The authors are grateful to the Reviewer for the comments and suggestions, directed towards an improvement of the paper. Point-by-point replies to the reviewer's four comments follow.

Question 1 - 'Page 6821, what is the meanings of *n*, *σ'* and *nfases* in Equation (1)?'.

Reply 1 - Several simbols have indeed not been properly defined or introduced, hence the modified text below will replace the current version. Please note also that the term *'nfases'* has been replaced by '*nphases*', as this refers to the summation over the liquid and air phases within the soil mixture.
We propose a slightly modified text as follows

Generally, all three phases (solid, liquid and air) are present in the soil mixture, hence the total Cauchy stress can be represented by three partial stresses

$$\sigma = \sigma^{(s)} + \sigma^{(w)} + \sigma^{(a)} = \sigma' - \bar{p}I + n \sum_{\alpha=1}^{nphases} S_\alpha s_\alpha \,, \qquad (1)$$

where the incides $(s), (w), (a)$ refer to the partial stresses in the solid, water and air phases, $\bar{p}$ is the average pressure, σ' is the effective stress, *n* represents porosity. $s_\alpha = dev(\sigma_\alpha)$ and S_α stand for the deviatoric stress component and the degree of saturation, respectively for the liquid and air phase (labeled *'nphases'*), while *I* represents the identity tensor of the second order. For more details readers are also referred to Blanc (2008).

Question 2 - Page 6823, line 24, what is the meaning of "a", is it a coefficient in Equation (10)?'.

Reply 2 - In the original papers by Pastor et al. (2009a, 2015) it was shown that the equation (10) can be simplified by introducing the non dimensional number *a* in the form $a = 6\mu\bar{v} / h\tau_Y$. However this simplification is of no relevance here, hence the entire sentence "The non-dimensional number *a* is defined as $a = 6\mu\bar{v} / h\tau_Y$" will be omitted.
Reference Pastor et al. (2015) (Pastor, M., Blanc, T. Haddad, B., Drempetic, V., Sanchez Morles, M., Dutto, P., Martin Stickle, M., Mira, P., Fernández Merodo, J.A.: Depth Averaged Models for Fast Landslide Propagation: Mathematical, Rheological and Numerical Aspects, Archives of Computational Methods in Engineering, Springer, Volume 22, Issue 1, pp. 67-104, January 2015, doi: 10.1007/s11831-014-9110-3.) will be added to the list of references.

Question 3 – 'Please give the mesh grid sizes in the simulations of Figure 9,10 and 11'.

Reply 3 - It was noted in the paper that the topography of the Rječina River Catchment area is represented by the digital elevation model (DEM), based on the equidistant mesh grids of 2, 5 and 10m. In particular, the figures 9, 10, 11 and 12 illustrate the results of of the two simulations of mudflow propagation (Simulations 1 and 2) on the equidistant mesh with a medium size of 5*5 m. This will now be clearly stated on each of the Figure captions.

Question 4 – 'Please give the parameters for the simulation using Newtonian fluid model'

Reply 4 - The mudflow propagation of the Rječina River using the Newton rheological model with a turbulent regime was realised using the Shallow Water module (SW module) of the SPH code (Pastor 2007). Most input parameters for the simulations are presented in Table 1. The spatial domain was discretized with an equidistant mesh with size of 5m, resulting in 128 453 nodes. The initiating mass of the naturally formed dam was created with 132 nodes. Each node was given an initial height of the material. The gravity acceleration g is taken with value of 9.81 m/s^2, fluid density ρ with 2100 kg/m^3, the Manning coefficient of roughness n=0.04 $m^{-1/3}s$, the friction angle during motion is 26°, the minimum thickness of the layer under shear stress due to flow is assumed as 0.001m. Within SPH computer code is taken the value of parameter. The control parameter for the pore pressure *icpw=1* was set to 1.0, to account for the reduction of the pore water pressure. Parameter *pwprel=0.6* was adopted as the ratio between the pore pressure P and the liquefaction pressure ($pwprel=P/P_{licuef}$). The time increment in the calculation was taken as 1 second.