

R&D activities of ALADIN-LAEF

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LAEF: R&D Highlights

- Problems in LAEF
- New LAEF Blending
- First results from B08RDP
- LAEF vs. ECMWF
- LAEF new







A new method for initial perturbation generation in LAM EPS



| • | Blending equation |
|---|--|
| | $I_{m} = A_{BR_{m}} + \left\{\overline{A}_{SV_{m}\ low}^{DFI} - \overline{A}_{BR_{m}\ low}^{DFI}\right\}_{high}$ |
| | Kinetic energy spectra (KES031WIND_PHYS) 10–08–2007 00 UTC (model level: 31) |
| | 100 |
| | 10-1 |
| | 10-2 |
| | |
| | ECM control |
| | ¹⁰⁻⁵ ECM SV (01) — ALD BR (01) ALD blend (01) |
| | |
| | wavenumber |



A new method for initial perturbation generation in LAM EPS

• Verification results (comparison with downscaling and standard breeding) SURFACE (Temperature, 2m):





A new method for initial perturbation generation in LAM EPS

• Verification results (comparison with downscaling and standard breeding) SURFACE (Precipitation, mm/12h):





Beijing Olympics meso-scale EPS Research and Demonstration Project



Preliminary verification results



Economic Value for rainfall, 18h Forecast (2008.7.1-2008.8.24)



Rain rate: 0.1, 4, 13 mm



B08RDP: 2m Temperatur





B08RDP: surface pressure





B08RDP: 10 m Wind





Is LAEF adding values to ECMWF EPS?



10m Wind







Precipitation

Continuous Ranked Probability Skill Score Time interval: 20070615 - 20070820 Total Precipitation [mm/12h]; Surface





Percentage of Outliers Time interval: 20070615 - 20070820 Parameter: Total Precipitation [mm/12h]; Level: Surface





2m Temperature



2m Temperature, WHY?



BIAS - RMSE - SPREAD Time interval: 20070615 - 20070820 Parameter: Temperature Anomaly [degC]; Level: 2m





LAEF new:





LAEF new: resolution 18km vs. 10.9km



X-direction: $324 \rightarrow 600$, Y-direction: $225 \rightarrow 500$



Summary and future

Summary:

- ✓ Blending cycle gives overall better results for short lead times (up to ~24h).
 - ✓ Demonstartion of the skill of LAEF in B08RDP
- ✓ LAEF adding value to ECMWF EPS

Next future:

- ➢ Higher resolution of LAEF
- More intensive cooperation with GLAMEPS



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