

RECENT DATA ASSIMILATION ACTIVITIES

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- J_b statistics
- 3dvar & spectral truncation
- Aladin/France 3dvar cycle
- Observation use

J_b statistics (1)

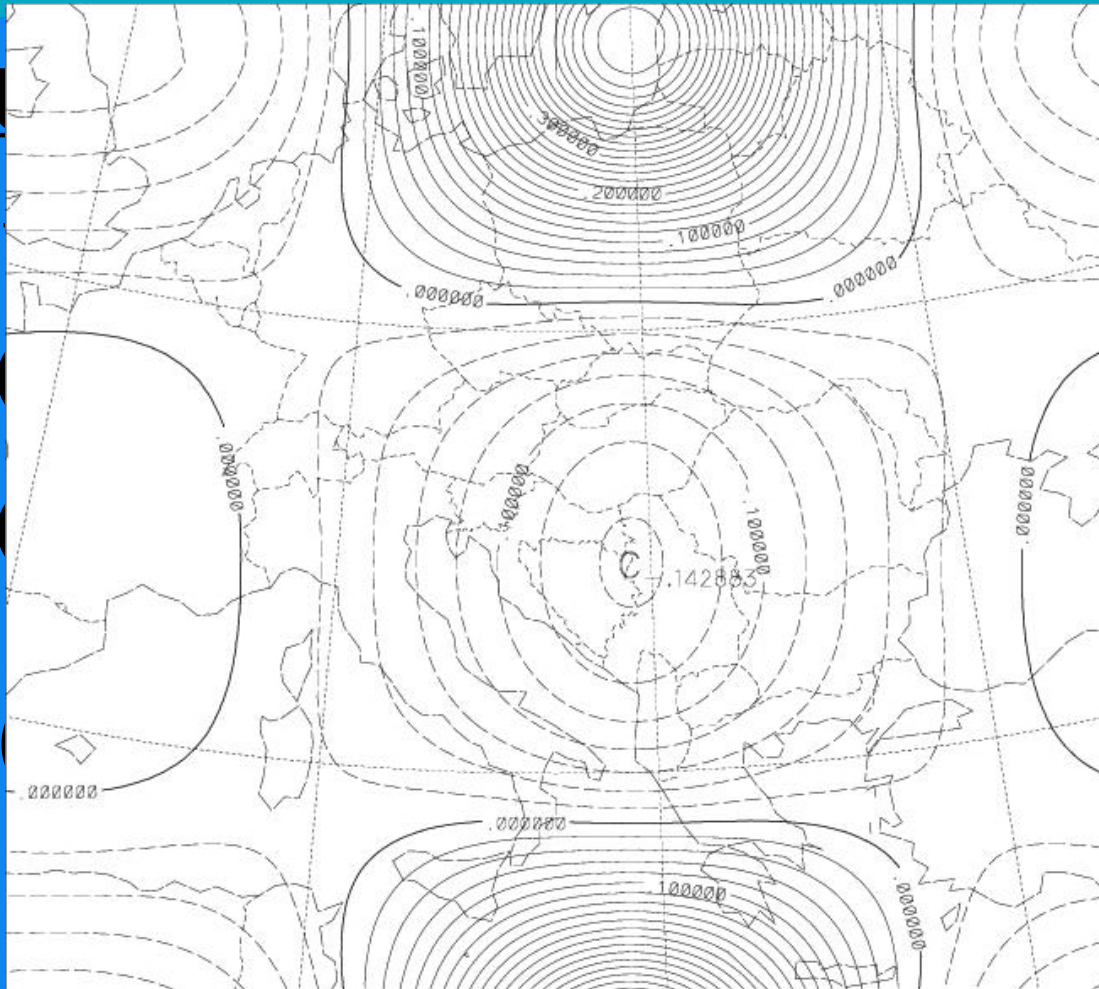
• Compact

$q(k^*)$

$q_{\cos u}$

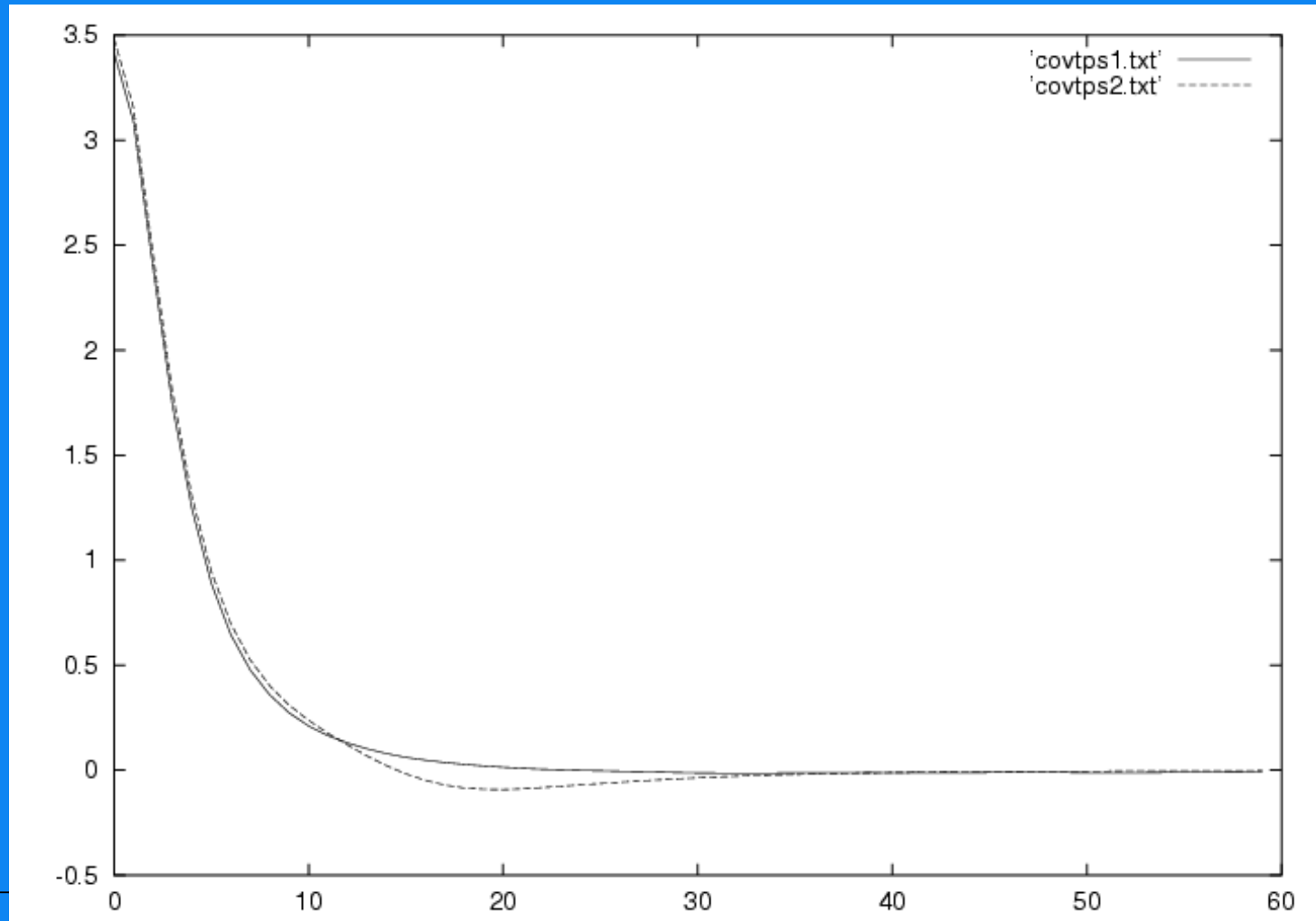
$q_{\cos u}$

mask



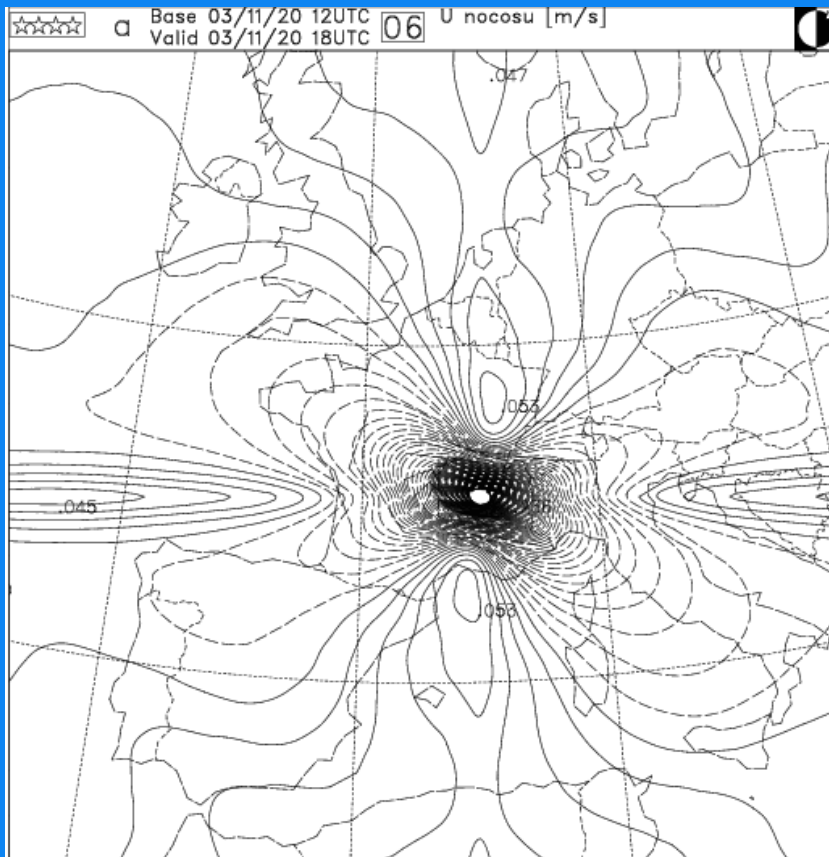
$+ dy^2$

J_b statistics (2)

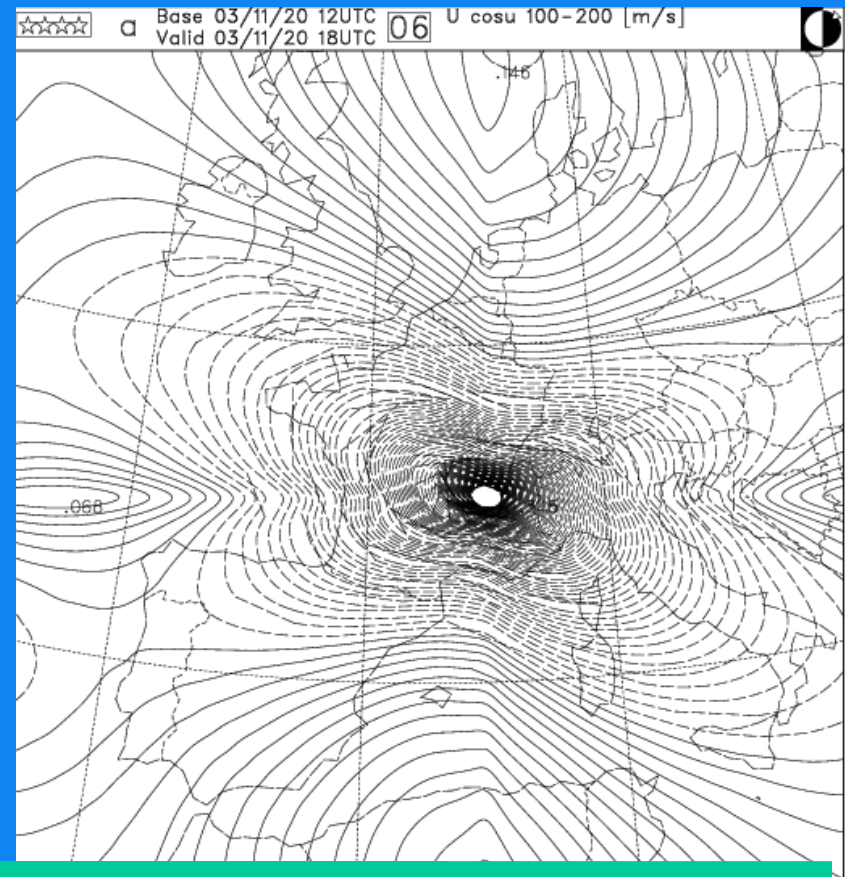


J_b statistics (3)

no COSU



COSU



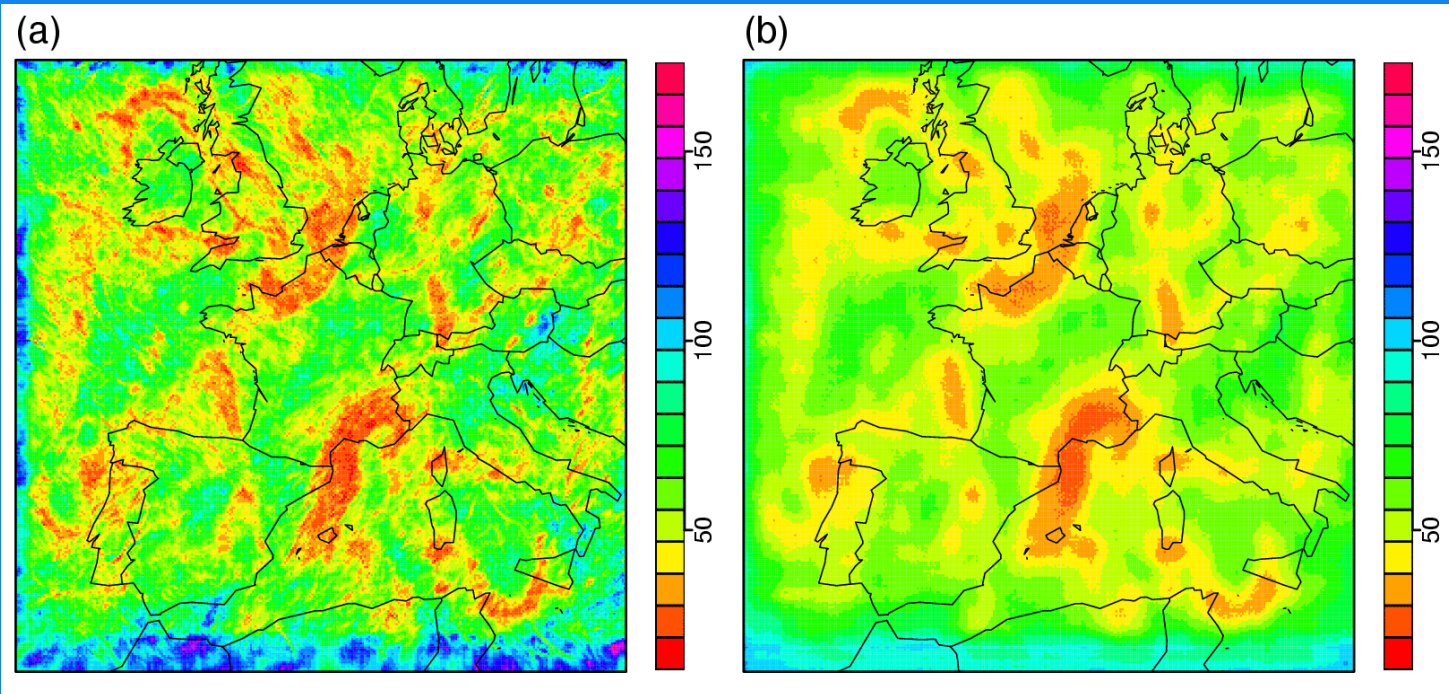
even (div,vor) \rightarrow (u,v) leads to problems

J_b statistics (4)

- enlargement of the E zone
 - efficient solution (at least in 1D tests of Vincent Guidard)
 - maybe too expensive in CPU if the model is very HR (Arome?)

Jb statistics (5)

- wavelet representation (scale & position)
 - possibility to introduce geographical variations of the correlation functions



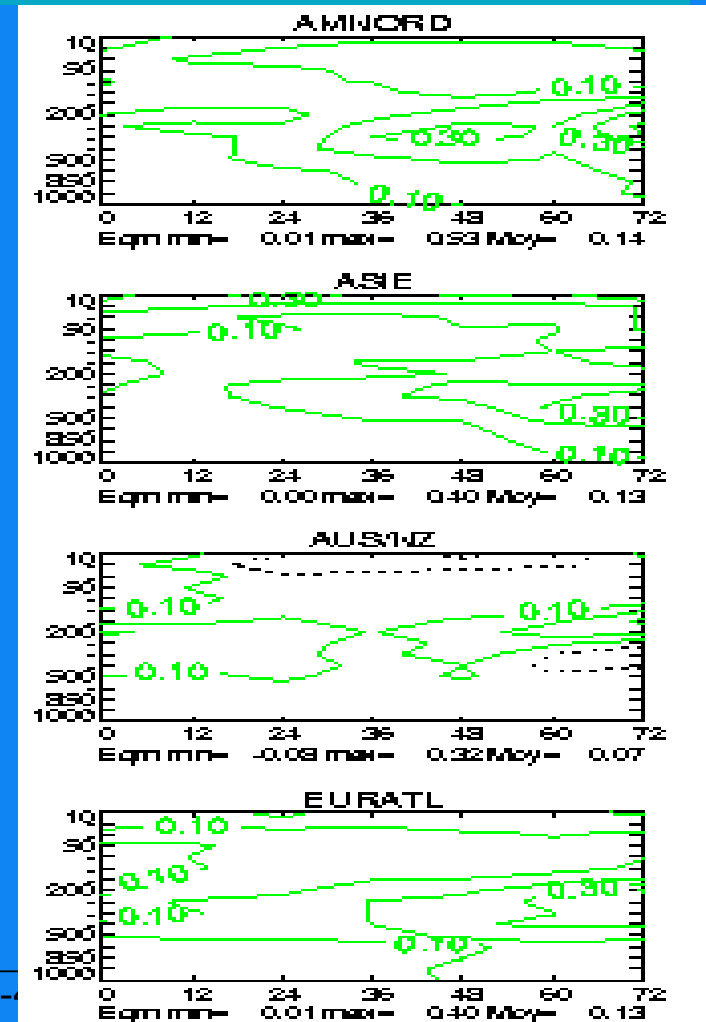
Jb statistics (6)

NMC - ENS

- ensemble versus NMC method

→ better estimation of the background errors

→ possibility to estimate analysis errors (Jk term, separation of Aladin forecast errors and Arpege analysis errors)

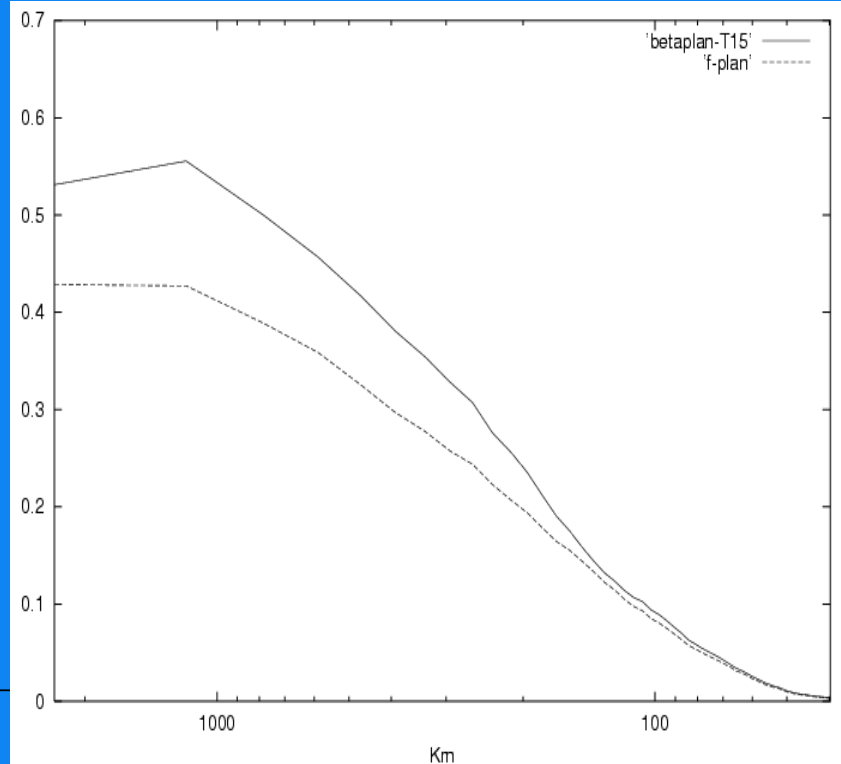
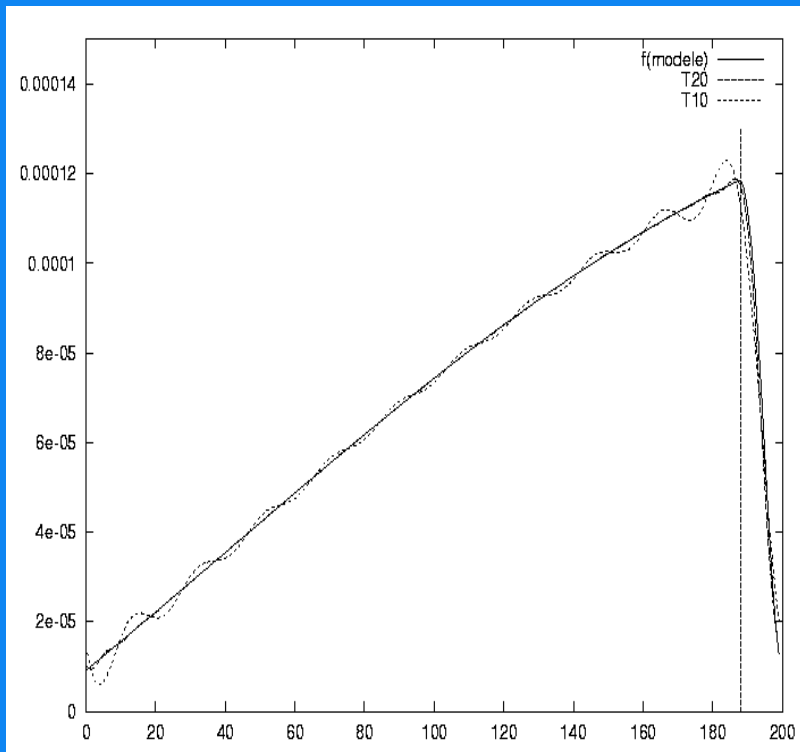


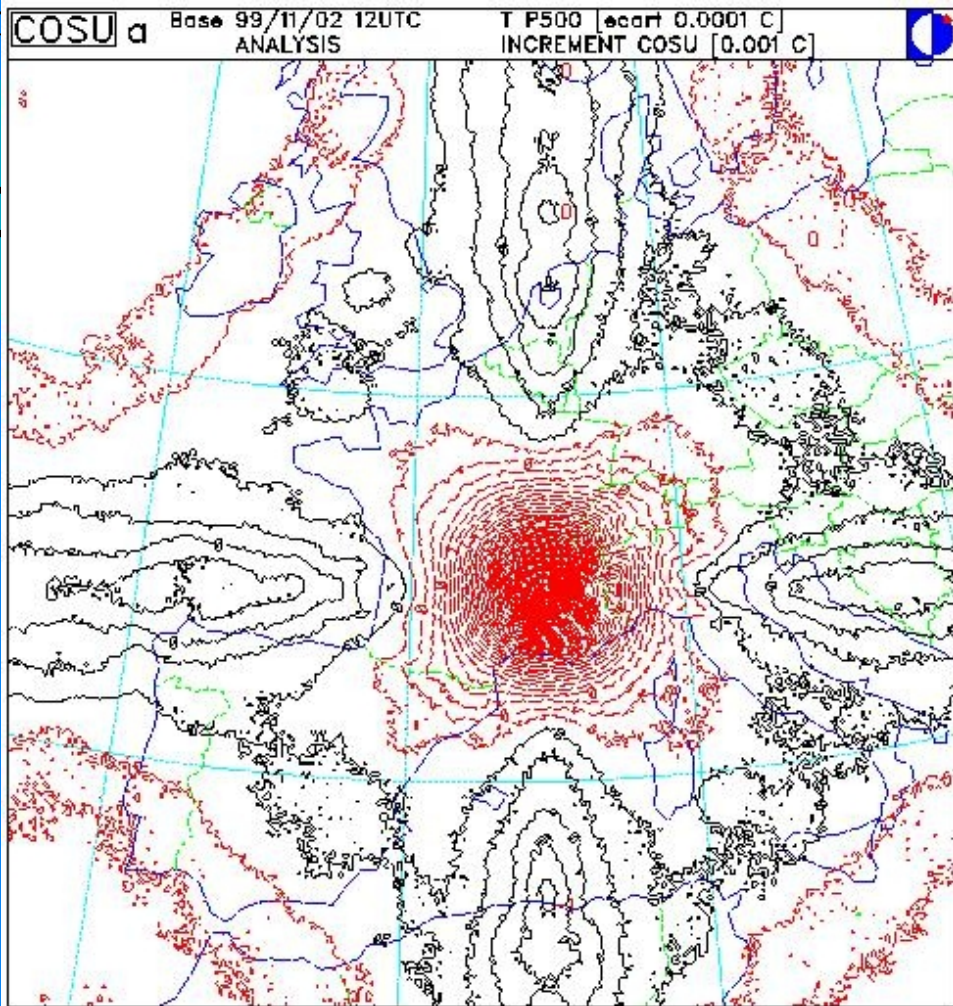
Jb statistics (7)

- β -plane f

→ Meridional variation of the Coriolis parameter

$$\nabla^2\Phi = f \zeta$$





3dvar & spect

- 3dvar tests with rectangular truncation

→ motivation: better representation of isotropy (bijective Fourier transform)

→ No enthusiastic results so far (?)

→ But maybe a technical step towards Arôme assimilation!

Aladin/Fr 3dvar tests (1)

- 30 day assimilation cycle (03/06/2003-02/07/2003)
- initial setup
 - 3dvar analysis 6 hourly
 - Lagged NMC B matrix ; REDNMC=1.3
 - "traditional" LBC: 3h frequency, time consistent
 - No DFI, No blending
 - Surface analysis: Arpege OI
 - Same observations as in Arpege

Aladin/Fr 3dvar tests (2)

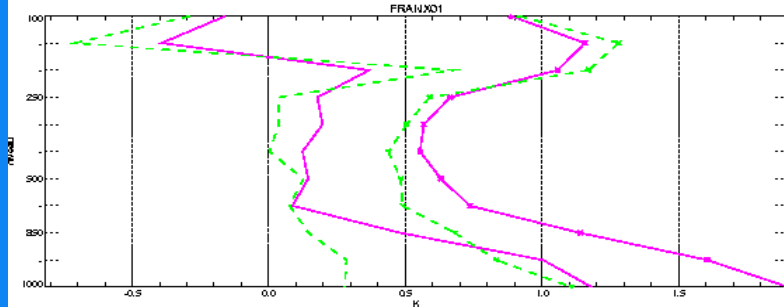
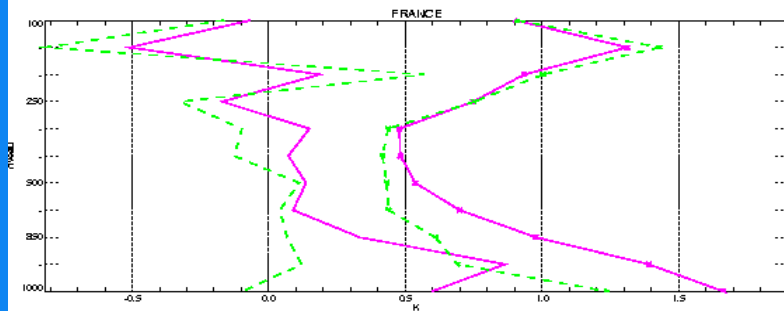
TEMPERATURE 3D-VAR Cycling Experiment

ECH. : / 0 /

29 cas, 03/06/2003_12UTC -> 01/07/2003_12UTC

— Biais PLAD1.r12/TP - - - - Biais PAAA0.r12/TP
* - * Eqm PLAD1.r12/TP * - * Eqm PAAA0.r12/TP

ECH.0



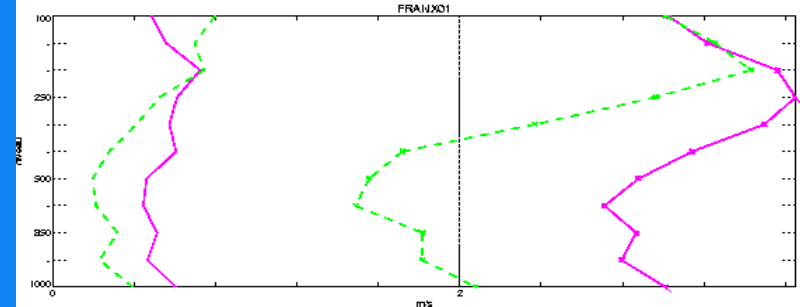
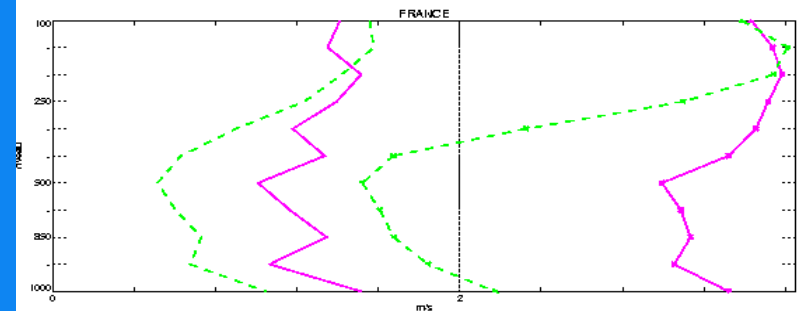
VENT 3D-VAR Cycling Experiment

ECH. : / 0 /

29 cas, 03/06/2003_12UTC -> 01/07/2003_12UTC

— Biais PLAD1.r12/TP - - - - Biais PAAA0.r12/TP
* - * Eqm PLAD1.r12/TP * - * Eqm PAAA0.r12/TP

ECH.0



Aladin/Fr 3dvar tests (3)

- more testings
 - Moroccan (Arpanal) coupling strategy
 - “Inertial” cycle (without 3dvar analysis)
 - BlendVar
 - 2 periods (summer & winter)
 - case studies

Observation use (1)

- Satellite observations

→ ATOVS/AMSU-A data has entered the Aladin/hu 3dvar parallel suite (Roger's presentation)

→ MSG clear-sky radiances (Fr)

→ Humidity bogoussing (Fr)

→ ATOVS/AMSU-B will start soon at HMS (Fr already?)

→ MSG SATOB wind at HMS (end of 2004)

Observation use (2)

- Aircraft observations
 - AMDAR data at HMS (I refer to Roger)
- Windprofiler (HMS)
 - study data quality and amount
 - feeding ODB

Observation use (3)

- Radar developments (by Marian Jurasek)

1. Assimilation (use the data in the model)

Indirect way:

→ 1dvar retrieval of q, T profiles

→ assimilation as pseudo temp or satem

2. Monitoring (verification and obs error estimation)

Direct way:

→ obs operator but no TL/AD

→ reshape the MesoNH "radar simulator"

Observation use (4)

- Radar developments (by Marian Jurasek)

→ observation data flow for radar data is prepared

→ obs minus guess could be computed (HOP?)

THANK YOU FOR YOUR ATTENTION