

Main ALADIN weaknesses according to SK forecasters

(collected by J. Mašek, 02/2007)

First group of problems comes from driving model. There is little chance that ALADIN will improve the forecast when synoptic situation is not correctly forecasted already in ARPEGE. Typical example are misplaced cyclones or delayed fronts. Another example are situations with incorrectly analyzed snow cover or frozen soil, but here local surface assimilation could be helpful.

Sometimes ALADIN scenario changes dramatically from integration to integration, which can often be attributed to problems with analysis and LBC.

Second group of problems can be attributed to ALADIN itself. Most frequent of them are:

- Unreliable forecast of extreme temperatures. It is tied to many factors (humidity, cloudiness, vertical mixing, surface properties). In some situations model tends to exagurate daily course of temperature, in others it flattens it unrealistically. Temperature error can vary considerably across territory of Slovakia. For given place it does not always have "inertia" from one day to the other, which makes the correction difficult.
- Total cloudiness is very unreliable, it seems to be too strongly correlated with relative humidity at 700 hPa level, not seeing the levels below. Especially in winter low stratus is often missing.
- Relative humidity at low levels is generally more reliable parameter for estimating cloudiness. Anyway, humidity itself at 850 and 925 hPa levels is subject to considerable errors.
- Incorrect precipitation type (rain/snow) in winter. This is connected to problem with temperature profile in PBL (low inversions are sometimes missing already in model analysis).
- Overestimated precipitation shadow behind mountains.
- Sometimes (mostly in summer) model can be raining from "clear sky" when there are precipitation rates around 5mm/3h with only 10-20% of cloudiness.
- Parameterization of wind gustiness is not optimal, it overestimates higher values and underestimates lower ones.
- Wind speed at free atmosphere (850 and 700 hPa levels) seems to be overestimated when compared against mountain stations, especially for westerly flows.