

XXV INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS (IUGG) GENERAL ASSEMBLY



International Association of Seismology and Physics of the Earth's Interior, IASPEI (Symposia: Grand Challenges in Natural Hazards Research and Risk Analysis: Earth on the Edge: Special Session – Recent Pacific Rim Disasters)

The Role of Aftershocks in Studying the Global Ecology State Changes

Kerimov, I.G., Scientific Center of Seismology of the Presidium of Azerbaijan National Academy of Sciences, Baku, Azerbaijan Republic; Kerimov, S.I., Seismotech Globe B.V., the Netherlands

The catastrophic earthquakes are often accompanied by intensive aftershocks activity. Analyzing their appearances after Chilean 1960 (M-9.5) and 2010 (M-8.8) earthquakes we came to conclusion that the aftershocks' quantities, intensities and distribution of some territory could be the signs of the earthquakes nature and medium's stressed state level.

The first earthquake was followed during six days by 100 events, the second one - by 210 events, mainly more intensive than in first case and located in much large territory. Whereas that the first earthquake was tens times stronger the relation between aftershocks was disrupted: it should be quite opposite.

This assumption has been studied for catastrophic events of the 20-th century also. And the result is following: from 1900 until 1945 there were practically no aftershocks, then the events were accompanied by a few of them, and after 1960, when UNE were initiated, their quantity highly increased.

The uncontrolled human activities could trigger and intensifier these effects therefore some parameters characterizing induced events have been studied: occurring in low or aseismic areas; disruptions in their recurrences; accelerations the natural rhythms; obvious mismatch between their energy and the depths, especially for catastrophic earthquakes (for example, Haiti 2010 earthquake touching which we consider possible trigger role of earthquakes' on the coast of Northern California and Puerto-Rico).

Sharp disturbances in aftershocks' appearances revealed for Chilean and all catastrophic earthquakes vividly show how much the stressed state of the medium increased or, in other words, how globally ecology worsened in last fifty years.