# Outcome of WG Dynamics

- "Group of four" created after Brac meeting

- Diverging views and concerns on
 scalability/efficiency/accuracy of dynamical core

- The Aladin PAC asked this group to find agreement and produce a working plan for adaptation to future computers.

- The spirit of the document produced is to have a smooth approach for code evolutions, keeping always the present solutions as fall back.

# Outline of the working plan

CONTEXT:

We already know that the main bottle-neck is the I/O not only for the spectral methods, but also for local methods.

Work is being carried on about easing this problem

# Outline of the working plan

1) <u>Works keeping current model strategy</u> (Spectr, SI, SL)

Short term :

- submit projects for running our codes on advanced machines to estimate the scalability/efficiency

- This for the whole model and then with different "bricks" removed (Physics, I/O,…)

- Favour also comparisons of efficiency/scalability with adiabatic cores of other models using different strategies (COSMO, UM, WRF,…)

# Outline of the working plan

1) <u>Works keeping current model strategy</u> (Spectr, SI, SL)


Longer term :

- EE system in z-based coordinate with VFE

 (link with efficiency, accuracy and robustness)


- consider OOP, GPU, parallel languages or libraries
   evolutions.

# Outline of the working plan

2) <u>Works changing model strategy</u> (Spectr, SI, SL)

Short term :

- compare SL and Eulerian in the present code at high resolutions

- keeping the current spectral solver but try computing derivatives with more local methods (FE, FV, FD high order )

- address problem of horizontal staggering for non-spectral methods (SL, high-order schemes).

# Outline of the working plan

2) <u>Works changing model strategy</u> (Spectr, SI, SL)

Longer term:

- exploring grid-point method for SI scheme solvers
 (links also with robustness, accuracy).