Preface

The destruction caused by the 2011 Tohoku earthquake and tsunami and the recovery and reconstruction processes over a year, which are examined in this issue.

On March 11, 2011, the Tohoku region in Japan was hit by a large earthquake with a magnitude of 9.0. It was followed by an enormous tsunami, which resulted in nearly 20,000 fatalities or missing. The extent of the damage caused by the earthquake and the resulting tsunami was enormous, with the latter causing most of the damage. This special issue examines selected and reviewed papers on the 2011 earthquake and tsunami from several perspectives, the severe damage they caused, and the recovery and reconstruction processes.

This issue also covers a range of topics, such as the tsunami's characteristics at the time of arrival, as assessed by eyewitnesses, numerical simulations of the events, and the relationship between building damage and ground motion. The damage caused to the railway system along the coast, which was heavily impacted by the tsunami, is also reviewed. The paper also discusses the use of social media during the earthquake and tsunami, and its effectiveness as a complement to mass media.

The performance of pedestrian bridges in damaged areas will also be evaluated based on documented experiences during the tsunami. Subsequently, reconstruction and disaster education after both the 2004 Indian Ocean and the 2011 tsunamis will be reviewed. One of the issues of reconstruction is planning evacuation processes in a new community. An integrated model of tsunami inundation and evacuation with agent-based simulations will be crucial for this planning. The challenge lies in implementing community-based participation for disaster reduction based on the lessons learned through field research performed along the coast in 2011.

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