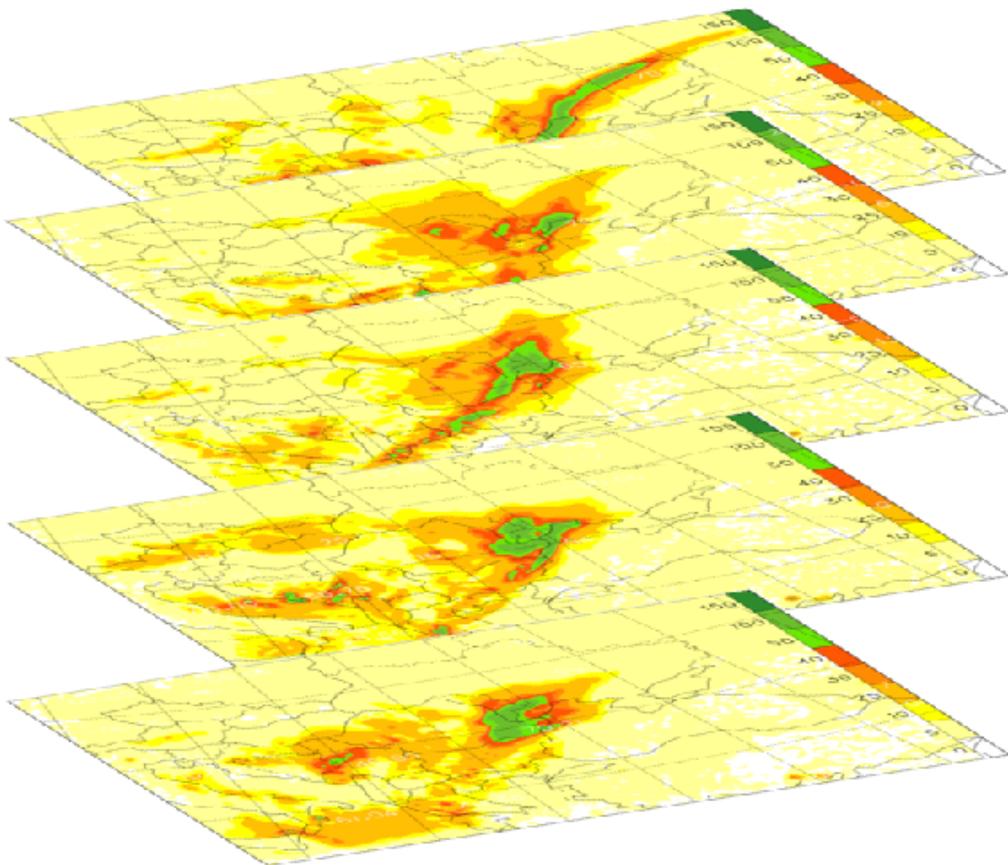# Report on stay at ZAMG

Vienna, Austria

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Revision of LAEF Multiphysics

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My short stay at ZAMG consisted mostly in the guidance of the newcomer, Raluca Iordache from National Meteorological Administration of Romania, in the predictability area related to her subject.

Taking into account the results of my last stay at ZAMG when VERSION 4 (Figure 1) was choosen for further investigation, the purpose of Raluca'stay was to rerun VERSION 4 and VERSION 4 with SPPT by using new executable MASTER compiled by Florian Weidle. The new MASTER contains Jozef Vivoda's fix for a QCPL bug found by Martin Bellus in February 2017. In cy40t1_bf05 version, an active hidden bug related to the quadratic time interpolation of the coupling files was found in the routine "arpifsmoduleelbc0b_modF90".
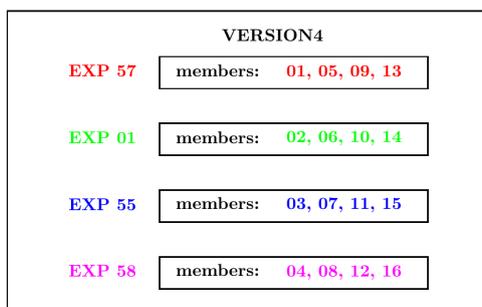

Figure 1: VERSION 4 contains EXP 57 (modified turbulence), EXP 01 (ALARO-1), EXP 55 (ALARO-1 modified microphysics plus deep convection), EXP 58 (ALARO-1 modified turbulence, microphysics and deep convection).

Besides the introduction of ALADIN-LAEF technical issue to Raluca, another important point of my stay was to optimise a little bit the usage of billing units at ECMWF.

On the Cray machine at ECMWF (documentation: `https://software.ecmwf.int/wiki/display/UDOC/Batch+environment%3A++PBS` are three types of queue:

- *np - parallel (minimum/maximum number of processors are 1/72)*

- *nf - fractional (minimum/maximum number of processors are 2/36)*

- *ns - serial (minimum/maximum number of processors are 1/1)*

For the fractional jobs, it should be taken into consideration the following indication:

- *36 or fewer processors with hyperthreading and less than 60 GBytes of memory or*

- *18 or fewer processors without hyperthreading and less than 60 GBytes of memory.*

In my previous scripts, in order to run 001 configuration, the lateral boundary condition files were copied (using *np* class) from ECTMP on SCRATCH directory in the same script as the integration.

Due to the fact that for this job were not so many billing units were necessary, some tests were done by using normal scripts (without any PBS options), fractional and serial classes. The best choice was to use serial class (*ns*), because after some time, the normal script was rejected and for fractional class (*nf*) unnecessary SBU were used. An example of the directives used for *ns* class is following:

```
#PBS -S /bin/bash
#PBS -q ns
```

```
#PBS -V
#PBS -m a
#PBS -l EC_total_tasks=1
#PBS -l EC_hyperthreads=1
#PBS -l EC_threads_per_task=1
#PBS -l EC_ecfs=1
#PBS -l walltime=00:30:00
#PBS -j oe
```

More details are given in Raluca's stay report.