

Editorial Note

On March 3, and March 4, 2021, the region of northern Thessaly was struck by the largest earthquakes to occur in the region in the last 80 years. The $M_w=6.3$ and $M_w=6.0$ earthquakes occurred ~25 km NW of Larissa city, because of (roughly speaking) north–south extension of the Earth’s crust. The two events generated severe ground shaking in several towns and the greater northern Thessaly area causing serious damage to old buildings, with economic and social impacts on the local population. Unravelling the characteristics of the sequence and the geodynamics of the area is the crucial point of this special issue of Bulletin of Geological Society of Greece, aimed at gathering a set of articles on detailed investigations and syntheses in all phases of scientific and engineering work about the Thessaly earthquakes, as well as papers on post-earthquake response and public policy matters.

The issue includes papers on the aftershock evolution and the properties of the activated fault network employing aftershock relocations using the double-difference and cross-correlation techniques; inversion of teleseismic and strong motion waveforms to derive slip models; Coulomb stress calculations highlighting increased positive stress changes at the locations of most of the aftershocks and activation of neighbouring fault segments by stress transfer; map of the deformation field caused by the earthquakes using InSAR & GNSS; Use of InSAR displacement data from Sentinel-1 interferograms, to invert for the fault parameters; geodetic measurements of permanent uplift and ground subsidence; maps of effects of the earthquakes, including field observations on liquefaction, rock falls, rock slides, road cracks all due to the strong ground motion and associated near-surface mobilization of soil cover and loose sediments.

This issue would not have been possible without the contribution of our fellow guest editors: Christophe Gruetzner, Alexandros Chatzipetros and Haris Kranis. Understanding the mechanism and recurrence of earthquakes such as the March 2021 events is extremely important for regional seismic hazard assessment, to help reduce the risk of people being subjected to future earthquakes, and for tectonics since little is known about the link between deep tectonic processes and upper crustal deformation in this key region.

The Editor-in-chief of BGSG

Dr. Athanassios Ganas

Research Director NOA

aganas@noa.gr