



# Highlights of activities 2008-2009

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### ✓ Projects & Technical Actions

**+ lessons from the first year  
(results, delays)**

➤ **R&D highlights**

✓ **Role at HARMONIE system**

**Nothing to complain about the problems ...**



# SRNWP Consortia in Europe



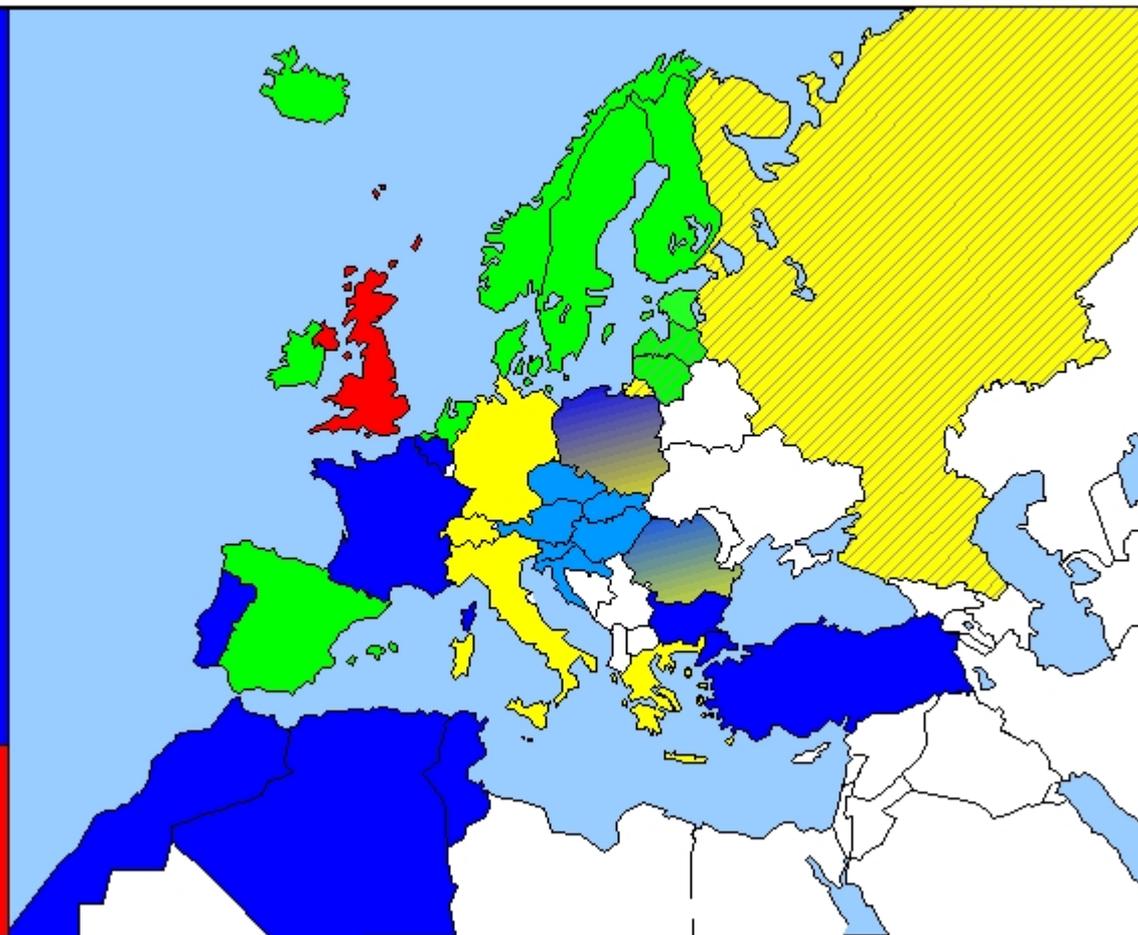
## ALADIN

Algeria  
Belgium  
Bulgaria  
France  
Morocco  
Poland  
Portugal  
Tunisia  
Turkey

Austria  
Croatia  
Czech Rep.  
Hungary  
Romania  
Slovakia  
Slovenia



**UKMO**  
United Kingdom



## HIRLAM

Denmark  
Estonia  
Finland  
Iceland  
Ireland  
Netherlands  
Norway  
Spain  
Sweden  
(Latvia)  
(Lithuania)

## COSMO

Germany  
Greece  
Italy  
Poland  
Romania  
Switzerland  
(Russia)



## .....defining the rôle

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**RC LACE** is international cooperation of National (Hydro-) Met. Services that coach **regional activities** at the area of meso-scale NWP in the terms of **scientific achievements and operative implementations.**

**or**

**"how to perform ALADIN at CE"**



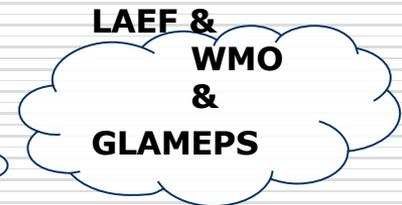
## 4<sup>th</sup> LACE cycle of common R&D and **Operations**,3)

- Political decision for the closer operative cooperation  
(**toward the Projects with operative deliverables**)
- Leading centers => **Responsible center**
- Bottom-up => **Top-down planning**
  
- **Projects** (priority list, deliverables, Responsible center)
  
- ✓ LACE Management Group: PM, 4AL, ASC, DA
  
- ✓ LACE MoU III (2008-2012),
- ✓ LACE Budget
  
- ✓ LACE 10-years strategy

Projects are bringing the top R&D achievements toward operative use

## 4 Areas for R&D → 4 Projects

- Operational **3D Var system** for LACE (HMS)  
**Common observation pre-processing (HMS)**
- Implementation of **ALADIN NH** dynamics (CHMI)
- Operational **ALARO phy at 5km** mesh size (CHMI)
- Common **ALADIN-LAEF** (ZAMG)  
processed at ECMWF,  
**products at LACE WEB page**



## Objectives

- ❖ Centralized preprocessing of observations
- ❖ Installation of atmosph. (3DVAR) and surface (CANARI OI) analysis systems in LACE centers
- ❖ Enhanced use of high frequency observations

## Deliverables/Users

- **Observation collection and preprocessing at HMS**  
**(int. and national data)**
- **data monitoring reports**
- **Working packages 3DVAR (upper air) and CANARI OI (surface)**

## Objectives

- ❖ Centralized preprocessing of observations
- ❖ Installation of atmosph. (3DVAR) and surface (CANARI OI) analysis systems in LACE centers
- ❖ Enhanced use of high frequency observations
- ❖ Use of high resolution observations

✓ **OPLACE**

## Existing at Hu, Cz

### New

- ✓ **Au**
- ✓ **Cr**
- ✓ **Si**

### A) Delays

➤ **Local experts required**

**B) Excellent networking via WEB forum**

➤ **Test with National data**

# Implementation of ALADIN NH dynamics

## Objectives

- ❖ Validation of the current NH dynamics
- ❖ Improvements and development
- ❖ Code optimization of the NH dynamics
- ❖ Operational implementation

## Deliverables/Users

- **debugging of current NH dynamics**
- **study of NH accuracy, noise, stability**
- **Hydr vs. NH impact studies**

# Implementation of ALADIN NH dynamics

## Objectives

- ❖ Validation of the current NH dynamics
- ❖ Improvements and development
- ❖ Code optimization of the NH dynamics
- ❖ Operational implementation

✓ **cy32t1**

➤ **ALADIN "style" VFE**

**A) Delays**

➤ **Due to cy35t1 delays**

**B) many num. issues**

- **design of 3D turbulence sh.**

- **SLHD triggering**

- **new sL interpolators**

➤ **Prolonged for 2010**

# Operational ALARO at 5km

## Objectives

- ❖ Development of the schemes
- ❖ Scientific maintenance of the code
- ❖ Operational implementation

## Deliverables/Users

- **improvements in radiation scheme**
- **3MT studies and code cleaning**
- **tools for HR validation**
- **validation of cloudiness**

# Operational ALARO at 5km results 2008/2009

- ❖ Development of the schemes
  - ❖ Scientific maintenance of the code
  - ❖ Operational implementation
- \*at 2010 with NH dynamics

- ✓ **pTKE =>e-f TKE**
- ✓ **Radiation scheme for aerosols**

- ✓ **Validation 4.4km**

**ALARO 3MT daily:**

- ✓ **Au**

- ✓ **Cz**

- ✓ **Ro**

- ✓ **Si at LACE WEB**

- A) New methods for 2D verification are needed**
- B) Low Cloudiness problem**

## Objectives

- ❖ *Uncertainties in analysis*
- ❖ *Uncertainties in model physics*
- ❖ *Cooperation with GLAMEPS*

## Deliverables/Users

- **daily LAM EPS products for LACE members from ECMWF servers**
- **development of verification SW**
- **validation and calibration**

## Objectives

- ❖ *Uncertainties in analysis*
- ❖ *Uncertainties in model physics*
- ❖ *Co-operation with GLAMEPS*

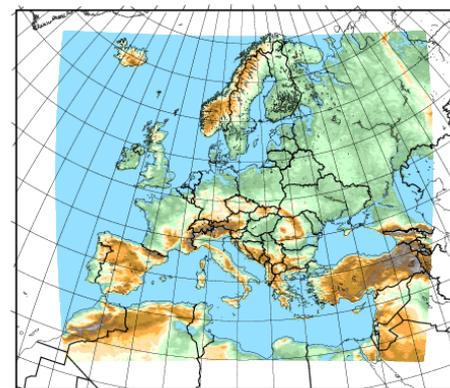
- ✓ **New LAEF:  
Operative BBSM**
  - **daily runs at ECMWF**
  - **products at MARS DB**

- ✓ **Row products for  
GLAMEPS**

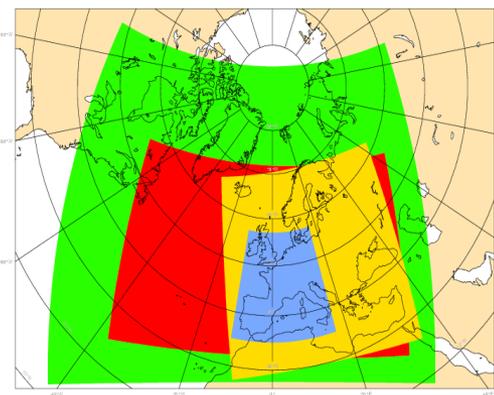
- A) CPU at ECMWF**
- B) Tuning and calibration**
- C) International visibility**

## Common LACE technical actions

- *refreshment of ALADIN Verification DB*
- **LACE WEB pages (SHMI)**
- ✓ **ALADIN deterministic operative products (7 products: EC+ LM +ALARO5km)**
- ✓ **ALADIN pEPS Multigrams for LACE Capital cities**
- ✓ **ALADIN-LAEF (Limited Area Ensemble Forecasting), probability charts and multigrams**
- ✓ **LACE Forums (DA, Physics, ... Dynamics)**
- **Toward LACE Reference application (LAEF deterministic 6.5km at ECMWF)**



Domains of 4 consortia reference models



## Role at HARMONIE

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### Projects as focal points for R&D and implementation

- easier planning and adjusting of research
- easier phasing of research
- portability of R&D
- product\_oriented topics ready for exchange of products

### LACE contribution to HARMONIE Scripting system

- to add ALADIN parts at HARMONIE SC
- to use HARMONIE SC for DA research experiments

### Topics for long-term research

4D Var at HARMONIE  
radar data at DA,  
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# END

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### Status, Problems, Questions and Answers

- *HOW TO OBTAIN HUMAN POWER FOR time-critical ACTIONS?*
- Draining of scientists toward quick-win topics.
- What is the level of final deliverables?  
( code or working packages for all HW platforms )
- Duplication of operative products vis lack of CPU for some EPS actions!