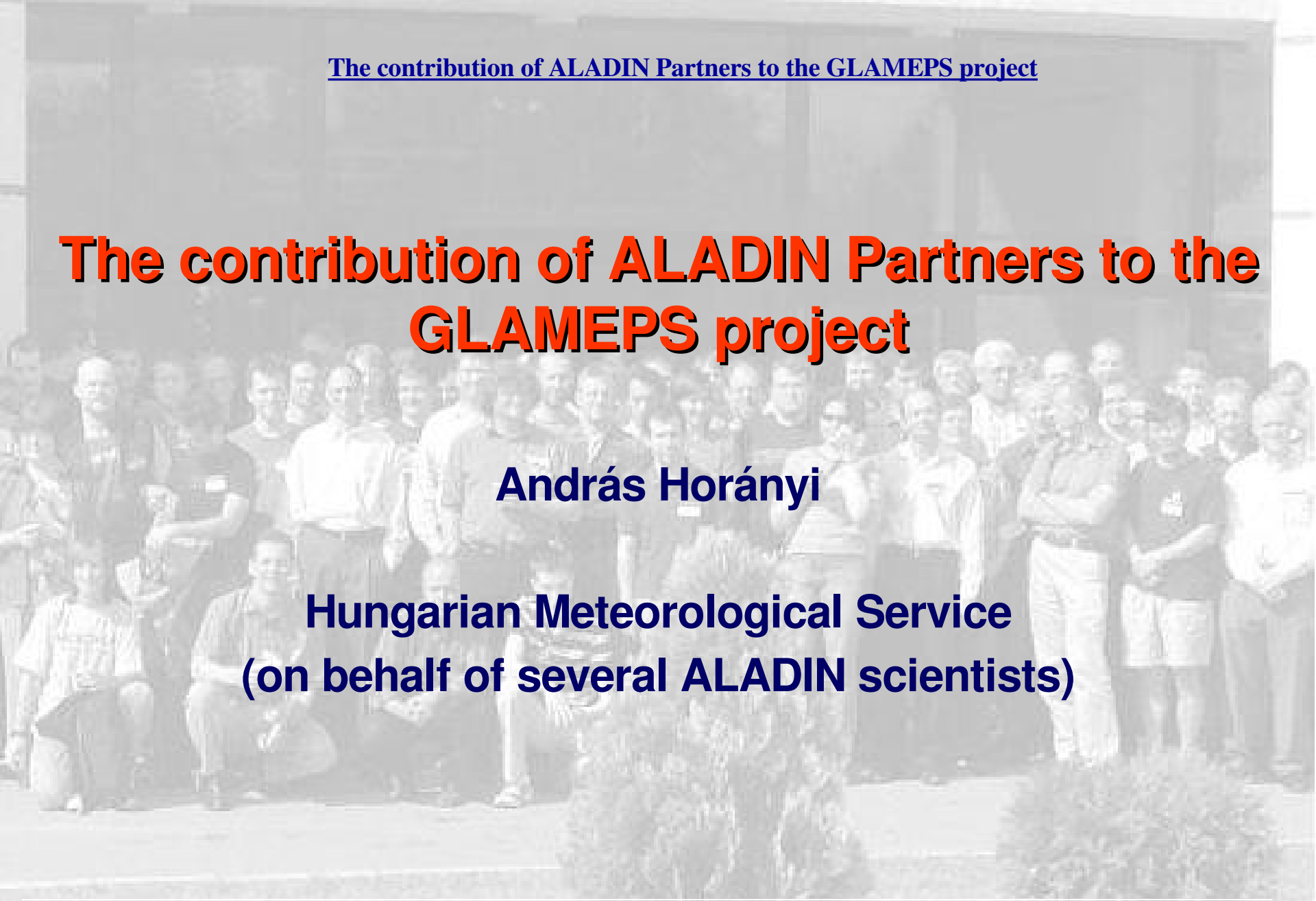
The contribution of ALADIN Partners to the GLAMEPS project



András Horányi

Hungarian Meteorological Service
(on behalf of several ALADIN scientists)

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HISTORY

- The GLAMEPS idea: Initiated by HIRLAM (March, 2006, HIRLAM predictability planning meeting, Madrid)
- Supported by the establishment of LACE working group on predictability ALADIN expressed the wish to participate on GLAMEPS (was it a wishful thinking or reality?)
- A Special Project at ECMWF was submitted and accepted (SPNOGEPS, 2007-2009)
- Two working weeks were organized
  - June, 2006 in Norrköping (SMHI)
  - January, 2007 in Reading (ECMWF) with some follow-on work by Spanish colleagues in March

THE GLAMEPS CONCEPT (1)

- Main objective: the establishment of a real-time operational grand ensemble prediction system

- In practice:
  - 100 EPS members or so
  - Around 20 km resolution
  - Large, common domain
  - Different versions and "dialects" of HIRLAM and ALADIN models

THE GLAMEPS CONCEPT (2)

- Practical realization: two phases
  - Laboratory phase at ECMWF (2007-2008)
  - Distributed production stage (2008-2009)

ORGANISATION AND INTERNATIONAL RELATIONS

- Steering Group (met once in January, in Reading) led by the Project Leader on Predictability of HIRLAM (Trond)

- GLAMEPS vs. EUREPS: the other two consortia (COSMO, MetOffice) are not (yet) engaged in the operational endeavor (just scientific cooperation and coordination)

- GLAMEPS vs. TIGGE-LAM: one possible segment for the European component of TIGGE-LAM

GLAMEPS PARTICIPANTS FROM ALADIN

- Hungarian Meteorological Service (Hungary, OMSZ)
- Central Institute of Meteorology and Geodynamics (Austria, ZAMG)
- Meteorological and Hydrological Service (Croatia, DHMZ)
- Czech Hydrometeorological Institute (Czech Republic, CHMI)
- National Meteorological Administration (Romania, NMA)
- Royal Meteorological Institute of Belgium (Belgium, IRM)

DIFFICULTIES

- Most of the ALADIN Partners are not full members of ECMWF (no direct access to the ECMWF machines) → no experience for using hpce/hpcf

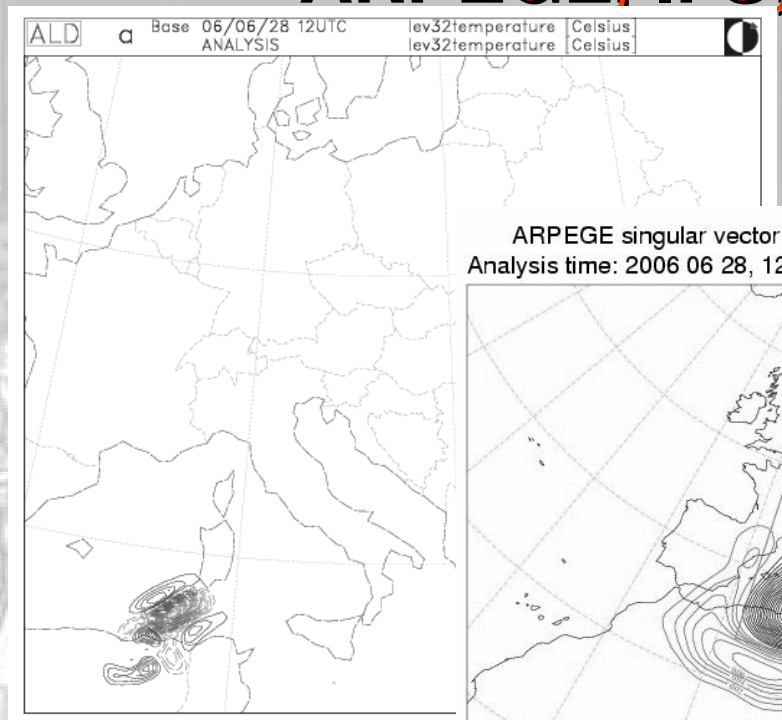
- There is an interest towards GLAMEPS, however the activity of the concerned countries (people) is disappointingly low (in other words: no real discussions, no real feedbacks for raised issues)

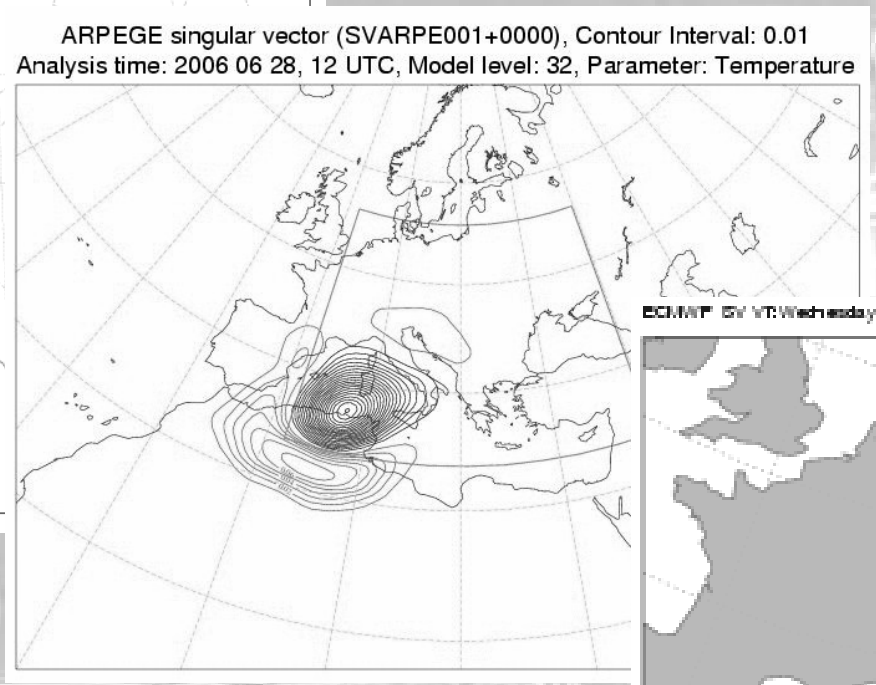
CONTRIBUTIONS: HUNGARY

- Downscaling of ARPEGE EPS (only for the distributed stage)
- Computation of ALADIN singular vectors (SV)
  - Planned stay of Richard Mladek in Budapest
- ECMWF EPS downscaling
  - Work together with Belgium and/or Portugal (?)
- Verification, scripts (agreement is needed for what to use)

The contribution of ALADIN Partners to the GLAMEPS project

LEADING SINGULAR VECTORS (ALADIN, ARPEGE, IFS; T at around 730 hPa)



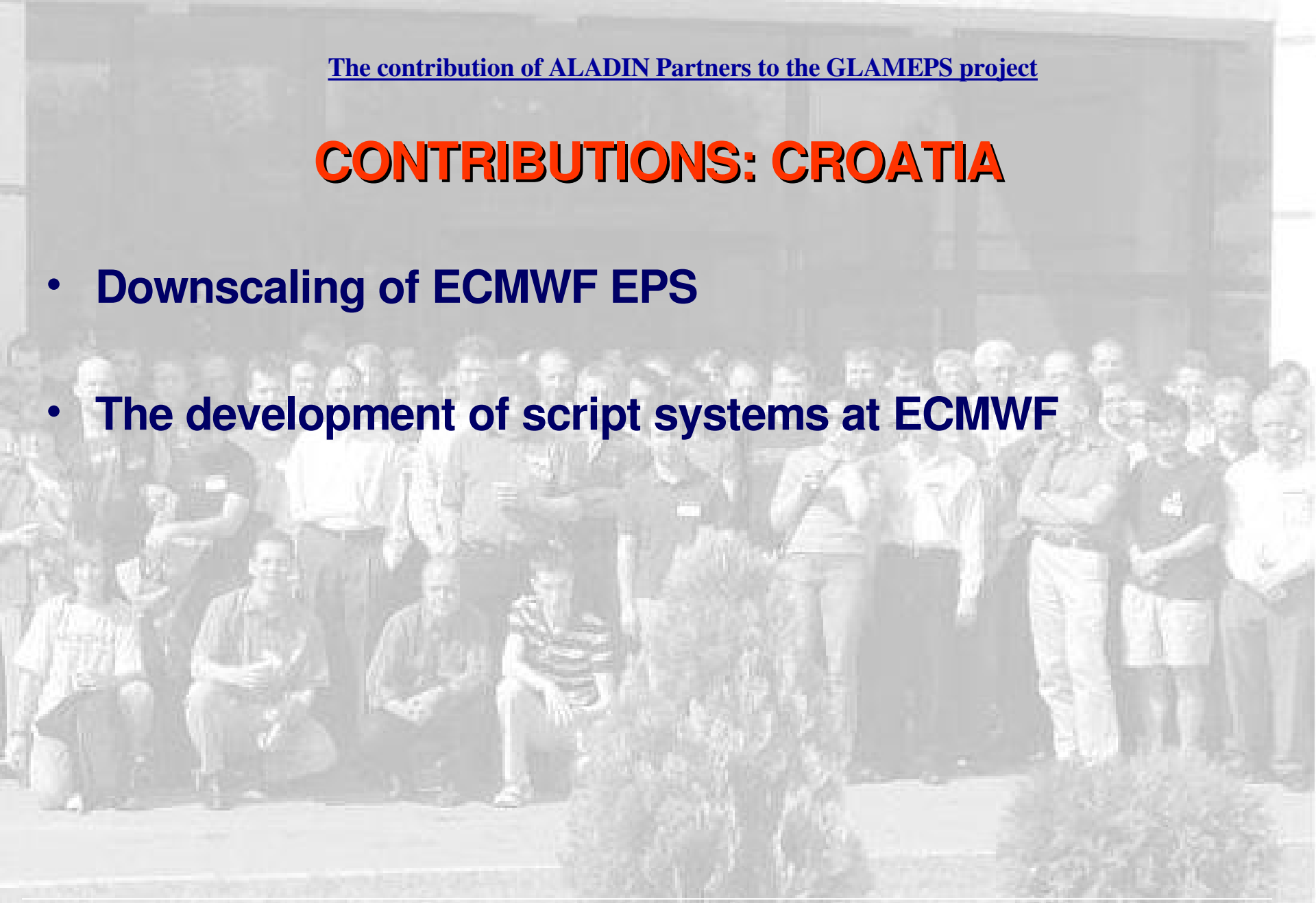


CONTRIBUTIONS: AUSTRIA

- Downscaling of ECMWF EPS as a starting point
- Step-by-step introduction of research results as multi-physics, breeding, ET/ETKF etc.
- Verification ("LACE verification package")
- Question:
  - What is the relation of the quasi-operational ALADIN LAEF system running at ECMWF and the GLAMEPS plans (e.g. difference in domain and resolution!!!)?

CONTRIBUTIONS: CROATIA

- Downscaling of ECMWF EPS
- The development of script systems at ECMWF



CONTRIBUTIONS: CZECH REPUBLIC

- Downscaling of ARPEGE EPS
  - See poster of Richard Mladek
- ALADIN singular vectors
  - Stay of Richard Mladek in Budapest
- Verification ("LACE verification package")

CONTRIBUTIONS: ROMANIA

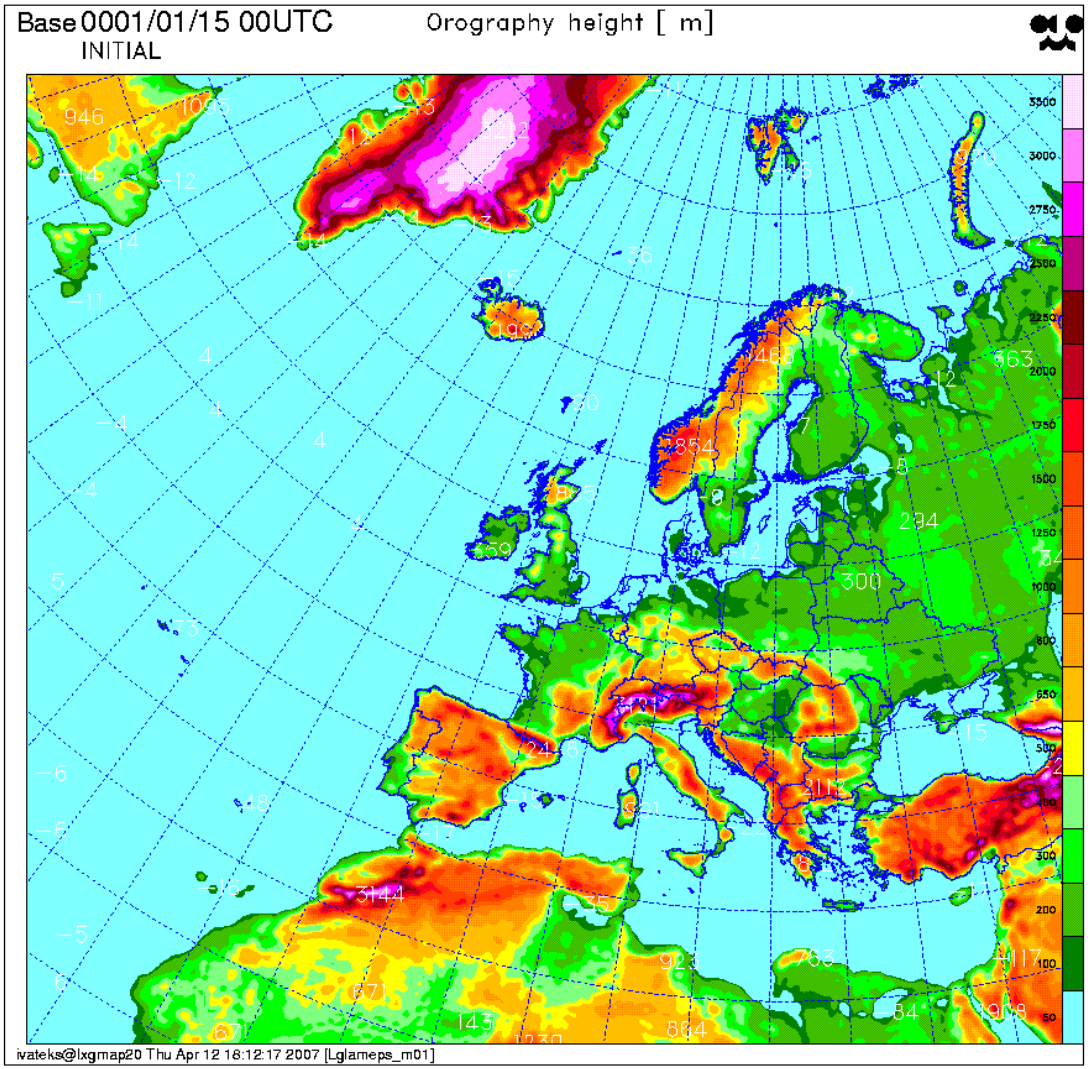
- Downscaling of ECMWF EPS
  - all members
  - selection of representative members (COSMO-LEPS type approach)

CONTRIBUTIONS: BELGIUM

- Membership in the GLAMEPS Steering Group
- Downscaling of ECMWF EPS?

THE PROPOSED GLAMEPS/ALADIN DOMAIN

- Resolution: 22km
- Number of points: 320 * 300
- Number of levels: 37



ESTIMATION OF EXECUTION TIME ON HPCE (with the courtesy of Stjep)

- One 54h integration (24 CPU run): around 80 SBU
- SPNOGEPS available SBU for 2006: 206 000, which is around 2500 ALADIN integrations (for 2007 1 mSBU available)
- Estimation of local costs
  - HMS Altix 32 processors: 8 minutes/run

OPEN ISSUES

- Initial agreement on domain is needed
  - Austria expressed their impression that the planned domain might be too large
- Common post-processing domain to be defined
- Common verification package to be agreed
- What are the ingredients of the grand ensemble (for teh laboratory phase)?
- Involvement of other ALADIN partners: Portugal (?)

THANK YOU FOR YOUR ATTENTION!!