

# ALADIN strategy 2008-2017

Introduction to the draft  
submitted to the 2007 General Assembly

Ljubljana, 7-8 Nov 2007

# Elaboration process

- A Task Force created by GA in 2006
  - chaired by A. Mokssit since end 2006
  - other participants: F. Bouttier, R. Brozkova, E. Legrand, C. Soci, P. Termonia, M. Zagar
  - of course some input from PM
- A first draft submitted to PAC (Prague, June 2007)
  - rather complete on scientific aspects
    - not a surprise given the TF membership
  - still needing a "political layer" and some editorial work

# Elaboration process

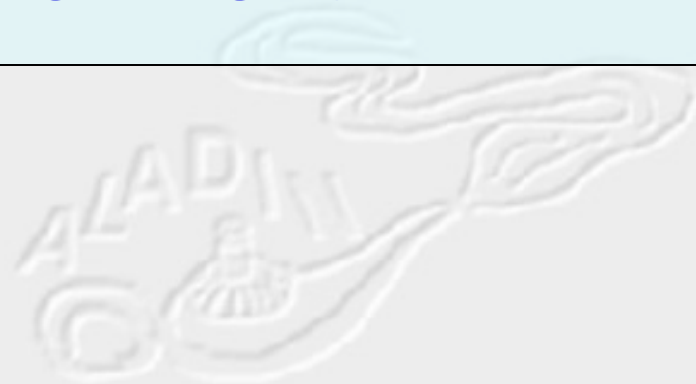
- A new group targeted to the required additions
  - chaired by E. Legrand
  - other participants: Ch. Blondin, D. Klaric
  - again some input from PM
- A 2nd draft submitted to Bureau (Vienna, Oct 2007)
  - as expected, consisting in 1st draft + political aspects + editorial work
  - a new set of modifications brought by the Bureau meeting
    - touching the form and not the substance
- A 3rd draft submitted today to GA

This is not an attempt to cover in details  
all aspects that are in the document



Just an introduction

# International environment

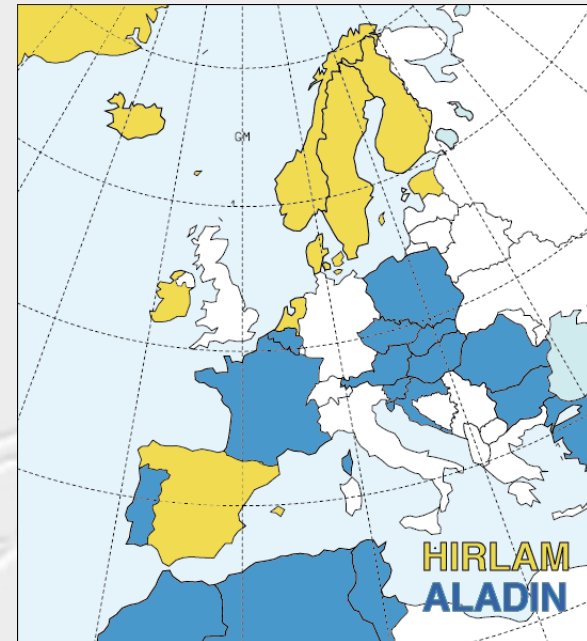


# International environment

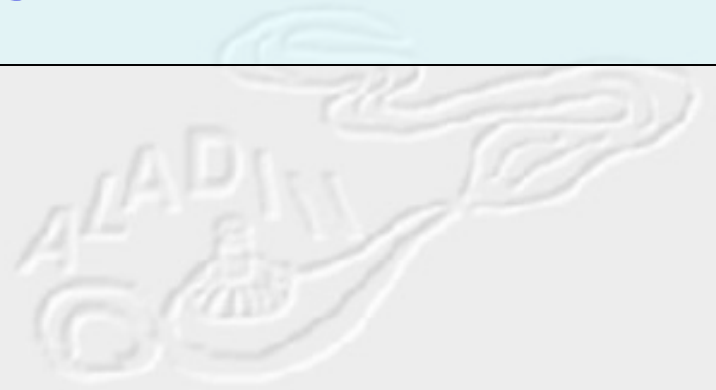
- A world-class position in our domain (LAM NWP)
  - part of the strategy is "defensive": keeping this position
- Obtained through co-operation
  - inside the consortium
    - no member could do it alone
  - via the anchoring to ECMWF
    - using the IFS-Arpege backbone
  - and now in partnership with HIRLAM
    - strengthening it is a key element of the strategy
    - up to which level of integration in 2017 ?
    - a lot of similarities in both Aladin and Hirlam strategies
      - » the "grey zone" as main difference
  - co-operation of course at the heart of the proposed strategy

# International environment

- Some evolving elements
  - the more ambitious redefinition of SRNWP
    - with more links between consortia
      - required for interoperability
    - where ALADIN+HIRLAM = large majority
  - the increased visibility of Eumetnet at EU
  - the increased role of EU
    - GMES, SESAR etc.
    - opportunities or threats ?
- And a lot of uncertainties



# Main goals





# Main goals

- In general terms
  - To improve the value (quality, usefulness...) of meteorological, also impacting hydrological and environmental, forecast
    - short range, detailed
    - severe weather but not only
  - user requirements (cf. the Spring 2007 survey)
    - precipitation (extreme, flooding, convective, hail, solid vs. liquid)
    - low level temp, clouds (inc. fog), low level wind
    - decision making, risk quantification

# Main goals

- In general terms
  - optimal use of observation / computing resources
  - to do significantly better than black-box tools freely available on Internet and run on a PC
    - and have our users convinced

# Main goals

- Operational goal
  - a NWP system at kilometric scale
    - "system": model, data assimilation, ensemble prediction, products
    - in general above 1 km at the beginning of the covered period, below 1 km for some applications at the end
      - remembering Moore's law: a factor of 100 in 10 years
        - » a 1km version approx. 40 x CPU compared to a 2.5 km one
    - some research versions always finer than oper. ones
    - usefulness progressively extending to nowcasting

# Main goals

- Operational goal
  - interim cheaper configurations
    - at the beginning even for deterministic applications
    - with longer perspective for ensemble applications
  - complementary goal: regional climate models

# How to reach these goals

- R&D on the model components
  - The traditional main domains
    - dynamics
    - physics
    - data assimilation (methods and observation)
    - ensemble prediction

# How to reach these goals

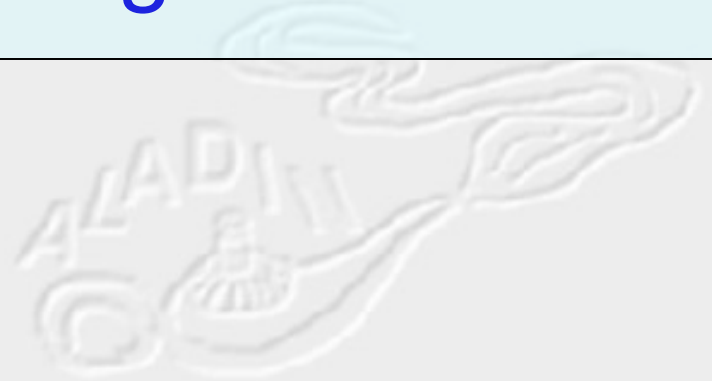
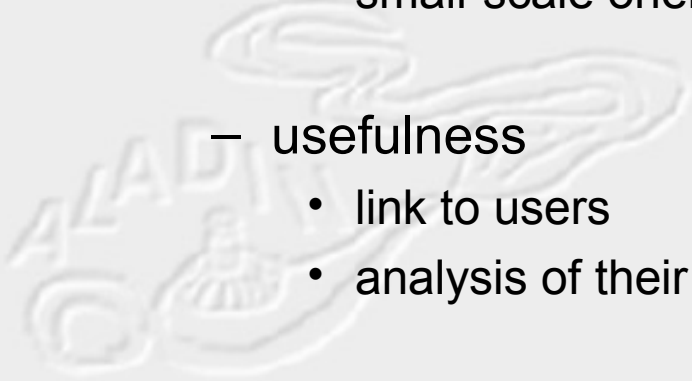
- R&D on the model components
  - increased development of ancillary software
    - obs processing, EPS product generation, model couplers, verification etc.
    - more and more aiming at interoperability
  - improved interface with downstream applications (hydro, oceano, pollution...)
    - possibly including some of them in the Aladin software

# How to reach these goals

- Software management / maintenance
  - increasing complexity -> increasing need for efficient software management
    - more applications
    - more contributors
  - likely evolution towards a more diffuse network
  - human resources / training

# How to reach these goals

- Verification
  - model performance
    - small-scale oriented methods
  - usefulness
    - link to users
    - analysis of their feedback





# How to reach these goals

- Balance between research freedom and governance
  - Preparatory discussions were reflecting the concern of the scientists as regards a too much top-down organized and planned research
  - But of course when talking about operational objectives and about resource allocation, an efficient governance is needed
  - The text reflects the need for an "optimal compromise"

# How to reach these goals

- Link with the research community, "scientific reputation"
  - publications (international peer-reviewed journals)
  - conferences
  - participation in field experiments
  - increased co-operation with academic institutions
- But keeping our NWP identity and goals

# How to reach these goals

- Resources

- the classical (cf. MoU) " $\geq 2$  full time / institute"
  - adapted to dynamical adaptation
- data assimilation is more demanding ( $\geq 5$  / institute)
  - and is a key element of doing better than Internet black-boxes
  - may lead to operational groupings

- Technical infrastructure

- formally of each member's responsibility
  - not part of the consortium strategy
- however important to recall the need of a technical infrastructure adapted to the NWP system
  - not just the computer on which the model runs
  - observation and model databases, telecoms, archive etc.

# About membership

- All current members are Euro-mediterranean
  - this is no longer a condition since MoU-3 (2005)
- No explicit strategy for expanding out of this area
  - would only result from specific opportunities
  - we have to keep in mind
    - the role of ECMWF
    - the total number of members which is already large
      - impact on the governance
    - still a few European NMSs not member of any SRNWP consortium
- With the exception of Moldova, nobody left
  - but did they really enter ?

# Not forgetting

- The strengths and weaknesses of our consortium
  - some of them being unavoidable
    - ex: heterogeneity among partners
  - some of them belonging to our history
    - ex: our numerical efficiency trademark

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