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# Dynamics developments within the ALADIN NWP consortium

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We give an overview of the dynamics developments within the ALADIN NWP consortium that develops the ALADIN System. This system is used by the ALADIN partners to run limited-area model (LAM) configurations for their national needs. The applications run at resolutions of about 1 km. The code of the ALADIN System is shared with the global ARPEGE model of Météo-France and the IFS of the ECMWF.

ALADIN can use a hydrostatic and a non-hydrostatic dynamical core. It is a spectral semi-implicit semi-Lagrangian model and shares the hydrostatic dynamics with the global model. We will explain how the LAM spectral methods are implemented to keep the model consistent with the global models. We will give an overview of its specificities, such as the horizontal diffusion, the vertical discretizations and the physics-dynamics coupling.

Alternatives to the spectral approach are currently being investigated. This is done in a twofold approach. First, the Atlas data structure framework of the ECMWF is being adapted to accommodate LAM geometries. This will facilitate the creation of an Atlas-based LAM model. Secondly, a gridpoint solver is being implemented within the codes of the existing ALADIN-NH dynamical core as an alternative to the spectral one.

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