



Natural hazards as pre-conditions for technological disasters in Russian regions

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Two types of natural hazards were found, based on their genesis, distribution in space and time, and impact pattern on the technosphere and society in populated areas. Geological, climatic, hydrological, and other natural hazardous processes belonging to the first type have direct mechanical impacts on communities. Their occurrence in space and time depends on the character of natural process by itself and the specific regional environment. Natural hazard of this type affects technological disasters that are considered as natural-technological or "na-tech" events. These events can result from direct destruction of a certain technical object by a dangerous natural process (such as destruction of an atomic power plant or chemical plant by earthquake, landslide, or other hazard; destruction of communications or infrastructure objects by heavy snowfalls, strong winds, etc.). They can be also the secondary effects of natural disasters, with actual or potential threats to the environment, resulting from the accidental release of oils, chemicals, and other hazardous or polluting substances. Solar and geomagnetic disturbances as well as other global processes belong to the second type. They are not usually considered as natural disasters. These processes have global scale in space and cyclic development in time. They generally influence the technosphere and society through the failure of automatic machinery and the reduction of operator reliability, and so affect technological disasters indirectly. Such influences can increase the probability of transport accidents (aircraft crashes, vehicle, and railway emergencies), fires, and catastrophic toxic emissions. We have created a data base of technological disasters and "na-tech" events for Russian regions in 1990th – 2000th. Using collected data the most important types of disasters for each region were identified and analyzed. This analysis permitted us to assess the relationships between natural hazards and technological disasters on regional level.