

## ***Report from pre\_CY36 phasing – May/June 2009, Marcin Kolonko (IMWM Krakow).***

*T1: Testing tal and tfl modules in cycle 35T2 of ALADIN – with Yann Seity.*

The purpose of this task was to find the modifications in tfl package (between CY35T2 and CY35T2\_R3 cycles) and to judge whether it was necessary to introduce any changes in tal files.

At first, the files with changes were selected (in tfl package) in CY35 and the authors of these changes were found. One also tried to estimate how extensive the changes have been in each of the modified files. Some files have been rejected - from a comparison of files with insignificant changes, not affecting the results anyhow (like GSTATS call).

The result of this action can be presented as a table. After the comparison ('diff' command) 11 files remained:

*cpledn\_mod.F90, gath\_grid\_ctlmod.F90, gath\_spec\_control\_mod.F90, gawl\_mod.F90, sugaw\_mod.F90, suleg\_mod.F90, supol\_mod.F90, sustaonl\_mod.F90, sutrle\_mod.F90, trgtol\_mod.F90 and trltog\_mod.F90.*

Their authors were Nils Wedi and Mats Hamrud, also George Mozdzyński, Peter Towers and Deborah Salmond. One also looked for the information about the purpose of these procedures.

The next step was to find the tfl routines which had modified a number of parameters in CY35T2\_R3. Thanks to the "trtr" script (provided by Andrey Bogatchev), the tfl files of CY35T2 were scanned. One needed to establish dependencies between tfl procedures in CY35T2. Particular interest was put on the examples of the routines with modified number of parameters in their CALL execution, which would at the same time have some dependent procedures.

From the 11 files selected in the previous part of the task, one was able to identify **three**, with both a change in the number of variables and possessing dependent procedures as well. These were:

*supol\_mod.F90, sugaw\_mod.F90 and cpledn\_mod.F90.*

The remaining 8 routines were either not modified (3 – *trgtol\_mod.F90, trltog\_mod.F90, suleg\_mod.F90*), not called (3 – *sutrle\_mod.F90, gath\_spec\_control\_mod.F90, gawl\_mod.F90*), or both (2 - *sustaonl\_mod.F90, gath\_grid\_ctl\_mod.F90*).

Then, the next step of the task was to check where CALLS to the selected three procedures were. It was found that *cpledn\_mod.F90* procedure was called by *gawl\_mod.F90* (line 96), *sugaw\_mod.F90* by *suleg\_mod.F90* (line 168) and *supol\_mod.F90* also by *suleg\_mod.F90* (line 239). It was necessary to verify whether these modified variables and the procedures appear in tal. One has found that the modification does not influence the action of tal package, since there are no such procedures necessary in the code of tal. This meant that the tal need not to be modified, which was also confirmed by using the Fortran HTML tool.

Finally, the tests (*eatstpro* and *etestadj*) provided by Yann Seity were performed. It was needed to check the tal performance on **yuki** and **tori**. One found that *eatstpro* worked well (also on 2, 4 and 8 processors in different parallelisation schemes). Some more time was spent on *etestadj*, since it has not given the direct comparison of results but needed to be run with various gmckpack parameters (pack2 – R3 branch, pack3 – BugFix) and on different machines. For **yuki** and **tori** it was found that the *etestadj* reproduces the results stably.

*T2: Cleaning the files – with Karim Yessad.*

The cleaning of files *blend.F90, suescal.F90, filfbde.F90* and *dwwlin.F90* was performed, alas not all warnings were removed – namely, 'USE without ONLY' message was not possible to be successfully removed in the output file from compilation of *dwwlin.F90* and *suescal.F90*. Several 'GOTO' jumps were replaced, and many unused variables were removed manually. Finally, the files

*reflsim.F90* and *reflsim\_2dop.F90* were cleaned as well as 6 unused variables were removed from *yemgeo.F90*, *yemgt3b.F90*, *yemlap.F90* and *yemspbc.F90* and these procedures were compiled with success. The new versions are stored in appropriate catalogues of

~/mrpe711/pack/marcin1/src/local/... on **yuki**:

ald/programs/blend.F90      arp/op\_obs/reflsim\_2dop.F90  
arp/obs\_preproc/dwlin.F90  
ald/var/suescal.F90      arp/op\_obs/reflsim.F90  
arp/obs\_preproc/filfbde.F90

Also, the modified versions of *yemgeo.F90*, *yemgt3b.F90*, *yemlap.F90* and *yemspbc.F90* were stored in /arp/module catalogue.

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