



GLOBAL DISASTERS: Geodynamics and Society

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The problem of reducing the damage caused by geodynamic and social disasters is a high priority and urgent task facing the humanity. The vivid examples of the earthquake in Japan in March 2011 that generated a new kind of threat – the radiation pollution, and the events in the Arabic world that began in the same year, are dramatic evidences. By the middle of this century, the damage from such disastrous events is supposed to exceed the combined GDP of all countries of the world. The database of 287 large-scale natural and social disasters and global social phenomena that have occurred in the period of II B.C.E. - XXI A.D. was compiled by the authors for the first time. We have proposed the following phenomenological model: the scale of disasters over the time does not decrease, there is a minimum of accidents in the XV century; the numbers of accidents have cycles lasting until the first thousand years, natural and social disasters in the aggregate are uniformly distributed in time, but separately natural and social disasters are nonuniform. Thus, due to the evaluation, a 500-year cycle of catastrophes and 200-300 and 700-800-year periodicities are identified. It is shown that catastrophes are grouped into natural and social types by forming clusters. The hypothesis of the united geo-bio-social planetary process is founded. A fundamentally new feature of this research is the assumptions about the statistical significance of the biosphere and the impact of society on the geodynamic processes. The results allow to formulate a new understanding of global disaster as an event the damage from which the humanity will be unable to liquidate even by means of the total resource potential and the consequence of which may turn into the irreversible destruction of civilization. The correlation between the natural and social phenomena and the possible action mechanism is suggested.