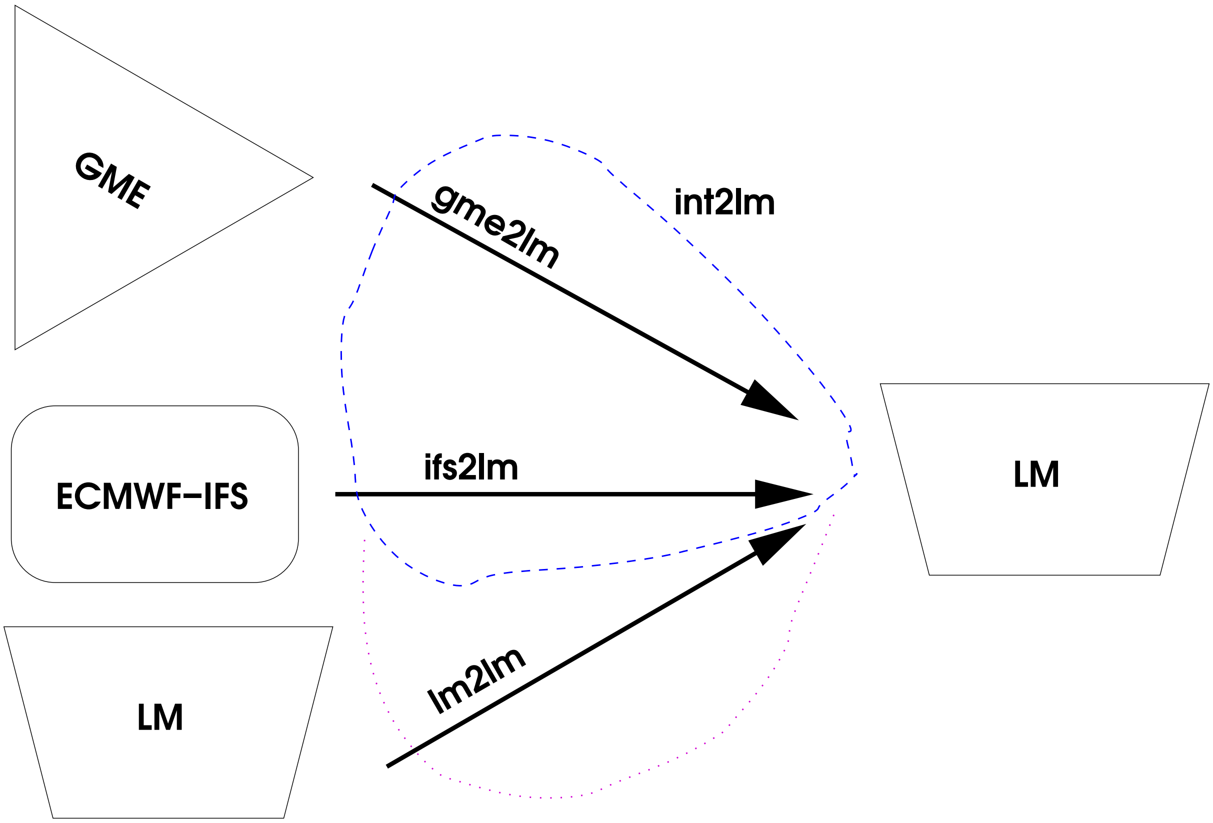
The interpolation program int2lm: implementation of ifs2lm

Davide Cesari, numerical modeling group,
ARPA-SMR, Bologna

Logical components of int2lm



All integrated in a single source code, the action to be taken is chosen by namelist parameters

- gme2lm done and well tested - just verify that behaves like gme2lm alone
- ifs2lm done - needs some more testing
- lm2lm to be completed soon at MeteoSwiss

What is new in ifs2lm

- Domain decomposition (Uli)
- Adaptation of ECMWF parameters (with hints from UGM)
- Vertical interpolation in soil layer
- Parallelized horizontal interpolation

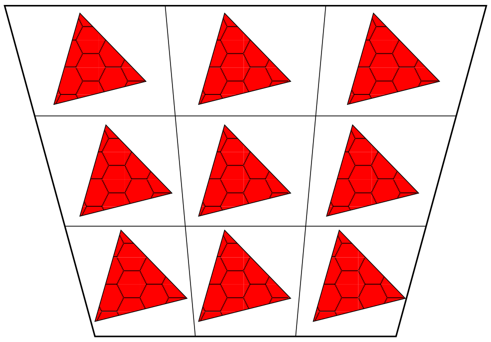
The vertical interpolation is mainly the same as for gme2lm

New namelist parameters

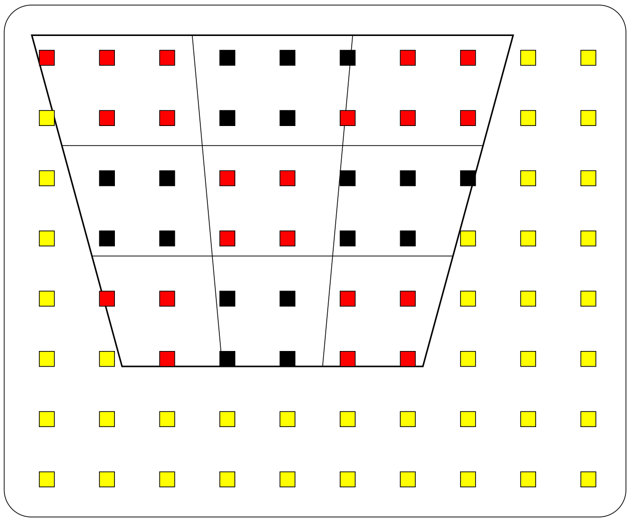
parameter	default	description
`lgme2lm`	`true`	input is GME
`lec2lm`	`false`	input is ECMWF model
`luse_t_skin`	`false`	use ECMWF skin temperature
`lante_0006`	`false`	force the use of EC dataset before June 2000
`lpost_0006`	`false`	force the use of EC dataset after June 2000

int2lm with support for ifs2lm is installed at ECMWF on Fujitsu along with jobs for extracting proper IFS data from MARS in order to run LM

Domain decomposition in int2lm



gme2lm



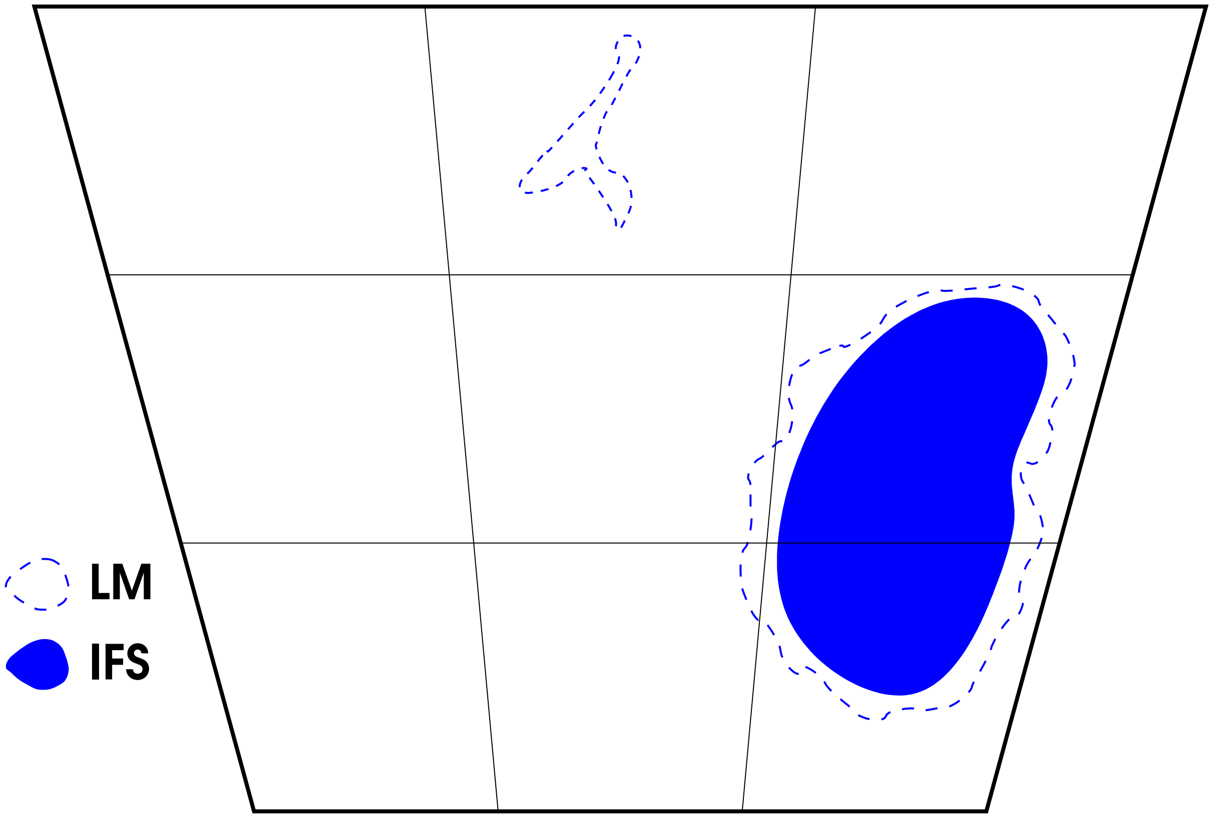
ifs2lm – lm2lm

- gme2lm: every LM subdomains receives all GME domain read in input

- ifs2lm-lm2lm: every LM subdomains receives only the part of the input model's domain that is needed for local interpolation

  Better memory usage, but some drawbacks...

Land-sea mask interpolation



Some fields, e.g. soil fields or SST, need to be interpolated from points with the same value of land-sea mask.

If no input model points of the required land-sea mask are found in the local domain, an average from the closest neighbouring domain(s) containing that land-sea maks is used $\Rightarrow$ domain-decomposition dependent.