

ALADIN 08/09: achievements, problems & outlook

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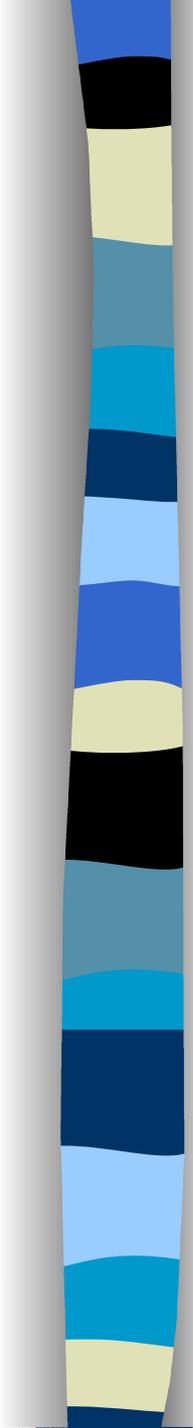
Main 'achievements' since Brussels

- The first version of the **ALADIN 4-year plan** was produced (and approved by PAC and General Assembly). The installation of a 'gliding' process has been postponed but hopefully for the good of the second version (see below).
- Our central problem in ALADIN is still the difficulty to move manpower from over-staffed to under-staffed activities => the challenge was addressed but with yet limited success.
- The past year has undoubtedly been marked by two influential set of events:
 - **Operational** status for AROME and (full) ALARO-0;
 - More concrete **introspective** steps, both internally ('**convergence**') and within HARMONIE (strategy for moist physics improvement & maintenance issues => search for '**internal interoperability**').

Main 'achievements' since Brussels

The 'F-R' financial mechanisms are stabilised:

- The backlog in money flow is close to be wiped out;
- In the 2006 kick-off year, **31** k€ of 'flat rate money' helped financing **14** missions and **6** scientific stays;
- In 2007, on the same basis, **55** k€ helped financing **13** missions and **12** scientific stays;
- For 2008, the realisations were of **80** k€ for **11** missions and **21** scientific stays; a procedure of 'demand' and 'offer' for the choice of the stays was successfully implemented;
- For 2009, the plans are of **66** k€ for **21** missions and **16** stays (the adequation of 'offer' to 'demand' was lower, the mission demand grew again and we started saving);
- All this is beside RC-LACE activities (research, training) and Météo-France's supports (maintenance, networking) as well as Partners' other 'voluntary' and 'in-kind' efforts.

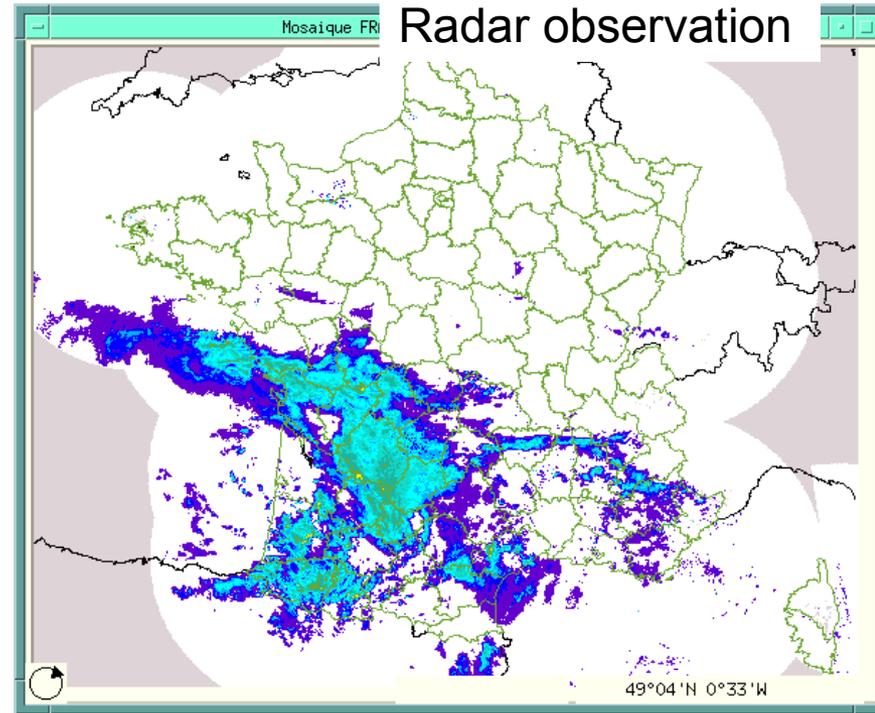
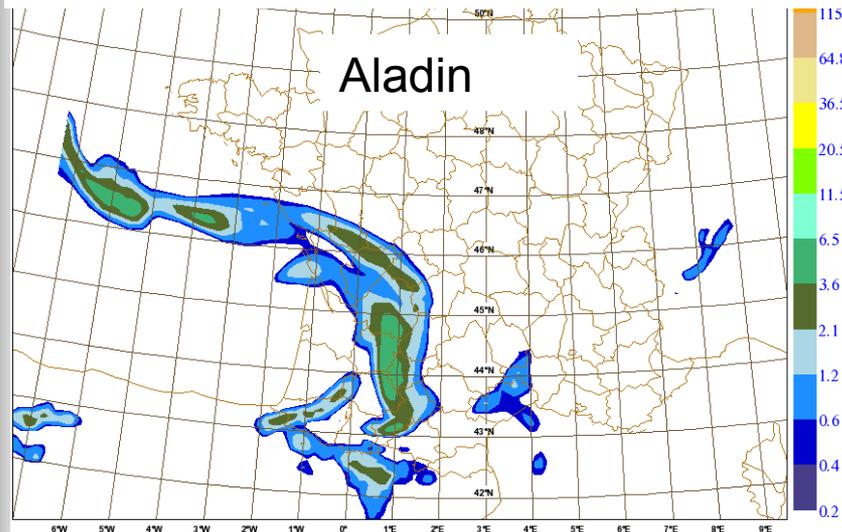
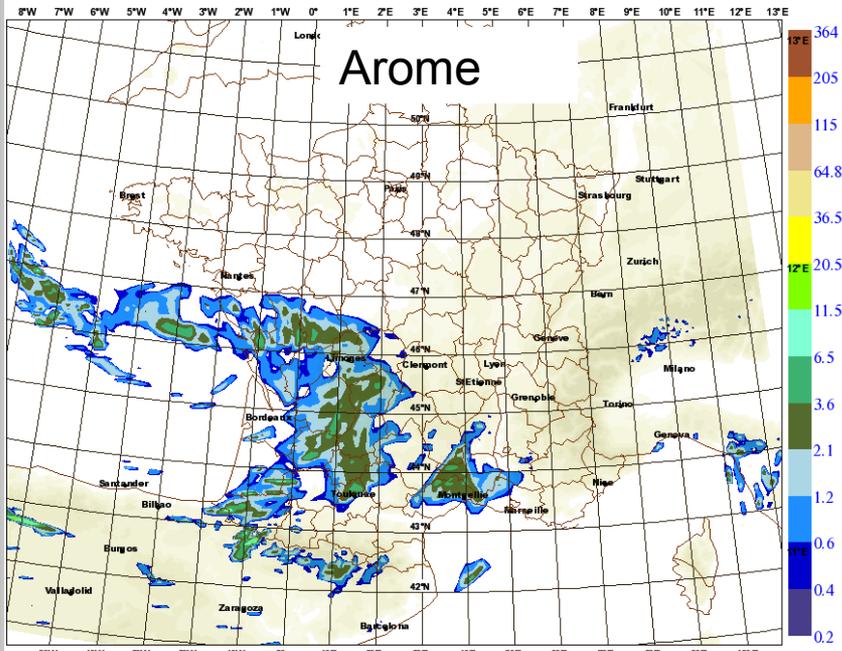


Main 'achievements' since Brussels

- Survey of the progress on the common part of the HIRLAM and ALADIN plans continues showing contrasts, which we cannot anymore attribute to misunderstandings. In fact:
 - In Bratislava we envisaged the working practices;
 - In Sofia we went to the methodology;
 - In Oslo we look at the details for difficult issues;
 - In Brussels we started assessing the outcomes, but careful inspection showed case to case discrepancies;
 - In De Bilt we should start letting run free what already 'matches' and give a new (sometimes structural) kick-off to topics in need of it. **Homogeneity will probably still decrease but hopefully for the long-term good of the endeavour.**

AROME became operational in Toulouse on 18/12/08

Aro 2008041700+0900 totalrain(mm) over last 1h

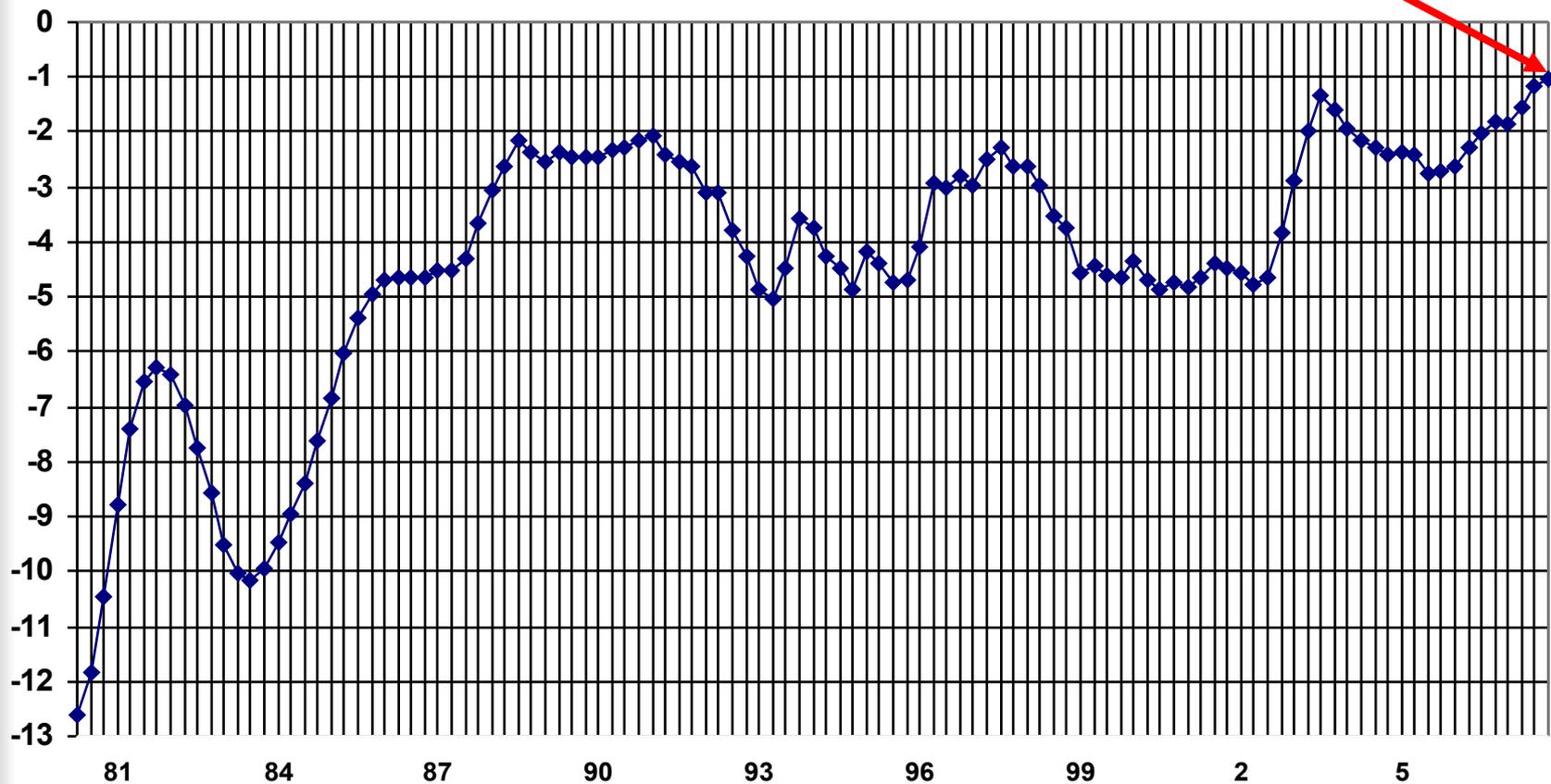


Operational applications of ALARO-0

- The past year has been the one of the operationalisation of 'full ALARO-0' (i.e. including 3MT).
- Benefits exist for resolutions at the upper limit and in the middle of the grey zone.
- Belgian colleagues were the first ones to take advantage of this initial targetting of the ALARO-0 plan (going back to the Bratislava workshop).
- Tests at many scales are ongoing, mostly with encouraging results, but with still too much divergence between the two versions at very high resolution

	ALARO-0- minus-3MT	Full ALARO- 0
Cz	30/1/07	4/6/08
At	13/9/07	7/4/09
Sk	19/2/08	19/8/08
Hr	25/2/08	
Si	X	16/6/08
Be (5km)	X	15/1/09

ARPEGE coupling files were never so good (absolute and **relative** statement valid 6 months ago and still improved a bit since [see next slide])



New ARPEGE and ALADIN-MF operational suite (4/2/2009)

Modifications of the physical parameterizations

- Major changes for the parameterized subgrid vertical exchange treatment:

Combination of a prognostic turbulent kinetic energy scheme with a parameterisation of the boundary layer top entrainment and a mass flux scheme for shallow convection. (See Eric's talk for more details)

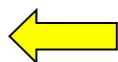
- New scheme (ECUME) to compute oceanic's flux
- 6 spectral intervals (instead of 2) in the short wave radiation scheme
- Change of the stratospheric ozone's climatology (Fortuin and Langematz 1994)

New observations used in ARPEGE 4DVAR

- 64 IASI channels over sea, 50 over land and 32 over sea ice
 - Instead of 50 channels only over sea in the previous operational version
- Use of MODIS wind from CMS (available more rapidly)

Some impacts of the modifications

Cloud cover along the GEWEX Pacific cross section

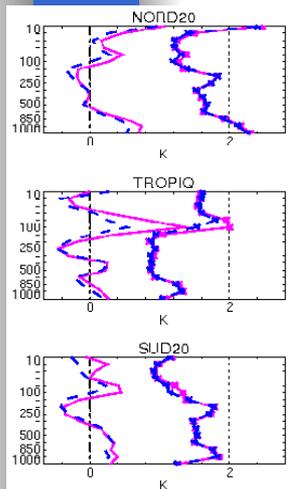
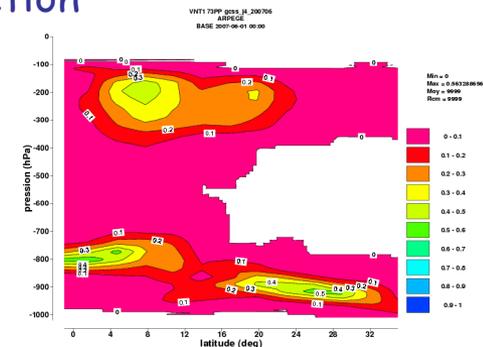
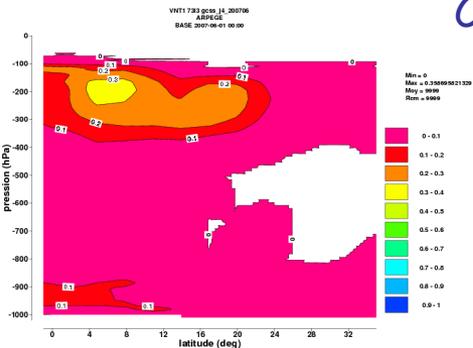


Old operational model

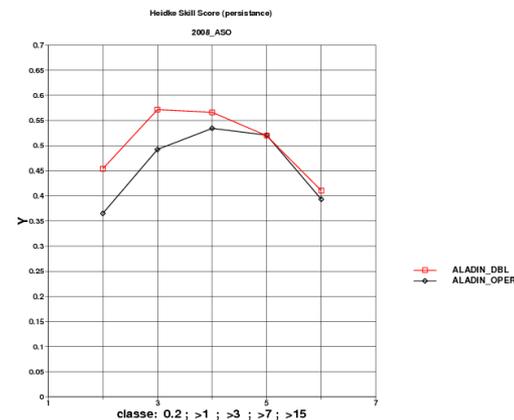
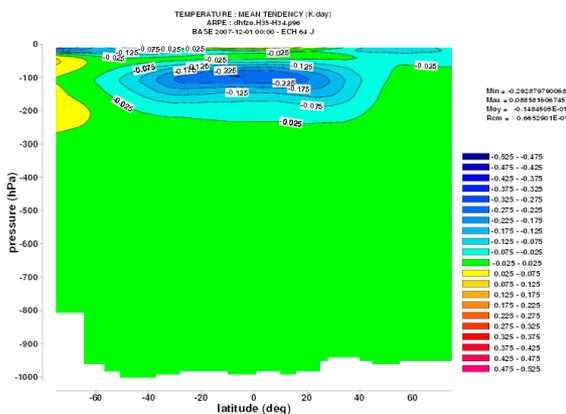
New operational model



Eastern stratocumulus are now predicted



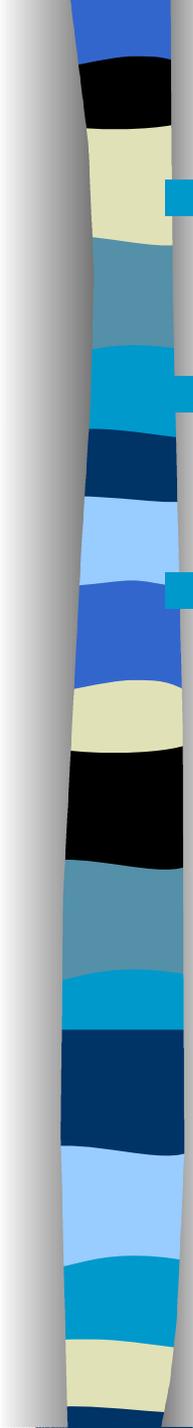
New ozone climatology:
Reduction of the stratospheric
warm bias



Heidke Skill Score for precipitations of the
old (black) and new (red) operational
ALADIN-France on August, September
and October 2008

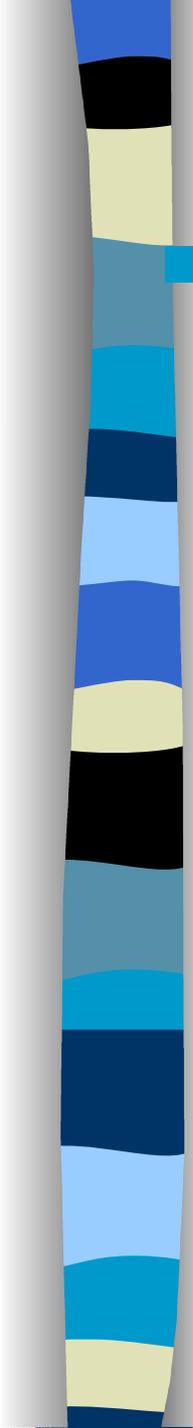
Expected improvements from 6/09 e-suite

- New resolution T798 L70 (10km over France)
- New resolution for ALADIN-MF (8km, L70)
- 3 updates in the 4DVAR T107/15 T224/15 T323(or T399)/25 (instead of T107/25 and T224/30)
- Use of linear stratiform precipitation scheme and linear GWD in minimizations
- Revised tuning of observation and background error variances, based on objective diagnostics.
- Use of a 4D-Var ensemble (with 1 minimization, instead of the 3D-Fgat ensemble), at resolution L70 T399c1 (instead of L60 T359c1), with spatial correlations for SATOB perturbations.
- Use of flow-dependent ensemble background error variances for all variables in the minimization (instead of only vorticity previously), with adapted spatial filtering.
- Reduction to 125km of the size of the thinning box for satellite data
•(instead of 250 km previously)



Long-lasting HARMONIE problems

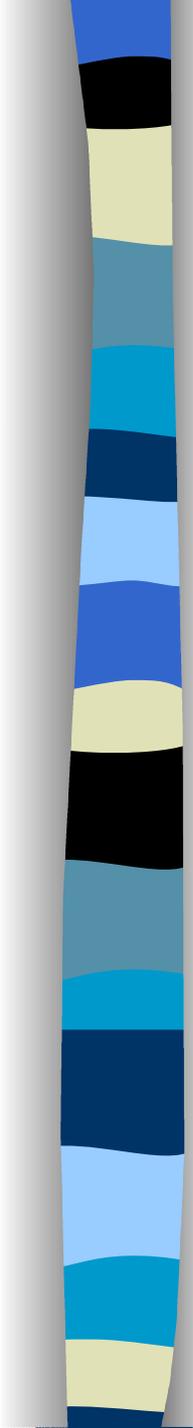
- The ‘dynamics’ and the ‘DA ancillary’ aspects are understaffed in a long-lasting way.
- Computing resources for the EPS projects are still a serious concern.
- The situation for the ‘maintenance’
 - We must take the ‘best’ out of the tools available on both sides, but we do not (yet) know how to define it;
 - We must better integrate the IFS/ARPEGE constraint in some kind of ‘a-priori’ common thinking for big developments;
 - We have to get a symmetric change of mentality for the joint issues of ‘transversality of developments’ and ‘progression of their integration in the common code trunk’.



Long-lasting HARMONIE problems

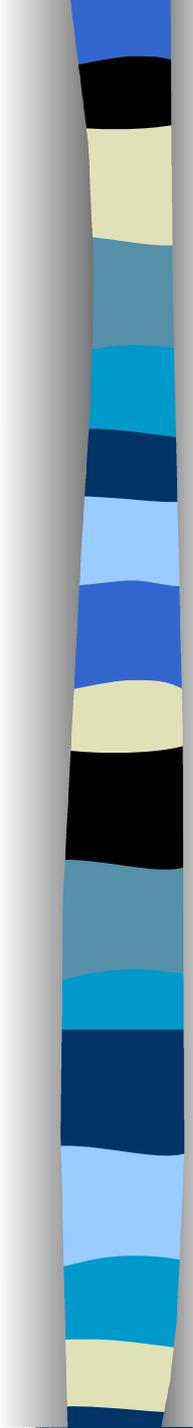
The situation for the 'physics'

- The characterisation of the lower limit of the grey-zone is still vague;
- The operational solution for keeping the AROME-France precipitation under control is physically not satisfying (SLHD was not developed with the horizontal smoothing of falling precipitations in mind);
- ALARO-0 has quite good 'multi-scale' results but it fails to give the same results as its 'resolved convection' equivalent when tried at high resolution;
- There is certainly an element of phys-dyn interaction to take into account when trying to improve the situation, but who knows which one?
- The outcome of the 'Convergence days' will help a better work on such issues but alas with delay with respect to the need.



Outlook (De Bilt => Krakow)

- Shall we correctly manage the decoupling between unproblematic and problematic issues?
- Shall we manage the correct bridging between ‘convergence’ and ‘internal interoperability’ (both are really ‘slang’ for far more complex processes)?
- Will the (postponed) declination “**Strategic Document => 4-year Plan => yearly workplan**” be successful?
 - QUO VADIS ~~ALADIN~~ HARMONIE (slightly modified repeat of the workshop motto from 4 years ago) ???



Conclusion

Try to keep a part of this mixed bag in mind
during the next four days

and

enjoy all the spirit and strength of such a big
gathering of people who know how to both
argue and progress together.