Appendix K Rockfall Model Results

This appendix outlines the full Pierre3D (Gischig et al. 2015) rockfall modelling results for the forward analysis at The Last Resort (TLR) based on the calibrated slope material parameters described in Appendix J. Rockfall was simulated from 43 release locations along contour above TLR using a range of boulder sizes from 0.25 m to 2.5 m based on the boulder sizes observed in the 2015 rockfall deposition area. For each boulder size, 20 blocks were released from each of the 43 locations. The number of blocks released was based on the minimum number of required blocks to ensure repeatable results between model runs as described in Appendix J. A comparison of model results for 0.5 m, 1.1 m, and 2.5 m diameter blocks is included in Figure K 6 to identify trends in rockfall trajectory and runout.

Model results of 2.5 m diameter blocks released from 10 locations in the gully sidewalls upslope of the main 2015 rockfall source area is also included (Figure K 7). In these areas, additional signs of instability were observed and the purpose of the modelling was to evaluate the potential rockfall runout and intensity if blocks detach and are transported downslope.

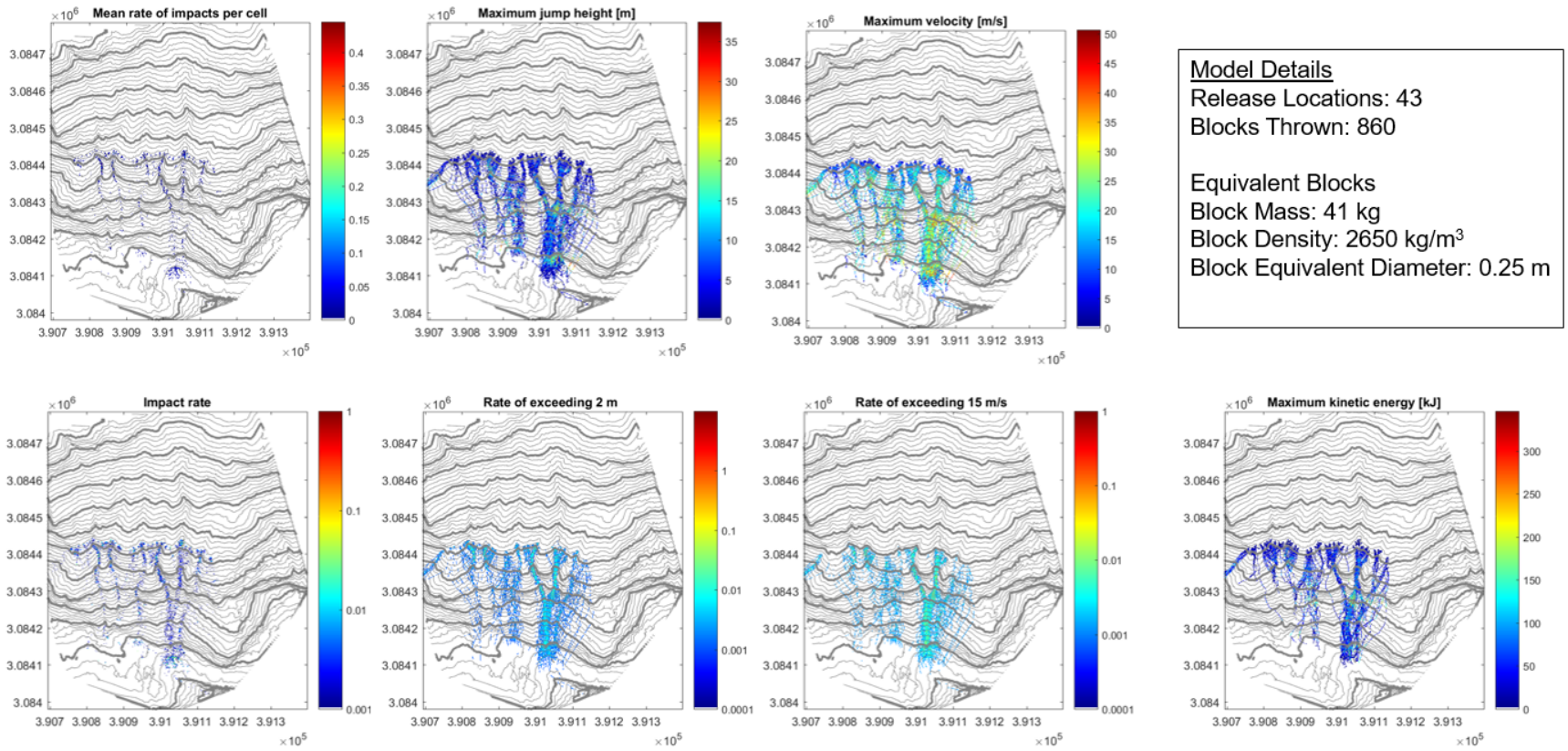

Figure K 1. Modelling results for simulations with 860 blocks of 0.25 m equivalent diameter released from locations along contour between 1460 masl and 1470 masl.

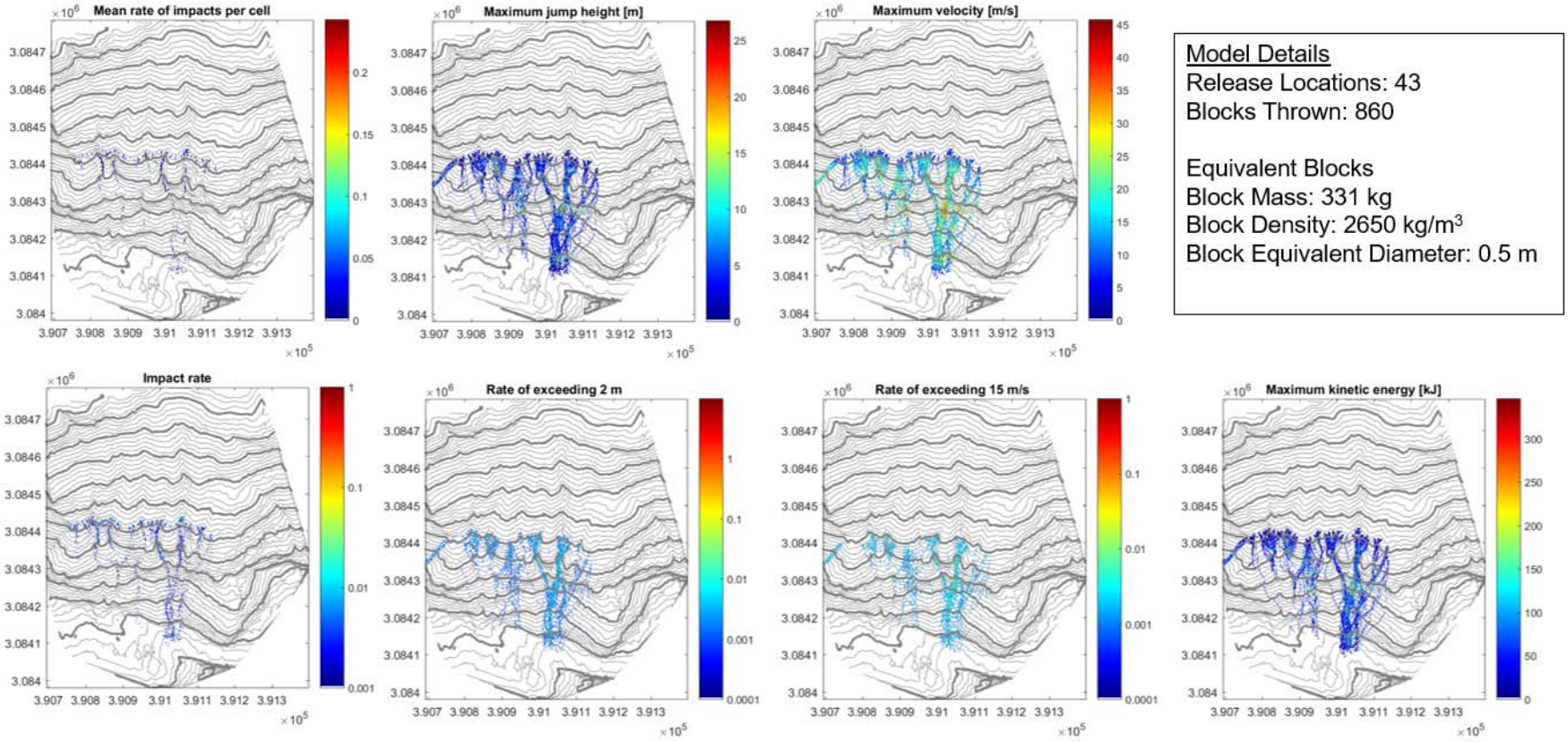

Figure K 2. Modelling results for simulations with 860 blocks of 0.5 m equivalent diameter released from locations along contour between 1460 masl and 1470 masl.

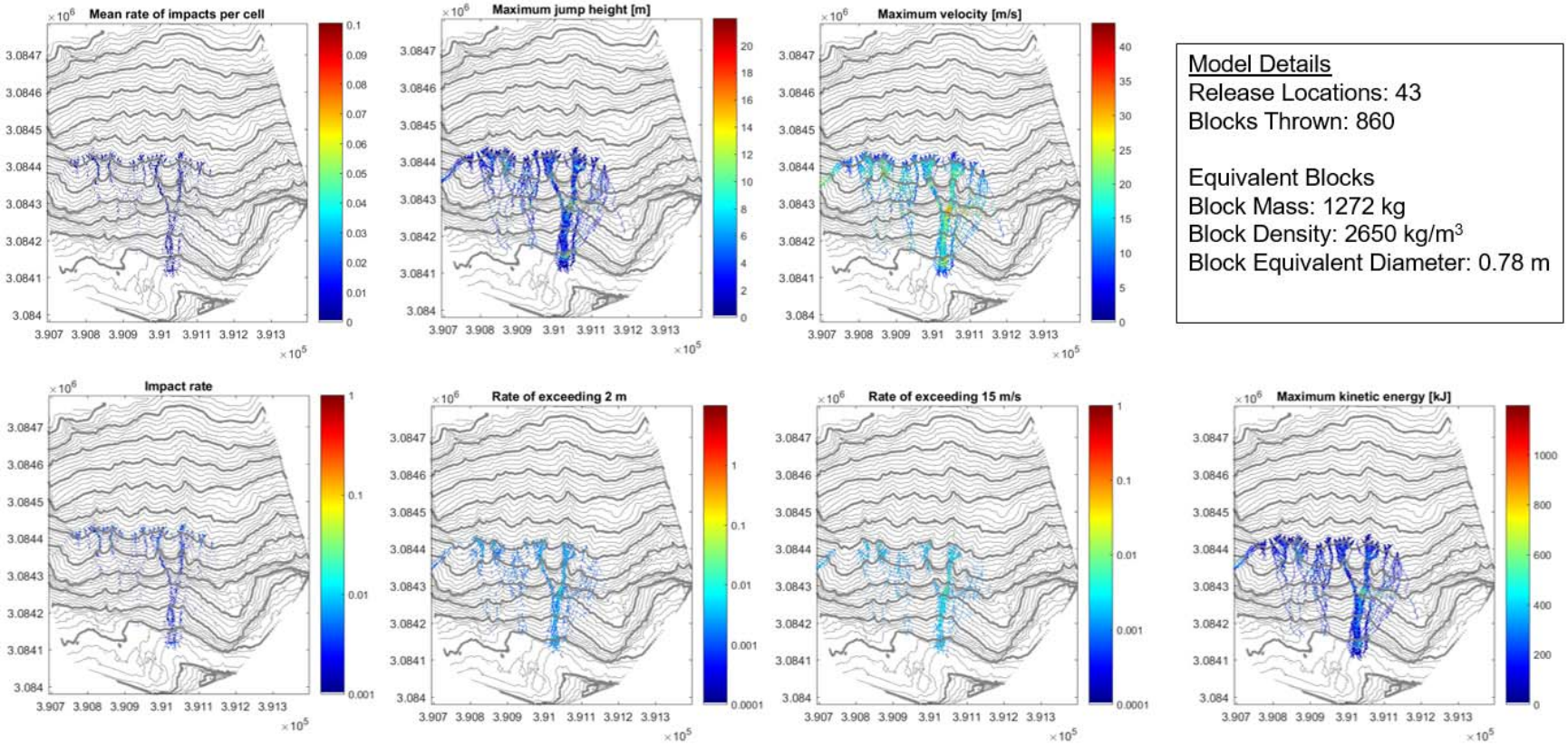

Figure K 3. Modelling results for simulations with 860 blocks of 0.78 m equivalent diameter released from locations along contour between 1460 masl and 1470 masl.

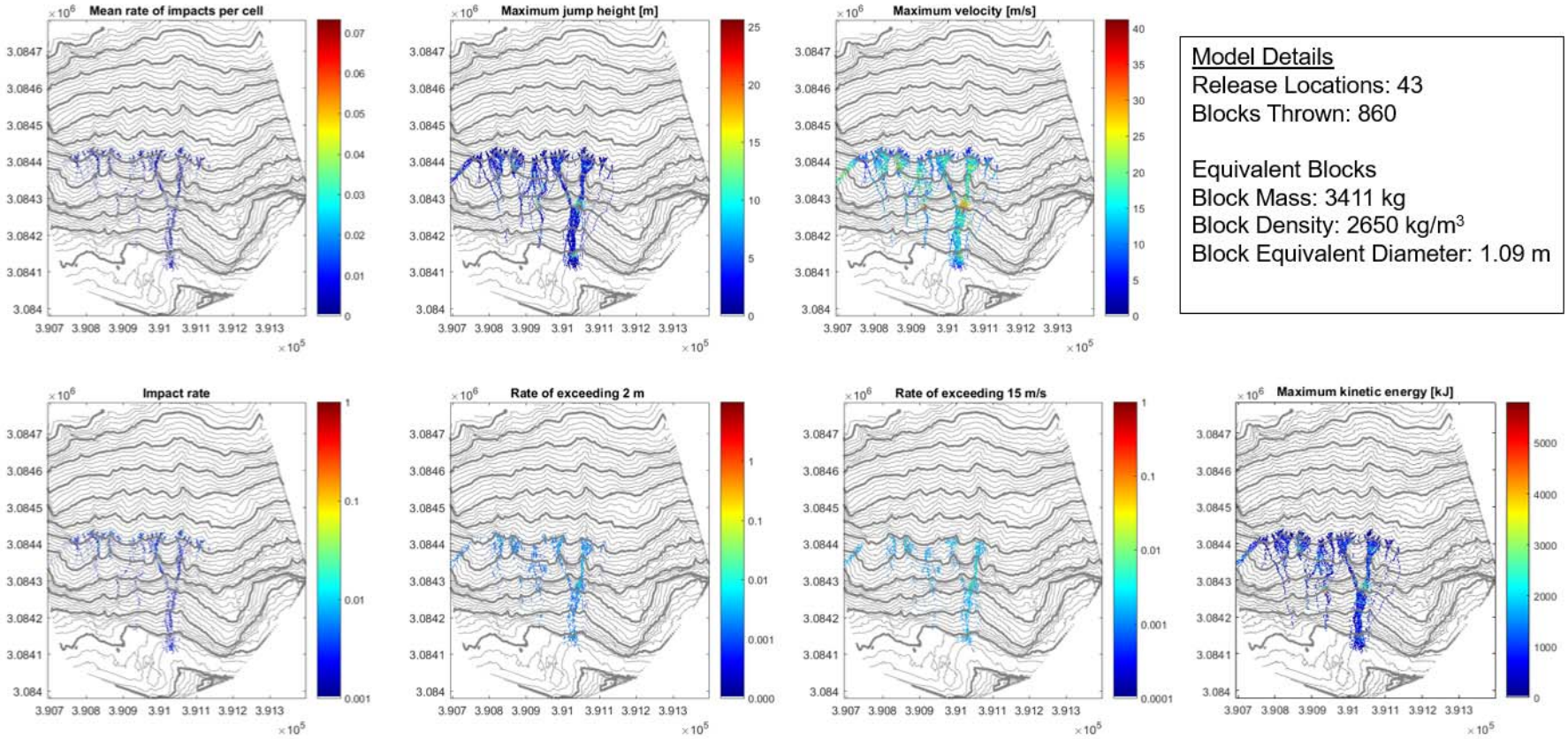

Figure K 4. Modelling results for simulations with 860 blocks of 1.09 m equivalent diameter released from locations along contour between 1460 masl and 1470 masl.

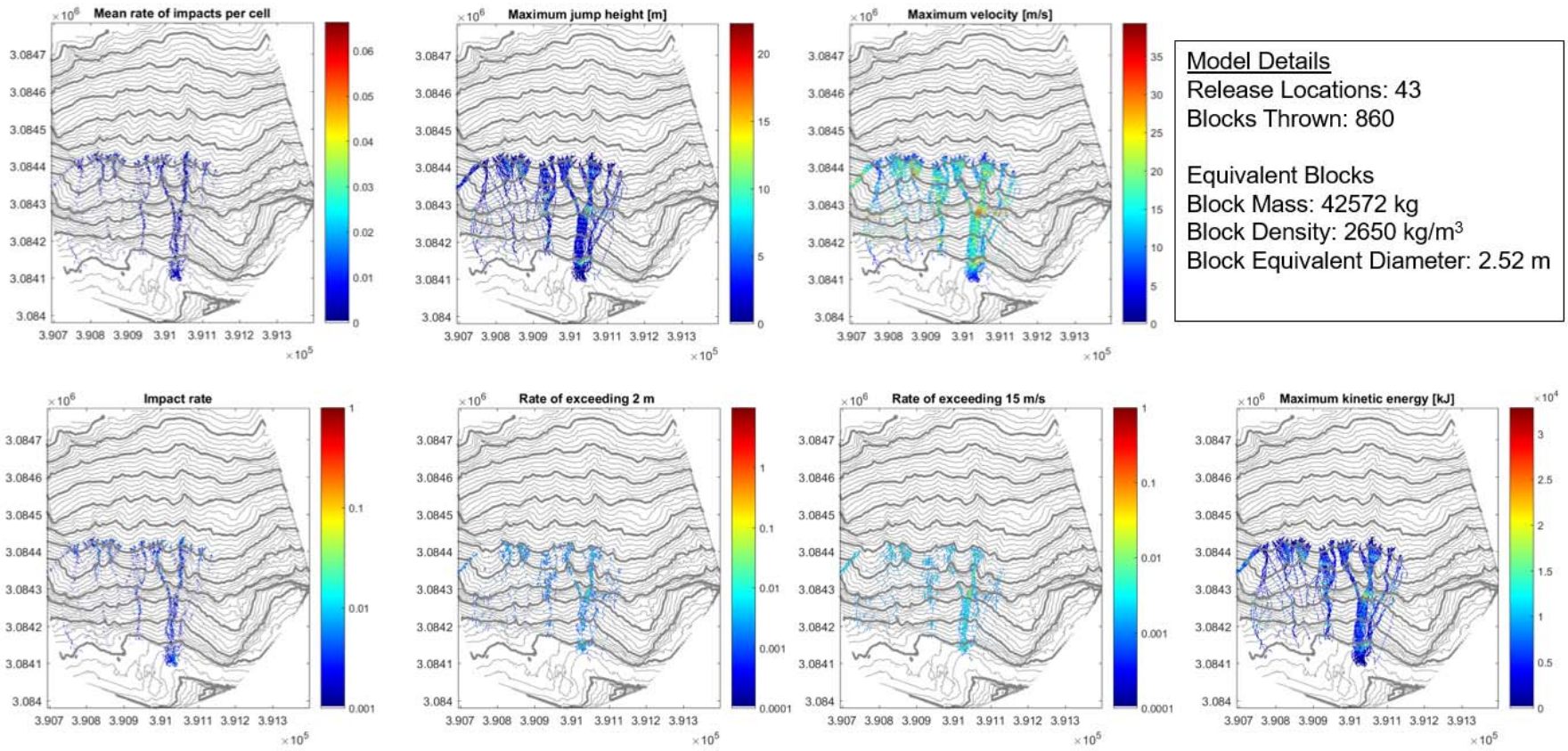

Figure K 5. Modelling results for simulations with 860 blocks of 2.52 m equivalent diameter released from locations along contour between 1460 masl and 1470 masl.

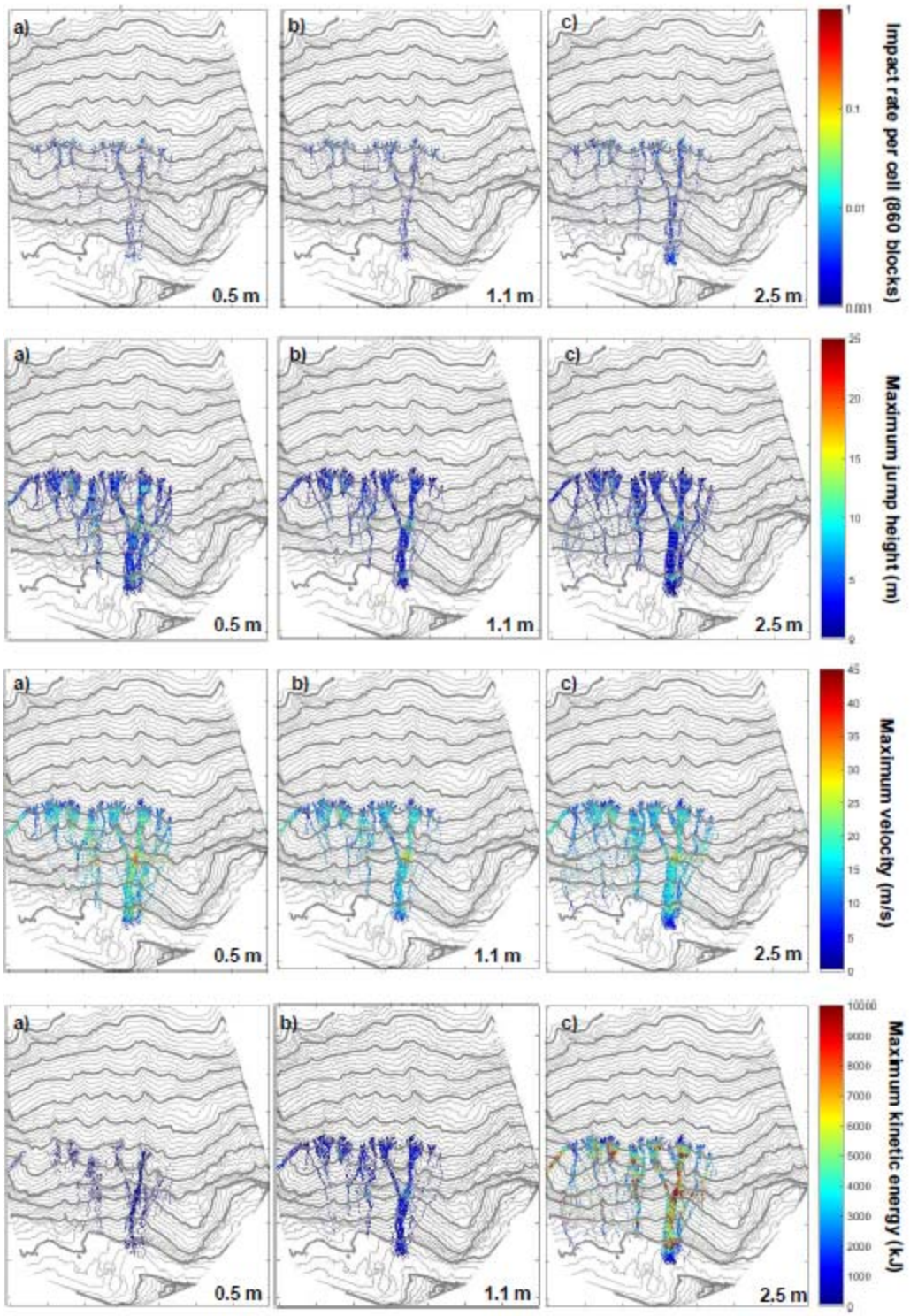

Figure K 6. Comparison of model results for equivalent block diameters of 0.5 m, 1.1 m, and 2.5 m.

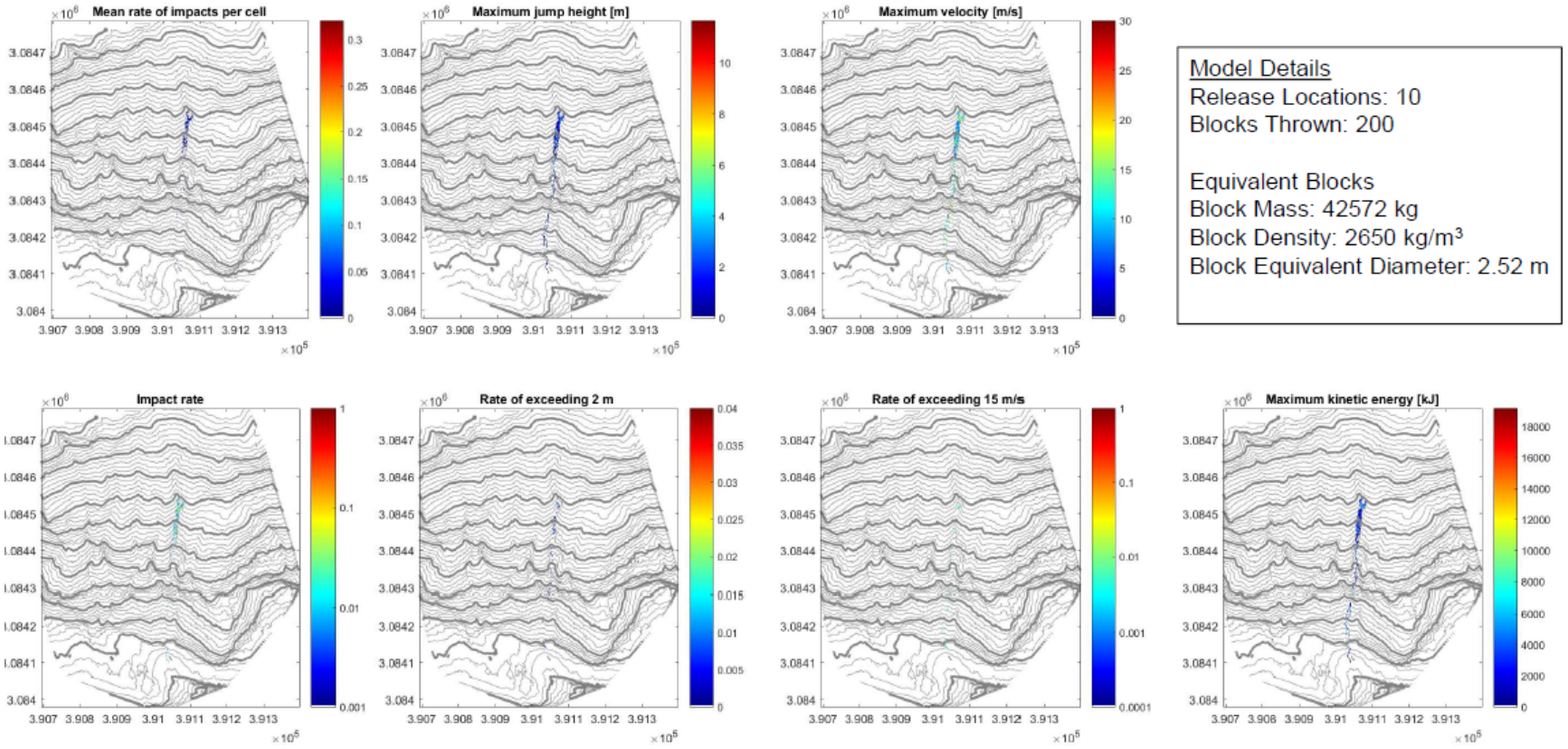

Figure K 7. Modelling results for simulations with 200 blocks of 2.52 m equivalent diameter released from point locations upslope of the 2015 rockfall source area.