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[Abstract Title]

Broad and vertical evacuation at large flood disasters

[Abstract]

Broad evacuation plans are now under development for storm surges and flood disasters that cause extensive damage in some regions of Japan. They have a problem that many evacuees are at high risk during evacuation due to traffic disruption and water invasion. Moving to high places, that is to say, vertical evacuation, is a possible solution to reduce the number of people subject to broad evacuation and to delay the start time of evacuation. However vertical evacuation is limited under the capacity of evacuation sites such as tall buildings and towers open at emergency. We analyze several scenarios of numerical simulation and show the differences in the number of evacuees, the time required for evacuation, and the latest possible time for evacuation in a district of Nagoya City, where may be suffered from severe inundation damage due to a huge typhoon. Consequently, vertical evacuation can reduce the number of broad evacuees, shorten the time required for evacuation, and delay the start time of evacuation. The results suggest that vertical evacuation should be considered in the plan of broad evacuation.

[Keywords]

broad evacuation, flood disaster, disaster prevention plan