Meso-NH tutorial
Bring your own case

12-15 November 2024

Bring Your Own Case

- Idealize case

  - without orography : work in 1D first (very fast debugging)
  - when satisfied : work in 3D with small domain (20x20xN_Z)

- Real case

  - Define the full list of steps on paper
  - Work with the final domain size but smaller number of points for debugging (use a coarser resolution)
  - Do not forget to nest your PGD !

- Use existing namelists of a similar case of yours

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Namelists examples

- MNH-VX-X-X/MY_RUN/KTEST
- MNH-VX-X-X/MY_RUN/INTEGRATION_CASES (new >= 5.7.1)
- Boundary-Layer Idealized case :
  http://mesonh.aero.obs-mip.fr/mesonh57/LESDEPHY
  https://github.com/GdR-DEPHY/DEPHY-SCM/tree/master
- Other available test cases (before 5.7.1)
  http://mesonh.aero.obs-mip.fr/mesonh/dir_doc/dir_namelist_examples

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Namelists examples, idealized cases

Academic

2Drelief : idealized in 2D

3Drelief : idealized in 3D

HYDRO : mountain wave

KW78 : deep convection

COLD_BUBBLE

Boundary-layer

ARM_COND_SAMP : cumulus case with conditional sampling 1D

ARMCU_LES : 3D Cumulus case

BOMEX : shallow cumulus convection

FIRE_1D / FIRE : stratocumulus 1D / 3D LES

FOG_1D

GABLS1_1D / 3D : stable boundary layer 1D / 3D LES

IHOP_1D : growing moist convective boundary layer 1D

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Namelists examples, idealized cases

Applicatives

BLOWSNOW_c1b1D : Blowing snow in 1D

COPT81 : squall line

EOLIENNE : multiple wind turbines model at LES

SUPERCELL : supercell with LIMA options

IBM : immersed boundary methods (city ; building ; single sphere)

CYCLONE : idealized cyclone over sea

BLAZE : fire propagation

STERAO/KW78_elec : thunderstrom + electricity scheme

OCEAN_LES

Namelists examples

KMAP : grid-nesting with 3 subdomains

PANAME : 2023 summer over Paris (SURFEX options)

SNOW_BLOW : 3D case of blowing snow over the Alps

XYNTHIA_2.5km : very high wind gust over the Pyrénées

AZF_2M : AZF explosion over Toulouse (passive pollutants)

FANNY : Mediterranean deep convection (high precipitation)

FOG_3D : fog LES 3D (over Paris)

HAIC : deep convection supercell in Guyana with LIMA options

Technical

16JAN : advection scheme tests with 2 domains grid-nesting

DOUBLE_GRIDNESTING : technical 2-nested domains x2

STATIONS_PROF_BALLON_AIRCR_4doms : 4-nested domains with online profilers + stations + aircrafts + balloons

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Namelists examples, real cases

Aerosols and Chemistry

SALT : cyclone with sea salt emission

DUST : dust transport over Sahara

ICCARE_CORSE : dust with LIMA

ICART2M : chemistry case

CHARMEX : chemistry case (with/without biogenic emission)

BIOMAIDO_DMS : chemistry + orilam + sea-salt + dms emissions

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