsov et al.

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The authors are deeply grateful to the distinguished reviewer Dr. Attia for the professional and attentive review of our manuscript. We certainly agree with his remark "... in the discussion section the authors should analyze and discuss more deeply the high amount of results presented in previous sections. ") In this regard, we propose adding the section below to of the discussion section. Prevention of man-made earthquakes that occur during the development of oil and gas fields is possible through: 1) obtaining and analyzing information about the 4D-field of MSE energy; 2) locating of zones with anomalously high energy of the MSE; 3) estimating the growth in size and intensity of

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these zones over time; 4) identifying MSE zones prone to earthquakes; and 5) using controlled vibroseismic discharge of foci anomalously stressed state of the geomedium, which is the most likely foci of future earthquakes. Monitoring of the 4D energy field of the MSE, which reflects the process of cracking in the area is possible on the basis of a passive seismic survey using the technology “Seismic location of emission foci” [2, 3, 4]. The discharge of the foci of abnormal stress of the geological unit, identified with the "embryos" of future earthquakes, is possible using standard means of vibroseismic wave action used in seismic exploration. The change in the microcosmic emissions due to the discharge of foci SVSL technology [1, 2]. The presented examples in (Figs. 6 and 7) of the discharge of the source of the stress at Starogroznensky oil field, where earlier in 1971-73 man-made earthquakes occurred, shows the possibility of practical implementation of the idea of preventing man-made earthquakes.

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