



## Preface to the Special issue “The 22 March 2020 $M_L$ 5.5 Zagreb earthquake”

On a cold spring morning of 22 March 2020 amidst the COVID-19 lockdown residents of Zagreb were awoken by violent shaking. As it turned out, the source of this shaking originated from an earthquake of moderate magnitude ( $M_L$  5.5,  $M_w$  5.4) located just northeast of the Zagreb city centre. Although moderate in strength (magnitude), it caused heavy damage to buildings and infrastructure in the epicentral area and in the historical part of the city. Unfortunately, one life was lost under a collapsed wall in a historic building. Due to heavy impact the earthquake has had on life in Zagreb and the Croatian economy, as well as the unique opportunity to use quality collected seismological data to address important questions relevant to the estimation of seismic hazard in the Croatian capital of Zagreb, it seemed only logical for the Editorial board to dedicate a special issue to this event. I am very happy to present six papers, with various topics. Preliminary results of some of these papers were presented at the 1<sup>st</sup> Croatian Conference on Earthquake Engineering (22–24 March 2021, Zagreb), which *Geofizika* has supported.

Marijan Herak, Davorka Herak and Nikša Orlić (Herak et al., 2021a) analysed a full year of seismicity following the mainshock. They report almost 3000 located aftershocks with a magnitude of completeness of 1.0 and suggest a physical explanation for aftershock distribution.

Which of the three Zagreb earthquakes of the years 1905, 1906 and 2020 was the strongest? This question arose among experts and the general public after the 2020 earthquake struck. The answer is offered in the paper by Marijan Herak, Davorka Herak and Mladen Živčić (Herak et al., 2021b).

Jakov Stanislav Uglešić, Snježana Markušić, Božo Padovan and Davor Stanko (Uglešić et al., 2021) showed that the surface peak ground acceleration in Zagreb was amplified by a factor of 2 in respect to the bedrock value for the Zagreb  $M_L$  5.5 earthquake scenario.

Snježana Markušić, Nina Frolova, Irina Gabsatarova, Sergej Suchshev and Nataliya Malaeva (Markušić et al., 2021) used the macroseismic intensity of the Zagreb 2020  $M_L$  5.5 earthquake, and other earthquakes in the area, to calibrate the “Extremum” loss simulation system for near real-time damage assessment.

Danijel Šugar, Željko Bačić and Iva Dasović (Šugar et al., 2021) presented multidisciplinary analysis of the GNSS recording at the CROPOS’ ZAGR station, situated in Zagreb’s city centre, during the Zagreb 2020  $M_L$  5.5 earthquake.

Marija Mustačić, Iva Dasović, Helena Latečki and Ina Cević (Mustačić et al., 2021) analysed public outreach activities and social network data collecting initiated in the aftermath of Zagreb 2020 earthquake and showed the preliminary results of an online survey they conducted.

I would like to thank all our (co-)authors for choosing our journal to publish their work – these are valuable contributions and will serve as a good foundation to better understand the impacts of earthquakes happening in or close to large urban zones.

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