

## NEW SOURCE CODE VERSION CY43T2\_bf.10

A new bugfix is available for cycle CY43T2 (incremental pack).

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- Source code management :

*Git : % git\_branch -r 43t2 -b bf [-v 10] -u mybranch*

**NB : Don't forget to execute « git fetch » in your repository !!**

A full external source code pack is available :

*hendrix:~martinezs/pub/src/arp/cy43/cy43t2\_bf.10.src.tgz*

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- Compilation :

*gmckpack (beaufix) : % gmckpack -r 43t2 -b bf [-v 10] -u mybranch -l IMPI512IFC1601 -o 2y etc...*

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- Comments :

**WARNING :**

**Library « eccodes » is now used for compilation and links editions, instead of « grib\_api » !**

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- Documentation :

```
-- author: SPANIEL Oldrich & al
-- branch: spaniel_CY43T2_bf10
-- modified:

aladin/fullpos/sufpezo.F90
aladin/programs/blendsur.F90
arpifs/fullpos/endpos.F90
arpifs/fullpos/fpachmt.F90
arpifs/fullpos/fpcica.F90
arpifs/fullpos/phymfpos.F90
arpifs/fullpos/stepo_fpos.F90
arpifs/fullpos/sufpg2.F90
arpifs/fullpos/sufptr2.F90
arpifs/fullpos/vpos.F90
arpifs/module/yomcape.F90
arpifs/phys_dmn/accvud.F90
arpifs/phys_dmn/acnpart.F90
arpifs/phys_dmn/suphmf.F90
arpifs/setup/suafn2.F90
arpifs/setup/sucape.F90
arpifs/var/grbspa_mf.F90
utilities/bcov_lam/others/diagcov.F90
utilities/bcov_lam/others/sbdiacov.F90
utilities/bcov_lam/others/sufestat.F90
utilities/bcov_lam/programs/diacov.F90

-- doc:
```

A/ Prague contribution to bugfix cy43t2\_bf.10:

Date: 15-Feb-2019

GIT branch: masekj\_CY43T2\_alaro3

Contributors: R. Brozkova, W. Khalifaoui, A. Bucanek, J. Masek

Description:

Modset contains fullpos, assimilation and ALARO-1 fixes targeted for bugfix of cy43t2 export version:

- 1) Fixed vectorization of ACCVUD with Intel compiler (module real variables used in IF conditions replaced by their local copies):

arpifs/phys\_dmn/accvud.F90

- 2) Fixed convective cloud cover in subroutine ACNPART when WMXOV or RDECRDRED differ from 1:

arpifs/phys\_dmn/acnpart.F90

- 3) Fixed CIN/CAPE calculated from most unstable layer (independent on NPROC):

arpifs/fullpos/fpcica.F90  
arpifs/module/yomcape.F90  
arpifs/phys\_dmn/suphmf.F90  
arpifs/setup/sucape.F90

4) Added calculation of moisture convergence CLPMOCON.POS in an off-line fullpos:

```
arpifs/fullpos/endpos.F90
arpifs/fullpos/fpachmt.F90
arpifs/fullpos/phymfpos.F90
arpifs/fullpos/vpos.F90
```

5) Fixed utilities FESTAT and FEDIACOV for B-matrix computation, plus fixed subroutine GRBSPA\_MF for initializing GRIB file with forecast differences (under key FEMARSD=T in configuration 001):

```
arpifs/var/grbspa_mf.F90
utilities/bcov_lam/others/diagcov.F90
utilities/bcov_lam/others/sbdiacov.F90
utilities/bcov_lam/others/sufestat.F90
utilities/bcov_lam/programs/diacov.F90
```

#### Validation:

Modification 1) affects ALARO-0 and ALARO-1 spectral norms. During 2-hour integration on CHMI domain (dx = 4.7km, 87 levels, dt = 180s) it preserves 2-3 digits with respect to cy43t2\_bf.09 reference. Visual comparison of +12h cumulated precipitation and cloudiness fields confirms meteorologically insignificant impact. Without modification 1), spectral norms are bit identical to cy43t2\_bf.09 reference.

Modification 2) corrects diagnosed convective cloud cover SURFNEBUL.CONVEC when WMXOV or RDECRDRED are different from 1. It has no influence on integration.

Modification 3) affects output fullpos fields SURFCAPE.POS.F00 and SURFCIEN.POS.F00 calculated from the most unstable layer. It removes their undesired dependence on NPROC.

Modification 4) enables to diagnose CLPMOCON.POS in an off-line fullpos. Before the result was zero since the computation was missing in the code.

Modification 5) repairs assimilation tools which were broken in official library or did not work for domains exceeding certain number of gridpoints.

B/ Ryad El Khatib's contributions to bugfix cy43t2\_bf.10:

Date: (1) 29-Nov-2018  
(2) 13-Dec-2018

Source: (1) beaufix:/home/gmap/mrpm/khatib/public/modset/fpfix%43t2\_bf.09.tgz  
(2) beaufix:/home/gmap/mrpm/khatib/public/modset/ezofix%43t2\_bf.09.tgz

Contributors: Ryad El Khatib

(1) Modified files:

```
arpifs/fullpos/sufptr2.F90
arpifs/fullpos/stepo_fpos.F90
arpifs/setup/suafn2.F90
```

#### Description:

arpifs/fullpos/stepo\_fpos.F90 : wrong dimensionning, causing the crash. It was correct in cycle 46, thanks to the code refactoring which made the code naturally more robust.

arpifs/setup/suafn2.F90 : filter out fields which should not be computed on isothermic levels. This one was already fixed in cycle 46, and can be bypassed by a selection namelist, anyway.

arpifs/fullpos/sufptr2.F90 : luckily found, making more tests : ensure that the proper surface temperature is used to compute the pressure on the isothermic surfaces. Mostly active when no post-processing fields on height levels, nor surface pressure before.

(2) Modified files:

arpifs/fullpos/sufpg2.F90  
aladin/fullpos/sufpezo.F90

Description:

The fix solves unattended abort in Fullpos-ee927 ("POINTS OUT OF DOMAIN") since Fullpos-2 is used. It has been a confusion between geography (latitudes, longitudes) and geometry (x and y coordinates).  
The fix will enter cycle 46T1 ; and it is available for cycle 43T2\_bf.09 as well.

As expected with this fix, RCO\_EZ0 become useless. However, as an ultimate security I let it in place with a different usage : to be active it should be negative and then its absolute value will represent the number of points the E-zone is "pushed" toward the center of the domain.

C/ "blendsur" contribution to bugfix cy43t2\_bf.10:

Date: 07-Nov-2018

Contributors: Bogdan Bochenek, Alena Trojakova

Modified files:

aladin/programs/blendsur.F90

Description:

By accident some modification of this routine entered HIRLAM contribution to this cy43 version of the code. We believe that it should be restore to the previous version, as with this modification scripts using blendsur will not work properly.

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- Available binaries on beaufix (BULL) :

Wed Feb 27 06:59:11 2019	9109863	al43t2_blendsur-bf.09	IMPI512IFC1601.2y.exe
Fri May 25 07:58:43 2018	9126759	al43t2_chklimits-bf.08	IMPI512IFC1601.2y.exe
Fri May 25 07:52:52 2018	9301413	al43t2_surfmix-bf.08	IMPI512IFC1601.2y.exe
Fri May 25 07:52:56 2018	1058974	cpl43t2_gpcou-bf.08	IMPI512IFC1601.2y.exe
Wed Feb 27 07:00:32 2019	758430329	cy43t2_masterodb-bf.10	IMPI512IFC1601.2y.exe
Fri May 25 07:55:04 2018	200988405	cy43t2_mrgvarbc-bf.08	IMPI512IFC1601.2y.exe
Thu Jun 28 13:12:25 2018	51151035	ms43t2_oimain-bf.09	IMPI512IFC1601.2y.exe
Thu Jun 28 13:09:13 2018	60618276	ms43t2_pgd-bf.09	IMPI512IFC1601.2y.exe
Thu Jun 28 13:15:44 2018	89108062	ms43t2_prep-bf.09	IMPI512IFC1601.2y.exe
Thu Jun 28 13:08:27 2018	12966901	ms43t2_sfxtools-bf.09	IMPI512IFC1601.2y.exe
Thu Jun 28 13:10:20 2018	200615926	od43t2_bator-bf.09	IMPI512IFC1601.2y.exe
Fri May 25 07:54:17 2018	197816571	od43t2_fcqodb-bf.08	IMPI512IFC1601.2y.exe
Fri May 25 07:53:01 2018	656891	od43t2_ioassign-bf.08	IMPI512IFC1601.2y.exe
Fri May 25 07:56:15 2018	197162437	od43t2_mandalay-bf.08	IMPI512IFC1601.2y.exe
Fri May 25 07:54:40 2018	199526775	od43t2_tools-bf.08	IMPI512IFC1601.2y.exe
Fri May 25 07:56:52 2018	2189540	st43t2_25to50-bf.08	IMPI512IFC1601.2y.exe
Fri May 25 07:58:34 2018	46605	st43t2_buf-r-bf.08	IMPI512IFC1601.2y.exe
Fri May 25 07:53:18 2018	61570	st43t2_dconeqc-bf.08	IMPI512IFC1601.2y.exe
Fri May 25 07:54:46 2018	1917815	st43t2_filter-bf.08	IMPI512IFC1601.2y.exe
Fri May 25 07:58:47 2018	9291744	ta43t2_eatstpro-bf.08	IMPI512IFC1601.2y.exe
Fri May 25 07:58:39 2018	4326670	ta43t2_etestadj-bf.08	IMPI512IFC1601.2y.exe
Fri May 25 07:54:50 2018	4167639	tf43t2_atstprog-bf.08	IMPI512IFC1601.2y.exe
Fri May 25 07:57:55 2018	2213148	tf43t2_rgrid-bf.08	IMPI512IFC1601.2y.exe
Fri May 25 07:54:22 2018	5073390	tf43t2_testadj-bf.08	IMPI512IFC1601.2y.exe
Fri May 25 07:53:07 2018	5577746	ut43t2_911-bf.08	IMPI512IFC1601.2y.exe
Fri May 25 07:53:26 2018	8342498	ut43t2_addozaer-bf.08	IMPI512IFC1601.2y.exe
Fri May 25 07:51:55 2018	8487614	ut43t2_addsurf-bf.08	IMPI512IFC1601.2y.exe
Fri May 25 07:57:32 2018	7750128	ut43t2_cloud-bf.08	IMPI512IFC1601.2y.exe
Fri May 25 07:58:25 2018	9241246	ut43t2_combi-bf.08	IMPI512IFC1601.2y.exe
Fri May 25 07:57:29 2018	26941	ut43t2_dategrib-bf.08	IMPI512IFC1601.2y.exe
Fri May 25 07:57:26 2018	6563390	ut43t2_gobptout-bf.08	IMPI512IFC1601.2y.exe
Fri May 25 07:55:08 2018	919451	ut43t2_icegrb-bf.08	IMPI512IFC1601.2y.exe
Fri May 25 07:56:45 2018	13001007	ut43t2_inversion-bf.08	IMPI512IFC1601.2y.exe
Fri May 25 07:53:22 2018	937684	ut43t2_lectbdap-bf.08	IMPI512IFC1601.2y.exe
Fri May 25 07:57:21 2018	9560362	ut43t2_pinuts-bf.08	IMPI512IFC1601.2y.exe
Fri May 25 07:57:39 2018	6671805	ut43t2_progrid-bf.08	IMPI512IFC1601.2y.exe
Fri May 25 07:55:12 2018	84140	ut43t2_sstnetcdf-bf.08	IMPI512IFC1601.2y.exe
Fri May 25 07:58:52 2018	4452056	xr43t2_ddhc-bf.08	IMPI512IFC1601.2y.exe
Fri May 25 07:57:35 2018	1326092	xr43t2_ddhr-bf.08	IMPI512IFC1601.2y.exe
Fri May 25 07:54:54 2018	1421603	xr43t2_ddht-bf.08	IMPI512IFC1601.2y.exe
Fri May 25 07:53:12 2018	11422757	xr43t2_lfitools-bf.08	IMPI512IFC1601.2y.exe