

ARPEGE MEMORANDUM

From: GCO
Date: Jun 28, 2018
Subject: Bugfixes on cycle CY43T2 (up to version n°09)
Contributors:

AUGER Ludovic	auger_CY43T2_edr
BERRE Loik	berre_CY43T2_lhybridjbF_wavnorm_nva2d berre_CY43T2_lhybridjbF_wavnorm_nva2d_new berre_CY43T2_prepSFa_wavBMe
BOUTELOUP Yves	boutelou_CY43T2_b472 boutelou_CY43T2_b473 boutelou_CY43T2_b473b boutelou_CY43T2_b476 boutelou_CY43T2_b502
CEBRON Pierrick	cebron_CY43T2_combi cebron_CY43T2_combiGrib2 cebron_CY43T2_srtm
DEGRAUWE Daan	degrauwe_CY43T2_alaro_surfex
EL KHATIB Ryad	khatib_CY43T2_bf.02%sfx2isba_oimain khatib_CY43T2_bf.05%fixfpos khatib_CY43T2_bf.06%refixfpos khatib_CY43T2_bf.07%sladrep khatib_CY43T2_bf.08%fpcorphy
ETCHEVERS Ingrid	etcheversi_CY43T2_bfFullPos etcheversi_CY43T2_eurw1s40 etcheversi_CY43T2_phasage
ETCHEVERS Ingrid, EL KHATIB Ryad	etcheversi_CY43T2_fabec
FAURE Ghislain	faure_CY43T2_PrepLamFixesOK
GCO	gco_CY43T2_bf.03%surlx
GUIDARD Vincent	guidardv_CY43T2_meteosat11
GUIDARD Vincent, FAURE Ghislain,	guidardv_CY43T2_4dvarPrep

MENETRIER Benjamin, MOLL Patrick
GUILLAUME Frank

guillaum_CY43T2_bugfix_20171206
guillaum_CY43T2_bugfix_driftanduse
guillaum_CY43T2_fix_hdf5lib
guillaum_CY43T2_fix_odim
guillaum_CY43T2_gpsro
guillaum_CY43T2_phasage_20170905
guillaum_CY43T2_phasage_20171002

LABADIE Carole
MARGUINAUD Philippe

labadie_CY43T2_SRTM
marguina_CY43T2_DXDY
marguina_CY43T2_bf_grib2
marguina_CY43T2_fasgra
marguina_CY43T2_grib_api
marguina_CY43T2_op2fabec
marguina_CY43T2_op2fabec_
marguina_CY43T2_op2gribdate
marguina_CY43T2_op2timerange
marguina_CY43T2_openmpsfx

MARY Alexandre

mary_CY43T2_Ezone_in_pgd
mary_CY43T2_dfi2fix
mary_CY43T2_fajpxtro
mary_CY43T2_fix_pgdororad
mary_CY43T2_pgdfa
mary_CY43T2_report_fixLQCPL

MASEK Jan

masekj_CY43T2_alaro
masekj_CY43T2_alaro2
masekj_CY43T2_bf

MENETRIER Benjamin

menetrie_CY43T2_AEARP_FA_NO_FEMARS
menetrie_CY43T2_famembers_no-lsprt

MICHEL Yann

michel_CY43T2_aearo

MOLL Patrick

moll_CY43T2_valid_4dvar

PAYAN Christophe

payan_CY43T2_43t2bf3_brsfxfix
payan_CY43T2_43t2bf4_ppobsap
payan_CY43T2_bf01_acntcls-ntrl10mfix

PIRIOU Jean-Marcel	payan_CY43T2_bf01_apachfix
POURRET Vivien	payan_CY43T2_bf01_scatsat1
	payan_CY43T2_bf01_tailefer_cy42_sfx_catchup
	payan_CY43T2_bf02_scatsat1-updt
	payan_CY43T2_bf05_variousfixes
	payan_CY43T2_main01_bf1
	piriou_CY43T2_capepcmt
	pourretv_CY43T2_04
	pourretv_CY43T2_08aeolus
	pourretv_CY43T2_MODES
RAYNAUD Laure	raynaudl_CY43T2_clustering
	raynaudl_CY43T2_pearome
SEITY Yann	seity_CY43T2_bfprep
	seity_CY43T2_bfsurfex
	seity_CY43T2_from42op_RAF2
	seity_CY43T2_fromFTsfx3+bfV10
	seity_CY44_bf923
SPANIEL Oldrich	spaniel_CY43T2_single
SUZAT Florian	suzat_CY43T2_mw_bf2_phasing
VOITUS Fabrice	voitus_CY43T2_DDH_DEBUG

AUGER Ludovic

Doc:

Allows the use of mocon diagnostic with AROME analyses and historical files (if not wrong values and crash).

EXPECTED IMPACT:

Allows the use of mocon diagnostic with AROME analyses and historical files (if not wrong values and crash).

Projects: arpifs

Git branch: auger_CY43T2_edr

Modified:

arpifs/fullpos

phymfpos.F90

BERRE Loik

Doc:

- Introduction of key *LHYBRID_JB* in *su0yomb.F90* (as in *subjwavstats.F90*), in order to allow possible activation of any the two options (with *LHYBRID_JB=F* and *LJBWSTATS=T* in order to compute a file *wavelet.cv* from scratch, including an optional normalisation ; otherwise, a preexisting file *wavelet.cv* is read, before being optionally updated).

- Replacement of *NS2D* by *CVA_DATA%NVA2D* in *subjwavrenorm.F90*.

Projects: arpifs

Git branch: berre_CY43T2_lhybridjbF_wavnorm_nva2d

Modified:

arpifs/setup su0yomb.F90

arpifs/var subjwavrenorm.F90

Doc:

The branch *berre_CY43T2_lhybridjbF_wavnorm_nva2d_new* replaces the branch *berre_CY43T2_lhybridjbF_wavnorm_nva2d*, as it has been made consistent with the corresponding bugfix modification in *cy45t1* :

* Introduction of key *LHYBRID_JB* in *su0yomb.F90* (as in *subjwavstats.F90*), in order to allow possible activation of any the two options (with *LHYBRID_JB=F* and *LJBWSTATS=T* in order to compute a file *wavelet.cv* from scratch, including an optional normalisation ; otherwise, a preexisting file *wavelet.cv* is read, before being optionally updated). This *b f* change has been made consistent with the corresponding one in *cy45t1_bf*.

* Replacement of *NS2D* by *CVA_DATA%NVA2D* in *subjwavrenorm.F90*.

EXPECTED IMPACT:

Bugfix for wavelet B computations.

Projects: arpifs

Git branch: berre_CY43T2_lhybridjbF_wavnorm_nva2d_new

Modified:

arpifs/setup
arpifs/var

su0yomb.F90
subjwavrenorm.F90

Doc:

** for sigmab computations :*

Bugfix (B. Ménétrier) for computing sigmab's from FA files (in varcalc.F90).

** for wavelet covariance computations :*

Bugfix (B. Ménétrier) for computing wavelet covariances from FA files.

Adjusted list of wavelet cutoffs (L. Berre) for preparing T499 wavelet computations.

Bugfix addition (L. Berre) of LWRIBVEC_FULL in namvar.nam.h to write randomized states.

** for PREP :*

Bugfix (S. Faroux and G. Faure) of PREP interpolation from a GAUSS grid.

EXPECTED IMPACT:

Avoids crashes.

Projects: arpifs, surfex

Git branch: berre_CY43T2_prepSFa_wavBMe

Modified:

arpifs/namelist

namvar.nam.h

arpifs/var

subjwavelet0.F90, subjwavgen_hybraw.F90, varcalc.F90

surfex/SURFEX

adapt_horibl_surf.F90, hor_interpol_gauss.F90, hor_interpol_latlon.F90, prep_grid_gauss.F90

BOUTELOUP Yves

Doc:

Modset to allow post-processing of PCMT prognostic variables.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs

Git branch: boutelou_CY43T2_b472

Modified:

arpifs/fullpos

endpos.F90, endpos_prepagl.F90, endvpos.F90, fpcordyn.F90

arpifs/setup

suafn1.F90, sufa.F90

Doc:

Modification to avoid the loss of a part of rain and snow. Can be highlighted by the presence of rain with negative temperature (rain but not precipitation flux which is correct !)

EXPECTED IMPACT:

Meteorological impact is very small, one isoline (blue !) in score with X4

Projects: arpifs

Git branch: boutelou_CY43T2_b473

Modified:

arpifs/phys_dmn

advprcs.F90

Doc:

Correction of an error inadvertently entered in CY43T2_bf.02 .

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs

Git branch: boutelou_CY43T2_b473b

Modified:

arpifs/phys_dmn

advprcs.F90

Doc:

Phasing on cy43t2_bf.01 of FT's branche: sfx2, sfx_can, sfx4, sfx5, sfx6 and sfx7 .

EXPECTED IMPACT:

Of course there is a numerical impact but i don't know exactly what to expect ! Probably a blowing-up of the model !

Projects: arpifs, mse, surfex

Git branch: boutelou_CY43T2_b476

Added:

mse/externals

aro_ground_diag_2isba.F90, canari_sfx.F90

mse/interface

aro_ground_diag_2isba.h

surfex/SURFEX

get_surf_var_2isba.F90

Modified:

arpifs/canari

canari.F90, capotx.F90

arpifs/phys_dmn

aplpar.F90, mf_phys.F90

mse/externals

aro_ground_diag.F90, canari_sx_ics.F90

mse/programs

oi_main.F90

surfex/ASSIM

oi_control.F90

Doc:

Remove PL98 modifications, add test of SURFEX version of the input file in read_gridtype_gauss.F90, set LCOMOD=TRUE in su0phy.F90 and modify default value of CQSAT in ini_surf_csts.F90

EXPECTED IMPACT:

Improve reproductability of CY42 operational model behaviour with cy43t2 using SURFEX V8.

Projects: arpifs, surfex

Git branch: boutelou_CY43T2_b502

Modified:

arpifs/setup

su0phy.F90

surfex/SURFEX

heatcapz.F90, ini_surf_csts.F90, init_veg_pgdn.F90, read_gridtype_gauss.F90, soil.F90

CEBRON Pierrick

Doc:

COMBI corrections from cycle CY42_op2 .

NO NUMERICAL IMPACT IS EXPECTED.

Projects: utilities

Git branch: cebron_CY43T2_combi

Modified:

utilities/combi combi.F90, combi_opti.F90, combi_pert.F90

Doc:

To use Grib2 in combi, we need to replace some FA routines (FACILO, FAIENCO instead of FACILE, FAIENCE)

NO NUMERICAL IMPACT IS EXPECTED.

Projects: utilities

Git branch: cebron_CY43T2_combiGrib2

Modified:

utilities/combi combi_opti.F90, combi_pert.F90

Doc:

An array overflow was possible because of an equality on real values

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs

Git branch: cebron_CY43T2_srtm

Modified:

arpifs/phys_radi srtm_setcoef.F90

DEGRAUWE Daan

Doc:

TOUCANS-SURFEX contribution for cy43t2

Contributors: D. Degrauwe, R. Hamdi

Description:

This contribution allows to combine the turbulence scheme of ALARO-1 (TOUCANS) with the SURFEX surface scheme. Two essential modifications were necessary:

1. use of drag coefficients from SURFEX in the atmospheric code (aplpar).

To this goal, an field with index MCD is added to the PGPAR array;

- at the beginning of aplpar, PCD is set to this field; except for the first timestep, when PCD is set to the drag coefficient at neutrality PCDN;

- after the call to SURFEX (aro_ground_diag), the drag coefficient from SURFEX is stored in PGPAR;

2. use of stability functions from TOUCANS in SURFEX.

To this goal, TOUCANS parameters are stored in a new derived type (SURF_ATM_TURB), which is passed around in SURFEX to all routines that make a call to surface_cdch_1darp. The code to calculate TOUCANS stability functions is added to the routine surface_cdch_1darp.

Description of modifications:

arpifs/module/yomparar.F90, arpifs/phys_dmn/suparar.F90

Add fields with indices MCD, MCH to the TPARAR derived data type

arpifs/phys_dmn/aplpar.F90

Initialize fields required by TOUCANS

Store and retrieve value of drag coefficients from PGPAR array

arpifs/phys_dmn/apl_arome.F90

Add (dummy) ZCH argument in call to ARO_GROUND_DIAG

arpifs/phys_dmn/actkezotls.F90

Add Richardson number (PRI) and near-surface density (PGWDCS) to output

mse/externals/suphmse_surface.F90

Setup YLSURF_ATM_TURB object of type SURF_ATM_TURB from data in YRPHY and YOMQNSE

Add YLSURF_ATM_TURB argument in call to AROINI_SURFC

mse/externals/aroini_surfc.F90

Add YLSURF_ATM_TURB argument, pass it on to INIT_SURF_ATM_N

mse/interface/aroini_surfc.h

Add YLSURF_ATM_TURB argument

mse/externals/aro_ground_diag.F90, mse/externals/aro_ground_diag.h

Add PCH argument for heat exchange coefficient

mse/module/modd_surfex_aro.F90

Not really changed (added some spaces)

This is necessary to avoid compilation problems with gmckpack.

surfex/SURFEX/modd_surf_atm_turbn.F90

Definition of derived data type holding parameters of atmospheric turbulence

surfex/SURFEX/modd_surfexn.F90

Add components for atmospheric turbulence to tile descriptor types.

mse/programs/driver_off_omp.F90

Add (dummy) ZCH argument in call to ARO_GROUND_DIAG

mse/programs/offline.F90, surfex/OFFLIN/offline.F90, surfex/SURFEX/init_pgd_surf_atm.F90

Add argument YLATMTURB in call to INIT_SURF_ATM_N

surfex/SURFEX/init_surf_atmn.F90

Perform consistency check between ALARO and SURFEX options.

Add argument YDATMTURB, and pass it on to INIT_SEA_N, INIT_INLAND_WATER_N, INIT_NATURE_N and INIT_TOWN_N

surfex/SURFEX/init_sean.F90, surfex/SURFEX/init_inland_watern.F90,
surfex/SURFEX/init_naturen.F90, surfex/SURFEX/init_townn.F90
Add argument YDATMTURB, and pass it on to called routines

surfex/SURFEX/init_seafluxn.F90, surfex/SURFEX/init_flaken.F90,
surfex/SURFEX/init_tebn.F90, surfex/SURFEX/init_water_sbl.F90,
surfex/SURFEX/init_watfluxn.F90, surfex/SURFEX/init_seafluxn.F90,
surfex/SURFEX/init_isban.F90, surfex/SURFEX/init_isba_sbl.F90
Add argument YDATMTURB, and store it in tile descriptors

surfex/SURFEX/surface_cdch_1darp.F90
Add argument YDATMTURB, and use it to calculate TOUCANS stability functions

surfex/SURFEX/coupling_seaflux_sbln.F90, surfex/SURFEX/ecume_seaflux.F90, surfex/SURFEX/coupling_seafluxn.F90,
surfex/SURFEX/coare30_seaflux.F90, surfex/SURFEX/coupling_icefluxn.F90, surfex/SURFEX/ice_sea_flux.F90,
surfex/SURFEX/coupling_watflux_sbln.F90, surfex/SURFEX/coupling_watfluxn.F90, surfex/SURFEX/water_flux.F90,
surfex/SURFEX/coupling_flaken.F90, surfex/SURFEX/coupling_flake_sbln.F90,
surfex/SURFEX/coupling_isban.F90, surfex/SURFEX/coupling_isba_canopyn.F90, surfex/SURFEX/preps_for_meb_drag.F90,
surfex/SURFEX/isba.F90, surfex/SURFEX/drag.F90, surfex/SURFEX/isba_meb.F90, surfex/SURFEX/drag_meb.F90,
surfex/SURFEX/isba_ceb.F90, surfex/SURFEX/isba_snow_agr.F90,
surfex/SURFEX/teb.F90, surfex/SURFEX/urban_exch_coef.F90, surfex/SURFEX/urban_drag.F90, surfex/SURFEX/hvac_autosize.F90,
surfex/SURFEX/teb_garden.F90, surfex/SURFEX/garden.F90, surfex/SURFEX/greenroof.F90
Retreive object YDATMTURB from tile descriptors, and pass as argument to surface drag routines.

surfex/SURFEX/diag_surf_atmn.F90
Retreive object YDATMTURB from tile descriptors, and pass as argument to surface drag routines.
Add PCH argument for heat exchange coefficient

surfex/SURFEX/get_fluxn.F90, surfex/SURFEX/get_surf_varn.F90
Add PCH argument for heat exchange coefficient

Validation:

- The norms of all mitraillette tests (ald and arp) are identical w.r.t. reference cy43t2_bf.03 executable. (checked with /home/mf/dp/marp/verolive/vortex/vortex/site/arpifs_listings/bin/compare_listings.py)
- The mitraillette test for ALARO physics does not use SURFEX.
- So far, focus was on the technical implementation; meteorological performance and possible retuning of TOUCANS remain to be done.

Projects: arpifs, mse, surfex

Git branch: degrauwe_CY43T2_alaro_surfex

Added:

surfex/SURFEX modd_surf_atm_turbn.F90

Modified:

arpifs/module yomparar.F90
 arpifs/phys_dmn actkezotls.F90, apl_arome.F90, aplpar.F90, suparar.F90
 mse/externals aro_ground_diag.F90, aroini_surfc.F90, suphmse_surface.F90
 mse/interface aro_ground_diag.h, aroini_surfc.h
 mse/programs driver_off_omp.F90, offline.F90
 surfex/OFFLIN offline.F90
 surfex/SURFEX coare30_seaflux.F90, coupling_flake_sbln.F90, coupling_flaken.F90, coupling_icefluxn.F90, coupling_isba_canopyn.F90, coupling_isban.F90, coupling_seaflux_sbln.F90, coupling_seafluxn.F90, coupling_watflux_sbln.F90, coupling_watfluxn.F90, diag_surf_atmn.F90, drag.F90, drag_meb.F90, ecume_seaflux.F90, garden.F90, get_fluxn.F90, get_surf_varn.F90, greenroof.F90, hvac_autosize.F90, ice_sea_flux.F90, init_flaken.F90, init_inland_watern.F90, init_isba_sbl.F90, init_isban.F90, init_naturen.F90, init_pgd_surf_atm.F90, init_seafluxn.F90, init_sean.F90, init_surf_atmn.F90, init_tebn.F90, init_townn.F90, init_water_sbl.F90, init_watfluxn.F90, isba.F90, isba_ceb.F90, isba_meb.F90, isba_snow_agr.F90, modd_surfexn.F90, preps_for_meb_drag.F90, surface_cdch_1darp.F90, teb.F90, teb_garden.F90, urban_drag.F90, urban_exch_coef.F90, water_flux.F90

EL KHATIB Ryad

Doc:

- Interoperability Surfex to ISBA activated by new namelists parameters (NAMFPC) :

RWPITPN : minimum deep soil temperature for melting of frozen water

RWPITPX : maximum deep soil temperature for melting of frozen water

RSNSTPN : minimum deep soil temperature for melting of snow

RSNSTPX : minimum deep soil temperature for melting of snow

RSNSMOD : Reference snow depth for normalization

- Bugfix in CANARI for SURFEX to update sea or lake surface temperature of a few number of grid-points with no fraction of nature in PGD and 100% nature in 923 climatological files.

- Portability fix for gfortran

EXPECTED IMPACT:

No impact in Fullpos unless the new namelists parameters are changed.

Impact in CANARI (bugfix).

Projects: arpifs, ifsaux, surfex, utilities

Git branch: khatib_CY43T2_bf.02%sfx2isba_oimain

Modified:

arpifs/fullpos	hpos.F90, sufpc.F90
arpifs/module	yomfpc.F90
arpifs/namelist	namfpc.nam.h
ifsaux/fa	facgrm.F90
surfex/ASSIM	assim_nature_isba_enkf.F90, oi_control.F90
utilities/pearome	clust.F90

Doc:

Bugfixes in Fullpos reported by Hirlam (PBL rel. humidity, wind gust 2, biperiodicization of climatology surface temperature).

EXPECTED IMPACT:

small impact may appear on post-processed PBL relative humidity (full remove of sursaturation)

Projects: aladin, arpifs

Git branch: khatib_CY43T2_bf.05%fixfpos

Modified:

aladin/c9xx

ebicli.F90

arpifs/fullpos

fpcorphy.F90

Doc:

Fix misfixed wind gust 2 pointer

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs

Git branch: khatib_CY43T2_bf.06%refixfpos

Modified:

arpifs/fullpos

fpcorphy.F90

Doc:

Fix bitwise repetability issue in SL adjoint communications.

EXPECTED IMPACT:

Marginal impact expected in SL adjoint when SL is not "on demand".

Projects: arpifs

Git branch: khatib_CY43T2_bf.07%sladrep

Modified:

arpifs/interpol

slcomm.F90

Doc:

Fix Tcls and RHcls if .not.lfposhor and nfpcli >0.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs

Git branch: khatib_CY43T2_bf.08%fpcorphy

Modified:

arpifs/fullpos

fpcorphy.F90

ETCHEVERS Ingrid

Doc:

2 bugfixes:

- Add *TFP_HTPW1* and *TFP_HTPW2* in *namafn.nam.h* (omission)

- It is now possible to compute "4 points interpolation" in *fpintphy.F90* and/or *fpintdyn.F90* when *NFPINPHY* and/or *NFPINDYN* are equal 4 in *namelist*.

EXPECTED IMPACT:

When NFPINPHY and/or NFPINDYN are equal 4 in namelist, the interpolations in fpintphy.F90 and/or fpintdyn.F90 are computed with 4 points and not with 12 points.

Projects: arpifs

Git branch: etcheversi_CY43T2_bfFullPos

Modified:

arpifs/fullpos fpintdyn.F90, fpintphy.F90

arpifs/namelist namafn.nam.h

Doc:

Phasage between Boyd and EURW1S40.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: aladin, arpifs

Git branch: etcheversi_CY43T2_eurw1s40

Modified:

aladin/fullpos suefpg3.F90

arpifs/fullpos sufpd.F90, sufpdistrib.F90

arpifs/module yomfpd.F90

arpifs/namelist namfpd.nam.h

Doc:

New algorithm of all iso wet-bulb temperature

New field : iso wet-bulb temperature = 1.5°C

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs

Git branch: etcheversi_CY43T2_phasage

Added:

arpifs/pp_obs

ppltw.F90

Modified:

arpifs/fullpos

endpos.F90, fpcorphy.F90, sufptr2.F90

arpifs/module

yomafn.F90

arpifs/pp_obs

pos.F90

arpifs/setup

suafn1.F90, suafn2.F90, suafn3.F90

ETCHEVERS Ingrid, EL KHATIB Ryad

Doc:

2 bugfixes for humidity for Fabec in pos.F90.

Détails (par Ryad) :

la première existe depuis le cycle 40T1, mais elle est dormante pour la namelist utilisée : CTSTAR n'est pas appelé si LL_RHO=.TRUE.

Il s'agit visiblement d'un problème de phasage (la variable LL_TSTAR, qui est juste, n'est jamais utilisée).

- la seconde existe depuis le cycle 43, elle fait suite au réusinage des opérateurs d'observation. Lors du calcul de ZPPPDEP, il faut passer désormais à PPQ l'adresse de tableau ZPDEP(1,1) et non plus ZPDEP car PPQ attend désormais un tableau dimensionné (:,1:KLEVG) et non plus (:,0:KLEVG),

tandis que ZPDEP est toujours dimensionné (:,0:KLEVG) et initialisé sur (:,1:KLEVG).

Ce bogue se traduit par des calculs sur des valeurs non-initialisées donc le résultat (ou plantage) est imprévisible.

EXPECTED IMPACT:

cf détails ci dessus

Projects: arpifs

Git branch: etcheversi_CY43T2_fabec

Modified:

arpifs/pp_obs

pos.F90

FAURE Ghislain

Doc:

Several bugfixes for PREP in case of LAM:

** avoid NaN in TOWN*

** CMO (1D ocean model) read optimizations and bugfixes*

EXPECTED IMPACT:

Avoid crashes...

Projects: surfex

Git branch: faure_CY43T2_PrepLamFixesOK

Modified:

surfex/SURFEX

adapt_horibl_surf.F90, horibl_surf.F90, mode_read_netcdf_mercator.F90, prep_hor_ocean_field.F90,
prep_hor_ocean_fields.F90

GCO

Doc:

Fix initialization of variables ALATRLX1/2 .

Projects: arpifs

Git branch: gco_CY43T2_bf.03%surlx

Modified:

arpifs/setup

surlx.F90

GUIDARD Vincent

Doc:

Add Meteosat 11 id.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs

Git branch: guidardv_CY43T2_meteosat11

Modified:

arpifs/var

getsatid.F90

GUIDARD Vincent, FAURE Ghislain, MENETRIER Benjamin, MOLL Patrick

Doc:

Bugfixes for assimilation(catch-up for satellites and canari), PREP (S. Faroux contributions) and AEARP.

EXPECTED IMPACT:

Bugfixes

Projects: arpifs, mse, surfex

Git branch: guidardv_CY43T2_4dvarPrep

Modified:

arpifs/obs_preproc

pertobs.F90

arpifs/op_obs

bgobs.F90, hretr_rad.F90

mse/externals

canari_sfx.F90

mse/programs

prep.F90

surfex/SURFEX

adapt_horibl_surf.F90, convert_cover_isba.F90, ecume_flux.F90, get_mesh_index_gauss.F90, hor_interpol_gauss.F90, horibl_surf.F90, modd_grid_gauss.F90, modd_prep_isba.F90, modd_prep_snow.F90, modd_prep_teb.F90, mode_gridtype_gauss.F90, mode_read_buffer.F90, mode_read_extern.F90, mode_read_grib.F90, mode_snow3l.F90, prep_grid_gauss.F90, prep_hor_isba_cc_field.F90, prep_hor_isba_field.F90, prep_hor_snow_field.F90, prep_hor_snow_fields.F90, prep_hor_teb_field.F90, prep_isba.F90, prep_isba_buffer.F90, prep_isba_extern.F90, prep_isba_grib.F90, prep_snow_buffer.F90, prep_snow_extern.F90, prep_snow_grib.F90, prep_snow_unif.F90, prep_teb_buffer.F90, prep_teb_extern.F90, prep_teb_grib.F90, prep_teb_unif.F90, read_oceann.F90

GUILLAUME Frank**Doc:**

- Dans la subroutine traitant les radars ODIM, les tests servant à définir les valeurs correctes des paramètres DBZH, TH et VRAD ont été corrigés pour prendre en compte 'l'absence de mesure' (RABSO).

- Suppression du USE BATOR_DECODBUFR, devenu inutile, dans bator_lectures_mod.

- Modification de la subroutine ControlBufType pour permettre la reconnaissance de certains fichiers BUFR (TEMP/TEMPDROP) qui répondent à la nouvelle recommandation OMM.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: odb

Git branch: guillaum_CY43T2_bugfix_20171206

Modified:

odb/pandor/module bator_decodbufr_mod.F90, bator_decodhdf5_mod.F90, bator_lectures_mod.F90

Doc:

Dans le décodage des données SYNOP au format BUFR, les vents faibles variables et les traces de précipitations sont rejetés.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: odb

Git branch: guillaum_CY43T2_bugfix_driftanduse

Modified:

odb/pandor/module bator_decodbufr_mod.F90, bator_init_mod.F90
odb/tools Bator.F90

Doc:

Bugfix : checking the version of HDF5 Library.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: odb

Git branch: guillaum_CY43T2_fix_hdf5lib

Modified:

odb/pandor/module bator_decodhdf5_mod.F90

Doc:

- 1) Bugfix in *odim()* subroutine to avoid allocation of *FullDatasetList(NumGDataset)%GQuality* when no Quality Group is found in ODIM file.
- 2) Transcoding node (5 characters) in integer for radar ODIM in *bator_ecritures_mod.F90*.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: odb

Git branch: guillaum_CY43T2_fix_odim

Modified:

odb/pandor/module bator_decodhdf5_mod.F90, bator_ecritures_mod.F90

Doc:

- 1/ Recover 'satellite instrument' value (from GPSRO BUFR files) in the *sensor@hdr ODB* column to avoid future updates of OBSTAT.
- 2/ Add decoding software for MWRI and MODE-S (V. Pourret) data in *bator_decodbufr.F90*.
- 3/ Changes in *param_bator.cfg* to handle these new data and change for GPSRO.
- 4/ Add *TS_MWRI* type in *namel_bator*.
- 5/ Add codetype *MODE-S (147)* in *yomcoctp.F90*.
- 6/ Avoid to go out in error if no BUFR, NETCDF, or HDF5 files have to be processed (variables *INbTypeBufr*, *InbTypeHdf5* or *InbTypeNetcdf* are present in *namelist NADIRS*).
- 7/ P. Brousseau : cancels forcing redzone to 0 in *canari* (subroutine *bator_lamflag*).

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs, odb

Git branch: guillaum_CY43T2_gpsro

Modified:

arpifs/module yomcoctp.F90

odb/pandor/module bator_decodbufr_mod.F90, bator_ecritures_mod.F90, bator_init_mod.F90, bator_module.F90,
bator_saisies_mod.F90, bator_util_mod.F90

odb/pandor/namelist bator_namelist.nam.h

odb/tools

Bator.F90

Doc:

- *Adaptation BATOR au changement de la production SEVIRI (netcdf) du CMS.*
- *Généralisation du rejet des vents variables pour les données conventionnelles.*
- *Bugfix concernant les appels à Dr HOOK.*
- *Ajout de la routine de décodage des données AMDAROMM*
- *Changes in date/hour checking in several obstypes subroutines*
- *Bugfix in DriftBuoy subroutine and add use BATOR_DECODNETCDF in Bator.F90*

NO NUMERICAL IMPACT IS EXPECTED.

Projects: odb

Git branch: guillaum_CY43T2_phasage_20170905

Modified:

odb/pandor/module bator_datetime_mod.F90, bator_decodbufr_mod.F90, bator_decodnetcdf_mod.F90, bator_ecritures_mod.F90,
bator_init_mod.F90, bator_lectures_mod.F90

odb/tools

Bator.F90

Doc:

Changements dans le binaire BATOR et ses fichiers d'entrée NAMELIST et PARAM.CFG :

- *ajout du prétraitement des données AMSR-2, MTVZA-GY (format HDF5), des radars ODIM (format HDF5),*
- *refonte du prétraitement des données SEVIRI Lannion,*
- *création des namelists BUFR, HDF5, GRIB et NETCDF (fichiers namel_bator_*)*
- *généralisation de l'utilisation du module varno_module.F90,*
- *nettoyage/réaménagement partiel du code,*
- *bugfix dans bator_rad_postproc.*
- *adaptation du fichier param_bator.cfg.*

NO NUMERICAL IMPACT IS EXPECTED.

Projects: odb

Git branch: guillaum_CY43T2_phasage_20171002

Added:

odb/pandor/module

bator_decodhdf5_mod.F90

Modified:

odb/pandor/module

bator_decodbufr_mod.F90, bator_decodhdf5_mod.F90, bator_decodnetcdf_mod.F90,
bator_ecritures_mod.F90, bator_init_mod.F90, bator_lectures_mod.F90, bator_module.F90,
bator_rad_postproc_mod.F90, bator_saisies_mod.F90

odb/pandor/namelist

bator_namelist.nam.h

odb/tools

Bator.F90

LABADIE Carole

Doc:

Change array dimensions in some yoesrta routines to fix a bug.

EXPECTED IMPACT:

These modifications impact only the SRTM physical package used by PEARP.

Projects: arpifs

Git branch: labadie_CY43T2_SRTM

Modified:

arpifs/module

yoesrta16.F90, yoesrta17.F90, yoesrta18.F90, yoesrta19.F90, yoesrta20.F90, yoesrta21.F90, yoesrta22.F90,
yoesrta23.F90, yoesrta24.F90, yoesrta25.F90, yoesrta27.F90, yoesrta28.F90, yoesrta29.F90

MARGUINAUD Philippe

Doc:

Report marguina_CY42_DXDY .

NO NUMERICAL IMPACT IS EXPECTED.

Projects: surfex

Git branch: marguina_CY43T2_DXDY

Modified:

surfex/SURFEX

mode_gridtype_conf_proj.F90

Doc:

Prepare for GRIB2 encoding (BDAP & ARPEGE)

Prepare for GRIB2 encoding (BDAP & ARPEGE); new faFieldName.def (BDAP fields only) file for GRIB2. To be used with marguina_CY43T2_bf_grib2 and eccodes. NFPGRIB=120 to trigger GRIB2 output.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: ifsaux

Git branch: marguina_CY43T2_bf_grib2

Modified:

ifsaux/fa

facgrm.F90

Doc:

Fix GRIB2 header size calculation.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: ifsaux

Git branch: marguina_CY43T2_fasgra

Modified:

ifsaux/fa

fasgra.F90

Doc:

Prepare for eccodes; take care of bug in grib_api (encoding of spectral coefficients); disable initialization of LAM grib2 templates.

EXPECTED IMPACT:

The results will be slightly different (difference near machine precision) when we will use eccodes. This is because the encoding/decoding of spectral coefficients of ARPEGE will be altered.

Projects: ifsaux

Git branch: marguina_CY43T2_grib_api

Added:

ifsaux/fa grib_get_api_version.c

Modified:

ifsaux/fa facgrm.F90, fadgra.F90, faigra.F90, falgra.h

Doc:

Report marguina_CY42_op2fabec .

NO NUMERICAL IMPACT IS EXPECTED.

Projects: src

Git branch: marguina_CY43T2_op2fabec

Added:

src/local/ifsaux/fa facgrm.F90, fagote.F90, faquin.F90

src/local/ifsaux/programs faconvgrib.F90

Doc:

Report marguina_CY42_op2fabec_ .

NO NUMERICAL IMPACT IS EXPECTED.

Projects: ifsaux

Git branch: marguina_CY43T2_op2fabec_

Modified:

ifsaux/fa facgrm.F90, fagote.F90, faquin.F90

ifsaux/programs faconvgrib.F90

Doc:

Report marguina_CY42_op2gribdate .

NO NUMERICAL IMPACT IS EXPECTED.

Projects: ifsaux

Git branch: marguina_CY43T2_op2gribdate

Modified:

ifsaux/fa facgrm.F90

Doc:

Report marguina_CY42_op2timerange .

NO NUMERICAL IMPACT IS EXPECTED.

Projects: ifsaux

Git branch: marguina_CY43T2_op2timerange

Modified:

ifsaux/fa facgrm.F90

Doc:

Use OpenMP in SURFEX setup; the gain is about 30s in the setup of ARPEGE T1800 using 100 nodes.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: mse, surfex

Git branch: marguina_CY43T2_openmpsfx

Modified:

mse/externals aroini_surfc.F90

mse/module modd_io_surf_aro.F90

surfex/SURFEX ini_data_cover.F90, modd_surfex_mpi.F90, modd_surfex_omp.F90, read_surf.F90

MARY Alexandre

Doc:

This contribution enables the PGD program to generate a PGD file containing a E-zone, and the e923 to read orography and LSM from a PGD file containing a E-zone (would it be empty).

Simplifies a lot the generation of clim & PGD files, especially the consistency of orography between both.

(Associated modification of the clim_3to1 Olive/Vortex configuration to come later)

Projects: arpifs, surfex

Git branch: mary_CY43T2_Ezone_in_pgd

Modified:

arpifs/c9xx

relnew.F90

surfex/SURFEX

grid_modif_conf_proj.F90, mode_gridtype_conf_proj.F90, pack_grid_conf_proj.F90,
read_gridtype_conf_proj.F90, read_nam_grid_conf_proj.F90, split_grid_conf_proj.F90, write_header_fa.F90

Doc:

Fix for bias/incr DFI.

Mute FA4py option (FA/LFI spurious messages within epygram).

EXPECTED IMPACT:

Fix.

Projects: arpifs, ifsaux

Git branch: mary_CY43T2_dfi2fix

Modified:

arpifs/dfi

dfi2.F90

ifsaux/py_interface

FA4py.F90

Doc:

Raise JPXTRO to 2000 for Arp-HR in FA.

EXPECTED IMPACT:

A bit more memory needed.

Projects: ifsaux

Git branch: mary_CY43T2_fajpxtro

Modified:

ifsaux/module fa_mod.F90

Doc:

Fix missing code in PGD to compute fractional subscale orography (LORORAD=T).

EXPECTED IMPACT:

Fields SFX.FRAC_DIR?? and SFX.SLOPE_DIR?? of PGD are now actually computed using subscale information.

Projects: surfex

Git branch: mary_CY43T2_fix_pgdororad

Modified:

surfex/SURFEX average1_orography.F90, average2_orography.F90, refresh_pgdwork.F90

Doc:

PGD: with key LFAGMAP, enable generation of GMAP-compatible PGD in FA format. (P.Marguinaud)

C923: fix default value of dataset in step 6 (namelist-modified otherwise)

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs, ifsaux, mse, surfex, trans

Git branch: mary_CY43T2_pgdfa

Modified:

arpifs/c9xx incli0.F90
ifsaux/fa faieno.h
ifsaux/module fa_mod.F90
mse/module modd_io_surf_aro.F90, sfxflddesc_mod.F90
mse/new sfxlfi2fa.F90
mse/programs pgd.F90, prep.F90
surfex/OFFLIN modn_io_offline.F90, write_header_mnh.F90

surfex/SURFEX
trans/programs

modd_io_surf_fa.F90, mode_read_surf_fa.F90, mode_write_surf_fa.F90, read_nam_grid_gauss.F90
rgrid.F90

Doc:

Report fix LQCPL/LCCPL by J.Masek/J.Vivoda (branch masekj_CY40T1_bf06) in CY43T2.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs

Git branch: mary_CY43T2_report_fixLQCPL

Modified:

arpifs/module

elbc0b_mod.F90

MASEK Jan

Doc:

ALARO-1 bugfix for cy43t2_bf.04

Contributors: R. Brozkova, J. Masek

Description:

Modset contains three fixes for ALARO-1, which are already included in cy45t1:

1) Fixed calculation of moist Richardson number at lowest model level in case of mass flux scheme (TOUCANS only).

(R. Brozkova)

2) Avoided costly calculation of bracketing weights in the last model timestep (ACRANE2 only).

(J. Masek)

3) Prevented extrapolation of gaseous optical depths in shortwave intermittency, optimized last timestep. (ACRANE2 only).

(J. Masek)

N.B.: TOUCANS and ACRANE2 are used only in ALARO-1 configuration.

Projects: arpifs

Git branch: masekj_CY43T2_alaro

Modified:

arpifs/adiab

cpg.F90, cpg_drv.F90

arpifs/phys_dmn

acmrip.F90, aplpar.F90, mf_phys.F90

arpifs/phys_radi

acraneb2.F90

arpifs/setup

sudyn.F90, susc2b.F90

Doc:

Modset contains several ALARO-1 fixes, not affecting other model configurations:

1) corrected roughness treatment for LZ0HSREL=T with TOUCANS, related mostly to snow scheme LVGSN=T (J. Masek):

*arpifs/phys_dmn/acsol.F90
arpifs/phys_dmn/actkecls.F90
arpifs/phys_dmn/actkehmt.F90
arpifs/phys_dmn/aplpar.F90*

2) corrections in shallow convection (R. Brozkova):

*arpifs/phys_dmn/acmrip.F90
arpifs/phys_dmn/acscctr.F90*

3) fixes in thermodynamic adjustment - deep convective condensates protection (R. Brozkova):

*arpifs/phys_dmn/acnebcond.F90
arpifs/phys_dmn/aplpar.F90*

4) fix to pass correctly the dummy argument of hail diagnostic field (R. Brozkova):

*arpifs/phys_dmn/aplpar.F90
arpifs/phys_dmn/initaplpar.F90
arpifs/phys_dmn/mf_phys.F90*

5) fix to pass correctly convective and resolved precipitation enthalpy diagnostics in DDH, which was swapped wrongly (R. Brozkova):

arpifs/dia/cpphddh.F90

6) fix of using spectral Q background in 3DVAR minimisation (A. Trojakova):

arpifs/module/traj_main_mod.F90

No impact expected for ARPEGE or AROME data assimilation, as it is active under LTRAJGP=T, LREADGPTRAJ=F, LELAM=T.

7) fix of misplaced arguments of ACRANE2 call in APL_AROME (E. Gleeson):

arpifs/phys_dmn/apl_arome.F90

Without this fix, ACRANE2 radiation does not work in AROME (it either crashes or gives meaningless output). The bug was introduced by J. Masek in cy43t2_main and it reentered also cy40t1_bf.06.

Contributors: R. Brozkova, A. Trojakova, E. Gleeson, J. Masek

Description of modifications:

** arpifs/dia/cpphddh.F90*

Swapped convective and resolved precipitation enthalpy.

** arpifs/module/traj_main_mod.F90*

In LELAM case, call EINV_TRANS instead of INV_TRANS.

** arpifs/phys_dmn/acmrip.F90*

Corrections in the mass flux option (branch LCOEFK_MSC) of shallow convection parameterization.

** arpifs/phys_dmn/acnebcond.F90*

Corrected protection of convective condensates in thermodynamic adjustment.

** arpifs/phys_dmn/acscctr.F90*

Corrections to compute net condensation and cleaner return to blue point following the proposal of L. Gerard.

Removal of TKE/TTE based limit to abort the cloud.

** arpifs/phys_dmn/acsol.F90*

Calculation of snow fractions for LVGSN=T moved here from APLPAR.

Coding of ALARO-1 fixes for option LZ0HSREL=T.

Added dummy arguments PGZ0HF, PLAI and PALBNS.

** arpifs/phys_dmn/actkecls.F90*

Always use drag coefficient based on effective dynamical roughness.

Removed dummy arguments PCDMR and PCDNMR.

** arpifs/phys_dmn/actkehmt.F90*

Bug corrections and updates in LZ0HSREL=T branch: consistent

snow fraction for roughness and albedo; single value of dynamical roughness;

quadratic averaging. Corrected also thermal roughness of snow for LSNV=T and LZ0HSREL=F (missing factor STHER).

Modified call to ACTKECLS.

** arpifs/phys_dmn/apl_arome.F90*

Corrected misplaced arguments in ACRANEB2 call.

** arpifs/phys_dmn/aplpar.F90*

Added dummy argument PDIAGH for passing diagnostic hail.

Corrected protection of deep convective condensates.

Calculation of snow fractions over bare ground and vegetation moved to ACSOL (case LVGSN=T).

Coding of ALARO-1 fixes for option LZ0HSREL=T.

** arpifs/phys_dmn/initaplar.F90*

Added dummy argument PDIAGH, initialized to zero.

** arpifs/phys_dmn/mf_phys.F90*

Initializing diagnostic hail (array PDIAGH) in INITAPLPAR and filling it in APLPAR.

Validation:

Modifications 1)-5) are ALARO-1 specific. Modification 1) concerns only

LZ0HSREL=T option with TOUCANS, and it is switched off by default. Fixes 2) and 3) are not kept under key and they change ALARO-1 spectral norms. Fixes 4) and 5) affect only diagnostics, without influence on spectral norms. Fix 6) enables to use spectral Q background in LAM 3DVAR minimisation. Finally, fix 7) enables to use ACRANE2 radiation in AROME.

Since the fixes 2) and 3) change ALARO-1 spectral norms, validation was done with respect to Prague developments based on cycle cy43t2_bf.03. With modset included on both sides, ALARO-1 integration on beaufix in Toulouse gave spectral norms identical to at least 3-digits with Prague reference during 2-hour integration. Visual comparison of 12h precipitation fields proved no meteorological significance of seen differences. On the other hand, fixes 2) and 3) are meteorologically significant, as can be seen by comparing ALARO-1 integrations with and without current modset. Corectness of the modset was checked also against cy38t1trlx_op8 in Prague, where the developments 1)-3) were extensively tested, including evaluation of VERAL scores.

Finally it was checked that current modset preserves bit identity of ALARO-0 baseline, as well as of mitraille AROME case AR1T (with respect to cy43t2_bf.07 reference).

Projects: README, arpifs

Git branch: masekj_CY43T2_alaro2

Added:

.

Modified:

.

arpifs/dia

cpphddh.F90

arpifs/module

traj_main_mod.F90

arpifs/phys_dmn

acmrip.F90, acnebcond.F90, acscctr.F90, acsol.F90, actkecls.F90, actkehmt.F90, apl_rome.F90, aplpar.F90, initaplar.F90, mf_phys.F90

Doc:

Modset contains two fixes affecting ALARO-1 configuration only, harmonizing it with content of cy40t1_bf06. It has no impact on ALARO-0

and AROME configurations.

* arpifs/phys_dmn/acdifv2.F90:

Removed incorrect protection of shear term (TOUCANS only).

* arpifs/phys_dmn/aplpar.F90:

Removed forgotten lines increasing protected convective cloudiness by shallow part coming from turbulence (TOUCANS only).

Projects: arpifs

Git branch: masekj_CY43T2_bf

Modified:

arpifs/phys_dmn

acdifv2.F90, aplpar.F90

MENETRIER Benjamin

Doc:

*Use of SUENSMEM to read ensemble members as FA files in several AEARP tasks (inflation, sigmab, wavelets), if the key LFAMEMBERS is activated.
Replacement of FEMARS/READVEC, which is deprecated in cy43, and of RAW files for the wavelet coefficients computation.*

EXPECTED IMPACT:

Since the data encoding is different between FA and FEMARS (GRIB) files, some minor random differences can be expected.

Projects: arpifs

Git branch: menetrie_CY43T2_AEARP_FA_NO_FEMARS

Modified:

arpifs/module	yomvar.F90
arpifs/namelist	namvar.nam.h
arpifs/utility	openfa.F90, openfainfo.F90
arpifs/var	bgevecs.F90, inflation_pert.F90, lchtcac.F90, suensmem.F90, subjbcovsignal.F90, subjwavgen_hybraw.F90, suvar.F90, varcalc.F90

Doc:

Remove a useless comment.

Projects: arpifs

Git branch: menetrie_CY43T2_famembers_no-lsprt

Modified:

arpifs/var	suensmem.F90
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MICHEL Yann

Doc:

Bugfix for inflation in the AROME EDA.

This is the report of the branch michel_CY42_aearo (cycle 42op3) towards 43T2.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: aladin, arpifs

Git branch: michel_CY43T2_aearo

Renamed:

aladin/var einflcalc.F90 aladin/var/einflation_calc.F90

Added:

aladin/var einflation_mean.F90

Modified:

aladin/var einflation_pert.F90

arpifs/canari canari.F90

arpifs/control forecast_error.F90

MOLL Patrick

Doc:

Validation of the 4DVAR in cycle 43T2_bf.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs, odb, surfex

Git branch: moll_CY43T2_valid_4dvar

Modified:

arpifs/canari

calver.F90, canali.F90, cancer.F90

arpifs/module

obsop_sets.F90

arpifs/op_obs

bgobs.F90, departure_jo.F90, hop.F90, map_varno_to_nvar.F90, obsop_conv.F90

arpifs/pp_obs

ppobsap.F90

arpifs/var

ecset.F90, suinrenormfce.F90, surad.F90

odb/ddl

cancer_robod.sql, hop_canari_robhdr.sql, robod.sql

surfex/ASSIM

assim_nature_isba_enkf.F90, oi_control.F90

PAYAN Christophe

Doc:

Fix a merging error in hpos_xfu.F90 from the branch payan_CY43T2_bf01_taillefer_cy42_sfx_catchup (catchup of taillefer_cy42_sfx branch towards the 43t2_bf.02):

- IC index replaced by KC in the cases GFP_X10NU/V (neutral wind components)
- IC variable removal

EXPECTED IMPACT:

Allows a (correct) consideration of neutral wind from model.

Projects: arpifs

Git branch: payan_CY43T2_43t2bf3_brsfxfix

Modified:

arpifs/fullpos

hpos_xfu.F90

Doc:

Rollback for the routines obsop_conv/ppobsap, in their 43t2_bf.03 version (oops compliant) including the canari fix provided in 43t2_bf.04 (changes in obsop_conv only).

Will help to canari fix merging toward the cy45t1 and further (cy46/47).

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs

Git branch: payan_CY43T2_43t2bf4_ppobsap

Modified:

arpifs/op_obs

obsop_conv.F90

arpifs/pp_obs

ppobsap.F90

Doc:

Catchup of the neutral wind operator bf (from 42_op2): removal of max threshold to 1 of ratio neutral wind speed/real wind speed at model level the closest to the surface.

EXPECTED IMPACT:

Reduce the speed bias of scatterometer winds to analysis

Projects: arpifs

Git branch: payan_CY43T2_bf01_acntcls-ntrl10mfix

Modified:

arpifs/phys_dmn acntcls.F90, acntclsad.F90, acntclstl.F90

Doc:

43t2_bf update: resolves miscalculation in apache option, reported in the previous bf (version 01).

EXPECTED IMPACT:

Similar results to oper suite for TEMP/PILOT data assimilation

Projects: arpifs

Git branch: payan_CY43T2_bf01_apachfix

Modified:

arpifs/op_obs obsop_conv.F90
arpifs/pp_obs apache.F90, ppobsap.F90

Doc:

Allows the handling of ScatSat-1 data, which should be provided by the OSI-SAF soon.

EXPECTED IMPACT:

Numerical impact when ScatSat-1 oceanic surface neutral wind will be available, hopefully in the next months

Projects: arpifs, blacklist, odb

Git branch: payan_CY43T2_bf01_scatsat1

Modified:

arpifs/module parersca.F90, yomcosjo.F90, yomnmev.F90, yomsccl.F90, yomthlim.F90
arpifs/namelist namsccl.nam.h
arpifs/obs_preproc decis.F90, defrun.F90, fgwnd.F90, kscatin.F90, scaqc.F90, sufglim.F90
arpifs/var suscat.F90
blacklist mf_blacklist.b
odb/pandor/module bator_decodbufr_mod.F90, bator_ecritures_mod.F90, bator_init_mod.F90, bator_module.F90,

odb/pandor/namelist

bator_util_mod.F90
bator_namelist.nam.h

Doc:

Catchup of tailefer_cy42_sfx branch (from e-suite, base 42_op1.10) towards 43t2_bf.02

Note:

- mf_blacklist is a copy of the current e-suite version (42_op2.07)*
- aro_ground_diag.F90 includes the fix from seity_CY43T2_fromFTsfx3+bfV10*

EXPECTED IMPACT:

Would help to reproduce the current e-suite cy42_op2

Projects: arpifs

Git branch: payan_CY43T2_bf01_tailefer_cy42_sfx_catchup

Added:

arpifs/dia cpcls_assim.F90

Doc:

Minor change (in a cleaner way) for handling the specified observation error in Bator level, in the specific case of the ScatSat-1 instrument and in the default case for scatterometer winds.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: odb

Git branch: payan_CY43T2_bf02_scatsat1-updt

Modified:

odb/pandor/module bator_ecritures_mod.F90

Doc:

5 items:

- 1- hop.F90: final rollback (or stepback) about changes entered in 43t2_bf.02 and overwritten in 04, including a fix for the assimilation of scatterometer winds in 3DVar;*
- 2- aro_ground_diag.F90: backphasing from 45t1 of a fix for a reset to 0 of 10m neutral winds in the extension area in LAM (as the other meteorological fields);*
- 3- *xfu* routines: backphasing from 45t1 of a fix allowing to handle CLSVENTNEUTRE.U/CLSVENTNEUTRE.V fields separately to the historical*

CLS fields T/Q/U/V. &NAMXFU LXNU VCLS=.TRUE.; / is now required for using these fields CLSVENTNEUTRE.U/V as for instance for the assimilation of scatterometer winds in the configurations with SURFEX. Change required for the test bench mitraille in the path for an export version of 43t2_bf;

4- *mf_blacklist* catchup (from 42_op2, branch *payan_CY42_op2v09_goesr-qinofc*) about the handling of NPP/GOES-16(R) *qi_nofc* in *mf_blacklist.b*;

5- *oi_control.F90*: TROAD5 field update (instead of TROAD3) in SURFEX V8.

EXPECTED IMPACT:

1- Correct diagnosis of scatterometer wind solution used in the minimization in 3DVar (ODB flags correctly filled);

2- Occasionally very small differences in (o-b) departures for scatterometer winds, due to an optimized computation;

3- If CLSVENTNEUTRE.U/V fields are required, set &NAMXFU LXNUVCLS=.TRUE., /;

4- When AMVs from NPP/GOES-16(R) will be assimilated;

5- TROAD2 correctly updated.

Projects: arpifs, blacklist, mse, surfex

Git branch: payan_CY43T2_bf05_variousfixes

Modified:

arpifs/dia	cpxfu.F90
arpifs/module	yomxfu.F90
arpifs/namelist	namxfu.nam.h
arpifs/op_obs	hop.F90
arpifs/setup	suxfu.F90
blacklist	mf_blacklist.b
mse/externals	aro_ground_diag.F90
surfex/ASSIM	oi_control.F90

Doc:

(1) From validation/correction in CY43_main (FS/PM).

* *aladin/var/suejbcov.F90*:

Call *abor1* commented, but *SUEJBTEST* not more tested!

* *algor/external/minim/m1qn3.F*

algor/internal/minim/mlis0.F
algor/internal/minim/m1qn3a.F
arpifs/control/cva2.F90:

Arguments list fix.

** arpifs/op_obs/obsop_conv.F90:*

- Remove various call ABOR1;*
- index corrections into PPOBS* -> P.Moll;*
- Correction for Arome RADARs.*

The obsop_radar call in hop.F90 is before the obsop_conv.F90 (because the pseudo H obs is filled in the vertical pressure coordinate in obsop_radar --> E.Wattrelot). For radar yset, there is 29,192,and 195 varnos. The obsop_radar.F90 fill the phofx array for the 2 last one. To avoid an "RMDI scratching" for this information, the solution is to add into the obsop_conv.F90 a JVNM loop statement "IF(JVNM==VARNO%DOPP .OR. JVNM==VARNO%REFL) CYCLE" at line 306.

** arpifs/op_obs/map_varno_to_nvar.F90:*

NOTVAR handling, initialisation changing (see also hop.F90)

** arpifs/pp_obs/apache.F90*
arpifs/pp_obs/ppobsap.F90:

- Call to apache uncommented;*
- Resolves the reproductibility on Z computations with LCAPACH=T but results are still wrong (Z, T and Q JO/n too high wrt oper run (arpege)).*

** arpifs/pp_obs/ppnew.F90:*

QF5/TF5 arguments swapped in the calls of pprhtl/pprhad.

** arpifs/var/ecset.F90:*

Spurious GOTO 3000 eradicated.

* arpifs/var/t askob.F90:

YGP replaced by YGP5 in the call to GOM_PLUS_CREATE.

(2) Base CY43T2.

* arpifs/op_obs/hop.F90:

*Add MUPTRA/=0 statement to avoid the CALL ABOR1 for MF 3dvar line 200
+ NOTVAR mecanism changing line 311 (initially confusion between nvnumb index et nvnumb value).*

* arpifs/op_obs/hretr_rad.F90:

Optional arg added line 907 LDICO2SLICING=TRUE .

* arpifs/op_obs/radtr_ml.F90:

Cleaning wrt to LDICO2SLICING option.

* arpifs/op_obs/co2slicing_ml.F90:

Spurious prints.

* arpifs/obs_preproc/prech.F90:

Spurious prints.

* arpifs/module/varbc_eval.F90:

Resolves "if(a.and.b)" with a=F and b undefined => seg fault.

* arpifs/module/varbc_rad.F90:

SSMIS predictor's initialization: 30 to 36 changing.

* arpifs/op_obs/hradp_ml.F90
arpifs/op_obs/hradp_ml_o3clrt.F90
arpifs/op_obs/hradp_ml_tl.F90
arpifs/phys_dmn/mts_phys.F90:

*Reintroduction of MF vertical interpolation recipe for ozone (under "ELSE" of "IF(LECMWF)" block).
Improves drastically the fit to IR sensors!*

(3) Contrib TM (base CY43_r3/oops).

* arpifs/parallel/read_spec_fromfa.F90
arpifs/adiab/specrtges.F90
arpifs/var/suecges.F90 (with LSPRT=T for LELAM (PB), ARPEGE (CP))
arpifs/module/traj_main_mod.F90
arpifs/var/suinfce.F90 (ARPEGE/LELAM ways reintroduced)

* arpifs/op_obs/dopplsim.F90
arpifs/op_obs/dopplsim_ad.F90
arpifs/op_obs/dopplsim_tl.F90
arpifs/op_obs/obsop_radar.F90:

varno, ZXPP handling.

(4) Miscealleneous fixes.

* arpifs/pp_obs/ppsta.F90:

Rewritting in an optimized way else fails in debug mode (ddt).

* arpifs/phys_dmn/suphy0.F90
arpifs/setup/surip.F90
arpifs/setup/suxfu.F90:

Undef pointer initialization, compilation error with option -g -O0 .

* arpifs/utility/rdfa2gp.F90:

IF test splitting else fails in debug mode (ddt).

* arpifs/programs/master.F90:

Correct mpi launch (NB: thanks to an EC CY44 fix (PL and TW)!) else SEGV's in mpi_allreduce.

* ifsaux/module/mpl_init_mod.F90:

LLINIT type change (logical used as an integer).

* arpifs/obs_preproc/hirs_cld.F90:

A crazy computation, now normally cleaner with the same result, and no longer fails in debug mode.

* arpifs/adiab/spectr.F90:

IST constant set out an OMP loop.

* arpifs/module/gom_plus.F90:

MF sea-ice based on sst fix (PC).

* ifsaux/module/mpl_recv_mod.F90:

Cleaning, failed when MPL_OUTPUT > 1 .

* odb/module/odbiomap.F90:

Unconditional ifblk initialization.

* surfex/ASSIM/assim_nature_isba_enkf.F90:

USE modules cleaning.

EXPECTED IMPACT:

Refer to the documentation.

Projects: aladin, algor, arpifs, ifsaux, odb, surfex

Git branch: payan_CY43T2_main01_bf1

Added:

arpifs/adiab specrtges.F90

Modified:

aladin/var suejbcov.F90

algor/external/minim m1qn3.F

algor/internal/minim m1qn3a.F, mlis0.F

arpifs/adiab specrt.F90

arpifs/control cva2.F90

arpifs/module gom_plus.F90, traj_main_mod.F90, varbc_eval.F90, varbc_rad.F90

arpifs/obs_preproc hirs_cld.F90, prech.F90

arpifs/op_obs co2slicing_ml.F90, dopplsim.F90, dopplsim_ad.F90, dopplsim_tl.F90, hop.F90, hradp_ml.F90, hradp_ml_o3cldr.F90, hradp_ml_tl.F90, hretr_rad.F90, map_varno_to_nvar.F90, obsop_conv.F90, obsop_radar.F90, radtr_ml.F90

arpifs/parallel read_spec_fromfa.F90

arpifs/phys_dmn mts_phys.F90, suphy0.F90

arpifs/pp_obs apache.F90, ppnew.F90, ppobsap.F90, ppsta.F90

arpifs/programs master.F90

arpifs/setup surip.F90, suxfu.F90

arpifs/utility rdfa2gp.F90

arpifs/var ecset.F90, suecges.F90, suinfce.F90, taskob.F90

ifsaux/module mpl_init_mod.F90, mpl_recv_mod.F90

odb/module odbiomap.F90

surfex/ASSIM assim_nature_isba_enkf.F90

PIRIOU Jean-Marcel

Doc:

Yves Bouteloup: LADJCLD as an argument to ACPLUIZ microphysics.

Pascal Marquet: call FPCINCAPE from PCMT convection scheme.

Jean-Marcel Piriou: report PCMT parallel suite version.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs

Git branch: piriou_CY43T2_capepcmt

Modified:

arpifs/module

yomphy0.F90

arpifs/namelist

namphy0.nam.h

arpifs/phys_dmn

acmtud.F90, acpcmt.F90, acpluiz.F90, aplpar.F90, checkmv.F90, suphy0.F90

POURRET Vivien

Doc:

BATOR :

- reading AEOLUS BUFR with namelist modification in &NADIRS where INBTYEOBS=130
- writing ODB AEOLUS database
- Using the libaeolus

ARPEGE :

- modifications to read CCMA AEOLUS database

EXPECTED IMPACT:

Impact if assimilation of aeolus data is triggered.

Projects: arpifs, odb

Git branch: pourretv_CY43T2_04

Added:

odb/ddl.CCMA

bator_hdr_7.sql, sat_aeolusl2c.sql

odb/ddl.ECMA

bator_hdr_7.sql, obsort_aeolus_auxmet.sql, obsort_aeolus_hdr.sql, obsort_aeolus_l2c.sql

odb/ddl

bator_hdr_7.sql, obsort_aeolus_auxmet.sql, obsort_aeolus_hdr.sql, obsort_aeolus_l2c.sql

Modified:

arpifs/op_obs

hop_decide_required_sqls.F90

odb/cma2odb

ctxinitdb.F90, putatdb.F90, shuffledb.F90, xchangedatadb.F90

odb/pandor/module

bator_decodbufr_mod.F90, bator_decodhdf5_mod.F90, bator_ecritures_mod.F90, bator_init_mod.F90, bator_lectures_mod.F90, bator_module.F90, bator_saisies_mod.F90, bator_util_mod.F90

Doc:

BATOR :

- writing of the column sensor@hdr, reporttype@hdr et groupid@hdr in the ODB database for AEOLUS data

ARPEGE/AROME :

- Coding of the recovery of u_an@aeolus_l2c, v_an@aeolus_l2c et hlos_an@aeolus_l2c in matchup

NO NUMERICAL IMPACT IS EXPECTED.

Projects: odb

Git branch: pourretv_CY43T2_08aeolus

Added:

odb/ddl.CCMA matchup_aeolus_l2c.sql

odb/ddl.ECMA matchup_aeolus_l2c.sql

odb/ddl matchup_aeolus_l2c.sql

Modified:

odb/cma2odb ctxinitdb.F90, matchupdb.F90

odb/pandor/module bator_decodbufr_mod.F90, bator_ecritures_mod.F90, bator_util_mod.F90

Doc:

BATOR : BUFR MODES reading modifications

ARPEGE/AROME : subtype mode-s definition, same processing as other flight data

EXPECTED IMPACT:

no numerical impact if no mode-s data

Projects: arpifs, odb

Git branch: pourretv_CY43T2_MODES

Modified:

arpifs/module yomcoctp.F90

arpifs/obs_preproc defrun.F90

arpifs/setup cmoctmap.F90, cmoctmap_inv.F90

odb/pandor/module bator_decodbufr_mod.F90

RAYNAUD Laure

Doc:

Report of clustering bugfix from CY42.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: utilities

Git branch: raynaudl_CY43T2_clustering

Modified:

utilities/pearome clust.F90

Doc:

Report of modifications from PEAROME CY42op3.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: aladin, utilities

Git branch: raynaudl_CY43T2_pearome

Modified:

aladin/setup sueqlimsat.F90
utilities/pearome addpearp.F90, clust.F90

SEITY Yann

Doc:

Bugfix PREP backphased from CY44 .

EXPECTED IMPACT:

PREP or couplingsurf configurations crash without this modification.

Projects: surfex

Git branch: seity_CY43T2_bfprep

Modified:

surfex/SURFEX prep_hor_snow_fields.F90, prep_snow_buffer.F90

Doc:

Bugfix surfex prep and ororad

EXPECTED IMPACT:

prep : For prepsurfex configuration (NFPSURFEX=1), TWALL temperatures are now correctly initialized.

ororad : allow to run a forecast strating from surfex files of CY42 or 41 with ororad fields.

Projects: surfex

Git branch: seity_CY43T2_bfsurfex

Modified:

surfex/SURFEX prep_teb_buffer.F90, read_sson.F90

surfex/TOPD init_surf_topd.F90

Doc:

Add the possibility to activate a second wind gust field with a different max time calculation (ex 15' instead of 1h)

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs

Git branch: seity_CY43T2_from42op_RAF2

Modified:

arpifs/adiab	cpg.F90, cpg_dia.F90
arpifs/control	cnt4.F90
arpifs/dia	cpxfu.F90
arpifs/fullpos	fpcomphy.F90, hpos_xfu.F90, sufpxfu.F90
arpifs/module	ptrxfu.F90, yomafn.F90, yomxfu.F90
arpifs/namelist	namafn.nam.h, namxfu.nam.h
arpifs/setup	suafn1.F90, suafn2.F90, suafn3.F90, suxfu.F90

Doc:

- New constants for CV and TAUICE in surfex (under LARP_PN switch)
- Bugfix for 10m winds calculations when lowest model level < 10m

EXPECTED IMPACT:

Impact on 10m winds when lowest model level < 10m

Projects: mse, surfex

Git branch: seity_CY43T2_fromFTsfx3+bfV10

Modified:

mse/externals	aro_ground_diag.F90
surfex/SURFEX	default_surf_atm.F90, ini_data_param.F90, init_veg_pgdn.F90, modd_surf_atm.F90, modn_surf_atm.F90, read_namelists_surf.F90

Doc:

Bugfix from Françoise Taillefer, concerning a problem of reordering of spectral coefficient of orography field in E923 configuration. It fixes a pb of 'orography mismatch' between atmosphere/surfex when running model forecasts.

EXPECTED IMPACT:

e923 orography is the only field modified.

Projects: aladin

Git branch: seity_CY44_bf923

Modified:

aladin/c9xx	eincli1.F90
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SPANIEL Oldrich

Doc:

Fix for single precision with Intel (from Philippe MARGUINAUD).

Projects: mse

Git branch: spaniel_CY43T2_single

Modified:

mse/internals

write_surfx1_aro.F90

SUZAT Florian

Doc:

Report Micro wave bug fix that affected MWHS2 monitoring for channel 1 and 10

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs

Git branch: suzat_CY43T2_mw_bf2_phasing

Modified:

arpifs/op_obs

mw_clearsky_screen_mfdecis.F90

VOITUS Fabrice

Doc:

Flexible DDH OpenMP debugging :

-Introduction of a new DDH type devoted to DDH budget in APL_AROME.

-Fix for the storing and cleaning of DDH structure when KSTEP=0.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs, ifsaux, mpa

Git branch: voitus_CY43T2_DDH_DEBUG

Added:

mpa/micro/externals aro_suintbudget_omp.F90

Modified:

arpifs/adiab	cpg.F90
arpifs/dia	cpdyddhlag.F90, sunddh.F90
arpifs/phys_dmn	apl_rome.F90
ifsaux/module	ddh_mix.F90
mpa/micro/externals	aro_suintbudget.F90
mpa/micro/internals	budget.F90
mpa/micro/module	moddb_intbudget.F90