18–22 September 2017, Pula, Croatia
ECSS2017-153

Analysis of run-off rates and tracks of the resulting flash floods during a heavy rain event in Vienna (Austria) on 24 May 2014

Gabriel Strommer
Austria (gabriel.strommer@essl.org)

On 24 May 2014 there was a heavy convective rain event in the northwest of Vienna, causing more than 50 mm of precipitation within half an hour in parts of the 19th district Döbling. As a result, there were numerous flash floods and many streets and cellars were flooded. Major damage occurred in the village Nussdorf. The event was also accompanied by middle-sized hail.

After the event, inspections of the small catchment areas close to the hill Nussberg were carried out. 37 flow cross sections were measured and the related run-off rates were estimated. Furthermore many pictures and notes concerning the tracks of the flowing water were taken.

The study area contains different types of land use - from vineyards over grassland and settlements to forests. The study compares run-off rates from these different surfaces. In this context significant differences were found. The calculated run-off rates for the peak discharge vary from less than 0.1 mm per minute up to more than 1.5 mm per minute. It was found that the water of the flash floods in Nussdorf mainly originated from the slopes near the hill Nussberg and the middle part of the Schreiberbach-catchment. These areas are primarily used for vineyards, but there are also grassland and sealed surfaces. For the upper catchment areas of the Schreiberbach and the neighbouring Waldbach, which are dominated by forests, generally far smaller run-off rates were found. But this fact might at least partially also be due to lower precipitation rates in these areas. Unsurprisingly greened vineyards and grassland showed hardly any soil losses and far less run-off than vineyards with only sparse vegetation.