Practical use of the e923 configuration

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What is this configuration?

- It is the basis configuration you have to run each time you want to define a new domain for your ALADIN model.
- It produces monthly climatological files.
- These files are necessary for some other configurations, like coupling, post-processing, surface analysis, ...
How does e923 proceed?

- It extracts the needed information from several global databases, which have a different resolution according to the parameter being considered, and the model area too.
- The computations are done in several steps, each for a predefined set of fields, with a possible refinement for some of them.
What does e923 produce?

It prepares monthly files containing climatological 2D fields, mainly surface fields.

- 10 constant fields linked to orography,
- 14 monthly fields describing the surface itself (soil properties, vegetation, ...),
- 7 monthly fields linked to the surface model variables (temperature, water content, snow),
- 7 monthly fields to initialize ozone and aerosols.
Model area definition

- This model area can be everywhere on the Earth.
- The chosen area will involve the geometric representation.
- 3 types of projection are allowed in the ALADIN code: polar stereographic, Mercator or Lambert.
- The geometry is fixed by namelist in the e923 script.
Geometry definition

- Use the PALADIN/PINUTS pack
- Run `domolalo` and fix on demand:
  - south latitude
  - north latitude
  - west longitude
  - east longitude
  - resolution
- Output: file `namelist_domain`
e923 namelist for geometry

- &NEMGEO
  - ELON0
  - ELAT0
  - ELONC
  - ELATC
  - EDELX
  - EDELY

- &NAMDIM
  - NDGLG
  - NDGUXG
  - NDLON
  - NDLUXG
  - NMSMAX
  - NSMAX
Spectral representation

- Defined according to NMSMAX and NSMAX.
- Quadratic: \( \text{NDLON} \geq (N\text{MSMAX}+1) \times 3 \)
  \( \text{NDGL} \geq (N\text{NSMAX}+1) \times 3 \)
- Linear: \( \text{NDLON} \geq (N\text{MSMAX}+1) \times 2 \)
  \( \text{NDGL} \geq (N\text{NSMAX}+1) \times 2 \)
- Orography still quadratic, even if the model is linear \( \rightarrow \) run step 1 two times.
Orography tuning

&NAMCLA

FACZ0  orographic part of Z0
FENVN  envelop
LKEYF  spectral orography
LNEWORO  2 different functions to
LNEWORO2  optimize spectral orography
LNORO  import orography

/
e923 for post-processing domain

- **NAMCLA**  
  LKEYF=.FALSE.

- **NAMDIM**  
  NDLON=NDLUXG  
  NDGLG=NDGUXG  
  NSMAX and NMSMAX useless

- **NEMGEO**  
  ELON0=ELAT0=0.  
  EDELX and EDELY in degrees

- No need to run steps 8 and 9 because aerosols and ozone are useless.
Scripts

- on tora, and on tori soon
- on HPCE
  1. for a quadratic domain
  2. for a linear domain
  3. for a post-processing domain
- some examples on sxobs1 and sxproc1
ENJOY YOURSELVES !!!