ARPEGE MEMORANDUM

From: GCO
Date: Apr 30, 2014
Subject: New cycle CY40T1

A new cycle CY40T1 has been created. This is not a common cycle with ECMWF. The different contributions for this cycle are described in the following pages.

Contributors:

ARBOGAST Etienne	arbogaste_CY40_commandline
AUGER Ludovic	auger_CY40_clean
BOCHENEK Bogdan	bochenek_CY40_coupling2
BOUTELOUP Yves	boutelou_CY40_dbg boutelou_CY40_dbg3_sutoph boutelou_CY40_dbgpcmt boutelou_CY40_musc
BOUTTIER Francois	bouttier_CY40_pearo
BROZKOVA Radmila	brozkova_CY40_rb_c1
CEBRON Pierrick	cebron_CY40_combi40 cebron_CY40_combiDp meunierlf_CY40_combi_bf
EL KHATIB Ryad	khatib_CY40_contrib_t1.04@t1.03 khatib_CY40_festat khatib_CY40_fixall khatib_CY40_gcc482 khatib_CY40_mpa482 khatib_CY40_refixall khatib_CY40_vdfix@t1.03
GCO	gco_CY40_fix_fadup_mod
GCO & MEUNIER Louis-Francois	gco_CY40_meunierlf_saphir_atms_newbl
GUIDARD Vincent	guidardv_CY40_AIRSco2slicing
GUILLAUME Frank	guillaum_CY40_bat_conv guillaum_CY40_frank_40t1_solomm
JASINSKAS Rimvydas	jasinkas_CY40_hirlam1 jasinkas_CY40_rjfix jasinkas_CY40_rjfreeform jasinkas_CY40_rjmain
LOO Cecile & MEUNIER Louis-Francois	meunierlf_CY40_last_outer_loop_bf
MARGUINAUD Philippe	marguina_CY40_lfifix
MARGUINAUD Philippe & EL KHATIB Ryad	marguina_CY40_rkpm
MARTINEZ Stephane	 martinezs_CY40_fix_boutelou_dbg martinezs_CY40_t1fix* martinezs_CY40_t1fix3
MASEK Jan	masekj_CY40_intrad
MEUNIER Louis-Francois	meunierlf_CY40_bf_boundchecking meunierlf_CY40_obsop_cleaning meunierlf_CY40_ts_ctlvar_fix
MICHEL Yann	michel_CY40_pertsst
MOLL Patrick	moll_CY40_pm_gps

PAYAN Christophe	payan_CY40_t1v04_ascatfmt-deal
RIETTE Sebastien	riettes_CY40_edkf_stab
	riettes_CY40_subgrid_rain
	riettes_CY40_subgrid_rain2
SEITY Yann	seity_CY40_arome_for_t1
	seity_CY40_aromebfs
SPANIEL Oldrich	spaniel_CY40_test-ol
TAILLEFER Francoise	tailefer_CY40_anasfx
	tailefer_CY40_canari
	tailefer_CY40_dbcan
	tailefer_CY40_dbinc
	tailefer_CY40_ftprep
	tailefer_CY40_phascan
	tailefer_CY40_valcan
	tailefer_CY40_yannsfx
VOITUS Fabrice	voitus_CY40_CPL_EXTERNAL_fix
	voitus_CY40_DDH_fix_contrib
	voitus_CY40_LPN_bugfix
	voitus_CY40_LPN_pos_contrib
	voitus_CY40_cpl_contrib
WHELAN Eoin	whelan_CY40_OMP_surfex_fix
	whelan_CY40_assim_teb
	whelan_CY40_be04_fix
	whelan_CY40_conv_ecoclim_update
	whelan_CY40_lfi_sub_move
	whelan_CY40_portability
	whelan_CY40_suparar_bugfix
	whelan_CY40_surfex_sub_move
YESSAD Karim	yessad_CY40_bf3cpl
	yessad_CY40_bf4comad
	yessad_CY40_bftrc
	yessad_CY40_bugfix1ont1
	yessad_CY40_comad
	yessad_CY40_dev40pour40t1
	yessad_CY40_vfenh

ARBOGAST Etienne

Doc:
Removal of command line options.

Replacing command line by namelist variables. Variables from command line are in YOMARG now. They are assigned by NAMARG in SUARG. Then, SUCT0 initialized YOMCT0's variables from YOMARG's variables using aliases (i.e. NUCONF=>NCONF) .

Projects: aladin, arpifs
Git branch: arbogaste_CY40_commandline
Deleted:

arpifs/setup	sutstep.F90

Added:

arpifs/namelist	namarg.nam.h

Modified:

aladin/setup	suedim.F90, suegem_naml.F90
arpifs/dfi	sudfi.F90
arpifs/fullpos	sufpd.F90
arpifs/module	yomarg.F90
arpifs/namelist	namct0.nam.h, namdyn.nam.h
arpifs/oops	ifs_init.F90
arpifs/setup	suarg.F90, suct0.F90, sudim1.F90, sudyn.F90, sufa.F90, sugem1a.F90, sugem_naml.F90, surip.F90, suvv1.F90

AUGER Ludovic

Doc:
Cleaning of unused dfi options.

NO NUMERICAL IMPACT IS EXPECTED.
Projects: arpifs
Git branch: auger_CY40_clean
Modified:

arpifs/dfi	dfi2.F90, suini.F90
arpifs/module	yomini.F90
arpifs/namelist	namini.nam.h

BOCHENEK Bogdan

Doc:
LBC coupling & setup aspects of DFI .
Projects: arpifs
Git branch: bochenek_CY40_coupling2
Modified:

arpifs/adiab	cpg_gp.F90
arpifs/ald_inc/namelist	nemelbc0a.nam.h
arpifs/control	gp_model.F90
arpifs/module	yomafn.F90, yomphy.F90
arpifs/namelist	namgfl.nam.h, namphy.nam.h
arpifs/phys_dmn	aplpar.F90, mf_phys.F90, suparar.F90
arpifs/setup	su0phy.F90, suafn1.F90, suafn2.F90, suafn3.F90, suctrl_gflattr.F90, sudefo_gflattr.F90, sugfl3.F90
arpifs/utility	openfa.F90

BOUTELOUP Yves

Doc:
1) Backtrack on one amendment of Dann in cputqy (conversion of TKE into enthalpy).
2) Debuging of compute_updraft_rhcj10.F90 and compute_updraft_raha.F90 to use loops in the both direction. Necessary for testing them in AROME.

EXPECTED IMPACT:
cputqy => to be close to cy40_op1
compute_updraft_etc => Necessary to avoid explosion in AROME
Projects: arpifs, mpa
Git branch: boutelou_CY40_dbg
Modified:

arpifs/adiab	cputqy.F90
mpa/turb/internals	compute_updraft_raha.F90, compute_updraft_rhcj10.F90

Doc:
Fix a bug in sutoph highlighted by Oldrich Spaniel.

The problem is not visible on beaufix for some reason, just on IBM P7.
Projects: arpifs
Git branch: boutelou_CY40_dbg3_sutoph
Modified:

arpifs/phys_dmn	sutoph.F90

Doc:
Correct 2 bugs in cptend_new. These bugs concern only PCMT, and are active in case of LGPCMT=T only.
Projects: arpifs
Git branch: boutelou_CY40_dbgpcmt
Modified:

arpifs/adiab	cptend_new.F90

Doc:
Developments in the 1D model MUSC. New forcing for DICE and Stevens case. Increase of the number of forcing time. Groundwork
modifications for EFB turbulence parameterization, new GFL YEFB1, YEFB2 and YEFB3.

NO NUMERICAL IMPACT IS EXPECTED.
Projects: arpifs
Git branch: boutelou_CY40_musc
Modified:

arpifs/adiab	cptend_new.F90
arpifs/module	yom_ygfl.F90, yomafn.F90, yomfa.F90, yomlsforc.F90, yomphy.F90
arpifs/namelist	namfa.nam.h, namgfl.nam.h, namlsforc.nam.h,

	namphy.nam.h
arpifs/phys_dmn	acturb.F90, acvppkf.F90, apl_arome.F90, aplpar.F90, initaplpar.F90, mf_phys.F90, suparar.F90, surf_ideal_flux.F90, wrarom.F90, writemusc.F90, writephysio.F90
arpifs/setup	su0phy.F90, su_surf_flds.F90, suafn1.F90, suafn2.F90, suafn3.F90, suctrl_gflattr.F90, sudefo_gflattr.F90, sufa.F90, sugfl1.F90, sugfl2.F90, sugfl3.F90, sulsforc.F90

BOUTTIER Francois

Doc:
By default, fullpos computes gusts over a predefined period until the next IHISTS (history file writeout) event. Thus, gusts
are wrong in fullpos files that were not written at the same time as an history file. A new NAMXFU switch, LGUSTBYPOS, adds
gust computation control by IPOSTS events, which fixes this problem. The default behaviour is unchanged.

EXPECTED IMPACT:
There is an impact, only if the switch is explicitly activated, so unwitting users will not experience any impact.

Projects: arpifs
Git branch: bouttier_CY40_pearo
Modified:

arpifs/control	cnt4.F90
arpifs/module	yomxfu.F90
arpifs/setup	suxfu.F90

BROZKOVA Radmila

Doc:
arpifs/phys_dmn/accvud.F90
Correction of the detrainment. Closure modulation is made function of dx.

arpifs/phys_dmn/acupd.F90
Correction to prevent negative rain.

arpifs/phys_dmn/aplpar.F90
Passing map factor (PGM) to ACCVUD.

arpifs/phys_dmn/suphy0.F90
Modification of RMULACVG default value.

Tests done so far:
Compilation of the branch, basic test of ALARO physics: norms are changed due to detrainment computation in ACCVUD and also due
to preventing negative rain in ACUPD. Meteorological validation was made on one grey zone experiment setup and so far it seems
correct.
Projects: arpifs
Git branch: brozkova_CY40_rb_c1
Modified:

arpifs/phys_dmn	accvud.F90, acupd.F90, aplpar.F90, suphy0.F90

CEBRON Pierrick

Doc:
Miscellaneous fixes for COMBI in cycle CY40 .
Projects: utilities
Git branch: cebron_CY40_combi40
Modified:
utilities/combi combi_opti.F90

Doc:
COMBI: one less restrictive control to be used for computing sensitivity areas.
Projects: utilities
Git branch: cebron_CY40_combiDp
Modified:
utilities/combi combi_opti.F90

Doc:
Bugfix on combi_opti.F90 .
Projects: utilities
Git branch: meunierlf_CY40_combi_bf
Modified:
utilities/combi combi_opti.F90

EL KHATIB Ryad

Doc:
1) Portability fixes for various platforms.
2) Optimize for compile time a few non-calculating subroutines.
Projects: algor, arpifs, ifsaux, mpa, mse, obstat, odb, surfex, trans, utilities
Git branch: khatib_CY40_contrib_t1.04@t1.03
Modified:

algor/module	jb_control_vectors_mod.F90, jb_control_vectors_para_mod.F90
arpifs/io_serv	io_serv_init.F90
arpifs/oops	fields_mod.F90
arpifs/phys_dmn	suparar.F90
ifsaux/lfi_alt	lfi_type.h
ifsaux/module	mpl_init_mod.F90, stack_mix.F90, xrd_unix_env.F90
ifsaux/programs	faconvgrib.F90
ifsaux/support	cptime.F, stack_overwrite.F90
mpa/micro/internals	read_xker_gweth.F90, read_xker_raccs.F90, read_xker_rdryg.F90, read_xker_sdryg.F90, read_xker_sweth.F90
mse/dummy	default_grid_mnh.F90, default_schemes_mnh.F90
mse/externals	aro_put_SST.F90, ini_prep_surfex_aroc.F90
mse/programs	offline.F90, prep.F90
obstat/src	writegribs.F90
odb/cma2odb	create_averaged_values.F90
surfex/ASSIM	oi_control.F90
surfex/OFFLIN	init_index_mpi.F90, ol_time_interp_atm.F90, soda.F90
surfex/SURFEX	ch_init_snapn.F90, default_alb_eco1.F90, default_alb_eco2.F90, gather_and_write_mpi.F90, gather_and_write_mpi_k4.F90, get_size_fulln.F90, init_io_surf_fan.F90, init_surf_atmn.F90, modd_surfex_omp.F90, pgd_grid.F90, pgd_surf_atm.F90, pgd_teb_veg.F90, prep_isba_netcdf.F90, prep_ocean_ascllv.F90, read_and_send_mpi.F90, read_csvdata_teb.F90, read_isban.F90
trans/module	suleg_mod.F90
utilities/combi	combi_pert.F90

Doc:
DOCUMENTATION:
Bugfix + Parallelization of FESTAT for LAM.

EXPECTED IMPACT:
Minor impact on the results, due to reordering of computations.
Projects: File aladin, ifsaux, utilities
Git branch: khatib_CY40_festat
Deleted:

File aladin/fullpos	balfestat.F90

Added:

utilities/bcov_lam/interface	balfestat.h, calcov.h, gathkspec.h, subiaspec.h, sufespecg1.h, unbiaspec.h
utilities/bcov_lam/module	biasfields_mod.F90, reduction_mod.F90, yomfestat.F90
utilities/bcov_lam/others	balfestat.F90, calcov.F90, chkcov.F90, diagcov.F90, ebalfestat.F90, ecalcov.F90, eigenmd.F90, eregpdiv.F90, eregpdt.F90, eregpdtq.F90, ewgsabal.F90, ewgsacov.F90, gathkspec.F90, nmcstat.F90, rdgsabal.F90, rdgsacov.F90, regpdivo3.F90, regpdt.F90, regvorp.F90, sbdiacov.F90, subalp.F90, subiaspec.F90, sufespecg1.F90, sufestat.F90, unbiaspec.F90, wgsabal.F90, wgsacov.F90
utilities/bcov_lam/programs	diacov.F90, stat.F90

Modified:

ifsaux/module	mpl_recv_mod.F90, mpl_send_mod.F90

Doc:

Portability fixes + IFS bugfixes .

arpifs/pp_obs/ppuv.F90 :
Fix a potential out-of-bounds issue
arpifs/setup/suarg.F90 :
bugfix to enable NSUPERSEDE=1 in IFS
biper/module/ewindowe_mod.F90 :
portability fix for Cray
ifsaux/include/drhook.h, ifsaux/support/drhook.c :
bugfix (revert an unstable modification)
odb/module/bufr_module.F90 :
remove obsolete cpp macros _BUFR_JELEM and _BUFR_JWORK
odb/pandor/module/bator_rad_postproc_mod.F90 :
remove a fortran2003 statement
ifsaux/support/get_opt.F, ifsaux/support/get_opt.F,
ifsaux/module/xrd_unix_env.F90, odb/tools/bufr_*.F :
disable "implicit none" because of iargc()

Projects: arpifs, biper, ifsaux, odb

Git branch: khatib_CY40_fixall

Modified:

arpifs/pp_obs	ppuv.F90
arpifs/setup	suarg.F90
biper/module	ewindowe_mod.F90
ifsaux/eclite	getopt.F
ifsaux/module	xrd_unix_env.F90
ifsaux/support	get_opt.F
odb/module	bufr_module.F90
odb/pandor/module	bator_rad_postproc_mod.F90
odb/tools	bufr_add_bias.F, bufr_check.F, bufr_compress.F, bufr_decode.F, bufr_filter.F, bufr_key.F, bufr_nt1.F, bufr_ntm.F, bufr_obs_filter.F, bufr_repack.F, bufr_ship_anmh.F, bufr_split.F

Doc:
Portability fixes for gcc 4.8 .
Projects: arpifs, ifsaux, mpa, odb, surfex
Git branch: khatib_CY40_gcc482
Modified:

arpifs/module	get_lwpcoeff_mix.F90
ifsaux/hack	spawn.c
mpa/chem/internals	isocom.F, isofwd.F, isorev.F
odb/pandor/module	bator_rad_postproc_mod.F90
surfex/OFFLIN	mode_read_surf_ol.F90

Doc:
Portability fix to gcc 4.8

NO NUMERICAL IMPACT IS EXPECTED.
Projects: mpa
Git branch: khatib_CY40_mpa482
Modified:

mpa/chem/internals	ares.F, ch_aer_intermin.F90, unifac.F
mpa/chem/module	modi_ch_aer_intermin.F90

Doc:
1) arpifs/setup/su_grib_api.F90, arpifs/setup/suarg.F90 : bugfix for IFS ;
2) ifsaux/include/drhook.h, ifsaux/support/drhook.c : bugfix (revert an unstable development) .
Projects: arpifs, ifsaux
Git branch: khatib_CY40_refixall
Modified:

arpifs/setup	su_grib_api.F90, suarg.F90
ifsaux/include	drhook.h
ifsaux/support	drhook.c

Doc:
Bugfix on IANO_ST=0 + NFPCLI=0 + LFPOSHOR (remove incoherent abort).
Projects: arpifs
Git branch: khatib_CY40_vdfix@t1.03
Modified:

arpifs/fullpos	fpcorphy.F90

GCO

Doc:
Replace use of include file "precision.h" by use of (new) module "lfi_precison" in fadup_mod.F .
Projects: ifsaux
Git branch: gco_CY40_fix_fadup_mod
Modified:
ifsaux/module fadup_mod.F

GCO & MEUNIER Louis-Francois

Doc:
Merge with quick release "CY40_op1", and add support for the SAPHIR sensor (aboard MEGHA-TROPIQUES satellite).

** Release CY40_op1 :*

- fixes to run the variational assimilations (Arpège, Arome) in CY40 (L. Raynaud, L.-F. Meunier, P. Brousseau) ;

- fixes for porting the codes to BULL (from cc-tagged CY38T1_op2.[1-10]) (L.-F. Meunier) ;

- for emissivity atlases used only in limited area systems (i.e. SEVIRI atlas), migrate the atlas file to a binary format
(already tested in cy38t1_op1) (L.-F. Meunier) ;

- rewrite of the ATMS observation averaging inside Bator (L.-F. Meunier) ;

- fix for IO_METHOD=4 in ODB (P. Marguinaud) ;

- fix for applying the vertical interpolations for radiances inside RTTOV (instead of pre-calculating them), in the case of
CO2-slicing (MF configuration, V. Guidard) ;

- fix for wind bogus in Bator (mandatory) and screening (inactive bug), for PAOB obs type (Aladin Overseas configurations)
(F. Guillaume and G. Faure)

- HR E-suite changes for the new Arpège convection scheme PCMT and the shallow convection PMMC09 (Y. Bouteloup, J.-M. Piriou);

- FABEC in Full-POS outputs (code for computing flight level parameters) (F. Voitus & R. El Khatib) ;

- fix to enable reproducibility of KFB scheme in MPI and Open-MP parallelization (F. Bouyssel) ;

- parallelization of the computation of the sea ice mask (F. Taillefer) ;

- adaptations for enabling East-West MPI data distribution in DDH (R. El Khatib) ;

- fix for Arome in dynamical adaptation and hydrostatic mode (K. Yessad, Y. Seity) ;

- enable a flexible choice of the size of the coupling zone by namelist (presently, this parameter is hardcoded and 8 is the
default) (F. Voitus)

- extra fixes for porting (CY38T1_op2.[11-12]): CTPINI configuration (MF only), etc...

** Add support for the SAPHIR sensor (aboard MEGHA-TROPIQUES satellite) :*

For all microwave sensors, move cloud and rain detection from mf_blacklist.b to the mw_clearsky_screen_mfdecis.F90 routine.
This allows to set the cloud/rain flags properly.

For ATMS, the thinning configuration is slightly changed: ATMS is added to the LLBGDEP switch, this allows to rank reports
based on the absolute value of the first guess departure.

Note: All the LWP calculations are now handled in mwave_lwp.F90. They are supposed to be reproducible compared to the previous implementations (we have checked that for AMSU-A and ATMS).

EXPECTED IMPACT:
Small impact on SSMIS and AMSU-A QC. For both sensors, the difference comes from bugs in the previous QC routines/blacklist.

Projects: aladin, arpifs, blacklist, mpa, odb, satrad, utilities
Git branch: gco_CY40_meunierlf_saphir_atms_newbl

Deleted:

arpifs/obs_preproc	land_seviri.F90

Added:

arpifs/module	get_scattidxcoeff_mix.F90
arpifs/op_obs	mw_clearsky_screen_ecdecis.F90, mw_clearsky_screen_mfdecis.F90
arpifs/phys_dmn	tridifv1.F90
arpifs/var	sujbwavgen_hybraw.F90
mpa/turb/internals	compute_updraft_raha.F90, mf_turb_expl.F90
mpa/turb/module	modi_compute_updraft_raha.F90, modi_mf_turb_expl.F90
odb/ddl.CCMA	matchup_gbrad.sql, matchup_raingg.sql
odb/pandor/module	bator_rad_postproc_mod.F90
satrad/emiss	atlas_interpolate.F90, atlas_print_info.F90, land_seviri.F90

Modified:

aladin/c9xx	ebicli.F90
aladin/setup	sueinif.F90
aladin/var	ebalnonlinad.F90, ebalnonlintl.F90
arpifs/c9xx	cseaice.F90
arpifs/control	scan2m.F90
arpifs/dia	sumddh.F90, sunddh.F90
arpifs/fullpos	dynfpos.F90, ini2wrfp.F90, iofpos.F90, stepo_fpos.F90, sualfpos.F90, sufpc.F90, sufpf.F90, updvpos.F90, vpos_prep.F90
arpifs/module	get_lwpcoeff_mix.F90, varbc_rad.F90, yomafn.F90, yomemis.F90, yomfpf.F90, yomparar.F90, yomphy.F90, yomphy0.F90, yomsats.F90, yomtoph.F90, yomvar.F90
arpifs/mwave	mwave_lwp.F90
arpifs/namelist	namafn.nam.h, namemis_conf.nam.h, namfpc.nam.h, namfpf.nam.h, namparar.nam.h, namphy.nam.h,

	namphy0.nam.h, namtoph.nam.h, namvar.nam.h
arpifs/obs_preproc	black.F90, defrun.F90, fgwnd.F90, gefger.F90, gen_corr_pert.F90, mkglobstab.F90, new_thinn.F90, new_thinner_no_sq.F90, pre_thinner.F90, prech.F90
arpifs/op_obs	amv_oberr.F90, emis_atlas.F90, emis_mw_n.F90, hop.F90, hoptl.F90, hradpad.F90, hretr.F90, hsatang.F90, inv_refl1dstat.F90, mw_clearsky_screen.F90, rad1cemis.F90
arpifs/phys_dmn	acadvec.F90, accvimpd.F90, acdifv1.F90, acdifv2.F90, acfluso.F90, acmtentr.F90, acmtud.F90, acnebn.F90, acpcmt.F90, actke.F90, aplpar.F90, mf_phys.F90, suparar.F90, suphmf.F90, suphmpa.F90, suphy0.F90, sutoph.F90
arpifs/phys_ec	radlsw.F90
arpifs/pp_obs	pos.F90, pos_prepgfl.F90
arpifs/setup	su0phy.F90, suafn1.F90, suafn2.F90, suafn3.F90, suctrl_gflattr.F90, sudim1.F90, sudyn.F90, sudyna.F90, suemis_conf.F90
arpifs/utility	deallo.F90, prepacka.F90
arpifs/var	congrad.F90, cvargptl.F90, fltbgerr.F90, getsatid.F90, inflcalc.F90, precond.F90, rdfpinc.F90, sujbwavelet.F90, sujbwavelet0.F90, sujbwavgen.F90, sujbwavstats.F90, sujbwavtrans.F90, surad.F90, suvar.F90
blacklist	mf_blacklist.b
mpa/conv/internals	convect_closure_shal.F90, convect_closure_thrvlcl.F90, convect_trigger_shal.F90, convect_updraft_shal.F90, shallow_convection.F90
mpa/turb/externals	aroini_mfshal.F90, arp_shallow_mf.F90
mpa/turb/interface	aroini_mfshal.h
mpa/turb/internals	compute_updraft_rhcj10.F90, ini_cmfshall.F90, shallow_mf.F90
mpa/turb/module	modd_cmfshall.F90, modi_compute_updraft_rhcj10.F90, modi_ini_cmfshall.F90
odb/ddl.CCMA	CCMA.dep
odb/ddl	sathdr_screen_atovs.sql
odb/pandor/module	bator_datetime_mod.F90, bator_decodbufr_mod.F90, bator_ecritures_mod.F90, bator_init_mod.F90, bator_module.F90, bator_util_mod.F90
odb/pandor/namelist	bator_namelist.nam.h
satrad/emiss	atlas_bcast.F90, atlas_iniall.F90, atlas_land_amsua.F90, atlas_land_amsub.F90, atlas_read.F90, atlas_write.F90, land_ssmi.F90, land_ssmis.F90, land_surf_type.F90
satrad/programs	atlas_ascii2bin.F90
satrad/rttov/ifs	rttov_ec_setopts.F90
utilities/combi	combi.F90, combi_opti.F90, combi_pert.F90, combi_stat.F90
utilities/ctpini/module	fonctions_inversion.F90

GUIDARD Vincent

Doc:
Catchup for AIRS co2-slicing.

EXPECTED IMPACT:
Tiny numerical impact is expected.
Projects: arpifs
Git branch: guidardv_CY40_AIRSco2slicing
Modified:
arpifs/op_obs hretr.F90

GUILLAUME Frank

Doc:
Bator could scratch under certain circumstances when a radar station had only one elevation which value was negative.
In this case, the whole ECMA database concerned by this radar station is not created.
Projects: odb
Git branch: guillaum_CY40_bat_conv
Modified:
odb/pandor/module bator_decodbufr_mod.F90

Doc:
1) Bugfix in BUFR decoding software BATOR concerning the SOLOMM data type.
2) Increase the number of possible parameters for each SOLOMM observation.
3) Adaptation of KNBW for SYNOP.
Projects: odb
Git branch: guillaum_CY40_frank_40t1_solomm
Modified:
odb/pandor/module bator_decodbufr_mod.F90, bator_init_mod.F90

JASINSKAS Rimvydas

Doc:
HIRLAM contribution to cycle CY40T1 .
Projects: arpifs, ifsaux, mpa, odb
Git branch: jasinkas_CY40_hirlam1
Deleted:

ifsaux/support	csamio.c

Renamed:

ifsaux/programs	lfisplit.F90 to ifsaux/misc/lfisplit.F90, lfixxx.F90 to ifsaux/misc/lfixxx.F90

Added:

ifsaux/misc	datefa.F, facat.F90, faempty.F90, faidx.F90, lficat.F90, lfidiff.F90, lfilist.F90, lfixxxx.F90, testfa.F90, tstlfi.F90

Modified:

arpifs/chem	tm5_chem_ini.F90, tm5_directflux.F90
arpifs/control	cnt0.F90
arpifs/io_serv	io_serv_write.F90
arpifs/module	parfpos.F90, yomgmv.F90
arpifs/op_obs	dopplsim_tl.F90, hradpad.F90
arpifs/pp_obs	ppreq.F90
arpifs/programs	master.F90
arpifs/var	ecset_thsafe.F90, sualctv.F90
ifsaux/lfi	lfiecc.F90, lfiedo.F90, lfifer.F90, lfilcc.F90, lfildo.F90, lfiouv.F90
ifsaux/module	mpl_allreduce_mod.F90
ifsaux/programs	lfitools.F90
ifsaux/support	cptime.F
mpa/micro/internals	rain_ice.F90
odb/ddl	cma.h

Doc:
- ifsaux/grib_mf/unpagb.F: simple fixup for freeform conversion ;
- arpifs/op_obs/.F90: add undefs for openmp_obs.h in new subroutines ;*
- ifsaux/support/cptime.F: generalisation of cptime for intfb; implicit none ;
- modd_io_surf_aro.F90 & bator_datetime_mod.F90: implicit none; missing end subroutines; function typing .
Projects: arpifs, ifsaux, mse, odb
Git branch: jasinkas_CY40_rjfix
Modified:

arpifs/op_obs	mw_clearsky_screen_ecdecis.F90, mw_clearsky_screen_mfdecis.F90
ifsaux/grib_mf	unpagb.F
ifsaux/support	cptime.F
mse/module	modd_io_surf_aro.F90
odb/pandor/module	bator_datetime_mod.F90

Doc:
1) Load mf_split/freeform_v3; simple freeform conversion from f77->f90; technical .
2) Load mf_split/freeform_v4; explicit kinding from parkind1; technical .
3) Load mesoNH_split/mpa_freeform_v4; smallest changeset for freeform; technical .
Projects: algor, ifsaux, mpa, odb, utilities
Git branch: jasinkas_CY40_rjfreeform
Modified:

algor/external/fourier	fft992.F, set99.F
algor/external/lanczos	gcr.F, landr.F, loadev.F
algor/external/linalg	sgtsl.F, syminv.F
algor/external/minim	m1qn3.F, m1qn3_1dv.F, m1qn3r.F
algor/internal/fourier	qpassf.F, rpassf.F
algor/internal/lanczos	angles.F, datx.F, dsort2.F, i2x.F, lanso.F, machar.F, ortbnd.F, prangl.F, prrule.F, purge.F, pythag.F, random.F, ritvec.F, startv.F, stpone.F, tql2.F, tqlb.F
algor/internal/linalg	balanc.F, balbak.F, cdiv.F, elmhes.F, eltran.F, hqr.F, hqr2.F, mxva.F, rg.F, sgemmx.F
algor/internal/minim	ctcab_1dv.F, ctonb_1dv.F, dd.F, dd_1dv.F, ddr.F, dds.F, dds_1dv.F, ddsr.F, ecube.F, ecube_1dv.F, ecuber.F, euclid.F, euclid_1dv.F, m1qn3a.F, m1qn3a_1dv.F, m1qn3ar.F, mlis0.F, mlis0_1dv.F, mlis0r.F, mupdts_1dv.F, mupdts_orig.F, mupdtsr.F, ystbl_1dv.F, ystbl_orig.F, ystblr.F
ifsaux/bufr_io	oldbufr_close.F, oldbufr_open.F, oldbufr_read.F, oldbufr_rewind.F, oldbufr_write.F
ifsaux/cma	oldcma_close.F, oldcma_get_address.F, oldcma_open.F, oldcma_read.F, oldcma_rewind.F, oldcma_set_address.F, oldcma_write.F
ifsaux/eclite	getopt.F, n_compat.F, uv2sd.F
ifsaux/grib_mf	codega.F, confi.F, confp_mf.F, decfp_mf.F, decoga.F, gbyte_mf.F, gbytes_mf.F, gsbite_mf.F, gsbyte_mf.F, mxmn_mf.F, offset_mf.F, packgb.F, prtbin_mf.F, sbyte_mf.F, sbytes_mf.F, unpagb.F
ifsaux/include	precision.h
ifsaux/misc	optbadcv.F, optd.F, opteff.F, opterror.F, optgee.F, optmccpa.F, optremez.F, optwate.F
ifsaux/module	fadup_mod.F
ifsaux/programs	datefa.F
ifsaux/support	clock.F, cptime.F, gather.F, get_opt.F, ilsum.F, isrcheq.F, isrchfge.F, isrchfgt.F, isrchfle.F, isrchflt.F, isrchfltpv.F, qsortc.F, qsorti4.F, rdot.F, rsum.F, timef.F
ifsaux/utilities	ctor.F, expand21.F, itor.F, iusrcl.F, jsort.F, pack21.F, rtoc.F, rtoi.F
mpa/chem/include	isrpia.inc
mpa/chem/internals	addpnt.F, ares.F, ch_inter1.F, ch_inter2.F, data_kmcf198.F, data_kmcf223a.F, data_kmcf248a.F, data_kmcf273a.F, data_kmcf298a.F, data_kmcf323a.F, fchap.F, fery.F, fsum.F, futr.F, gridck.F, gridw.F, gridz.F, inter3.F, isocom.F, isofwd.F, isorev.F, jspec1.F, lunsav.F,

	mflgsv.F, o2spec.F, ps2str.F, r1mach.F, rdetfl.F, rdno2xs.F, rdo2xs.F, rdo3xs.F, rdso2xs.F, read1.F, read2.F, rtlink.F, sacopy.F, schu.F, setaer.F, setair.F, setalb.F, setcld.F, setno2.F, seto2.F, setozo.F, setso2.F, settmp.F, sewset.F, sgbfa.F, sgbsl.F, sgefa.F, sgesl.F, sphers.F, sto2xs.F, sundis.F, svhin.F, svindy.F, svjac.F, svjust.F, svnlsd.F, svnorm.F, svode.F, svset.F, svsol.F, svsrco.F, svstep.F, tridag.F, tuvmain.F, unifac.F, xerrwv.F, xsetf.F, xsetun.F, zenith.F, zero1.F, zero2.F
odb/include	bpar.h
odb/tools	Buta.F, bufr_add_bias.F, bufr_check.F, bufr_compress.F, bufr_decode.F, bufr_filter.F, bufr_key.F, bufr_merge_tovs.F, bufr_nt1.F, bufr_ntm.F, bufr_obs_filter.F, bufr_repack.F, bufr_ship_anmh.F, bufr_split.F
utilities/addsurf	proajout.F, proajoutec.F, prolecfa.F
utilities/gobptout	gobptout.F, prochien.F, procor1.F, proecrn.F, proensuite.F, proentete.F, progeom.F, proindex.F, prolecn.F, proordspe.F
utilities/progrid	pochec.F, procor2.F, prodom.F, proecr.F, profac.F, progrid.F, prolec.F
utilities/progrid_cadre	procadre.F, prolec2.F

Doc:

1) Load mf_split/0A_detab; removed few tabs(not in f90 std); technical .
2) Load mesoNH_split/0A_detab_v4; detabs + implicit none for qgaus.F90; purely technical .
3) Rename abor1.c to abor1fl.c (conflict with abor1.F90) .

Projects: aladin, algor, arpifs, biper, blacklist, etrans, ifsaux, mpa, mse, odb, surf, utilities

Git branch: jasinkas_CY40_rjmain

Renamed:

odb/tools	abor1.c to odb/tools/abor1fl.c

Added:

arpifs/common	activedb_undef.h, inumtdef_undef.h, itdef_undef.h, openmp_obs_undef.h, yomdb_defs_undef.h
utilities/pinuts/include	mykind_undef.h

Modified:

aladin/var	ebalnonlinad.F90, ebalnonlintl.F90
algor/internal/minim	m1qn3a_1dv.F
arpifs/ald_inc/namelist	nemelbc0a.nam.h
arpifs/canari	caapar.F90, cacova.F90, caifc1.F90, calico.F90, calver.F90, canaco.F90, canada.F90, canari.F90, cancer.F90, cantik.F90, caraco.F90, carcfo.F90, caredo.F90, casgqa.F90, casgra.F90, caspia.F90, cassva.F90, castor.F90, catrma.F90, caviar.F90, caviso.F90, cavodk.F90
arpifs/chem	chem_drydep.F90, chem_mocage.F90, chem_mozart.F90, cod_op_tm5.F90, tm5_chem_ini.F90
arpifs/common	activedb.h, itdef.h, yomdb_defs.h
arpifs/control	gp_model.F90

arpifs/gbrad	gbrad_get.F90, gbrad_get_ad.F90, gbrad_get_tl.F90, gbrad_put.F90, gbrad_put_tl.F90
arpifs/io_serv	io_serv_hdr_grok_size.F90, io_serv_open.F90
arpifs/module	aeolus_getamd_mod.F90, iofldesc_mod.F90, iomultibuf_mod.F90, iospeca_mod.F90, varbc_airep.F90, varbc_allsky.F90, varbc_gbrad.F90, varbc_rad.F90, varbc_setup.F90, varbc_sfcobs.F90, varbc_tcwv.F90, varbc_to3.F90
arpifs/mwave	mwave_get.F90, mwave_get_ad.F90, mwave_get_tl.F90, mwave_put.F90, mwave_put_tl.F90
arpifs/namelist	naeaer.nam.h, namgfl.nam.h, namsimphl.nam.h, namvar.nam.h
arpifs/obs_preproc	addoer.F90, airep_flight_phase.F90, airepin.F90, ascatin.F90, ascatsm_cdfmatch.F90, awprfin.F90, black.F90, checkairpos.F90, comtc.F90, conventional_ob.F90, dribuin.F90, dupli.F90, dupli_no_sq.F90, dwlin.F90, ersin.F90, ewprfin.F90, fgchk.F90, fgwnd.F90, filfbde.F90, first.F90, flgdco.F90, flgdmx.F90, flgtst.F90, gefger.F90, geosrin.F90, getsete.F90, level1cgeos_ob.F90, lndsyin.F90, metarin.F90, mkglobstab.F90, movpl.F90, movpl_no_sq.F90, new_thinn.F90, new_thinn_rad_reflec.F90, new_thinn_radar.F90, new_thinner.F90, new_thinner_no_sq.F90, nflgdse.F90, ngenada.F90, ngersta.F90, nscatin.F90, obatabs.F90, oscatin.F90, ozone_ob.F90, p_4_sort.F90, paobin.F90, pertobs.F90, pertobs_uncorr.F90, pgpsin.F90, pilotbe.F90, pilotin.F90, post_prsta.F90, post_thinner.F90, pre_prsta.F90, pre_thinn_rad_reflec.F90, pre_thinn_radar.F90, pre_thinner.F90, prech.F90, prsta.F90, qscatin.F90, rad1cin.F90, rdbflr.F90, readoba.F90, redgl.F90, redgl_no_sq.F90, redgps.F90, redml.F90, redml_no_sq.F90, redmo.F90, redor.F90, redprof.F90, redrp.F90, redrp1.F90, redrp1_no_sq.F90, redrp_no_sq.F90, redsl.F90, redsm.F90, redsm_no_sq.F90, redts.F90, redun.F90, reini.F90, rejmv.F90, reo3sin.F90, repra.F90, satamin.F90, satob_ob.F90, satobin.F90, scaqc.F90, scat_ob.F90, scatbe.F90, screen.F90, sekf_prep_ascat.F90, sekf_prep_smos.F90, selec.F90, settc.F90, setup_tovscv.F90, shipin.F90, stord.F90, sugoms.F90, suobarea.F90, suobs.F90, suobsaddr.F90, suobscor.F90, synopbe.F90, synopin.F90, tempbe.F90, tempin.F90, tempinmf.F90, thiair.F90, thin_red_presort.F90, upecma.F90, verco.F90
arpifs/oops	allobs_mod.F90, gom_setup.F90, obsvec_mod.F90
arpifs/op_obs	acos_ak_op.F90, amv_get_preds.F90, amv_oberr.F90, amv_reassign.F90, ch4bcor.F90, csalbr_gems.F90, dopplsim.F90, dopplsim_ad.F90, dopplsim_tl.F90, exheiz2p.F90, exheiz2p_lidar.F90, gpscalc_alpha.F90, gpscalc_alphaad.F90, gpscalc_alphatl.F90, gpsro_2dad.F90, gpsro_2dop.F90, gpsro_2dtl.F90,

	gpsro_ad.F90, gpsro_oberror.F90, gpsro_op.F90, gpsro_tl.F90, gpszen_delay.F90, gpszen_delayad.F90, gpszen_delaytl.F90, hdepart.F90, hinth.F90, hjo.F90, hop.F90, hopad.F90, hoptl.F90, hqscatt.F90, hradp.F90, hradp_ml.F90, hradp_ml_ad.F90, hradp_ml_tl.F90, hradpad.F90, hradptl.F90, hretr.F90, hretr_aeolus.F90, hsatang.F90, inv_refl1dstat.F90, mw_clearsky_screen.F90, preint.F90, preintad.F90, preintr.F90, preintrad.F90, preintrtl.F90, preints.F90, preintsad.F90, preintstl.F90, preinttl.F90, preintuv.F90, preintuvad.F90, preintuvtl.F90, rad1cemis.F90, rad1cobe.F90, reflsim.F90, reflsim_2dop.F90, reo3bcor.F90, rtl_hop_1d.F90, rtl_hop_1d_ad.F90, rtl_hop_1d_tl.F90, rtl_hop_2d.F90, rtl_hop_2d_ad.F90, rtl_hop_2d_tl.F90, rtl_oberror.F90, rtl_screen.F90, sat_avg_stdev_filter.F90
arpifs/phys_dmn	achmt.F90, actkehmt.F90, actkehmtls.F90, actkezot.F90, actkezotls.F90
arpifs/pp_obs	aerod_ad.F90, aerod_op.F90, aerod_tl.F90, ppltp.F90, ppobsac.F90, ppobsacad.F90, ppobsactl.F90, ppobsap.F90, ppobsn.F90, ppt.F90
arpifs/raingg	raingg_get.F90, raingg_get_ad.F90, raingg_get_tl.F90, raingg_put.F90, raingg_put_tl.F90, raingg_setup.F90
arpifs/setup	cmoctmap_inv.F90
arpifs/smos	smos_process.F90, smos_update.F90
arpifs/utility	rdfa2gp.F90
arpifs/var	ecset.F90, ecset_thsafe.F90, gp_ssmi.F90, gp_ssmi_inv.F90, monitoring_summary.F90, setqccma.F90, suamv.F90, sujb.F90, sulimb.F90, surad.F90, sureo3.F90, writeoba.F90
biper/interface	horiz_field.h
biper/programs	test_Ezones.F90, test_TwoTrunc.F90
blacklist/library	blackbox_init.F90
etrans/interface	edir_trans.h, edir_transad.h, einv_trans.h, einv_transad.h
etrans/programs	test_adjoint.F90
ifsaux/bufr_io	oldbufr_open.F
ifsaux/cma	oldcma_read.F, oldcma_write.F
ifsaux/ddh	ddhpar.h, fonctions.F90, lfa_R8I4.F90
ifsaux/fa	faxion.F90
ifsaux/fi_pthread	fifo_body.h, fifo_decl.h
ifsaux/grib_mf	packgb.F, unpagb.F
ifsaux/include	isrchfge.body.h, isrchfltpv.body.h
ifsaux/module	ddh_mix.F90, eggpack.F90, f90_unix_env.F90, f90_unix_io.F90, f90_unix_proc.F90, samio_mod.F90, sdl_mod.F90, xrd_unix_env.F90
ifsaux/programs	ddh_lfi2lfa.F90, ddhr.F90, ddht.F90, facat.F90, faempty.F90, faidx.F90, lfidiff.F90, lfilist.F90
ifsaux/support	jfh_bind.F90
mpa/chem/externals	aro_mnhdust.F90
mpa/chem/internals	ch_aqua.F90, ch_convect_scavenging.F90,

	ch_diagnostics.F90, ch_gauss.F90, ch_init_diagnostics.F90, ch_jac.F90, ch_linssa.F90, ch_qssa.F90, ch_read_vector.F90, ch_svode.F90, ch_terms.F90, ch_update_jvalues_n.F90, ch_update_meteo.F90, ini_wet_dep.F90, qgaus.F90
mpa/chem/module	modd_aunifacparam.F90, modd_binsolu.F90, modd_bunifacparam.F90, modd_ch_aero_n.F90, modd_ch_m9_scheme.F90, modd_ch_meteo.F90, modd_ch_mnhc_n.F90, modd_ch_model0d.F90, modd_ch_solver_n.F90, modd_parameters_dep.F90, modd_unifacparam.F90, modd_wet_dep_descr.F90, modd_wet_dep_param.F90, mode_amain.F90, mode_typea.F90, mode_typeb.F90, mode_zsrpun.F90, modi_ch_aqua.F90, modi_ch_field_value_n.F90, modi_ch_read_vector.F90, modi_ch_svode.F90
mpa/conv/internals	convect_closure.F90, convect_closure_adjust.F90, convect_closure_adjust_shal.F90, convect_closure_shal.F90, convect_downdraft.F90, convect_mixing_funct.F90, convect_precip_adjust.F90, convect_trigger_funct.F90, convect_trigger_shal.F90, convect_tstep_pref.F90, convect_updraft.F90, convect_updraft_shal.F90, deep_convection.F90, shallow_convection.F90
mpa/conv/module	modd_convpar.F90, modd_convpar_shal.F90
mpa/micro/externals	add_bounds.F90, aro_adjust.F90, aro_rain_ice.F90, aro_startbu.F90, aro_suintbudget.F90, invert_vlev.F90
mpa/micro/interface	aroini_budget.h
mpa/micro/internals	budget.F90, cart_compress.F90, condensation.F90, gamma_inc.F90, general_gamma.F90, ini_budget.F90, ini_cst.F90, ini_rain_ice.F90, rain_ice.F90, rzcolx.F90
mpa/micro/module	modd_budget.F90, modd_conf.F90, modd_dyn.F90, modd_elec_descr.F90, modd_les.F90, modd_lunit.F90, modd_param_c1r3.F90, modd_param_c2r2.F90, modd_parameters.F90, modd_rain_ice_descr.F90, modd_rain_ice_param.F90, modd_refaro.F90, moddb_intbudget.F90, mode_fmbidon.F90, mode_fmwritbidon.F90, modi_rzcolx.F90
mpa/turb/externals	aro_shallow_mf.F90, aro_turb_mnh.F90, arp_shallow_mf.F90
mpa/turb/internals	bl89.F90, gx_m_u.F90, gy_m_v.F90, gz_m_w.F90, rmc01.F90, shuman_mf.F90, shumanaro.F90, turb_ver.F90, turb_ver_dyn_flux.F90, turb_ver_sv_flux.F90, turb_ver_thermo_corr.F90, turb_ver_thermo_flux.F90
mpa/turb/module	mode_sbl.F90, mode_thermo_mono.F90, modn_turb.F90
mse/dummy	default_grid_mnh.F90, default_schemes_mnh.F90
mse/externals	aro_ground_diag.F90, aro_ground_diag_z0.F90, aro_ground_param.F90, aro_put_SST.F90, aro_put_zs.F90, aroini_surfa.F90, aroini_surfb.F90, aroini_surfc.F90, atm2sx_env.F90, atm2sx_field.F90, close_buffer_surfex.F90, close_prep_surfex_aro.F90, get_bufc0.F90, get_bufn0.F90, get_bufn1.F90,

	get_bufx0.F90, get_bufx1.F90, ini_prep_surfex_aro.F90, ini_prep_surfex_aroa.F90, ini_prep_surfex_arob.F90, ini_prep_surfex_aroc.F90, put_bufc0.F90, put_bufn0.F90, put_bufn1.F90, put_bufx0.F90, put_bufx1.F90, suphmse_surface.F90
mse/internals	aroclose_aux_io_surf.F90, aroclose_namelist.F90, aroclose_write_cover_tex.F90, aroend_io_surf_n.F90, aroget_desfm_n.F90, aroget_luout.F90, aroget_size_full_n.F90, aroinit_io_surf_n.F90, aroopen_aux_io_surf.F90, aroopen_namelist.F90, aroopen_write_cover_tex.F90, detect_field_aro.F90, fmreadx4.F90, ini_sun.F90, pack_1d_1d_from2d.F90, pack_1d_1d_from3d.F90, pack_1d_1d_from4d.F90, pack_1d_1d_fromi2d.F90, pack_2d_1d_from2d.F90, pack_2d_1d_from3d.F90, pack_2d_1d_from4d.F90, pack_2d_1d_fromi2d.F90, pack_2d_1d_froml2d.F90, unpack_1d_1d_from2d.F90, unpack_1d_1d_from3d.F90, unpack_1d_1d_from4d.F90, unpack_1d_1d_fromi2d.F90, unpack_1d_2d_from2d.F90, unpack_1d_2d_from3d.F90, unpack_1d_2d_from4d.F90, unpack_1d_2d_fromi2d.F90
mse/module	modd_aro_ini_surf.F90, modd_bufc0.F90, modd_bufn0.F90, modd_bufn1.F90, modd_bufx0.F90, modd_bufx1.F90, modd_frommpa.F90, modd_io_nam.F90, modd_io_surf_aro.F90
mse/programs	convert_ecoclimap_param.F90, sfxfa2lfi.F90, sfxfilter.F90, sfxlfi2fa.F90
odb/bufr2odb	bufr2odb_amsre_1d.F90, bufr2odb_asr.F90, bufr2odb_fy3.F90, bufr2odb_ssmis_1d.F90, geosangl.F90
odb/cma2odb	check_linksdb.F90, closedb.F90, copie_radsta.F90, create_averaged_values.F90, ctxgetdb.F90, ctxinitdb.F90, ctxprint.F90, ctxputdb.F90, distribtype_ssmi_rain.F90, distribute_odb.F90, distributedb.F90, dotransf.F90, gather4poolmask.F90, get_new_rs_trh_bias.F90, getactivedb.F90, getatdb.F90, getdb.F90, grid_nearest.F90, init_odb_tables.F90, initmdb.F90, isopendb.F90, makedesc.F90, maketimeslot_index.F90, mapdb.F90, matchupdb.F90, memory_usage.F90, o2e_initlong.F90, obs_sort_odb.F90, opendb.F90, prtarraydb.F90, putatdb.F90, putdb.F90, reprod_seqno.F90, revmatchupdb.F90, setactivedb.F90, setbssro3.F90, setpoolmaskdb.F90, shuffle_odb.F90, shuffledb.F90, sort_prepare_odb.F90, store_enda.F90, subuoctp.F90, tslotindex.F90, unsetpoolmaskdb.F90, update_ddr_odb.F90, update_desc.F90, update_obsdb.F90, xchangedatadb.F90, xchangedatadistdb.F90
odb/include	fodb.h
odb/module	context.F90, merge_model_info.F90, odb.F90, odb2.F90, odbgetput.F90, odbmp.F90, odbnetcdf.F90, odbprint.F90, odbshared.F90, odbutil.F90, yomboctp.F90

odb/pandor/extrtovs	extr_impr_1c.F90, extr_init_1c.F90, extr_lecdata_1c.F90, extr_lib_1c.F90
odb/pandor/fcq	fcqodb_dribu.F90, fcqodb_pilot.F90, fcqodb_synop.F90, fcqodb_temp.F90, man_fcq_bdm_fus.F90, man_orders.F90
odb/pandor/mandalay	manda_util.F90
odb/pandor/module	bator_decodbufr_mod.F90, bator_ecritures_mod.F90, bator_saisies_mod.F90, bator_util_mod.F90
odb/tools	Controdb.F90, Fcqodb.F90, Load_balancing.F90, Mandalay.F90, Odb2ifsreports_era.F90, Plotobs.F90, Ps_bias_compress.F90, Ps_bias_correction.F90, Rs_t_rh_bias_groups.F90, Rs_t_rh_bias_statistics.F90, Rs_t_rh_biasfit.F90, Rs_t_rh_update_country_db.F90, Rs_t_rh_update_sondetype_db.F90, Viewer.F90, bufr_check.F
surf/external	surfexcdriver.F90
surf/interface	surf_inq.h, surfexcdriver.h
surf/module	ccetr_mod.F90, cotwo_mod.F90, cotworestress_mod.F90, flake_driver_mod.F90, flakeene_mod.F90, flakerad_mod.F90, nitro_decline_mod.F90, oc_mlm_mod.F90, source_e_mod.F90, srfcotwo_mod.F90, srfsn_lwexp_mod.F90, srfsn_lwimp_mod.F90, srfvegevol_mod.F90, sucotwo_mod.F90, sugridmlm_mod.F90, surftstp_ctl_mod.F90, voskin_mod.F90
utilities/aca	acadfa1D_main.F90
utilities/add_cloud_fields	add_cloud_fields.F90
utilities/addozoaer	addozoaer.F90
utilities/combi	combi.F90, combi_opti.F90, combi_pert.F90, combi_stat.F90, masque.F90
utilities/ctpini/module	fonctions_inversion.F90
utilities/pinuts/module	add_op_mod.F90, array_lib_mod.F90, coneo_prg_mod.F90, const_standart_mod.F90, debugtools_mod.F90, domain_mod.F90, domolalo_prg_mod.F90, ectoplasm_prg_mod.F90, editfield_prg_mod.F90, egg_tools_mod.F90, fa_cadre_mod.F90, fa_datas_mod.F90, frodo_prg_mod.F90, makdo_prg_mod.F90, namlist_mod.F90, newtype_mod.F90, pseudo_prg_mod.F90, string_lib_mod.F90, subdo_prg_mod.F90
utilities/pinuts/programs	alto.F90
utilities/sst_nesdis	lect_bdap.F90
utilities/sst_netcdf	ncend.F90, ncop.F90, ncread3.F90, ncreadtime.F90

LOO Cecile & MEUNIER Louis-Francois

Doc:
At the end of a minimisation, the raw control variable is saved to file. In the last outer loop it is useless so, in cva2.F90,
an IF test is supposed to avoid that (test between NUPTRA and NRESUPD).

At Meteo-France, MUPTRA=2 (we have two outer loops) and NRESUPD=3 (ODB is configured that way) because of that the IF test
implemented in cva2.F90 was not working at MF. We have switched NRESUPD with MUPTRA to make it work.

At ECMWF, with the 3 outer loops, it shouldn't change anything.

NO NUMERICAL IMPACT IS EXPECTED.
Projects: arpifs
Git branch: meunierlf_CY40_last_outer_loop_bf
Modified:
arpifs/control cva2.F90

MARGUINAUD Philippe

Doc:
Bugfix LFI phasing + remove obsolete programs in LFITOOLS .
Projects: ifsaux
Git branch: marguina_CY40_lfifix
Modified:

ifsaux/fa	faitou.F90
ifsaux/hack	spawn.c
ifsaux/lfi	lfifer.F90
ifsaux/misc	lfilist.F90
ifsaux/programs	lfitools.F90

MARGUINAUD Philippe & EL KHATIB Ryad

Doc:

** Fullpos 2 CPU and communications optimizations.*

** Parallelization and optimization of filtering and contraction/dilatation matrices.*

** Boyd biperiodicization in Fullpos 2.*

** FABEC post-processing.*

** Enable LEQ_REGIONS in ALADIN spectral transforms.*

** IO routines cleaning; use spectral transforms gather/scatter utilities.*

** Re-write of LFI (support for multi-files handle, any number of files can be opened); the old code is still available and is the default.*

** Support for output at the minute or second resolution; FA files dates contain the second.*

** Hollow coupling files*

** Re-write of the IO server:*
- fields are now gathered on IO server tasks
- synchronization files are now produced by IO server tasks
- fields are written in canonical order

** Conversion of Surfex files (FA/LFI) for the global model.*

** Compress/uncompress FA fields with OpenMP*

** Fix a few bugs in ODB (IO_METHOD=4).*

** Post-processing server; start the model once, post-process many input files.*

** Impact on numerical results :*
- Modifications in results of dilatation/contraction matrices, caused by the use of new algorithms in transforms package.
- Modifications in the results of Fullpos NFPOS=2 in LAM, because biperiodicization is now performed before the vertical interpolations.
- Validation should be performed against NFPOS=928. Occasionnally, the keys LAGGED_BIPER and LRAW_BIPER may be used to validate NFPOS=2 against the previous cycle.

Projects: aladin, algor, arpifs, biper, etrans, ifsaux, mse, odb, satrad, trans, utilities

Git branch: marguina_CY40_rkpm

Renamed:

arpifs/io_serv	io_serv_close.F90 to arpifs/io_serv/io_serv_exit.F90

ifsaux/fa	fandat.F90 to ifsaux/fa/fandax.F90
Added:	
algor/module	dilatation_mod.F90
arpifs/control	cnt3_wait.F90, monio_t.F90
arpifs/dia	factx_mod.F90, wrgridall_map.F90, wrmlppa_io_serv.F90
arpifs/fullpos	cpfpfilter.F90, rdfpfilter.F90, sufprfpbuf_clim.F90, sufprfpbuf_geom.F90, wrfpfilter.F90
arpifs/io_serv	io_serv_destroy_fa.F90, io_serv_expfph.F90, io_serv_fixfph.F90, io_serv_get_reqid.F90, io_serv_inc.F90, io_serv_init.F90, io_serv_recv_sort.F90, io_serv_run.F90, io_serv_sync.F90
arpifs/module	iocptdesc_mod.F90, suppdate_mod.F90, yomio_serv_falfi.F90
etrans/external	etrans_release.F90
etrans/interface	etrans_release.h
etrans/module	edealloc_resol_mod.F90
ifsaux/fa	faauto.F90, faccpl.F90, fadcpl.F90, fadiex.F90
ifsaux/hack	bbt.c, c_mpl_barr.F90, memory_hook.c, save.c, spawn.c
ifsaux/lfi	lfisee.F90, lfiuto.F90
ifsaux/lfi_alt	lfi_abor.c, lfi_abor.h, lfi_altm.c, lfi_altm.h, lfi_alts.c, lfi_alts.h, lfi_args.h, lfi_call.h, lfi_dumm.c, lfi_dumm.h, lfi_fmul.c, lfi_fmul.h, lfi_fort.c, lfi_fort.h, lfi_grok.c, lfi_grok.h, lfi_hndl.c, lfi_hndl.h, lfi_intf.c, lfi_mess.F90, lfi_misc.h, lfi_miss.c, lfi_miss.h, lfi_type.h, lfi_util.c, lfi_util.h, lfi_verb.c, lfi_verb.h, sdl_srlabort.F90
ifsaux/module	fadup_mod.F90
ifsaux/programs	faconvcpl.F90, faconvgrib.F90, facplspec.F90, fadate.F90, fadiff.F90, fahis2cpl.F90, lfi_alt_copy.F90, lfi_alt_indx.F90, lfi_alt_pack.F90, lfifactm.F90, lfiindx.F90, lfipack.F90, lfistress.F90, lfitestread.F90, lfitestwrite.F90, testfagrib.F90
ifsaux/support	qsortr4.F
trans/external	trans_release.F90
trans/interface	trans_release.h
trans/module	dealloc_resol_mod.F90
Modified:	
aladin/c9xx	ebicli.F90
aladin/fullpos	fpezo2h.F90, fpezone.F90, posfpbipos.F90, prefpbipos.F90, suefpbip.F90, sufpezo.F90
aladin/programs	holo.F90, unholo.F90
aladin/utility	cchien.F90
arpifs/control	cnt2.F90, cnt4.F90, monio.F90
arpifs/dia	inifaout.F90, inifaoutinfo.F90, suofname.F90, suppdate.F90, wrcfupp.F90, wrdistio.F90, wrfu.F90, wrgathflnm.F90, wrgpa.F90, wrgrida.F90, wrgridall.F90, wrgridua.F90, wrmlppa.F90, wrspeca.F90, wrspeca_compress.F90, wrspeca_compress1_mt.F90, wrspeca_compress_mt.F90, wrspeca_gp.F90, wrspeca_map.F90, wrxfu.F90, wrxfupp.F90
arpifs/fullpos	cpclimi.F90, cpvpospr.F90, dynfpos.F90, endpos.F90,

	extfpf.F90, fpcorphy.F90, fpfilter.F90, fposhorlag.F90, fpselezo.F90, gridfpos.F90, ini1wrfp.F90, ini2wrfp.F90, ini3wrfp.F90, iofpos.F90, openfpfa.F90, predynfpos.F90, rdclimo.F90, rdecclimo.F90, spos.F90, stepo_fpos.F90, su4fpos.F90, sualfpos.F90, subfpos.F90, sufpc.F90, sufpcip.F90, sufpconf.F90, sufpd.F90, sufpdistrib.F90, sufpdyn.F90, sufpf.F90, sufpfit.F90, sufpg.F90, sufpg2.F90, sufpmapf.F90, sufpoph.F90, sufprfpbuf.F90, sufpsc2_dep.F90, sufpsuw.F90, sufptr2.F90, sufpwfpds.F90, sumpfpos.F90, sumpfpos_dep.F90, suprocfp_dep.F90, suvfpos.F90, suvpos.F90, updvpos.F90, wrgp2fafp.F90, wrhfp.F90, wrmlfp.F90, wrplfp.F90, wrpvlfp.F90, wrsfp.F90, wrthlfp.F90
arpifs/io_serv	io_serv_alloc_non_blocking_std.F90, io_serv_close.F90, io_serv_compress.F90, io_serv_compress_run.F90, io_serv_create_fa.F90, io_serv_del_req.F90, io_serv_flush.F90, io_serv_get_req.F90, io_serv_hdr1_init.F90, io_serv_hdr2_init.F90, io_serv_hdr_nanify.F90, io_serv_log.F90, io_serv_make_chunks.F90, io_serv_map_send_part1.F90, io_serv_map_send_part2.F90, io_serv_open.F90, io_serv_prepacka1_compress.F90, io_serv_read_idx.F90, io_serv_reclaim_buf_space.F90, io_serv_recv.F90, io_serv_recv_cleanup.F90, io_serv_recv_fullpos.F90, io_serv_recv_map.F90, io_serv_recv_run.F90, io_serv_recv_setup.F90, io_serv_send.F90, io_serv_suiosctmpl.F90, io_serv_sumpioh.F90, io_serv_terminate.F90, io_serv_wrgp2fa_compress.F90, io_serv_write.F90, io_serv_write_run.F90, io_serv_wrspeca_compress.F90
arpifs/module	fullpos_mix.F90, iofldesc_mod.F90, iofu_mod.F90, iogrida_mod.F90, iogridua_mod.F90, iomultibuf_mod.F90, iospeca_mod.F90, iostream_mix.F90, ioxfu_mod.F90, mfioopts_mod.F90, parfpos.F90, wrfldcw_mod.F90, yom4fpos.F90, yomafn.F90, yomct0.F90, yomfpc.F90, yomfpd.F90, yomfpf.F90, yomfpg.F90, yomio_serv.F90, yomio_serv_cfield.F90, yomio_serv_cfield_fifo.F90, yomio_serv_compress.F90, yomio_serv_ffield.F90, yomio_serv_ffield_fifo.F90, yomio_serv_hdr.F90, yomio_serv_recv.F90, yomio_serv_req.F90, yomio_serv_write.F90, yomlun.F90, yommp0.F90, yomtag.F90
arpifs/namelist	namafn.nam.h, namct0.nam.h, namfpc.nam.h, namfpd.nam.h, namfpf.nam.h, nampar1.nam.h
arpifs/parallel	disgridfp.F90, diwrgrfp.F90, diwrgridalltoall.F90, diwrgridunscramble.F90, fptratod.F90, fptrdtoa.F90, gathflnm.F90, rdpxfa.F90, trwvtof.F90
arpifs/pp_obs	pos.F90, pppmer.F90
arpifs/programs	io_serv.F90, master.F90
arpifs/setup	su_grib_api.F90, suafn1.F90, suafn2.F90, suafn3.F90, suarg.F90, suct0.F90, sueframe.F90, sugrclia.F90,

	sulap.F90, sulun.F90, sump0.F90, sumpini.F90, suoph.F90, suspeca.F90, suspeca_gp.F90, suspecg1.F90
arpifs/transform	transinv_mdl.F90
arpifs/utility	dealfpos.F90, facile_compact.F90, facond_compact.F90, faget_compact.F90, faset_compact.F90, iopack.F90, newfa.F90, openfa.F90, prepacka.F90, prepacka1.F90, prepacka1_mt.F90, rdfa2gp.F90, rdgpfa.F90, wrgp2fa.F90, wrgp2fa_compress.F90, wrgp2fa_compress_mt.F90
biper/external	fpbipere.F90
biper/interface	fpbipere.h
biper/module	ewindowe_mod.F90
etrans/external	egath_spec.F90, esetup_trans.F90, etrans_end.F90
etrans/interface	egath_spec.h
etrans/module	egath_spec_control_mod.F90, suemp_trans_mod.F90, suemplat_mod.F90, suestaonl_mod.F90
ifsaux/fa	decf10.F90, ellips.F90, fa_limits.F90, facade.F90, facadi.F90, facage.F90, facdec.F90, facies.F90, facile.F90, facine.F90, facoch.F90, facodega.F90, facodx.F90, facond.F90, facsim.F90, factec.F90, factui.F90, factum.F90, fadeci.F90, fadeco.F90, fadecoga.F90, fadecx.F90, fadies.F90, fagiot.F90, fagote.F90, fagribex.F90, fagribexi.h, fagribexr.h, faicor.F90, faienc.F90, faifla.F90, fainig.F90, fainoc.F90, faiopt.F90, faipag.F90, faipar.F90, fairme.F90, fairno.F90, fais2f.F90, faisan.F90, faisc1.F90, faisc2.F90, faitou.F90, faixla.F90, falais.F90, falimu.F90, falsif.F90, famiso.F90, fandai.F90, fandar.F90, fandat.F90, fanerg.F90, fanfan.F90, fanfar.F90, fanime.F90, fanion.F90, fanmsg.F90, fanouv.F90, fanuca.F90, fanumu.F90, fapula.F90, farcis.F90, faregi.F90, faregu.F90, farflu.F90, farine.F90, farpar.F90, fatale.F90, fatran.F90, fautif.F90, faveur.F90, favori.F90, faxion.F90
ifsaux/fi_libc	fi_libc.c
ifsaux/fi_pthread	fifo_body.h, fifo_decl.h
ifsaux/grib_mf	codega.F, confi.F, confp_mf.F, decfp_mf.F, decoga.F, gbyte_mf.F, gbytes_mf.F, gsbite_mf.F, gsbyte_mf.F, mxmn_mf.F, packgb.F, sbyte_mf.F, sbytes_mf.F, unpagb.F
ifsaux/include	compact.h, drhook.h, precision.h, uncompact.h
ifsaux/lfi	lfiafm.F90, lfiarticles.F90, lficap.F90, lficaq.F90, lficas.F90, lficax.F90, lficfg.F90, lfichi.F90, lfidah.F90, lfideb.F90, lfidst.F90, lfiecc.F90, lfiecd.F90, lfiecr.F90, lfiecx.F90, lfiedo.F90, lfiefr.F90, lfiems.F90, lfieng.F90, lfierf.F90, lfifer.F90, lfifmd.F90, lfifmp.F90, lfifra.F90, lfiini.F90, lfiintecr.F90, lfiintlec.F90, lfiist.F90, lfilaf.F90, lfilap.F90, lfilas.F90, lfilcc.F90, lfildo.F90, lfilec.F90, lfiled.F90, lfimoe.F90, lfimst.F90, lfinaf.F90, lfineg.F90, lfinfo.F90, lfinim.F90, lfinmg.F90, lfinsg.F90, lfinum.F90, lfioef.F90, lfioeg.F90, lfiofd.F90, lfiofm.F90, lfiomf.F90,

	lfiomg.F90, lfiopt.F90, lfiosf.F90, lfiosg.F90, lfiouv.F90, lfipha.F90, lfipim.F90, lfipos.F90, lfipxa.F90, lfipxf.F90, lfiran.F90, lfirec.F90, lfiree.F90, lfiren.F90, lfisfm.F90, lfista.F90, lfisuffix.h, lfisuffix.pl, lfisup.F90, lfitam.F90, lfiver.F90, lfivid.F90
ifsaux/module	fa_mod.F90, lfi_precision.F90, lfimod.F90, xrd_getoptions.F90
ifsaux/programs	lficat.F90, lfidiff.F90, lfilist.F90, lfitools.F90, lfixxxx.F90, testfa.F90, tstlfi.F90
ifsaux/support	drhook.c, iswap8.c
ifsaux/utilities	chien.F90, compact.F90, echien.F90, getmemstat.F90, ismax_1.F90, ismin_1.F90, uncompact.F90
mse/externals	fp2sx1.F90, fp2sx1fa.F90, sugridsfx.F90, wrsfx.F90
mse/interface	wrsfx.h
mse/module	modd_io_surf_aro.F90, sfxflddesc_mod.F90
mse/programs	sfxfa2lfi.F90, sfxlfi2fa.F90
odb/aux	cma_open.c
odb/lib	msgpass_loaddata.F90, msgpass_storedata.F90
satrad/rttov/ifs	phrtsetup.F90
trans/external	gath_spec.F90, setup_trans.F90, trans_end.F90
trans/interface	gath_spec.h, setup_trans.h
trans/module	gath_spec_control_mod.F90, setup_dims_mod.F90, suleg_mod.F90, tpm_distr.F90, tpm_flt.F90, tpm_gen.F90, tpm_geometry.F90
utilities/add_cloud_fields	add_cloud_fields.F90
utilities/rdc/include	dilatb.h, sudil.h, sudil_io.h
utilities/rdc/programs	master911.F90
utilities/rdc/src	dilatb.F90, sudil.F90, sudil_io.F90

MARTINEZ Stephane

Doc:
Replace CSUBG_PR_PDF by CSUBG_RPR_PDF in namparar.nam.h .
Projects: arpifs
Git branch:
Modified:

arpifs/namelist	namparar.nam.h

Doc:
Fix call to COMPUTE_BL89_ML .
Projects: mpa
Git branch: martinezs_CY40_fix_boutelou_dbg
Modified:

mpa/turb/internals	compute_updraft_rhcj10.F90

Doc:
Miscellaneous phasing fixes.

1) Replace variable name KIND by KMODE in hradp_ml.F90 .
2) Remove obsolete Fortran 77 routines in utilities/bcov_lam/ .*
3) Remove ifsaux/module/fadup_mod.F , which has been replaced by ifsaux/module/fadup_mod.F90 .
4) Move apl_arome2intflex.F90 and aplpar2intflex.F90 from arpifs/adiab into arpifs/phys_dmn .
5) Rehabilit instruction "ZZW(:) = 0.0" just after header 4.4 .
6) Fix phasing bugs, and update interfaces in "coupling" project.
Projects: arpifs, coupling, ifsaux, mpa, surfex, utilities
Git branch: martinezs_CY40_t1fix*
Deleted:

ifsaux/module	fadup_mod.F
utilities/bcov_lam/others	libgsa.F
utilities/bcov_lam/programs	diacov.F, stat.F

Renamed:

arpifs/adiab	apl_arome2intflex.F90 arpifs/phys_dmn/apl_arome2intflex.F90, aplpar2intflex.F90 arpifs/phys_dmn/aplpar2intflex.F90

Modified:

arpifs/op_obs	hradp_ml.F90
coupling/interface	epak3w.h, esc2r.h, esc2rad.h, espsc2r.h
coupling/programs	tester_gpcou.F90
mpa/micro/internals	rain_ice.F90
surfex/TOPD	read_connex_file.F90, read_topd_file.F90

Doc:
Miscellaneous fixes upon CY40_t1.02 .

1) arpifs/op_obs/hop.F90 (Louis-François Meunier):*

A bug has been found in the TL/AD computations of VarBC coefficients for AIRS/IASI radiances: the IF test that removes contributions from AIRS/IASI cloudy radiances wasn't working at all.

This bug led to a steady drift in AIRS VarBC coefficients.

The present contribution corrects that. It has been tested on a 10 days assimilation cycle: results are closer to cy38t1 .

2) aladin/var/ebalvert.F90: corrected 2nd dimension of ZGFL (from NSPEC2V to NSPEC2) (Toon Moene) .*
3) arpifs/setup/su0phy.F90 : change initialization of LEDKFI from .TRUE. to .FALSE. (Yves Bouteloup) .

Projects: aladin, arpifs

Git branch: martinezs_CY40_t1fix3

Modified:

aladin/var	ebalvert.F90, ebalvertad.F90, ebalverti.F90, ebalvertiad.F90
arpifs/op_obs	hopad.F90, hoptl.F90
arpifs/setup	su0phy.F90

MASEK Jan

Doc:
Introduction of flexible phys-dyn interface and new radiation scheme ACRANEB2 .
Projects: arpifs, mpa
Git branch: masekj_CY40_intrad
Added:

arpifs/adiab	apl_arome2intflex.F90, aplpar2intflex.F90, cptend_flex.F90
arpifs/module	intflex_mod.F90, yomtrc.F90
arpifs/namelist	namintflex.nam.h
arpifs/phys_dmn	ac_cloud_model2.F90, acraneb2.F90, acraneb_coefs.F90, acraneb_coeft.F90, acraneb_solvs.F90, acraneb_solvt.F90, acraneb_solvt3.F90, acraneb_trans.F90
arpifs/setup	suintflex.F90

Modified:

arpifs/adiab	cpg.F90, cptend_new.F90, cputqy.F90
arpifs/module	gfl_subs_mod.F90, type_gfls.F90, yomphy.F90, yomphy3.F90
arpifs/namelist	namphy.nam.h, namphy3.nam.h
arpifs/phys_dmn	ac_cloud_model.F90, acraneb.F90, apl_arome.F90, aplpar.F90, mf_phys.F90, suparar.F90, suphy3.F90
arpifs/phys_radi	suecrad.F90
arpifs/setup	su0phy.F90, su0yomb.F90, sudyn.F90, sugfl2.F90, susc2b.F90
arpifs/utility	dealsc2.F90
mpa/micro/externals	aro_rain_ice.F90
mpa/micro/interface	aro_rain_ice.h
mpa/micro/internals	rain_ice.F90
mpa/micro/module	modi_rain_ice.F90

MEUNIER Louis-Francois

Doc:
Fixes an array bounds problem. The code was crashing when run with boundchecking on.
Projects: arpifs
Git branch: meunierlf_CY40_bf_boundchecking
Modified:
arpifs/obs_preproc prsta.F90

Doc:
Code cleaning in hretr.F90 and rad1cemis.F90 .

Since the cloud/rain detection for microwave sensors have been moved to a dedicated routine (mw_clearsky_screen.F90) a few parts of hretr.F90 and rad1cemis.F90 are useless. This branch removes them.

We have checked with ECMWF that these bits of code are also useless in IFS.

NO NUMERICAL IMPACT IS EXPECTED.
Projects: arpifs
Git branch: meunierlf_CY40_obsop_cleaning
Modified:
arpifs/op_obs hretr.F90, rad1cemis.F90

Doc:
The background for the ATOVS Ts control variable wasn't saved correctly in the ODB database. Because of that, in the second outer loop, the trajectory was used instead of the background which was allowing the Ts control variable to move too far away from the background. This branch corrects that.

It also includes a change in surad to specify different background errors for each sensor.

Moreover, when the Ts retrieval is used in hretr, the code of hradp and hradp_ml has been adapted in order to avoid the need of changing the GOM values.

In ODB, the Ts control variable i s now saved differently:

skintemp_1@radiance : Background value of Ts (that might come from the Ts retrieval)
skintemp_2@radiance : Value of the Ts control variable at the end of the first outer loop
skintemp_3@radiance : Value of the Ts control variable at the end of the second outer loop

EXPECTED IMPACT:
Compared to cy38, the behaviour of the ATOVS Ts control variable is different.

Background errors will have to be re-tuned.

Projects: arpifs

Git branch: meunierlf_CY40_ts_ctlvar_fix

Modified:

arpifs/module	yomsats.F90
arpifs/obs_preproc	setup_tovscv.F90
arpifs/op_obs	hradp.F90, hradp_ml.F90, hradp_ml_tl.F90, hradptl.F90, hretr.F90, preintr.F90
arpifs/var	surad.F90

MICHEL Yann

Doc:
Code for adding random perturbations of SST in the c931 configuration (GLOBAL and LAM). It uses daily estimates of SST errors from OSTIA files.
Activated under the key LPERTSST (.FALSE. by default).

Projects: arpifs, utilities

Git branch: michel_CY40_pertsst

Added:

arpifs/c9xx	add_pert_sst.F90, apply_hpgauss1d.F90, apply_hpgauss2d.F90, apply_recf1d.F90, apply_recf2d.F90, calc_recf_alpha.F90, eadd_pert_sst.F90, test_recf.F90

Modified:

arpifs/c9xx	csstbld.F90, inclitc.F90
arpifs/module	yomcltc.F90
arpifs/namelist	namcltc.nam.h
utilities/sst_netcdf	sst_netcdf.F90

MOLL Patrick

Doc:
1) Recoding of the ground GPS obs operator (+TL & AD) in order to make it independent of the chosen top level of the model
2) Implementation of the variational bias correction of the ground based GPS.
Warning : this set of modifications is a preliminary basis.
More to come asap.

EXPECTED IMPACT:
1) Improvement of the obs-guess biases. Warning : GPS white list ans biases have to be recomputed according to the new behaviour
2) GPS Biases may be very different when computed with varbc.

Projects: arpifs
Git branch: moll_CY40_pm_gps
Modified:

arpifs/module	yomobs.F90
arpifs/namelist	namobs.nam.h
arpifs/obs_preproc	defrun.F90
arpifs/op_obs	gpszen_delay.F90, gpszen_delayad.F90, gpszen_delaytl.F90

PAYAN Christophe

Doc:
These contribution allow mainly to handle the modifications in the ascat and kuscat sections of the last param_bator.cfg version (gget param_bator.cfg.14), for decoding ascat and kuscat (oscat instrument) BUFR files (otherwise BATOR binary aborts if it has to decode ascat or kuscat BUFR files).

Two variables were added in the Bator namel block NADIRS (ECTERR_ASCAT25_UVBYCELL, ECTERR_OSCAT50_UVBYCELL) for tuning needs of error observations for ascat and oscat data.

NO NUMERICAL IMPACT IS EXPECTED.
Projects: odb
Git branch: payan_CY40_t1v04_ascatfmt-deal
Modified:

odb/pandor/module	bator_decodbufr_mod.F90
odb/pandor/namelist	bator_namelist.nam.h

RIETTE Sebastien

Doc:
Cloud schemes and EDKF modifications .

1) Minimum value of turbulent variance reduced to suppress some "numerical" cirrus around real cirrus.
2) Rewriting of compute_entr_detr to ensure temporal continuity of updraft variables (discontinuities seen on ARM case). New version runs faster.
3) Bug correction in cloud scheme associated with EDMF (an interpolation below cumulus was missing).

No numerical reproduction.
Impact visible on simulated clouds.

EXPECTED IMPACT:
No numerical reproduction.
CPU cost reduced by 2%.
Projects: mpa
Git branch: riettes_CY40_edkf_stab
Modified:

mpa/micro/internals	condensation.F90, rain_ice.F90
mpa/turb/internals	compute_bl89_ml.F90, compute_entr_detr.F90, compute_mf_cloud.F90, compute_mf_cloud_direct.F90, compute_updraft.F90, compute_updraft_rhcj10.F90, turb_ver_thermo_corr.F90
mpa/turb/module	modi_compute_bl89_ml.F90, modi_compute_entr_detr.F90, modi_compute_mf_cloud_direct.F90

Doc:
Introduction of subgrid precipitation (Turner, 2011 and 2012).

New namelist keys in NAMPARAR:
CSUBG_PR_PDF to control the PDF used for autoconversion ;
CSUBG_RC_RR_ACCR to use precipitation fraction in rc-rr accretion ;
CSUBG_RR_EVAP to use precipitation fraction in rr evaporation.

Equivalence of namelist keys:
Old configs CSUBG_AUCV='NONE' or 'CLFR' are unchanged
Old config CSUBG_AUCV='SIGM' is reproduced by CSUBG_AUCV='PDF ', CSUBG_PR_PDF='SIGM'

There's no numerical reproduction for SIGM case

EXPECTED IMPACT:
Numerical differences due to change in calculus organisation.
Projects: arpifs, mpa
Git branch: riettes_CY40_subgrid_rain

Modified:

arpifs/module	yomparar.F90
arpifs/namelist	namparar.nam.h
arpifs/phys_dmn	apl_arome.F90, suparar.F90
mpa/micro/externals	aro_rain_ice.F90
mpa/micro/interface	aro_rain_ice.h
mpa/micro/internals	rain_ice.F90
mpa/micro/module	modi_rain_ice.F90

Doc:

Bugs correction: - order of arguments in rain_ice interface (optional arguments were not the last ones) - two errors in subgrid rain scheme (not activated in operational mode)

Modifiation of namelists keys:
- CSUBG_AUCV becomes CSUBG_AUCV_RC (autoconversion for rc->rr) ;
- CSUBG_PR_PDF becomes CSUBG_RPR_PDF (PDF for RAIN precipitation) .

Projects: arpifs, mpa

Git branch: riettes_CY40_subgrid_rain2

Modified:

arpifs/module	yomparar.F90
arpifs/namelist	namparar.nam.h
arpifs/phys_dmn	apl_arome.F90, suparar.F90
mpa/micro/externals	aro_rain_ice.F90
mpa/micro/interface	aro_rain_ice.h
mpa/micro/internals	rain_ice.F90
mpa/micro/module	modi_rain_ice.F90

SEITY Yann

Doc:
1) Last bugfixes from surfex7.3 (Rev 1835).
2) Merge with CY40_op1 (aro_for_op1 branch) :
a) bf in stepo in order to compute top levels spectral coupling only during corrector step. No impact in case P/C scheme switched off.
b) other routines : More flexible setup of microphysics autoconversion thresholds. By namelist, in NAMPARAR,
RCRIAUTC !threshold for rain autoconversion
LCRIAUTI, RCRIAUTI and RT0CRIAUTI, for snow autocon version
It is more complicated for snow because of the use under rain_ice of a combination of RCRIAUTI and a power law (fonction of temperature).
By default, results will be bit reproducible.
If one want to modify RCRIAUTI, you will have to put in NAMPARAR LCRIAUTI=T, the value of RCRIAUTI, and set also RT0CRIAUTI, which is the temperature (in °C) below which the power law starts to be used instead of RCRIAUTI.
Projects: arpifs, mpa, mse, surfex
Git branch: seity_CY40_arome_for_t1
Modified:

arpifs/control	stepo.F90
arpifs/module	yomparar.F90
arpifs/namelist	namparar.nam.h
arpifs/phys_dmn	suparar.F90, suphmpa.F90
mpa/micro/externals	aroini_micro.F90
mpa/micro/interface	aroini_micro.h
mpa/micro/internals	ini_rain_ice.F90, rain_ice.F90
mpa/micro/module	modd_rain_ice_param.F90
mse/programs	offline.F90
surfex/OFFLIN	ol_time_interp_atm.F90
surfex/SURFEX	isba_snow_agr.F90, modd_surfex_omp.F90, mode_read_surf_fa.F90, mode_soil.F90, prep_snow_extern.F90, prep_ver_snow.F90, sunpos.F90

Doc:
1) Bf for hail in AROME ICE4 microphysics.
2) Bf for cloud sedimentation (ICE3 & ICE4).
3) Bf for AROME coupled with 1D sea model (from D. Barbary).
4) Modifications in mse according to the new version of surfex (7.3+) which will be sent next monday by Françoise.
5) Add missed updated version of offline surfex test program .

EXPECTED IMPACT:
Small numerical impact on light precipitations due to 2).

Projects: arpifs, mpa, mse
Git branch: seity_CY40_aromebfs
Modified:

arpifs/phys_dmn	apl_arome.F90
mpa/micro/externals	aro_rain_ice.F90
mpa/micro/internals	rain_ice.F90
mse/internals	write_surfc0_aro.F90, write_surfl0_aro.F90, write_surfl1_aro.F90, write_surfn0_aro.F90, write_surfn1_aro.F90, write_surft0_aro.F90, write_surft1_aro.F90, write_surfx0_aro.F90, write_surfx1_aro.F90, write_surfx2_aro.F90
mse/programs	driver_off_omp.F90, offline.F90, prep.F90

SPANIEL Oldrich

Doc:
Miscellaneous bugfixes.
Projects: aladin, ifsaux
Git branch: spaniel_CY40_test-ol
Modified:

aladin/c9xx	ebicli.F90
ifsaux/fa	fandai.F90

TAILLEFER Francoise

Doc:
Updating of the surfex OI analysis (oi_control) regarding to what we have in cy38t1 due to the modifs introduced with surfex V7.3 which have not been upgraded between V7.2 and V7.3 .

EXPECTED IMPACT:
The goal is to be in phase with cy38t1 and V7.2+ . The difference between 7.2 and 7.2+ is the use of the CLS wind from the atmosphere (instead of the one from surfex) in some check tresholds.
It will allow to have no difference in the surfex analysis between cy38t1 and cy40t1.

Projects: mse, surfex
Git branch: tailefer_CY40_anasfx
Modified:

mse/externals	canari_sx_ics.F90
surfex/ASSIM	oi_control.F90

Doc:
Canari was not validated since CY39 due to lack of time ...
With these modifications it is validated for CY40T1, both for new GOMs structure and new FA I/O interface. Also Included debugging of seaice computation with several processors (already in cy40_op1).

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs
Git branch: tailefer_CY40_canari
Modified:

arpifs/c9xx	cseaice.F90
arpifs/canari	caratk.F90
arpifs/module	iogrida_mod.F90
arpifs/obs_preproc	obatabs.F90, suobs.F90
arpifs/op_obs	slint_canari.F90

Doc:
A new error has been found in the background error sigma interpolation, due to an incorrect shift in the global error canari array.

EXPECTED IMPACT:
To reproduce cy38t1 canari obs rejection.

Projects: arpifs
Git branch: tailefer_CY40_dbcan
Modified:

arpifs/op_obs	cobs.F90

Doc:

Bugfixes for CANARI & OI_MAIN .

1) Debugging of anamix: canari configuration used in incremental mode, reintroduction of JB structures in canari to be able to go through rdfpinc ...
2) Small phasing for oi_main in surfex : after Hirlam modifications introduced in the previous version of this branch, problem in the namelist
(switch for prints) of oi_main. It's OK now but need to change NAM_ASSIM .

Projects: arpifs, surfex
Git branch: tailefer_CY40_dbinc
Modified:

arpifs/setup	su0yomb.F90
arpifs/var	sualges.F90
surfex/ASSIM	oi_control.F90

Doc:
PREP surfex .

1) Most of the modifications are to allow to run prep surfex ("offline mode") with LFI surfex files. Plus modifications to enable
fields selection when writing the output surfex file.

2) Light debugging for sfxtools.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs, mse, surfex
Git branch: tailefer_CY40_ftprep
Modified:

arpifs/c9xx	cseaice.F90
arpifs/obs_preproc	obadat.F90
mse/externals	aro_surf_diag.F90
mse/module	sfxflddesc_mod.F90
mse/programs	prep.F90, sfxlfi2fa.F90
surfex/SURFEX	hor_extrapol_surf.F90, hor_interpol_gauss.F90, mode_read_extern.F90, prep_grid_gauss.F90, read_pgd_isba_parn.F90

Doc:
Last debugging of CANARI regarding cy38t1_op2 (LSM use in obs rejection) + date file surfex check at 0 in oi_main (phased with cy40_op1).

EXPECTED IMPACT:
No impact on cost.
Numerical impact : reproduce global LSM use in obs rejection part of the canari code.

Projects: arpifs
Git branch: tailefer_CY40_phascan
Modified:

arpifs/module	factx_mod.F90
arpifs/obs_preproc	sugoms.F90

Doc:
1) Validation of the land-sea mask use in canari to calculate surface departures.
2) Re-activation of SST relaxation in case of LAEICS set to false (Hirlam incorrect modif).
Projects: arpifs
Git branch: tailefer_CY40_valcan
Modified:

arpifs/canari	cacsts.F90
arpifs/obs_preproc	defrun.F90, sugoms.F90
arpifs/op_obs	slint.F90, slint_canari.F90

Doc:
All the modifications concern the surfex code.
The branch contains the version 7.3 of surfex, plus a GMME branch called NEW_PREP which includes optimizations in prep and pgd (developed by Stéphanie Faroux and some ALADIN partners), plus the code for the surface perturbations in PEARO (made by François Bouttier), plus the developments for SODA (without the interface with CANARI) made by Hirlam partners.

EXPECTED IMPACT:
The biggest impact regarding current results is in the AROME France forecast, the T2m and Hu2m fields are better estimated during the night in summer.
Projects: surfex
Git branch: tailefer_CY40_yannsfx
Deleted:

surfex/OFFLIN	main_carb_spinup.F90, main_wood_spinup.F90
surfex/SURFEX	assim_isba_update_snow.F90, assim_nature_isba_ekf.F90, assim_nature_isba_oi.F90, assim_tebn.F90, co2_teb_garden_initn.F90, convert_cover_teb.F90, flag_diag_teb_garden.F90, gregodstrati.F90, ini_data_soil.F90_old, modd_agri_garden.F90, modd_agri_gardenn.F90, modd_assim_garden.F90, modd_deepsoil_garden.F90, mode_eggangles.F90, modn_agri_garden.F90, modn_assim_garden.F90, modn_deepsoil_garden.F90, modn_teb_gardenn.F90, pgd_teb_garden.F90, read_namelists_garden.F90, read_namelists_gardenn.F90, read_teb_garden_conf.F90, spinup_wood_biomass.F90, update_rad_flake.F90, vegt_to_patch_grid_grdn.F90

Renamed:

surfex/OFFLIN	ini_assim.F90 to surfex/ASSIM/ini_assim.F90, oi_acsolw.F90 to surfex/ASSIM/oi_acsolw.F90, oi_bc_soil_moisture.F90 to surfex/ASSIM/oi_bc_soil_moisture.F90, oi_cacsts.F90 to surfex/ASSIM/oi_cacsts.F90, oi_cavegi.F90 to surfex/ASSIM/oi_cavegi.F90, oi_control.F90 to surfex/ASSIM/oi_control.F90, oi_fctveg.F90 to surfex/ASSIM/oi_fctveg.F90, oi_hor_extrapol_surf.F90 to surfex/ASSIM/oi_hor_extrapol_surf.F90, oi_jacobians.F90

	to surfex/ASSIM/oi_jacobians.F90, oi_kalman_gain.F90 to surfex/ASSIM/oi_kalman_gain.F90, oi_latlon_conf_proj.F90 to surfex/ASSIM/oi_latlon_conf_proj.F90, oi_tsl.F90 to surfex/ASSIM/oi_tsl.F90
surfex/SURFEX	alloc_diag_teb_garden.F90 to surfex/SURFEX/alloc_diag_teb_greenroof.F90, assim_inland_watern.F90 to surfex/ASSIM/assim_inland_watern.F90, assim_isban.F90 to surfex/ASSIM/assim_isban.F90, assim_naturen.F90 to surfex/ASSIM/assim_naturen.F90, assim_read_sst_from_file.F90 to surfex/ASSIM/assim_read_sst_from_file.F90, assim_sean.F90 to surfex/ASSIM/assim_sean.F90, assim_surf_atmn.F90 to surfex/ASSIM/assim_surf_atmn.F90, assim_townn.F90 to surfex/ASSIM/assim_townn.F90, common_parts.F90 to surfex/SURFEX/init_veg_pgdn.F90, common_parts2.F90 to surfex/SURFEX/init_vegn.F90, default_assim.F90 to surfex/ASSIM/default_assim.F90, modd_assim.F90 to surfex/ASSIM/modd_assim.F90, modn_assim.F90 to surfex/ASSIM/modn_assim.F90, prep_sso_canopy.F90 to surfex/SURFEX/set_sso_levels.F90, read_assim_conf.F90 to surfex/ASSIM/read_assim_conf.F90, read_default_teb_gardenn.F90 to surfex/SURFEX/read_default_teb_vegn.F90, read_namelists_assim.F90 to surfex/ASSIM/read_namelists_assim.F90, read_teb_garden_confn.F90 to surfex/SURFEX/read_teb_veg_confn.F90
Added:	
surfex/ASSIM	assim_isba_update_snow.F90, assim_nature_isba_ekf.F90, assim_nature_isba_oi.F90, assim_tebn.F90
surfex/OFFLIN	end_io_surf_ncn.F90, error_read_surf_nc.F90, init_index_mpi.F90, init_io_surf_ncn.F90, modd_io_surf_nc.F90, mode_dates_netcdf.F90, mode_read_surf_nc.F90, mode_write_surf_nc.F90, open_file_nc.F90, open_namelist_nc.F90, pgd.F90, set_surfex_file_name_nc.F90
surfex/SURFEX	.isba_fluxes.F90.swp, allocate_teb_garden_pgd.F90, allocate_teb_greenroof.F90, allocate_teb_greenroof_pgd.F90, avg_albedo_emis_greenroof.F90, bem.F90, bem_morpho.F90, bldcode.F90, carbon_spinup.F90, ch_conversion_factor.F90, ch_emission_snapn.F90, ch_emission_to_atmn.F90, ch_init_snapn.F90, circumsolar_rad.F90, co2_teb_greenroof_initn.F90, convert_patch_garden.F90, convert_patch_teb_greenroof.F90, convert_teb.F90, default_alb_eco1.F90, default_alb_eco2.F90, default_crocus.F90, default_greenroof.F90, default_prep_teb_greenroof.F90, default_teb_veg.F90,

diag_misc_teb_initn.F90, diag_teb_greenroof_initn.F90,
dx_air_cooling_coil_cv.F90, facade_e_budget.F90,
flag_teb_greenroofn.F90, floor_layer_e_budget.F90,
gather_and_write_mpi.F90,
gather_and_write_mpi_k4.F90, get_bld_confn.F90,
get_current_teb_patch.F90, get_data_seaflux_confn.F90,
get_sizes_parallel.F90, get_teb_depths.F90,
goto_teb.F90, greenroof.F90, greenroof_properties.F90,
hvac_autosize.F90, ice_soilfr.F90,
ini_data_param_teb.F90, init_bemn.F90,
init_from_data_greenroofn.F90,
init_garden_optionsn.F90, init_teb_garden_pgdn.F90,
init_teb_greenroof_pgdn.F90, init_teb_greenroofn.F90,
init_teb_veg_optionsn.F90, init_veg_gardenn.F90,
init_veg_pgd_gardenn.F90, interpol_field2d.F90,
isba_budget.F90, isba_budget_init.F90,
isba_soc_parameters.F90, layer_e_budget.F90,
layer_e_budget_get_coef.F90, mass_layer_e_budget.F90,
modd_bem_cst.F90, modd_bemn.F90,
modd_bld_descriptionn.F90, modd_ch_snapn.F90,
modd_data_bemn.F90, modd_data_teb_greenroofn.F90,
modd_diag_teb_greenroofn.F90,
modd_diag_utci_tebn.F90, modd_emis_nox.F90,
modd_gr_biog_greenroofn.F90, modd_ocean_reln.F90,
modd_prep_teb_greenroof.F90, modd_surfex_mpi.F90,
modd_surfex_omp.F90, modd_teb_greenroofn.F90,
modd_teb_par.F90, modd_teb_veg.F90,
modd_teb_vegn.F90, mode_conv_DOE.F90,
mode_crodebug.F90, mode_modeln_teb_handler.F90,
mode_psychro.F90, modn_prep_greenroof_snow.F90,
modn_prep_teb_greenroof.F90,
modn_teb_greenroofn.F90, modn_teb_vegn.F90,
pack_same_rank.lst.db-journal, permafrost_depth.F90,
pgd_bem_par.F90, pgd_chemistry_snap.F90,
pgd_snap_temp_profile.F90, pgd_teb_greenroof.F90,
pgd_teb_greenroof_par.F90, pgd_teb_veg.F90,
prep_hor_teb_greenroof_field.F90, prep_isba_netcdf.F90,
prep_ocean_ascllv.F90, prep_teb_greenroof.F90,
prep_teb_greenroof_ascllv.F90,
prep_teb_greenroof_buffer.F90,
prep_teb_greenroof_extern.F90,
prep_teb_greenroof_grib.F90,
prep_teb_greenroof_unif.F90,
prep_ver_teb_greenroof.F90, read_and_send_mpi.F90,
read_bld_descriptionn.F90, read_csvdata_teb.F90,
read_nam_pgd_chemistry.F90, read_nam_pgd_teb.F90,
read_nam_pgd_teb_greenroof.F90,
read_nam_prep_greenroofn.F90,
read_pgd_teb_greenroof_parn.F90,
read_pgd_teb_greenroofn.F90,
read_prep_greenroof_snow.F90,
read_prep_teb_greenroof_conf.F90,
read_teb_greenroofn.F90, read_teb_patch.F90,
roof_impl_coef.F90, soilemisnon.F90, spinup_max.F90,

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prep_seaflux_unif.F90, prep_snow_buffer.F90,
prep_snow_extern.F90, prep_snow_grib.F90,
prep_snow_unif.F90, prep_surf_atm.F90, prep_teb.F90,
prep_teb_buffer.F90, prep_teb_extern.F90,
prep_teb_garden.F90, prep_teb_garden_asclly.F90,
prep_teb_garden_buffer.F90,
prep_teb_garden_extern.F90, prep_teb_garden_grib.F90,
prep_teb_garden_unif.F90, prep_teb_grib.F90,
prep_teb_unif.F90, prep_town.F90, prep_ver_isba.F90,
prep_ver_snow.F90, prep_ver_teb.F90,
prep_ver_teb_garden.F90, prep_watflux.F90,
prep_watflux_buffer.F90, prep_watflux_extern.F90,
prep_watflux_grib.F90, prep_watflux_unif.F90,
pt_by_pt_treatment.F90, put_pgd_grid.F90,
put_rad_sean.F90, put_rad_watn.F90, put_sfxcpln.F90,
put_zs_inland_watern.F90, put_zs_naturen.F90,
put_zs_sean.F90, put_zs_surf_atmn.F90,
put_zs_townn.F90, put_zsn.F90, radiative_transfert.F90,
read_all_namelists.F90, read_arrange_cover.F90,
read_asclly.F90, read_binlly.F90, read_binllvfast.F90,
read_buffer.F90, read_cover_garden.F90,
read_covern.F90, read_covers_param.F90,
read_default_dst.F90, read_default_flaken.F90,
read_default_idealn.F90, read_default_isban.F90,
read_default_seafluxn.F90, read_default_slt.F90,
read_default_surf_atm.F90, read_default_surf_atmn.F90,
read_default_tebn.F90, read_default_watfluxn.F90,
read_direct.F90, read_direct_gauss.F90,

read_dst_conf.F90, read_dummyn.F90,
read_eco2_irrig.F90, read_flake_confn.F90,
read_flake_date.F90, read_flake_sbln.F90,
read_flaken.F90, read_from_surfex_file.F90,
read_gr_snow.F90, read_grid.F90, read_gridtype.F90,
read_gridtype_cartesian.F90,
read_gridtype_conf_proj.F90, read_gridtype_gauss.F90,
read_gridtype_ign.F90, read_gridtype_lonlat_reg.F90,
read_gridtype_lonlatval.F90, read_ideal_confn.F90,
read_ideal_flux_conf.F90, read_isba_canopyn.F90,
read_isba_conf.F90, read_isba_confn.F90,
read_isba_date.F90, read_isban.F90, read_latlon.F90,
read_lclim_lai.F90, read_lcover.F90,
read_lecoclimap.F90, read_nam_grid_cartesian.F90,
read_nam_grid_conf_proj.F90,
read_nam_grid_gauss.F90, read_nam_grid_ign.F90,
read_nam_grid_lonlat_reg.F90,
read_nam_grid_lonlatval.F90, read_nam_gridtype.F90,
read_nam_pgd_cover.F90, read_nam_pgd_dummy.F90,
read_nam_pgd_gauss_index.F90,
read_nam_pgd_isba.F90, read_nam_pgd_orography.F90,
read_nam_pgd_seabathy.F90,
read_nam_prep_flaken.F90,
read_nam_prep_gardenn.F90,
read_nam_prep_isban.F90,
read_nam_prep_seafluxn.F90,
read_nam_prep_surfn.F90, read_nam_prep_tebn.F90,
read_nam_prep_watfluxn.F90,
read_nam_write_cover_tex.F90, read_namelists_dst.F90,
read_namelists_flaken.F90, read_namelists_ideal.F90,
read_namelists_idealn.F90, read_namelists_isba.F90,
read_namelists_isban.F90, read_namelists_seafluxn.F90,
read_namelists_slt.F90, read_namelists_surf.F90,
read_namelists_surfn.F90, read_namelists_tebn.F90,
read_namelists_watfluxn.F90, read_netcdf.F90,
read_oceann.F90, read_pgd_arrange_cover.F90,
read_pgd_cover_garden.F90, read_pgd_flaken.F90,
read_pgd_isba_parn.F90, read_pgd_isban.F90,
read_pgd_schemes.F90, read_pgd_seaflux_parn.F90,
read_pgd_seafluxn.F90, read_pgd_teb_garden_parn.F90,
read_pgd_teb_gardenn.F90, read_pgd_teb_parn.F90,
read_pgd_tebn.F90, read_pgd_tsz0_parn.F90,
read_pgd_watfluxn.F90, read_pre_flake_dat_conf.F90,
read_pre_seaf_dat_conf.F90,
read_pre_surfa_dat_conf.F90,
read_pre_watf_dat_conf.F90, read_precipn.F90,
read_prep_file_date.F90, read_prep_flake_conf.F90,
read_prep_garden_snow.F90,
read_prep_isba_carbon.F90, read_prep_isba_conf.F90,
read_prep_isba_date_conf.F90,
read_prep_isba_snow.F90, read_prep_seaflux_conf.F90,
read_prep_surf_atm_conf.F90, read_prep_teb_conf.F90,
read_prep_teb_date_conf.F90,
read_prep_teb_garden_conf.F90,

read_prep_teb_snow.F90, read_prep_watflux_conf.F90,
read_seaflux_confn.F90, read_seaflux_date.F90,
read_seaflux_sbln.F90, read_seafluxn.F90,
read_slt_conf.F90, read_sso_canopyn.F90,
read_sson.F90, read_surf.F90, read_surf_atm_conf.F90,
read_surf_atm_confn.F90, read_surf_atm_date.F90,
read_surf_isba_parn.F90, read_teb_canopyn.F90,
read_teb_confn.F90, read_teb_date.F90,
read_teb_gardenn.F90, read_tebn.F90,
read_watflux_confn.F90, read_watflux_date.F90,
read_watflux_sbln.F90, read_watfluxn.F90,
readhead.F90, readwrite_emis_fieldn.F90,
road_layer_e_budget.F90, roof_layer_e_budget.F90,
rw_precipn.F90, second_sfx.F90, set_rough.F90,
set_surfex_file_name_asc.F90,
set_surfex_file_name_fa.F90, set_surfex_filein.F90,
snow3L_isba.F90, snow3l.F90, snow_cover_1layer.F90,
snowcro.F90, soil.F90, soil_albedo.F90, soil_heatdif.F90,
soil_temp_arp.F90, soildif.F90, soilgrid.F90,
soilstress.F90, soiltemp_arp_par.F90, split_grid.F90,
split_grid_cartesian.F90, split_grid_conf_proj.F90,
sso.F90, sso_be04_frictionn.F90, subscale_aos.F90,
subscale_z0eff.F90, subscale_z0eff_1d.F90,
sum_on_all_procs.F90, sunpos.F90, surf_version.F90,
teb.F90, teb_canopy.F90, teb_garden.F90,
test_nam_var_surf.F90, test_record_len.F90,
town_presence.F90, treat_bathyfield.F90,
treat_field.F90, treat_global_lake_depth.F90,
unpack_diag_patchn.F90, unpack_same_rank.F90,
update_data_cover.F90, update_data_fracn.F90,
update_esm_flaken.F90, update_esm_isban.F90,
update_esm_seafluxn.F90, update_esm_surf_atmn.F90,
update_esm_watfluxn.F90, update_rad_isban.F90,
update_rad_seawat.F90, urban_drag.F90,
urban_exch_coef.F90, urban_fluxes.F90,
urban_lw_coef.F90, urban_snow_evol.F90,
urban_solar_abs.F90, vegetation_evol.F90,
vegetation_update.F90, wall_layer_e_budget.F90,
water_flux.F90, write_cover_tex_cover.F90,
write_cover_tex_end.F90, write_cover_tex_isba.F90,
write_cover_tex_isba_par.F90, write_cover_tex_start.F90,
write_cover_tex_teb.F90, write_cover_tex_water.F90,
write_data.F90, write_diag_flaken.F90,
write_diag_inland_watern.F90, write_diag_isban.F90,
write_diag_misc_flaken.F90, write_diag_misc_isban.F90,
write_diag_misc_tebn.F90, write_diag_naturen.F90,
write_diag_pgd_grdnn.F90, write_diag_pgd_isban.F90,
write_diag_seafluxn.F90, write_diag_sean.F90,
write_diag_seb_flaken.F90, write_diag_seb_isban.F90,
write_diag_seb_oceann.F90,
write_diag_seb_seafluxn.F90,
write_diag_seb_surf_atmn.F90, write_diag_seb_tebn.F90,
write_diag_seb_watfluxn.F90, write_diag_surf_atmn.F90,
write_diag_tebn.F90, write_diag_townn.F90,

	write_diag_watfluxn.F90, write_dst_conf.F90, write_ecoclimap2_data.F90, write_flaken.F90, write_grid.F90, write_gridtype_cartesian.F90, write_gridtype_conf_proj.F90, write_gridtype_gauss.F90, write_gridtype_ign.F90, write_gridtype_lonlat_reg.F90, write_gridtype_lonlatval.F90, write_header_fa.F90, write_inland_watern.F90, write_isban.F90, write_naturen.F90, write_pgd_flaken.F90, write_pgd_inland_watern.F90, write_pgd_isban.F90, write_pgd_naturen.F90, write_pgd_seafluxn.F90, write_pgd_sean.F90, write_pgd_surf_atmn.F90, write_pgd_tebn.F90, write_pgd_townn.F90, write_pgd_watfluxn.F90, write_seafluxn.F90, write_sean.F90, write_surf.F90, write_surf_atmn.F90, write_tebn.F90, write_townn.F90, write_watfluxn.F90, writesurf_atm_confn.F90, writesurf_ch_emisn.F90, writesurf_covern.F90, writesurf_dummyn.F90, writesurf_flake_confn.F90, writesurf_flake_sbln.F90, writesurf_flaken.F90, writesurf_gr_snow.F90, writesurf_isba_canopyn.F90, writesurf_isba_confn.F90, writesurf_isban.F90, writesurf_oceann.F90, writesurf_pgd_flaken.F90, writesurf_pgd_isba_parn.F90, writesurf_pgd_isban.F90, writesurf_pgd_seaf_parn.F90, writesurf_pgd_seafluxn.F90, writesurf_pgd_teb_parn.F90, writesurf_pgd_tebn.F90, writesurf_pgd_tsz0_parn.F90, writesurf_pgd_watfluxn.F90, writesurf_precipn.F90, writesurf_seaflux_confn.F90, writesurf_seaflux_sbln.F90, writesurf_seafluxn.F90, writesurf_sso_canopyn.F90, writesurf_sson.F90, writesurf_teb_canopyn.F90, writesurf_teb_confn.F90, writesurf_teb_gardenn.F90, writesurf_tebn.F90, writesurf_watflux_confn.F90, writesurf_watflux_sbln.F90, writesurf_watfluxn.F90, z0eff.F90, z0rel_1d.F90, zoom_pgd_cover.F90, zoom_pgd_inland_water.F90, zoom_pgd_isba.F90, zoom_pgd_isba_full.F90, zoom_pgd_nature.F90, zoom_pgd_orography.F90, zoom_pgd_sea.F90, zoom_pgd_seaflux.F90, zoom_pgd_surf_atm.F90, zoom_pgd_teb.F90, zoom_pgd_town.F90
surfex/TRIP	default_trip.F90, diag_tripn.F90, get_grid_conf_tripn.F90, get_lonlat_trip.F90, goto_trip.F90, goto_wrapper_trip.F90, init_diag_tripn.F90, init_param_tripn.F90, init_restart_tripn.F90, init_tripn.F90, modd_tripn.F90, mode_rw_trip.F90, mode_trip_function.F90, mode_trip_netcdf.F90, modn_tripn.F90, prep_trip.F90, read_nam_grid_trip.F90, read_namelists_tripn.F90, read_trip_confn.F90, restart_tripn.F90, trip.F90, trip_interface.F90

VOITUS Fabrice

Doc:
Bugfix: externalization time-interpolation for coupling .
Projects: aladin, arpifs, coupling
Git branch: voitus_CY40_CPL_EXTERNAL_fix
Modified:

aladin/control	espcm.F90
aladin/coupling	ecoupl1.F90, ecoupl1ad.F90, elswa3.F90, etenc.F90
aladin/var	ewrlsgrad.F90
arpifs/adiab	cpg.F90, cpg_drv.F90, cpg_gp.F90
arpifs/control	gp_model.F90, gp_model_tl.F90, scan2m.F90, scan2mtl.F90, stepo.F90, stepotl.F90
coupling/external/gpcou	epak3w.F90, esc2r.F90, esc2rad.F90
coupling/external/spnud	espsc2r.F90
coupling/programs	tester_gpcou.F90

Doc:
Bugfixes for DDH.

NO NUMERICAL IMPACT IS EXPECTED.
Projects: arpifs
Git branch: voitus_CY40_DDH_fix_contrib
Modified:

arpifs/dia	cpdyddh.F90, sumddh.F90, sunddh.F90

Doc:
Bug correction in fullpos computation of isothermal levels.

EXPECTED IMPACT:
Boundary layer profiles are better taken into account without any memory or CPU impacts.
Projects: arpifs
Git branch: voitus_CY40_LPN_bugfix
Modified:

arpifs/fullpos	endpos.F90, updvpos.F90

Doc:
Bugfix for fullpos.

EXPECTED IMPACT:
This correction has positive numerical impact only on the zero degre level post-treatment.
Projects: arpifs
Git branch: voitus_CY40_LPN_pos_contrib
Modified:

arpifs/fullpos	cpvpospr.F90, endpos.F90, stepo_fpos.F90, sufpconf.F90, sufpfit.F90, updvpos.F90

arpifs/setup	suafn2.F90

Doc:
Modification of the time interpolation of the coupling fields and fix for the I-zone relaxation.

NO NUMERICAL IMPACT IS EXPECTED.
Projects: aladin, arpifs, coupling
Git branch: voitus_CY40_cpl_contrib
Modified:

aladin/coupling	ecoupl1.F90, elsin0ta.F90, elsrw.F90, elswa3.F90, erlbc.F90, etenc.F90
aladin/setup	elsac.F90
arpifs/adiab	cpg.F90, cpg_drv.F90
arpifs/ald_inc/namelist	nemelbc0a.nam.h
arpifs/module	elbc0b_mod.F90
arpifs/utility	openfa.F90
coupling/external/gpcou	epak3w.F90, esc2r.F90
coupling/external/spnud	epak3wsp.F90

WHELAN Eoin

Doc:
OpenMP runs with ECOCLIMAP-2 not thread safe without this fix.
LAI could get undefined values at decadal (10 day) updates (Ole Vignes).
Projects: surfex
Git branch: whelan_CY40_OMP_surfex_fix
Modified:

surfex/SURFEX	update_data_cover.F90

Doc:
Move misplaced call to Dr Hook.
Projects: surfex
Git branch: whelan_CY40_assim_teb
Modified:

surfex/SURFEX	read_tebn.F90

Doc:
Fix for proper initialization for SSO drag. This allows CROUGH=BE04 to run (Yann Seity).
Projects: surfex
Git branch: whelan_CY40_be04_fix
Modified:

surfex/SURFEX	read_sso_canopyn.F90

Doc:
Update the convert ecoclimap program from surfex NEW_PREP branch (Trygve Aspelien).
Projects: mse
Git branch: whelan_CY40_conv_ecoclim_update
Modified:

mse/programs	convert_ecoclimap_param.F90

Doc:
LFI tool subroutines moved from "program" directory to "misc".
Projects: ifsaux
Git branch: whelan_CY40_lfi_sub_move
Renamed:

ifsaux/programs	fadate.F90 to ifsaux/misc/fadate.F90, fadiff.F90 to ifsaux/misc/fadiff.F90, lfi_alt_copy.F90 to ifsaux/misc/lfi_alt_copy.F90, lfi_alt_indx.F90 to ifsaux/misc/lfi_alt_indx.F90, lfi_alt_pack.F90 to ifsaux/misc/lfi_alt_pack.F90, lfifactm.F90 to ifsaux/misc/lfifactm.F90

Doc:
Use internal FCGENERALIZED_GAMMA instead of GAMMA included in some

language extensions.
Change required by ifort & PGI at least.
Projects: arpifs
Git branch: whelan_CY40_portability
Modified:

arpifs/c9xx	calc_recf_alpha.F90

Doc:
Correct syntax error in suparar.F90 (remove misplaced "&") (Ulf Andrae).
Projects: arpifs
Git branch: whelan_CY40_suparar_bugfix
Modified:

arpifs/phys_dmn	suparar.F90

Doc:
Surfex tool subroutines moved from "program" directory to "new".
Projects: mse
Git branch: whelan_CY40_surfex_sub_move
Renamed:

mse/programs	sfxconv.F90 to mse/new/sfxconv.F90, sfxfa2lfi.F90 to mse/new/sfxfa2lfi.F90, sfxfilter.F90 to mse/new/sfxfilter.F90, sfxlfi2fa.F90 to mse/new/sfxlfi2fa.F90, sfxutil.F90 to mse/new/sfxutil.F90

YESSAD Karim

Doc:
Bugfixes .

- Bugfix on coupling.
- Bugfixes on SUPARAR, CALL_SL_TL, CALL_SL_AD.
Projects: aladin, arpifs, coupling
Git branch: yessad_CY40_bf3cpl
Modified:

aladin/control	espcm.F90
aladin/coupling	ecoupl1.F90, ecoupl1ad.F90, etenc.F90
aladin/var	ewrlsgrad.F90
arpifs/adiab	call_sl_ad.F90, call_sl_tl.F90
arpifs/module	elbc0b_mod.F90
arpifs/phys_dmn	suparar.F90
coupling/external/gpcou	esc2r.F90, esc2rad.F90
coupling/external/spnud	espsc2r.F90
coupling/interface	esc2r.h, esc2rad.h, espsc2r.h
coupling/programs	tester_gpcou.F90

Doc:
Bugfixes.

- Bugfix for COMAD.
- Bugfix for physics interface in NH model.
Projects: arpifs
Git branch: yessad_CY40_bf4comad
Modified:

arpifs/interpol	lascaw_vintw.F90
arpifs/phys_dmn	mf_phys.F90

Doc:
Bugfixes from Oldrich Spaniel and J Masek .

Proper use of module YOMTRC: pass dummy arguments to CPG_DRV .
Projects: arpifs
Git branch: yessad_CY40_bftrc
Modified:

arpifs/adiab	cpg.F90, cpg_drv.F90
arpifs/control	gp_model.F90

Doc:
Bugfixes and cleanings.

- add attribute COMAD on GFL variables EFB1, EFB2, EFB3 ;
- update comments about CDCONF in STEPO(+AD,TL) : CDCONF(7:7) is now dedicated to coupling for LAM models ;

- bugfix in larcinb.F90 for COMAD ;
- move factx_mod.F90 from arpifs/dia to arpifs/module (this is a module) ;
- empty some useless utilities/rdc routines .

Projects: arpifs, utilities
Git branch: yessad_CY40_bugfix1ont1
Renamed:

arpifs/dia	factx_mod.F90 arpifs/module/factx_mod.F90

Modified:

arpifs/adiab	larcinb.F90
arpifs/control	stepo.F90, stepoad.F90, stepotl.F90
arpifs/module	yomgmv.F90
arpifs/setup	suctrl_gflattr.F90, sudefo_gflattr.F90
utilities/rdc/src	dilat.F90, sudil_io.F90, sugaw36.F90, sump_dila.F90, sump_dilb.F90, suplic.F90, suplis.F90, supol35.F90, trltom_dil.F90

Doc:
Contains Sylvie Malardel and Didier Ricard contribution "COMAD":
use of COMAD weights for semi-Lagrangian interpolation.

Additionally, contains a bugfix for SLHD.
Fixes a bug when doing SLHD on GFL only.
Key LSLHD has now its final value at the level of SUDYNA.
An additional checking is done at the level of SUCTRL_GFLATTR.
Final value of LSLHDQUAD has been moved in SUDYNA too.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: aladin, arpifs
Git branch: yessad_CY40_comad
Added:

arpifs/adiab	gp_stddis.F90, latte_stddis.F90

Modified:

aladin/adiab	elarmes.F90, elarmes5.F90
aladin/interpol	elascaw.F90
arpifs/adiab	gp_stddis.F90, lacdyn.F90, laitre_gfl.F90, laitre_gmv.F90, lapinea.F90, lapinea5.F90, larcin2.F90, larcin2ad.F90, larcina.F90, larcinb.F90, larcinha.F90, larcinhb.F90, larmes.F90, larmes5.F90
arpifs/interpol	lascaw.F90, lascaw_cla.F90, lascaw_clo.F90, lascaw_vintw.F90
arpifs/module	intdyn_mod.F90, ptrslb2.F90, type_gfls.F90, yomdyna.F90
arpifs/namelist	namdyna.nam.h
arpifs/op_obs	slint.F90, slintad.F90
arpifs/setup	sucslint.F90, suctrl_gflattr.F90, sudefo_gflattr.F90, sudim1.F90, sudyn.F90, sudyna.F90, sugfl3.F90, suslb.F90

Doc:
Branch "dev40pour40t1" 24 OCT 2013

- Merge SULCZ and SUELCZ.
- Remove obsolete ABOR1 in LATTES (+TL,AD).
- Remove obsolete references to CDCONF='G','J','P','X' in WRMLPPA and INIFAOUTINFO.
- Merge modules PARMCUF and YOMMCUF into YOMMCUF.
- Protection to avoid a division by 0 in surand1.F90 (bugfix provided by P. Smolikova).
- Clean SUVAR.

NO NUMERICAL IMPACT IS EXPECTED.
Projects: aladin, arpifs
Git branch: yessad_CY40_dev40pour40t1
Modified:

aladin/sinvect	suelcz.F90
arpifs/adiab	lattes.F90, lattesad.F90, lattestl.F90
arpifs/dia	inifaoutinfo.F90, wrmlppa.F90
arpifs/module	parmcuf.F90, yommcuf.F90
arpifs/setup	su0yomb.F90, sumcuf.F90, surand1.F90
arpifs/sinvect	sulcz.F90
arpifs/var	suvar.F90

Doc:
Branch "vfenh" 25 NOV 2013

Contributions provided by Petra Smolikova and Jozef Vivoda to be able to run NH model with VFE (at least LGWADV=T).
That includes:
- additional choices in definition of eta_vfe ;
- new way to compute VFE vertical integrals and vertical derivatives operators ;
- changes in some vertical discretisations.
Additionally, a bugfix is provided in the NH linear system for cases where the C2 constraint is not matched.
Projects: arpifs, ifsaux
Git branch: yessad_CY40_vfenh
Added:

arpifs/setup	sunhsi_testconv.F90, suvertfeb.F90, suvfe_basis.F90, suvfe_cpsplines.F90, suvfe_knot.F90, suvfe_matrix.F90, suvfe_testoper.F90
ifsaux/utilities	dsort.F

Modified:

arpifs/adiab	cpeuldyn.F90, cpg_gp.F90, cpg_gpb_nhgeogw.F90, gnh_conv_nhvar_geogw.F90, gnh_tndlagadiab_gw.F90, gnh_tndlagadiab_svd.F90, gnhdlr.F90, gnhgrdlr.F90, gnhgrgw.F90, gnhgrpre.F90, gnhgw2svd.F90, gnhgw2svdarome.F90, gnhpre.F90, gnhpreh.F90, gpcty.F90, gpctytl.F90, gpgeo.F90, gpgeotl.F90, gpgrgeo.F90, gpgrgeotl.F90, gpgrp.F90, gpgw.F90, gppwcvfe.F90, gpxx.F90, lapineb.F90, lapinebtl.F90, lattes.F90, lattestl.F90, si_cccor.F90, sigam.F90, siseve.F90, sitnu.F90, sivderi.F90

arpifs/climate	cormassdry.F90
arpifs/dia	cpdysldia.F90
arpifs/module	yomcver.F90, yomgwdiag.F90, yomvert.F90, yomvertfe.F90
arpifs/setup	suallo.F90, sudyn.F90, sudyna.F90, sunh_vertfe3dbc.F90, sunhbmat.F90, sunhsi.F90, suvert.F90, suvertfe.F90, suvertfeb.F90
arpifs/utility	deallo.F90, verdder.F90, verder.F90, verint.F90