# Report on operational activities in Prague

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## 1. Operations

The ALADIN/CE suite was switched to the cycle **28T3** on:

**31/03/2005** at 12 UTC network time for the production run and at 06 UTC network time for the assimilation cycle.

This switch was technical; new cycle was validated to give the same meteorological results as the operational branch developed on the cycle 25T4. For the adiabatic model the norms were bit identical between the two cycles. When validating the code with physics, we noticed that some routines (namely *accvimp* and *accvimpd*) were changing results more significantly pending the release of compiler. Therefore we could not move on to higher compiler releases until this problem was fixed with help of NEC analyst: it turned out it was enough to add a compilation option to treat the occurrence of negative zeros. Then the entire library was recompiled, using the latest compiler release. The bit identical norms were not obtained either for the code with physics but a parallel suite (ADZ) gave neutral scores.

The operational suite was switched to the library compiled with the compiler release 305 on:

**14/06/2005** at 12 UTC network time for the production run and at 06 UTC network time for the assimilation cycle.

## 2. Parallel Suites & Maintenance

In spring a family of parallel suites tested the spline interpolators used together with SLHD (suites ADU, ADV, ADW and ADY), following Váňa, 2005 (article in Newsletter 27). As expected, the use of spline interpolators improved the bias of surface pressure. On the other hand, biases worsened in mid troposphere. One plausible explanation is that these interpolators counter the 3D effect of SLHD (cf suite ADY). Unfortunately it was not possible to get a combination of interpolators keeping the improvement of surface pressure bias alone.

Another family of parallel suites gives as well mitigate results but is promising for the future (set of tests from AEB to AEG). It tests a new computation of the mixing length according to Ayotte-Tudor, including the tunings. This modification changes the results only when we have typical winter situations with the blocking effects of the mountains. In such situations we obtain a nice improvement of temperature and wind scores at the top of PBL (at 850 hPa), see Figure 1. Unfortunately at the same time the already cold bias of the screen-level temperature gets even cooler (Figure 2). This fact disables for the time being the operational use of this type of mixing length, till we combine it with the improved radiation scheme allowing for more surface heating under the winter sun. This improvement is already under development in the framework of ALARO streams.

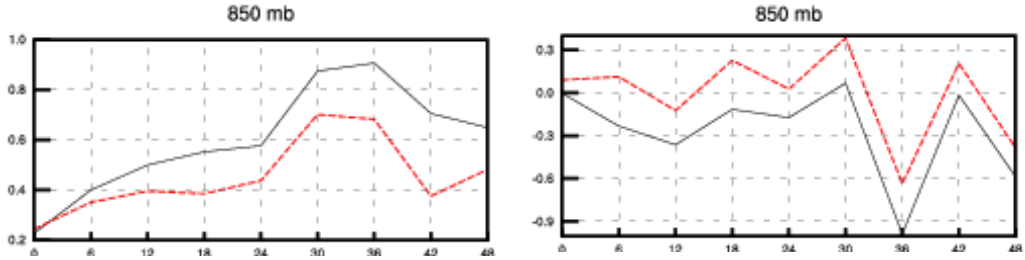


Figure 1: AEE suite scores (red dashed lines) compared to the reference (black solid lines) for the winter testing period. 850 hPa temperature bias is on the left panel, wind speed bias is on the right panel.

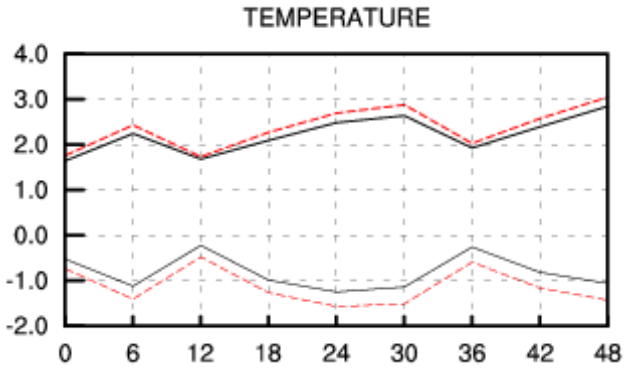


Figure 2: AEE suite scores (red dashed lines) compared to the reference (black solid lines) for the winter testing period. Screen-level temperature RMSE (upper curves) and bias (lower curves).

Finally, surface assimilation using CANARI is tested instead of surface blending (suite ADX). In this configuration the surface analysis is made first, prior to spectral blending; this configuration is called as CANSBLEND. However the existing tools for surface blending are still used in order to impose the ARPEGE analysis of sea surface temperature; the sea analysis in ALADIN is switched off. The analysis uses a dense network of SYNOP stations and is tuned as such. Results of this suite are rather encouraging: we can observe improved scores for the screen-level temperature, in bias, visible for the whole forecasting length (48 h in parallel suites), see Figure 3. The ADX test runs continuously since 18 May 2005 and shall continue longer, namely to observe the switch from summer to winter conditions.

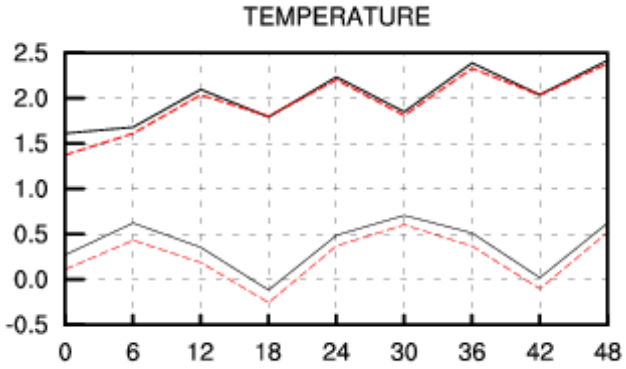


Figure 3 : ADX suite scores (red dashed lines) compared to the reference (black solid lines) for the month of June 2005. Screen-level temperature RMSE (upper curves) and bias (lower curves).

**CONTENTS**