

EGU23-16120, updated on 12 Jun 2023  
<https://doi.org/10.5194/egusphere-egu23-16120>  
EGU General Assembly 2023  
© Author(s) 2023. This work is distributed under the Creative Commons Attribution 4.0 License.



## Application of Rain-on-Grid for flash flood modeling: A case study in the Selška Sora watershed in Slovenia

**Marcos Julien Alexopoulos**<sup>1</sup>, Theano Iliopoulou<sup>1</sup>, Panayiotis Dimitriadis<sup>1</sup>, Nejc Bezak<sup>2</sup>, Mira Kobold<sup>3</sup>, and Dimitris Koutsoyiannis<sup>1</sup>

<sup>1</sup>National Technical University of Athens, Civil Engineering, Water resources, Greece

<sup>2</sup>University of Ljubljana, Faculty of Civil and Geodetic Engineering, Jamova cesta 2, Ljubljana, Slovenia

<sup>3</sup>Slovenian Environment Agency, 1000 Ljubljana, Slovenia

Rain-on-Grid (RoG) modelling offers an attractive alternative to more traditional routing methods. Currently, few publications are addressing the suitability of this approach to modelling a storm event, and fewer benchmark findings present its possible limitations. In the present study, it is verified whether RoG is able to replicate the 2007 flash flood event that occurred in the Selška Sora watershed, located in western Slovenia. The results are validated against a high-resolution benchmark run, and the flood footprint extracted from the field by the Slovenian Environment Agency. Results display a satisfactory description of the flood event using uniform station rainfall data as an input. The flood extent slightly exceeds the confines of the runup measured in the field. RoG offers a more realistic description of the downstream hydrograph, with a sharper initial peak, when antecedent soil moisture is lower.

**Keywords:** Rain-on-Grid, Flash flood, Slovenia