CASE STUDY: EXTENSIVE WIND DAMAGE ACROSS SLOVENIA ON JULY 13TH, 2008

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I. INTRODUCTION

During the mid afternoon of July 13th 2008 parts of Slovenia experienced severe weather due to extreme convective outburst. Most of the damage was caused by hail and strong winds and was connected to one single supercell crossing the country by the longest diagonal.

This case study illustrates the general situation, presents some remote-sensing material and gives some arguments for an unconfirmed, though possible tornado occurrence.

II. PRESENTATION OF RESEARCH

A very pronounced upper air through rapidly moving eastwards and a very warm and moist southerly winds in lowest layers of the atmosphere were the two key parameters of the general weather situation.

There was some convective activity present in the morning hours, yet the relevant action began with a strong convective cell formation at around noon local time (10 UTC) over the Nrothern Adriatic sea. The storm then moved northeastwards, its severity increased and it also showed some signs of movement to the right. The storm path is shown in Figure 1. Besides radar imagery, strong convection is observed also in numerous satellite images' combinations and with lightning detectors.

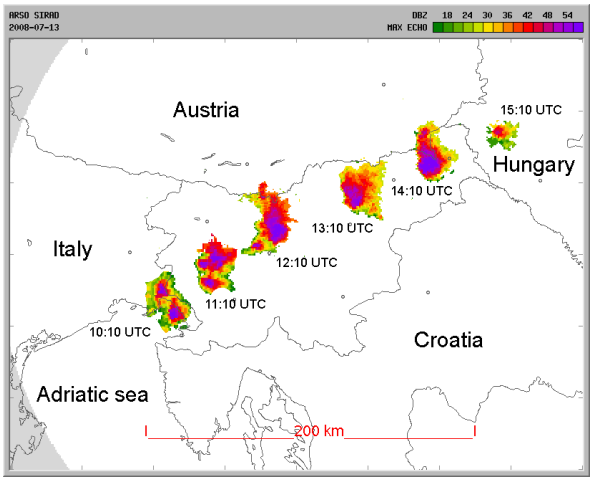

FIG. 1: Radar images (Zmax) at different times, shown only for the relevant supercell.

III. RESULTS AND CONCLUSIONS

Most of the damage was caused in the second part of the track, where the storm had more pronounced supercell attributes. The highest measured wind speeds were up to 23 m/s gusts, though it is estimated that the microbursts' speed was likely exceeding 120 km/h in the places where the damage was the greatest. The damage along the path was mostly caused by strong downbursts (large areas of uprooted trees, roofs lifted off from houses) and in the eastern part large hail, see Figure 2 for areas wind reported wind damage. There are some indicators that near the village of Gozd (circled area in Figure 2), a tornado may have occured (large and heavy debris flown in unusual – also cyclonic -directions). However, large areas of uprooted trees in the nearby woods clearly indicate unidirectional damage and the microbursts' direction was also significantly perturbed by the hilly terrain. Therefore the occurrence of tornado is officially not confirmed by the national meteorological service. A detailed analysis on a Doppler radar (situated roughly 40 km away) workstation also showed no evidence of the mesocylcone and also only a weak WER signal in the supercell.

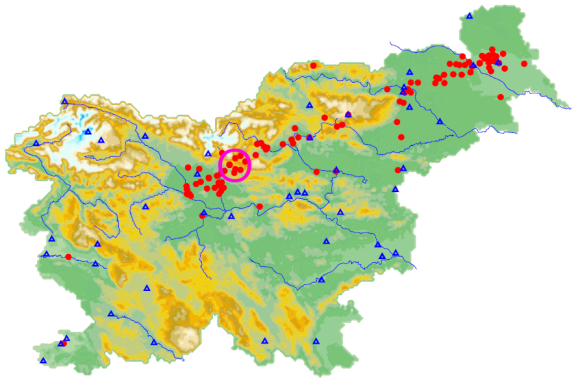

FIG. 2: Wind damage reports on July 13th (red dots). The magenta circle presents the area with a possible tornado occurence.

IV. REFERENCES

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