

CY43T2\_bf11:

Git branch:

+ date: 2020/06/15-07:12:57

+ branch: spaniel\_CY43T2\_bf11

+ version: spaniel\_CY43T2\_bf11/1

Documentation:

-- author: Jan Masek

-- branch: CY43t2\_op2.02;

-- modified:

mse/externals/aroini\_surfc.F90

surfex/SURFEX/mode\_gridtype\_conf\_proj.F90 ; gco\_CY43T2\_op2.03%marginuina\_CY43T2\_DXDY

surfex/SURFEX/pack\_grid\_conf\_proj.F90

surfex/SURFEX/read\_gridtype\_conf\_proj.F90

surfex/SURFEX/read\_nam\_grid\_conf\_proj.F90

surfex/SURFEX/split\_grid\_conf\_proj.F90

surfex/SURFEX/write\_header\_fa.F90 ; mary\_CY43T2\_fixRPK

surfex/SURFEX/grid\_modif\_conf\_proj.F90

-- doc:

Fix of corrupted X001LAI array in case OpenMP parallelization is active that leads to model crash in the first TSTEP; and corrupted SFX.DX and SFX.DY if any parallelization is activated.

NO NUMERICAL IMPACT IS EXPECTED.

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-- author: Alex Deckmyn, Daan Degrauwe

-- branch:

-- modified:

1.

arpifs/dia/chkevo.F90

2.

mse/programs/pgd.F90

-- doc:

1.

Fix LFAGMAP=.FALSE.

2.

The U<->V fix, and some more modification regarding cpu distribution.

NO NUMERICAL IMPACT IS EXPECTED.

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-- author: Andre Simon

-- branch:

-- modified:

arpifs/setup/suxfu.F90

-- doc:

Fixed bug in (write MXUGST -> MXUGST2, MXVGST -> MXVGST2, MX/GST is written twice.

NO NUMERICAL IMPACT IS EXPECTED.

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-- author: Ryad El Khatib, Oldrich Spaniel

-- branch:

-- modified:

arpifs/module/gom\_mod.F90

arpifs/module/gom\_plus.F90

-- doc:

Removed workaround for bug in Gfortran 4.9.2 - directive `__GFORTRAN__` to make minimisation working with higher version of gcc compiler.

NO NUMERICAL IMPACT IS EXPECTED.

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-- author: Ludovic Auger

-- branch: auger\_CY43T2\_12.fullpos (CY43T2\_op2)

-- modified:

arpifs/fullpos/hpos\_cfu.F90

-- doc:

Bug in fullpos of surface stress fields for AROME (memory violation and wrong results), reproductibility is now fixed for parallel suite.

NO NUMERICAL IMPACT IS EXPECTED.

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-- author: Philippe Marguinaud

-- branch: gco\_CY43T2\_op2.03%marguina\_CY43T2\_DXDY (CY43T2\_op3)

-- modified:

surfex/SURFEX/mode\_gridtype\_conf\_proj.F90

-- doc:

Fix DX/DY reproducibility issue in SURFEX output files. The values of these two fields were affected by the number of MPI tasks the model was run with (NB: report modifications from branch marguina\_CY43T2\_DX DY, removed by mistake).

NO NUMERICAL IMPACT IS EXPECTED.

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-- author: Frank Guillaume  
-- branch: guillaum\_CY43T2\_changes\_11\_2019 (CY43T2\_op3)  
-- modified:

odb/pandor/module/bator\_datetime\_mod.F90  
odb/pandor/module/bator\_decodbufr\_mod.F90  
odb/pandor/module/bator\_decodnetcdf\_mod.F90  
odb/pandor/module/bator\_init\_mod.F90  
odb/pandor/module/bator\_lectures\_mod.F90  
odb/pandor/module/bator\_module.F90

-- doc:

Bugfixes et ajouts BATOR:

- correction préventive du nombre de 'wagons' prévus dans le décodage des données AMDAROMM (non actif actuellement);
- correctif des routines SYNOP pour prendre en compte les messages des stations côtières USA. (actuellement en BDMO intégration);
- adaptation de Radiosondage() aux données TEMPDROP. (actuellement en BDMO intégration);
- préparation du prétraitement des messages METAR;
- bugfix dans les appels à Dr Hook (bator\_datetime\_mod);
- bugfix dans la routine seviri()
- uncommented line 9603 in subroutine AMDAROMM that solves problem of multisubset AMDAR BUFR for template 311005 (noted by Alena Trojakova)

NO NUMERICAL IMPACT IS EXPECTED.

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-- author: Frank Guillaume  
-- branch: guillaum\_CY43T2\_fix\_amdaromm\_radome (CY43T2\_op2)  
-- modified:

odb/pandor/module/bator\_decodbufr\_mod.F90  
odb/pandor/module/bator\_init\_mod.F90  
odb/pandor/module/bator\_module.F90  
odb/pandor/namelist/bator\_namelist.nam.h

-- doc:

- 1) Bugfix dans la routine amdaromm(): le nombre de 'wagons' est maintenant correct lorsque le message comporte plusieurs observations (template 311010).
- 2) Bugfix préventif dans la routine synop(), n'affectant que le traitement des stations RADOME françaises au format BUFR, non encore utilisées actuellement.

NO NUMERICAL IMPACT IS EXPECTED.

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-- author: Ryad El Khatib  
-- branch: khatib\_CY43T2\_op1.12%calendar (CY43T2\_op2)  
-- modified:

arpifs/utility/filedate.F90

-- doc:

Fix calendar update in fullpos conf. 903. Do not fix climatology monthly update in Fullpos server when driven by external script.

NO NUMERICAL IMPACT IS EXPECTED.

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-- author: Alexandre Mary  
-- branch: mary\_CY43T2\_fixRPK (CY43T2\_op2)  
-- modified:

surfex/SURFEX/write\_header\_fa.F90

-- doc:

PGD/offline: Southern hemisphere RPK to be > 0 in FA header written from Surfex.

NO NUMERICAL IMPACT IS EXPECTED.

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-- author: Patrick Moll  
-- branch: moll\_CY43T2\_qflaggoes16reprogps (CY43T2\_op2)  
-- modified:

arpifs/obs\_preproc/redgps.F90  
odb/pandora/module/bator\_decodnetcdf\_mod.F90

-- doc:

- 1) Ensure the reproducibility of the ground-based GNSS horizontal thinning when changing the number of processors.
- 2) Fix the support the quality flag for GOES 16.

NO NUMERICAL IMPACT IS EXPECTED.

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-- author: Yann Seity  
-- branch: seity\_CY43T2\_bf (CY43T2\_op2)  
-- modified:

surfex/SURFEX/prep\_teb\_extern.F90

-- doc:

Without this bf, TEB fields are not correctly setup on coasts (use of points over sea during interpolation -> huge values → abort in the forecast).

NO NUMERICAL IMPACT IS EXPECTED.

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-- author: Yann Seity  
-- branch: seity\_CY43T2\_bfthetav (CY43T2\_op2)  
-- modified:

arpifs/fullpos/endpos.F90

-- doc:

Bugfix for thetav in H-levels.

NO NUMERICAL IMPACT IS EXPECTED.

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-- author: Florian Meier  
-- branch:  
-- modified:

arpifs/obs\_preproc/fgchk.F90  
arpifs/obs\_preproc/defrun.F90

-- doc:

Flexible first guess rejection limit for radar Doppler winds in 002 screening.  
The limit for Doppler wind was hard coded to 20m/s whatever was set in NAMCOSJO RBGQC switch. The modification keeps 20m/s as default, but allows flexible rejection limit setting via RBGQC switches in NAMCOSJO screening namelist. The default limit comes from the paper of Montmerle and Faccani 2009 on the Doppler operator. They found it perfect for MF conditions and modification of frontal precipitation by Doppler winds. However, less quality or Doppler wind affected by remaining aliasing might require a more strict limit. The three check limits distinguish between correct, probably correct, probably incorrect and incorrect observations (see documentation of data assimilation) are multiplied by the values set into RBGQC(44,13,1:3) array in NAMCOSJO.

NO NUMERICAL IMPACT IS EXPECTED.

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-- author: Christoph Wittmann et al.  
-- branch:  
-- modified:

1.

arpifs/phys\_dmn/apl\_arome.F90  
mse/externals/aro\_ground\_param.F90  
mse/programs/driver\_off\_omp.F90  
surfex/SURFEX/coupling\_surf\_atmn.F90  
arpifs/phys\_dmn/aplpar.F90  
mse/interface/aro\_ground\_param.h

arpifs/fullpos/fpcorphy.F90  
arpifs/module/iogrida\_mod.F90

arpifs/setup/sugridf.F90  
mse/programs/offline.F90 (just note, there is also inentical surfex/OFFLIN/offline.F90)

2.  
arpifs/phys\_dmn/apl\_arome.F90

3.  
arpifs/phys\_ec/sppten.F90

4.  
utilities/progrid/progrid.F

5.  
arpifs/namelist/namphy2.nam.h  
arpifs/phys\_dmn/suphy2.F90

-- doc:

#### 1. Orographic shadowing:

The local radiation fluxes influenced by the ORORAD routine in coupling\_surf\_atmn.F90 (surface global radiation, surface direct radiation, surface normal irradiance, surface longwave radiation down, net surface longwave radiation) need to be carried over to the accumulated fluxes in apl\_arome.F90. For calculation of the surface normal irradiance the slope factor from coupling\_surf\_atmn.F90 is needed in apl\_arome.F90.

#### 2. Sunshine duration:

The calculation of PSDUR in radheat.F90 is always 0, because PSUDU is 0 (comes from apl\_arome.F90 ZSUDU). Therefore it would be good to move the PSDUR calculation to apl\_arome.F90. To include the ORORAD (orographic shadowing) influence also in the calculation of the sunshine duration, it is useful to have this calculation at the end of apl\_arome.F90 (and not in radheat.F90).

#### 3. Stochastic physics:

Bugfix in SPPTEN routine, which has already been reported for cy40t2, but unfortunately not included in cy43t2.

#### 4. Progrid:

Character CLFA is not initialized. This potentially leads to an allocation with some memory address of this variable and an error when a file with this name will be opened.

Insert: CLFA="" before reading command line options.

#### 5. LWMO CLOUD

- HWMOHIGH and HWMOLOW pointers are not declared in suphy2.F90

- In order to make them adjustable via namelist (it was the case in cy40) they should be part of namphy2.nam.h

NO NUMERICAL IMPACT IS EXPECTED.

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-- author: Ole Vignes

-- branch:  
-- modified:

aladin/coupling/ecoupl2.F90

-- doc:

OpenMP bugfix.

NO NUMERICAL IMPACT IS EXPECTED.

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-- author: Martin Ridal  
-- branch:  
-- modified:

arpifs/op\_obs/inv\_refl1dstat.F90

-- doc:

Restoring lost fix for treatment of clear sky in radar assimilation.

NO NUMERICAL IMPACT IS EXPECTED.

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-- author: Ulf Andrae  
-- branch:  
-- modified:

arpifs/io\_serv/io\_serv\_hdr1\_init.F90

-- doc:

Fix for reading of boundaries with IO-server in case of LINC=F.

NO NUMERICAL IMPACT IS EXPECTED.

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-- author: Ole Vignes  
-- branch:  
-- modified:

arpifs/canari/cacsts.F90  
arpifs/canari/cancer.F90

-- doc:

Fix various uninitialized or out of bounds problems.

NO NUMERICAL IMPACT IS EXPECTED.

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-- author: Ole Vignes  
-- branch:  
-- modified:

arpifs/obs\_preproc/mkglobstab\_model.F90

-- doc:

Fix 2D decomposition bug reintroduced by splitting of mkglobstab.

NO NUMERICAL IMPACT IS EXPECTED.

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-- author: Ryad El Khatib, Alena Trojakova  
-- branch:  
-- modified:

aladin/adiab/elarmesad.F90  
aladin/adiab/elarmes.F90  
aladin/adiab/elarmes5.F90  
aladin/interpol/eslxtpol.F90  
aladin/interpol/elascawtl.F90  
aladin/interpol/elascaw.F90  
arpifs/fullpos/fpmodprec.F90  
arpifs/interpol/slrset.F90

-- doc:

Modset to fix "ifl\_is\_out\_of\_bounds" for CANARI.

NO NUMERICAL IMPACT IS EXPECTED.

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-- author: Oldrich Spaniel  
-- branch:  
-- modified:

1.  
arpifs/var/sucos.F90
2.  
surfex/ASSIM/assim\_nature\_isba\_enkf.F90

-- doc:

1.  
Fix for CANARI & gcc.

2.  
Reordering USE MODE\_EKF.

NO NUMERICAL IMPACT IS EXPECTED.

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