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Integrated risk assessment and management with information technology application

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The paper contains the results of a five years' study that was done by Seismological Center of IGE, Russian Academy of Sciences and Extreme Situations Research Center for EMERCOM of Russian Federation in natural and technological risk estimation and mapping.
Methodological recommendations have been developed for estimating and mapping natural hazards levels and risk at local, regional and federal levels.
The special GIS project has been created which contains the information about earthquakes, landslides, mud flows, floods, storms and avalanches as well as information about consequences of these natural hazards and technological accidents occurred during the last 20 years in the Russian Federation. The mathematical models of the special GIS have been used to estimate the level of integrated natural risk for administrative regions of the Russian Federation, as well as for constructing the maps of individual and collective risk zoning for the country territory. The paper also gives examples of loss computations due to earthquakes taking into account accidents trigged by strong events at critical facilities: fire and chemical hazardous facilities, including oil pipe lines routes located in the earthquake prone areas.