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 [EE] Evening Poster | H (Human Geosciences) | H-DS Disaster geosciences

## [H-DS08]Natural hazards impacts on the society, economics and technological systems

convener: ELENA PETROVA (Lomonosov Moscow State University, Faculty of Geography), Hajime Matsushima (Research Faculty of Agriculture, Hokkaido University), Vivek Shandas

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The decade between 2007 and 2017 set a record for the number and scale of natural disasters and demonstrates high vulnerability of human society. The most serious consequences have the so-called natural-technological disasters in which natural hazards trigger accidents at technology and infrastructure such as nuclear power and chemical plants, oil refineries and pipelines, buildings and roads. A distinctive feature of natural-technological events, such as of the 2011 Tohoku earthquake, is their multi-hazard and synergistic nature, which creates cascading impacts, resulting in simultaneous occurrences of myriad catastrophes. The main goal of this multidisciplinary session is to summarize case studies of relationships between natural hazards and technological disasters, their social and economic consequences; and to encourage a discussion about tools and methods to prevent disasters and to minimize their consequences, disaster reconstruction, tourism for reconstruction, Eco-DRR, and green infrastructure.

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## [HDS08-P03] Estimation of economic value of green infrastructure using hedonic pricing method

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In recent years, environmental concerns such as global warming and air pollution have been widely taken up worldwide and at the same time their interest is rising. In Japan, the concept of taking nature as capital and the concept of green infrastructure, which is multiplied by the growing interest, has attracted attention. In the first place, green infrastructure is a concept developed in the latter half of the 1990s in Europe and the United States. Although there are various definitions of it, "efforts or concepts of social capital development, land utilization and disaster prevention using nature's forces and mechanisms" is general. In Japan as well, it is used in "government planning plan" etc. in the government plan in 2015, and it is getting more general. In addition, Eco-DRR, which is one of the functions of the green infrastructure, has also garnered worldwide attention. This is a generic term for functions that mitigate the risk of people and their property being put at risk by preventing disasters and acting as a buffer zone for the impact from disasters. In response to unprecedented natural disasters frequently occurring due to climate change, there is also pointed out that green infrastructure is superior to gray infrastructure such as embankment in terms of its disaster reduction function and maintenance and maintenance expenses. In Japan, with her declining population, various discussions are also being done on land use laws to minimize disaster damage. From the background as described above, the green infrastructure has attracted attention. However, the economic evaluation of green infrastructure has not been done much in Japan yet. In this research, we will focus on Takashima City in Shiga prefecture where hazard maps on floods are organized by probability, and estimate economic value.

Based on the concept of ecosystem loss (Eco - DRR), we evaluate the relationship between hazards and

land prices and estimate the economic value about the possibility of introducing green infrastructure from there.

As a result, we will try to make suggestion on the disaster prevention / reduction function of the city at the time of the pre-reconstruction and the importance of the green infrastructure in the city.

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