

DETERMINATION OF EXTREMELY HIGH VALUES OF PRECIPITATION AFTER THE STORM OF 20-21 AUGUST 2005 IN THE SAVA RIVER VALLEY)

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I. INTRODUCTION

Heavy rainfall is rare and complex phenomena with high local variability in intensity. Meteorological radar data give us some additional space distributed data but could not present phenomena below radar beam.

II. DESCRIPTION OF EVENT

In the night of August 20, 2005, and morning of August 21, a severe storm hit the Posavje region, Slovenia. The valley of the River Sevnica suffered the worst torrential damage in the last 50 years. The Mediterranean cyclone and the associated SE winds caused the precipitation. Erosion phenomena were present all along the Sava River from the town of Brestanica to Šmarjena vas in a length of 17 km. The measured totals of two-day precipitation in the rain gauge stations indicate 100-year return period or greater, figure 1. In the presentation a probability analysis will be performed for short return periods by taking into consideration the measurements in the nearby meteorological radar and seven additional rain gauges that were set up in the Sava River valley, figure 2. Additional rain gauges and analysis of meteorological radar data stress the significance of a denser network of rain gauges and meteorological radar for analysis of events of such scale, figure 3. Namely, the data from the additional network of rain gauges show up to 100 % increase in precipitation values, in the stations inside rive valley, where erosion was most severe, figure 1. Using hydrological models also performed calculations and the effects of different precipitation input data related to the size of the flood wave were investigated.

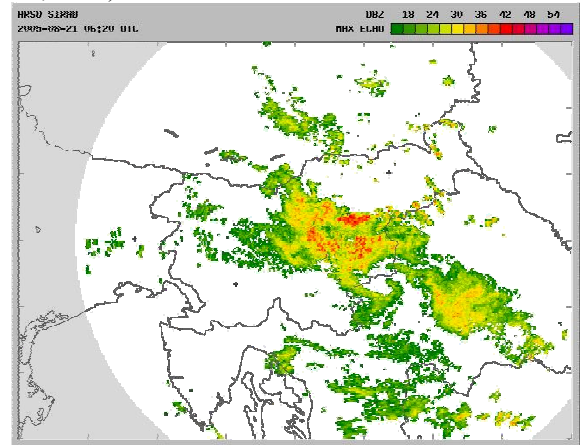


FIG. 2: Radar image at 8.20 August 21st



FIG. 1: Two day rainfall amount, watershed contour lines and main rivers

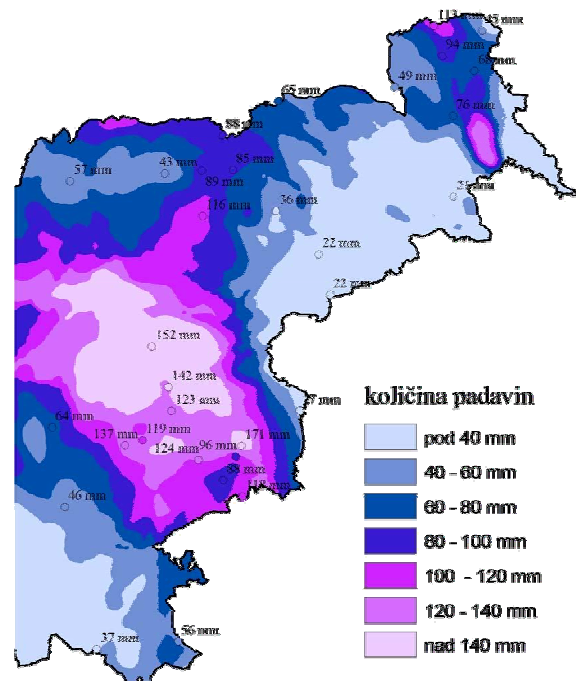


FIG. 3: Two day sum of rainfall calculated without measurement on additional rainfall stations