4.5 3D tests with ALADIN/LACE

After the spectral coupling tuning was performed with the 1D shallow-water model, several ALADIN/LACE experiments were realized for finding the temporal relaxation parameters. At the beginning it looked important to find the optimal parameters for the alpha function, respectively for the relative threshold and then for the exponent of beta function. Several tests with ALADIN/LACE showed similar results in using different values for the relative threshold. In the next figures one can see that the diferences are very small.

The same conclusions are taken when using different exponents for beta function. If we choose an exponent 2 (Figure 5a, 5b, 5c - first row from left to the right) the cyclone is appearing one hour sooner inside the domain than using an exponent of 4 (Figure 5d, 5e, 5f - last row). Choosing the extreme situations for the relative threshold TSTARTSC it was observed that as smaller it is, as smoother the spectral information is entering into LAM. Additionally beta exponent will provide a more realistic introduction of the large scale information.

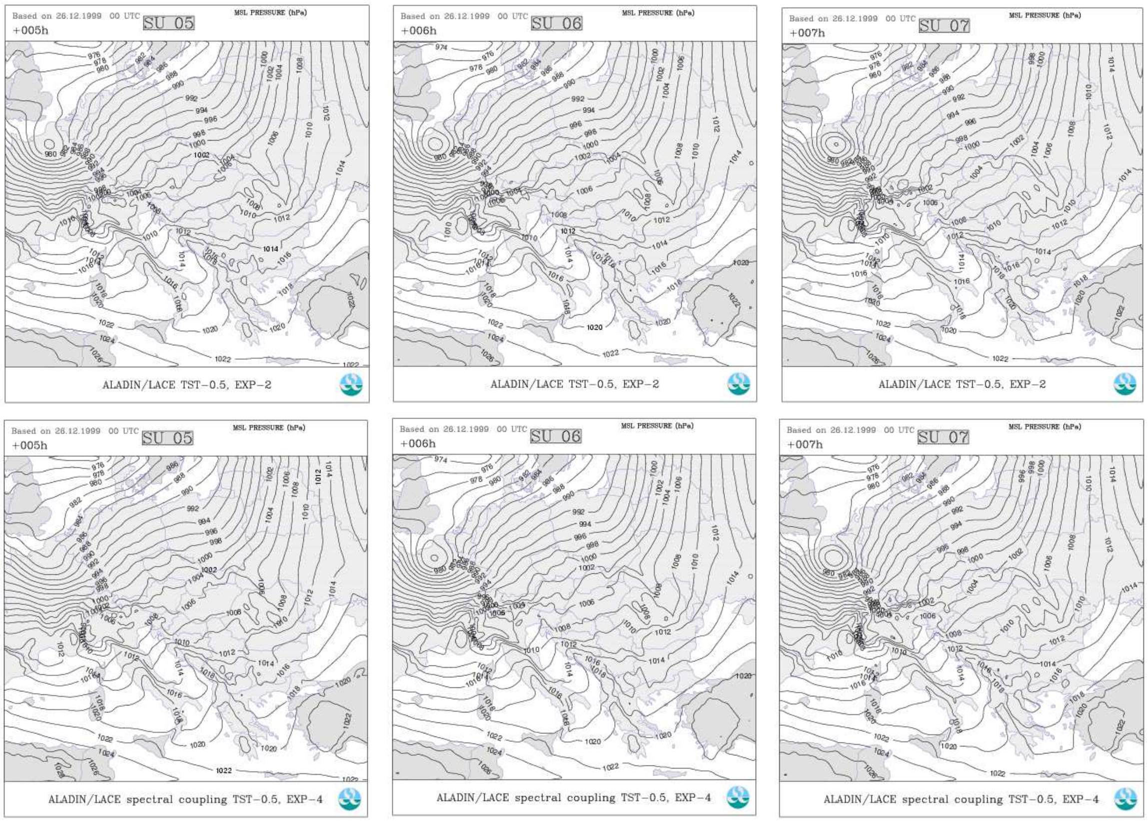

Figure 5: Impact of spectral coupling on MSLP forecasted field by using different exponents for beta function

Hence, it can be seen that an earlier introduction of the large scale information with a higher exponent brings similar effect as combining bigger threshold with small exponent. It can be concluded that using the same settings as in the 1D tests the most resonable parameters for producing a good result is obtained using the values for threshold