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Social Experiments on Extreme Weather Resilient Cities

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In 2010, the Japan Science and Technology Agency (JST) started the new program 'Society System Reform Program toward New Society Corresponding to Climate Change' under the 'Special Coordination Funds for Promoting Science and Technology' of the Ministry of Education, Culture, Sports, Science and Technology (MEXT). The program aims to develop elementary technologies that are required not only for reducing greenhouse gases, but also for the adaptation of new societies to the impact of unavoidable global warming. This paper describes the outline and purpose of 'Social Experiments on Extreme Weather Resilient Cities' project, which is one of four research projects adopted by the JST after their screening of forty proposed projects.

It is recognized that large cities with populations of several million people are inherently vulnerable to severe weather events, such as torrential rainfall, lightning, and tornados. Increased occurrences of torrential rain and giant typhoons, due to global warming, can cause extensive damage to large cities. Thus, the development of extreme weather monitoring and prediction systems is urgent. The present research project aims to understand the processes and mechanisms of extreme weather using a dense meteorological observation network in the Tokyo metropolitan district, to develop an extreme weather monitoring and prediction system, and to implement social experiments on extreme weather resilient cities in collaboration with related government institutions, local governments, private companies, and residents.

Keywords: extreme weather, heavy rainfall, radar, nowcast, social experiments, urban flooding