

Period with strongly overestimated convective activity in central Europe (23-27 May 2007)

Within last decade of May, severe problem with convective precipitation in central European region occurred both in ARPEGE and ALADIN. During daytime, models evolved (almost purely) convective precipitation with much larger horizontal extent than was observed in reality. Problem repeated for at least 5 consecutive days and was finished by advection of cold air on 28 May. Problem was not specific for single ALADIN application, it could have been observed in all LACE operational ALADIN models.

Figures 1 and 2 show forecasted ARPEGE and ALADIN/SHMU precipitation for 24 May, cumulated between 06 and 12 UTC. They can be compared with figure 3, which shows the same field forecasted by model DWD/LM. It can be seen that while ARPEGE/ALADIN give strong precipitation over Slovakia, Hungary and Croatia, there is almost no precipitation in this area forecasted by DWD/LM. Peak convective activity for given period can be estimated from radar composite on figure 4, valid for 12 UTC. Figure 5 illustrates convective activity later on that day. It can be concluded that while in ARPEGE/ALADIN horizontal extent of convective precipitation was strongly overestimated, DWD/LM was much closer to reality in this case. Inspection of specific humidity profiles on figure 6 shows typical symptom of the problem in ALADIN/SHMU at 12 UTC - too much moisture in lowest 2 km.

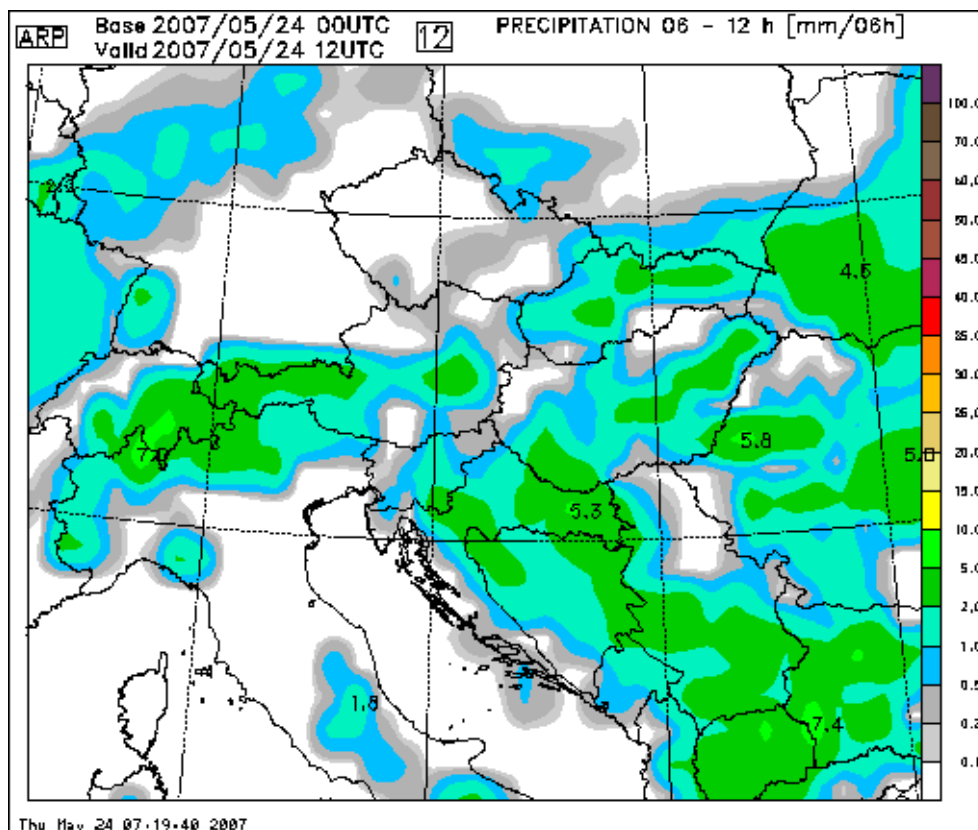


Figure 1: ARPEGE precipitation from +06 to +12 h, integration starting at 24-May-2007, 00 UTC.

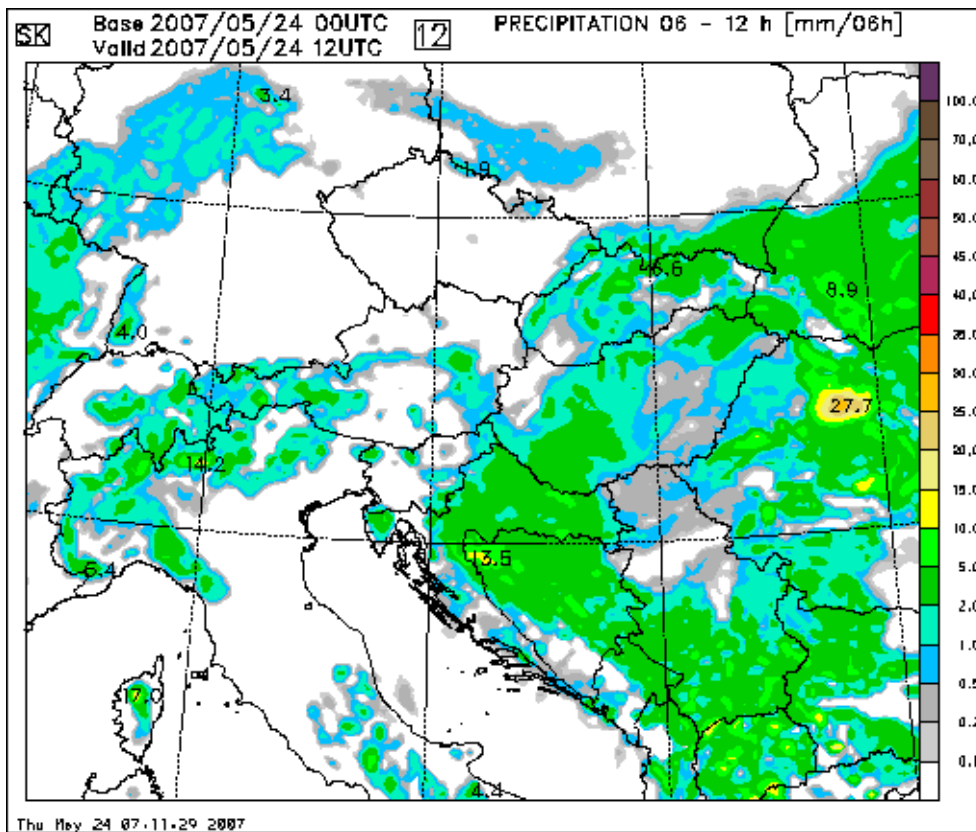


Figure 2: ALADIN/SHMU precipitation from +06 to +12 h, integration starting at 24-May-2007, 00 UTC.

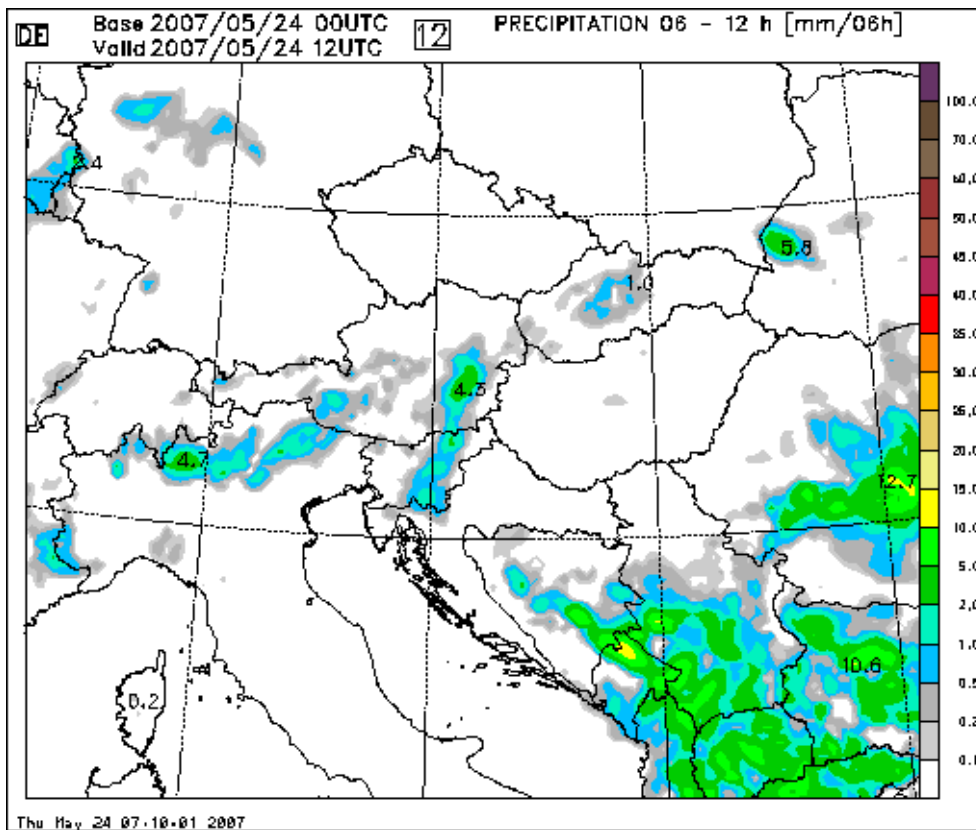


Figure 3: DWD/LM precipitation from +06 to +12 h, integration starting at 24-May-2007, 00 UTC.

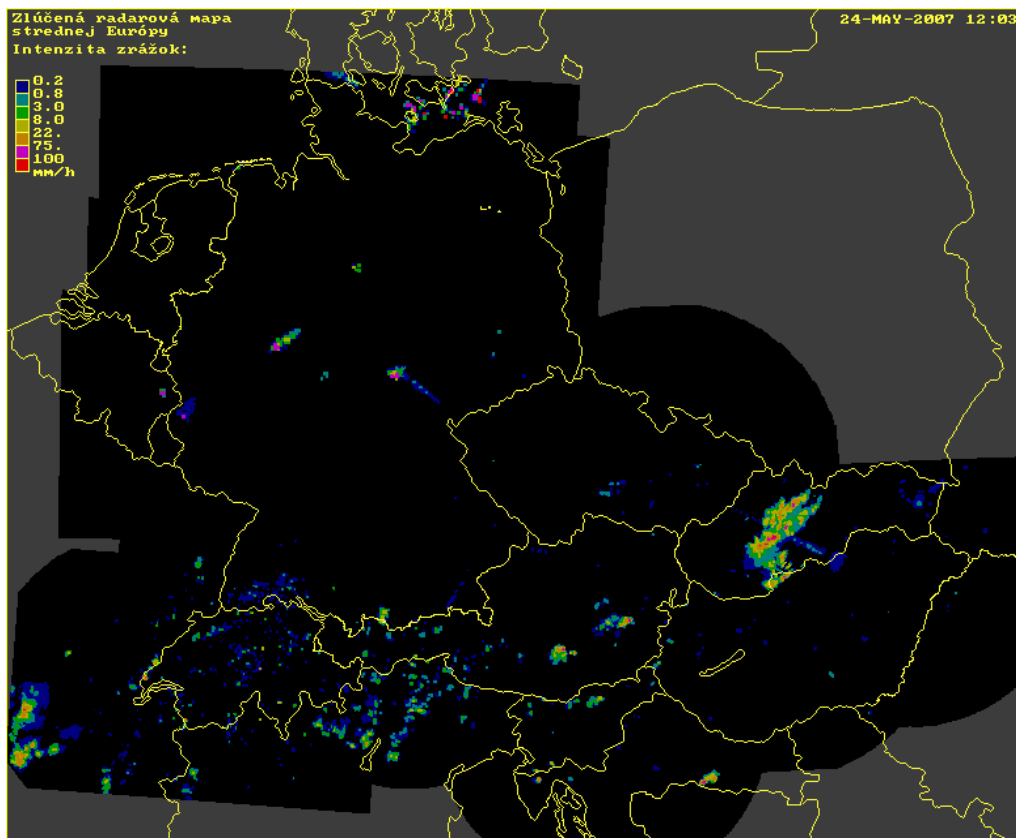


Figure 4: Radar reflectivities from CERAD, valid for 24-May-2007, 12 UTC.

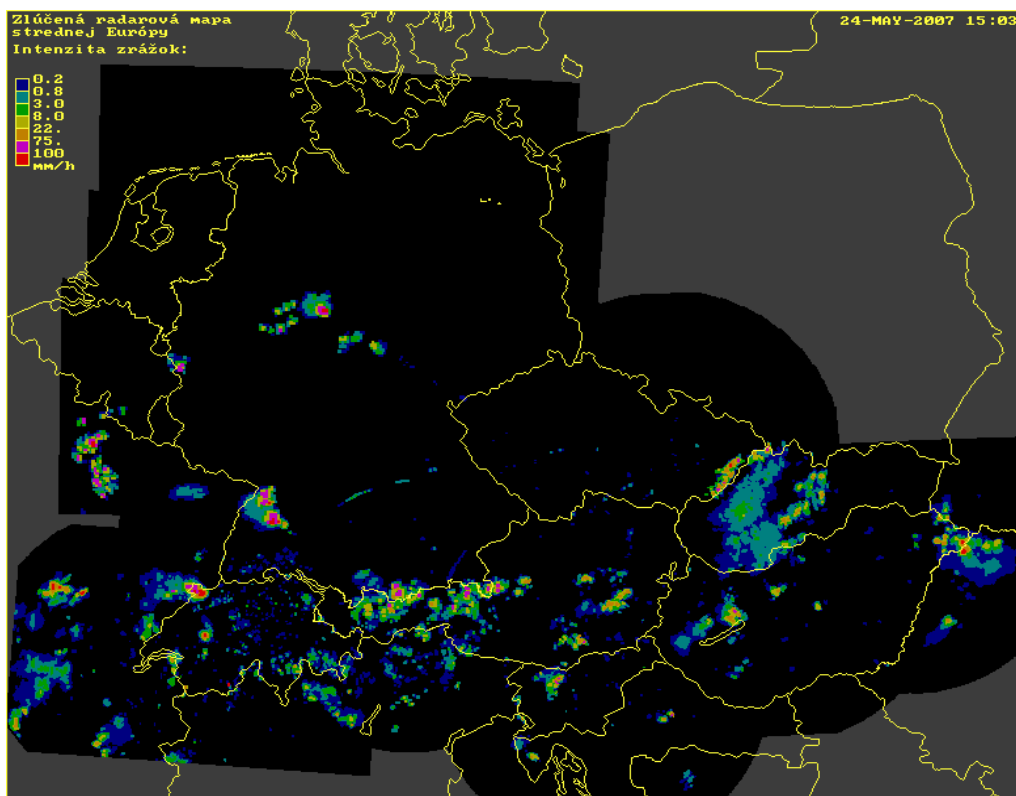


Figure 5: Radar reflectivities from CERAD, valid for 24-May-2007, 15 UTC.

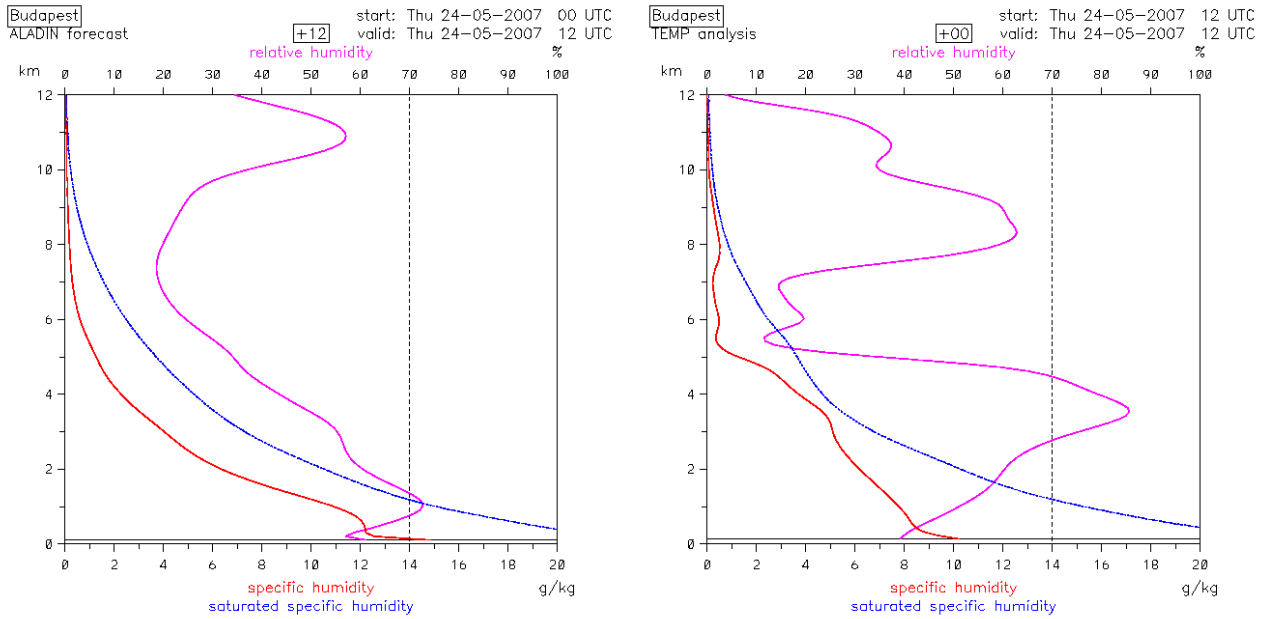


Figure 6: Vertical profiles of specific humidity (solid red line), saturated specific humidity (dotted blue line) and relative humidity (solid magenta line), valid for station 12843 Budapest at 24-May-2007, 12 UTC. ALADIN/SHMU integration starting at 24-May-2007, 00 UTC (left) and TEMP sounding (right).