ARPEGE MEMORANDUM

From: GCO
Date: Mar 23, 2015
Subject: New cycle CY41T1

A new cycle CY41T1 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_CY41_encapsulation
AUGER Ludovic	auger_CY41_edr
	auger_CY41_t1_diag
BOCHENEK Bogdan	bochenek_CY41_deello
	bochenek_CY41_oops
	bochenek_CY41_phasing2
	bochenek_CY41_phasing3
BOULLOT Nathalie	boullotn_CY41_GPSRO
BOUTELOUP Yves	boutelou_CY41_blend
	boutelou_CY41_rad
	boutelou_CY41_srtm
BROZKOVA Radmila	brozkova_CY41_rbdev1
	brozkova_CY41_rbtr
CEBRON Pierrick	cebron_CY41T1_combInfl
	cebron_CY41_combiHR
CHAMBON Philippe	chambonp_CY41_validation_arome_03toward04
EL KHATIB Ryad	khatib_CY41_bf.01%festarp
	khatib_CY41_bf.01%optims
	khatib_CY41_bf.01%prune927C
	khatib_CY41_t1.01%port
	khatib_CY41_t1.02%cray
	khatib_CY41_t1.02%edr
	khatib_CY41_t1.03%portfix
	khatib_CY41_t1.04%morefix
	khatib_CY41_t1.05%miscfix
GCO	gco_CY41_t1
	gco_CY41_t1.06%catch_up_op2
	gco_CY41_t1.06%mitraillette
	gco_CY41_t1_ctpini
GUIDARD Vincent	guidardv_CY41_4dvarBFreport
	guidardv_CY41_moreCrISetISPom
GUILLAUME Frank	guillaum_CY41_phasage_20150204_from40op2
	guillaum_CY41_phasage_fcqodb_20150302
	guillaum_CY41_phasage_from_40op2
LOO Cecile	gco_CY41_cecile_aplparstl
MARGUINAUD Philippe	marguina_CY41_fpts
	marguina_CY41_ios
	marguina_CY41_iosmem
	marguina_CY41_pi
	marguina_CY41_pmio
	marguina_CY41_pmprep
MARY Alexandre	mary_CY41_misc_for41t1
	mary_CY41_pyint_without_py
MEUNIER Louis-Francois	meunierlf_CY41_3dvar_omp
	meunierlf_CY41_RTupdate1

	meunierlf_CY41_catchup_from_40_op2
MICHEL Yann	michel_CY41_bf_lct_new
	michel_CY41_flt_varens
	michel_CY41_lct
	michel_CY41_validation
MOENE Toon	moene_CY41_bf.01_hirlam
	moene_CY41_t1.01_hirlam_whelane_cy40_rest
	moene_CY41_t1.02_hirlam_bugfixes
	moene_CY41_t1.02_hirlam_lgradsp
MOLL Patrick	moll_CY41_goesimg
	moll_CY41_pm_validcycle
PAYAN Christophe	payan_CY41_bfv02_amvupdt
PIRIOU Jean-Marcel	piriou_CY41_fixdiv
	piriou_CY41_rmt
RAYNAUD Laure	raynaudl_CY41_pearo
SEITY Yann	seity_CY41_AROME-bfs
	seity_CY41_AROME_bfs
	seity_CY41_aro_for41T1
	seity_CY41_bf_arome
SPANIEL Oldrich	spaniel_CY41_modset1
TAILLEFER Francoise	tailefer_CY41_db2
	tailefer_CY41_phasft
	tailefer_CY41_updt1
YESSAD Karim	yessad_CY41_dev41pour41t1

ARBOGAST Etienne

Doc:
Encapsulation for OOPS of modules:
YOMCVMNH YOMPHY YOMPHY0 YOMPHY1 YOMPHY2 YOMPHY3 YOMPHYDS YOMTOPH YOMVDOZ YOMSIMPHL YOMARPHY YOMPARAR YOMMSE YOMLOUIS

NO NUMERICAL IMPACT IS EXPECTED.
Projects: aladin, arpifs, mse
Git branch: arbogaste_CY41_encapsulation
Modified:

aladin/c9xx	eincli10.F90, eincli2.F90, eincli3.F90, eincli6.F90, eincli7.F90
aladin/fullpos	fpfillb.F90, suefpg3.F90
aladin/setup	sueinif.F90, sueqlimsat.F90
arpifs/adiab	call_sl.F90, call_sl_ad.F90, cp_forcing.F90, cpeuldyn.F90, cpeuldynad.F90, cpeuldyntl.F90, cpfhpfs.F90, cpg.F90, cpg5_gp.F90, cpg_dia.F90, cpg_drv.F90, cpg_dyn.F90, cpg_dyn_ad.F90, cpg_dyn_tl.F90, cpg_end.F90, cpg_gp.F90, cpg_gp_ad.F90, cpg_gp_tl.F90, cpg_gpb_nhgeogw.F90, cpg_zero_ad.F90, cpgad.F90, cpgtl.F90, cpphinp.F90, cpphinptl.F90, cpqsol.F90, cptend.F90, cptend_flex.F90, cptend_new.F90, cptends.F90, cptendsm.F90, cptendsmad.F90, cptendsmat.F90, cptendsmtl.F90, cputqy.F90, cpwts.F90, gp_spv.F90, gp_spvad.F90, gp_spvtl.F90, gpcty_forc.F90, gpept.F90, gpiet.F90, gprh.F90, gprh_2d.F90, gprhad.F90, gprhtl.F90, lapineb.F90, lapinebad.F90, lapinebtl.F90, lasure.F90, lavent.F90
arpifs/c9xx	cseaice.F90, incli0.F90, incli10.F90, incli2.F90, incli3.F90, incli6.F90, incli7.F90
arpifs/canari	caclsi.F90, caclsst.F90, cacsts.F90, cahuax.F90, canari.F90, casmswi.F90, cavegi.F90
arpifs/climate	updcli.F90, updcpl.F90, updsst.F90
arpifs/control	cnt0.F90, cnt3.F90, cnt4.F90, cprep1.F90, cva1.F90, gp_model.F90, gp_model_tl.F90, monio.F90, sim4d.F90, stepoad.F90, tesadj.F90, testli.F90
arpifs/dfi	dfi2.F90, dfi2mod.F90, dfi3.F90, sudfi.F90
arpifs/dia	cpdyddh.F90, cpphddh.F90, cpphddhe.F90, cumcpl.F90, iniapft_bp002.F90, ppfidh.F90, sualtdh.F90, sunddh.F90, wrmlppa.F90, wrmlppg.F90, wrmlpplg.F90
arpifs/fullpos	endpos.F90, fpachmt.F90, fpcica.F90, fpcincape.F90, fpcorphy.F90, fpiniphy.F90, gridfpos.F90, hpos.F90, phymfpos.F90, sufp_ctl.F90, sufprfpds.F90, sufpsuw.F90, sufptr2.F90, sufpwfpds.F90, vpos.F90, wrmlfp.F90, wrmlfpl.F90
arpifs/function	fctdoi.func.h, fctdoiad.func.h, fctdoitl.func.h
arpifs/gbrad	gbrad_setup.F90
arpifs/module	gfl_subs_mod.F90, gmv_subs_mod.F90, iogrida_mod.F90, traj_physics_mod.F90, trajectory_mod.F90, yomarphy.F90, yomcvmnh.F90, yomlouis.F90, yommse.F90, yomparar.F90, yomphy.F90, yomphy0.F90, yomphy1.F90, yomphy2.F90, yomphy3.F90, yomphyds.F90, yomsimphl.F90, yomtoph.F90, yomvdoz.F90
arpifs/obs_preproc	defrun.F90, sugoms.F90
arpifs/oops	ifs_constants.F90
arpifs/op_obs	cobs.F90, exchco.F90, exchcoad.F90, exchcotl.F90, preints.F90, surbound.F90, surboundad.F90, surboundtl.F90

arpifs/phys_dmn	ac_cloud_model.F90, ac_cloud_model2.F90, acacon.F90, acadvec.F90, acajucv.F90, acbl89.F90, accdev.F90, acclph.F90, accoefk.F90, accoll.F90, acconv.F90, acconvad.F90, acconvsad.F90, acconvstl.F90, acconvtl.F90, accorrneg.F90, accvimp.F90, accvimp_v3.F90, accvimpd.F90, accvimpdgy.F90, accvimpgps.F90, accvimpgy.F90, accvud.F90, acdifoz.F90, acdifsp.F90, acdifspad.F90, acdifspadt.F90, acdifsptl.F90, acdifus.F90, acdifv1.F90, acdifv2.F90, acdifv3.F90, acdnshf.F90, acdrac.F90, acdrag.F90, acdragl.F90, acdraglad.F90, acdragltl.F90, acdrme.F90, acdrmead.F90, acdrmetl.F90, acdro.F90, acdrov.F90, acevmel.F90, acevolet.F90, acfluso.F90, achmt.F90, achmtad.F90, achmtls.F90, achmttl.F90, aclsps.F90, aclspsad.F90, aclspstl.F90, acmicro.F90, acmicroad.F90, acmicrotl.F90, acmixelen.F90, acmixlentm.F90, acmixlenz.F90, acmodo.F90, acmrip.F90, acmris.F90, acmriss.F90, acmtddd.F90, acmtentr.F90, acmtud.F90, acmtudeul.F90, acnebc.F90, acnebcond.F90, acnebn.F90, acnebnsc.F90, acnebr.F90, acnebsm.F90, acnebsmad.F90, acnebsmtl.F90, acnebxr.F90, acnebxrs.F90, acnpart.F90, acntcls.F90, acntclsad.F90, acntclstl.F90, acozone.F90, acpblh.F90, acpblhtm.F90, acpcmt.F90, acpluie.F90, acpluis.F90, acpluiz.F90, acpscc.F90, acptke.F90, acptkes.F90, acqwlsr.F90, acqwlsrad.F90, acqwlsrtl.F90, acradcoef.F90, acradin.F90, acrads.F90, acradsad.F90, acradstl.F90, acralu.F90, acraneb.F90, acraneb2.F90, acraneb_coefs.F90, acraneb_solvs.F90, acraneb_solvt.F90, acraneb_solvt3.F90, acraneb_trans.F90, acraneb_transs.F90, acraneb_transt.F90, acrso.F90, acsol.F90, acsolw.F90, actke.F90, actkecls.F90, actkecoefk.F90, actkecoefkh.F90, actkehmt.F90, actkehmtls.F90, actkezot.F90, actkezotls.F90, actqsat.F90, actqsats.F90, actsec.F90, actsecad.F90, actsectl.F90, acturb.F90, acupd.F90, acupm.F90, acupu.F90, acveg.F90, acvppkf.F90, advprc.F90, advprcs.F90, advprcsad.F90, advprcstl.F90, apl_arome.F90, apl_arome2intflex.F90, aplmini.F90, aplmphys.F90, aplpar.F90, aplpar2intflex.F90, aplpars.F90, aplparsad.F90, aplparsadt.F90, aplparstl.F90, aplpassh.F90, arocldia.F90, arp_ground_param.F90, bri2acconv.F90, compute_neb.F90, cpchet.F90, hlevapprec.F90, hlrad.F90, hlsnowmelt.F90, initaplpar.F90, mf_phys.F90, mf_phys_prep.F90, mf_physad.F90, mf_phystl.F90, open_output_lfa.F90, qngcor.F90, radaer.F90, radaer15.F90, radheat15.F90, recmwf.F90, rfmr.F90, sucvmnh.F90, suecrad15.F90, suparar.F90, suphmf.F90, suphmpa.F90, suphmse.F90, suphy0.F90, suphy1.F90, suphy2.F90, suphy3.F90, surf_ideal_flux.F90, sutoph.F90, tridifv1.F90, writemusc.F90, writeprofile.F90
arpifs/phys_ec	aer2massdia_layer.F90, aer_cloud_layer.F90, aer_phy3_layer.F90, aer_radon.F90, aerini_layer.F90, callpar.F90, callparad.F90, callpartl.F90, chem_main_layer.F90, climaer_layer.F90, cloud_layer.F90, cloud_s_layer.F90, cond_layer.F90, convection_ca_layer.F90, convection_layer.F90, convection_s_layer.F90, ec_phys.F90, ec_phys_ad.F90, ec_phys_drv.F90, ec_phys_lslphy.F90, ec_phys_tl.F90, gems_init.F90, gems_init_tl.F90, gems_tend_ad.F90, grg_tend_layer.F90, m7_delcoa.F90, m7_dgas.F90, m7_dnum.F90, o3chem.F90, postphy_layer.F90, raddiag.F90, raddrv.F90, radheat.F90, radheatad.F90, radheatn.F90, radheattl.F90, radina.F90, radinaad.F90, radinatl.F90, radintg.F90, radvis_layer.F90, restore_vdfout.F90, rndecay.F90, sltend.F90, spbsgpupd.F90, stochpert_layer.F90, suphec.F90, surftstp_layer.F90, turbulence_layer.F90, turbulence_s_layer.F90, update_fields.F90, update_state.F90, uvradi_layer.F90
arpifs/phys_radi	srtm_srtm_224gp.F90, srtm_srtm_224gp_mcica.F90, suecrad.F90
arpifs/pp_obs	apache.F90, ppobsac.F90, ppobsacad.F90, ppobsactl.F90, ppthpw.F90, ppwetpoint.F90
arpifs/setup	su0phy.F90, su0yomb.F90, su1yom.F90, su_surf_flds.F90, suallo.F90,

	sucape.F90, sucfu.F90, suctrl_gflattr.F90, sudefo_gflattr.F90, sudimf1.F90, sudyn.F90, sugfl3.F90, sugrida_fix_toz.F90, sugrida_fixup.F90, suhlconst.F90, suinif.F90, suintflex.F90, sunud.F90, suoptproma.F90, supp.F90, susc2b.F90, suslb.F90, sutrajp.F90, suxfu.F90
arpifs/sinvect	cun1.F90
arpifs/utility	deallo.F90, updtim.F90
arpifs/var	rdfpinc.F90, rdphtrajm.F90, rdphtrajtm.F90, rdphtrajtm_nl.F90, suspqlim_part2.F90, wrphtrajm.F90, wrphtrajtm.F90, wrphtrajtm_nl.F90
mse/externals	aro_surf_diagh.F90, canari_sx_ics.F90, fp2sx1.F90, fp2sx1fa.F90, prep1_real.F90, sugridsfx.F90, suphmse_surface.F90

AUGER Ludovic

Doc:
1) Modifications for diagnostics processing in fullpos such as EDR.
2) Blend modset.

NO NUMERICAL IMPACT IS EXPECTED.
Projects: aladin, arpifs, mpa
Git branch: auger_CY41_edr
Modified:

aladin/programs	blend.F90
arpifs/adiab	cpg.F90, cpg_drv.F90
arpifs/control	gp_model.F90
arpifs/fullpos	cpclimi.F90, fpcordyn.F90, hpos.F90, scan2m_hpos.F90, scan2m_mpos.F90, sufp_ctl.F90, sufpc.F90, vpos.F90
arpifs/module	parfpos.F90, surface_fields_mix.F90, yomafn.F90, yomdphy.F90, yomphyds.F90
arpifs/namelist	namafn.nam.h, namdphy.nam.h, namphyds.nam.h
arpifs/phys_dmn	actke.F90, apl_arome.F90, aplpar.F90, initaplpar.F90, mf_phys.F90
arpifs/pp_obs	pos.F90
arpifs/setup	su_surf_flds.F90, suafn1.F90, suafn2.F90, suafn3.F90, sudimf1.F90
mpa/turb/externals	aro_turb_mnh.F90
mpa/turb/interface	aro_turb_mnh.h
mpa/turb/internals	tke_eps_sources.F90, turb.F90
mpa/turb/module	modi_tke_eps_sources.F90, modi_turb.F90

Doc:
Modset for fullpos configuration, to comply with the modifications done in parallel suite CY40_op .*
New diagnostics are added, and the possibility to fullpos outside model domain.

EXPECTED IMPACT:
Numerical impact for fullpos only.
Projects: aladin, arpifs, utilities
Git branch: auger_CY41_t1_diag
Modified:

aladin/fullpos	suefpg3.F90
aladin/interpol	eslextpol.F90
aladin/setup	suemp.F90
arpifs/fullpos	endpos.F90, endpos_prepgfl.F90, endvpos.F90, fpcordyn.F90, fpcorphy.F90, fposhorlag.F90, scan2m_hpos.F90, scan2m_mpos.F90, stepo_fpos.F90, sufpc.F90, sufpdistrib.F90, sufpg2.F90, sufprfpbuf_geom.F90, sufprfpds.F90, sufptr2.F90, sumpfpos.F90
arpifs/module	yomafn.F90, yomfpc.F90, yomfpg.F90, yomrfpds.F90
arpifs/namelist	namafn.nam.h, namfpc.nam.h
arpifs/pp_obs	pos.F90
arpifs/setup	suafn1.F90, suafn2.F90, suafn3.F90
arpifs/utility	dealfpos.F90
utilities/progrid	procor2.F

BOCHENEK Bogdan

Doc:
Deallocation of geometry modules YREMP, YRLEP and YREDIM was removed from deello.F90, as it is now for arpifs geometry modules.
Routine deello_geometry.F90 was removed.
Projects: aladin
Git branch: bochenek_CY41_deello
Deleted:

aladin/utility	deello_geometry.F90

Modified:

aladin/utility	deello.F90

Doc:
Make lateral couplig and spectral nudging OOPS-compilant.

This branch contains changes in modules elbc0a_mod and elbc0b_mod.
Module elbc3_mod was removed.
Some variables were moved into new modules:

yemgeolbc
elbc0c_mod

Encapsulation was done in modules:

yemgeolbc
elbc0b_mod
elbc0c_mod

All routines using changed variables were updated.
Projects: aladin, arpifs
Git branch: bochenek_CY41_oops
Deleted:

arpifs/module	elbc3_mod.F90

Added:

aladin/setup	suegeolbc.F90
arpifs/module	elbc0c_mod.F90, yemgeolbc.F90

Modified:

aladin/control	espcm.F90
aladin/coupling	ecoupl1.F90, ecoupl1ad.F90, elsin0ta.F90, elsrw.F90, elswa3.F90, erlbc.F90, eseimpls.F90, eseimplsad.F90, etenc.F90
aladin/setup	elsac.F90, sueinif.F90, suemp.F90
aladin/utility	deello.F90, deello_geometry.F90
aladin/var	ewrlsgrad.F90
arpifs/ald_inc/namelist	nemelbc0a.nam.h, nemelbc0b.nam.h
arpifs/climate	updcli_mse.F90
arpifs/control	cnt4.F90, stepo.F90, stepoad.F90, stepotl.F90
arpifs/module	elbc0a_mod.F90, elbc0b_mod.F90, yommp.F90
arpifs/setup	su0yomb.F90, sugeometry.F90, sump.F90
arpifs/utility	openfa.F90, updtim.F90

Doc:
IO server bugfix.
Projects: mse, surfex
Git branch: bochenek_CY41_phasing2
Modified:

mse/externals	fp2sx1.F90
surfex/SURFEX	hor_interpol_buffer.F90

Doc:
Bugfixes, including a a fix for reading surface fields (Aladin or Arome).
Projects: arpifs, mse
Git branch: bochenek_CY41_phasing3
Modified:

arpifs/parallel	gathert.F90
arpifs/setup	su0phy.F90
mse/internals	read_surfx2_aro.F90

BOULLOT Nathalie

Doc:
- Assimilation of GPSRO data up to 50 km high instead of 46 km.
- Allow assimilation of more GPSRO observations in low troposphere. Observation errors are modified accordingly in low troposphere but also higher up.
Due to the reduction of the observation error between 10 and 30 km high, less observations are selected in this area, but with better quality statistics
and a higher impact.

EXPECTED IMPACT:
Positive impact on analyses and forecasts compared to ECMWF analyses and radiosondes.

Projects: arpifs, blacklist

Git branch: boullotn_CY41_GPSRO

Modified:

arpifs/op_obs	gpsro_oberror.F90
blacklist	mf_blacklist.b

BOUTELOUP Yves

Doc:
Add PCMT prognostic variables to blend program (under switch L_PCMT)

NO NUMERICAL IMPACT IS EXPECTED.
Projects: aladin
Git branch: boutelou_CY41_blend
Modified:

aladin/programs	blend.F90

Doc:
Correction of a bug in RADHEAT when SURFEX is used (LMSE=TRUE). Surface downward diagnostic was computed twice (so it was twice too strong !).

NO NUMERICAL IMPACT IS EXPECTED.
Projects: arpifs
Git branch: boutelou_CY41_rad
Modified:

arpifs/phys_ec	radheat.F90

Doc:
Allows the use of the new Short Wave radiation code SRTM from Météo-France physics (Arome or Arpege)
Need a call to the new interface routine RADLSWR
instead of RADLSW. No mumerical impact if LSRTM=.FALSE.
Projects: arpifs
Git branch: boutelou_CY41_srtm
Modified:

arpifs/phys_dmn	acradin.F90, apl_arome.F90, aplpar.F90, recmwf.F90

BROZKOVA Radmila

Doc:
GIT branch brozkova_CY41_rbdev1:
ALARO-1 input
- enhancement of ACRANE2 by:
- cloud-gas overlap parameterisation;
- fit of cloud optical properties to new reference;
- retuning of geometry factors;
- intermittency in solar band.
- TOUCANS:
- moist total turbulent energy;
- update of surface computations;
- optimalisations
- microphysics:
- geometry of clouds and falling precipiation: new option;
- rain drop size distribution according to Abel-Boutle 2012.
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List of modified routines

Arp/adiab:
- cpg_drv.F90
- cpg.F90
New fields due to solar intermittency for ACRANEB2.

Arp/canari:
- caclsi.F90
Call to ACTKEHMT (TOUCANS surface).

Arp/control:
- gp_model.F90
New fields due to solar intermittency for ACRANEB2.

Arp/fullpos:
- fpachmt.F90
Call to ACTKEHMT (TOUCANS surface).

- vpos_prep.F90
handling of new TOUCANS GFLs.

Arp/module:
- type_gflflds.F90, yom_ygfl.F90, yomafn.F90, yomfa.F90:
new GFL fields for TOUCANS: renaming YSCC2 to YSHTUR, YGCCA to YFQTUR,
introducing YFSTUR.

- yomphy0.F90
new ADJTAU relaxation parameter in adjustment.
new parameters for shallow convection (TOUCANS);
update of parameters for mixing length (TOUCANS).

- yomphy3.F90
new fit of cloud optical properties (AC_CLOUD_MODEL2 with ACRANEB2).

- yomtrc.F90
new fields due to solar intermittency for ACRANEB2.

- yomphy.F90
switch for Abel-Boutle rain drop size distribution;
switch for the shallow convection (TOUCANS) and for
the solar intermittency for ACRANEB2.

- yomqnse.F90
new fit of stability functions.

Arp/namelist:
- namafn.nam.h, namgfl.nam.h
new GFL fields for TOUCANS: renaming YSCC2 to YSHTUR, YGCCA to YFQTUR,
introducing YFSTUR.

- namphy0.h
new ADJTAU relaxation parameter in adjustment.
new parameters for shallow convection (TOUCANS);
update of parameters for mixing length (TOUCANS).

- namphy3.h
new fit of cloud optical properties (AC_CLOUD_MODEL2 with ACRANEB2).

- namphy.F90
switch for Abel-Boutle rain drop size distribution;
switch for the shallow convection (TOUCANS) and for
the solar intermittency for ACRANEB2.

Arp/phys_dmn:
- accdev.F90
new parameter ADJTAU (decoupling from GCVTAUDE).
Abel-Boutle rain drop size distribution.

- accoll.F90, acevmel.F90
Abel-Boutle rain drop size distribution.

- acdifv2.F90
storage of source shear term.

- acdifv3.F90
optimalisation of TOMs computations.

- achmt.F90
correction of bug introduced with z0 minus orography option.

- acmixelen.F90
introduction of EL0 mixing length.

- acptkes.F90
forgotten continuation line character &.

- suphy0.F90
new ADJTAU relaxation parameter in adjustment.
new parameters for shallow convection (TOUCANS);
update of parameters for mixing length (TOUCANS).

- suphy3.F90
new fit of cloud optical properties (AC_CLOUD_MODEL2 with ACRANEB2).

- acmris.F90
code optimisation.
correction of power 2 from REAL to INTEGER.

- acmriss.F90
code optimisation.

- acnebcond.F90
introduction of ADJTAU relaxation parameter (decoupling GCVTAUDE).

- acnebnsc.F90
code optimisation.

- acptke.F90
code optimisation;
modified computation of relaxation times for mixing length.

- acmrip.F90
modified Newton loop for SCQ and increase of iterations to 3;
when function F1, take minimum from chi_3 and std function etc;
modification of functions' derivatives accordingly;
correction of a bug in dry anti-fibrilation;
correction of power 2 from REAL to INTEGER;
removal of power 3 by another coding.
code optimisation.

- actkecoefk.F90, actkecoefkh.F90
code optimisation.

- ac_cloud_model2.F90
new fit of cloud optical properties (AC_CLOUD_MODEL2 with ACRANEB2).

- acraneb2.F90
introduction of solar intermittency;
split of transmission routine to 2 new ones for solar and thermal band
(acraneb_transs and acraneb_transt);

- actkehmt.F90
complete rewriting to have a compatible list of arguments with ACHMT;
call to new interpolation routine ACTKECLS to compute values at 2m and 10m.

- actkezot.F90
handling of new surface computations.

- aplmphys.F90, aplmini.F90
new handling of geometry of clouds and precipitations.

- aplpar.F90
solar intermittency (ACRANEB2);
modified call to surface ACTKEHMT;
correct use of CP (Betts type);
handling of turbulence source terms (shear and fluxes).

- mf_phys.F90
solar intermittency.

Arp/setup:
- suafn1.F90, suafn2.F90, suafn3.F90, suctrl_gflattr.F90, sudefo_gflattr.F90, sufa.F90, sugfl1.F90, sugfl2.F90, sugfl3.F90
new GFL fields for TOUCANS: renaming YSCC2 to YSHTUR, YGCCA to YFQTUR, introducing YFSTUR.

- su0phy.F90
switch for the shallow convection (TOUCANS) and for the solar intermittency for ACRANEB2.

- sudyn.F90
solar intermittency times setup.

- susc2b.F90
solar intermittency setup.

Arp/utility/dealsc2.F90
solar intermittency fields handling.

==========
List of new routines

Arp/module:
- yomlouis.F90
fit of Louis stability functions.

Arp/phys_dmn:
- acraneb_transs.F90
solar optical depths computation.

- acraneb_transt.F90
thermal optical depths computation.

- actkecls.F90
interpolation to CLS level, algorithm Geleyn, use of kappa_h times C3 - TOUCANS case.

==========
Routines to be removed:

Arp/phys_dmn:
- acraneb_trans.F90
replaced by two new routines acraneb_transs.F90 and acraneb_transt.F90 see above.

Projects: arpifs
Git branch: brozkova_CY41_rbdev1
Added:

arpifs/module	yomlouis.F90
arpifs/phys_dmn	acraneb_transs.F90, acraneb_transt.F90, actkecls.F90

Modified:

arpifs/adiab	cpg.F90, cpg_drv.F90
arpifs/canari	caclsi.F90
arpifs/control	gp_model.F90
arpifs/fullpos	fpachmt.F90, vpos_prep.F90
arpifs/module	type_gflflds.F90, yom_ygfl.F90, yomafn.F90, yomfa.F90, yomphy.F90, yomphy0.F90, yomphy3.F90, yomqnse.F90, yomtrc.F90
arpifs/namelist	namafn.nam.h, namgfl.nam.h, namphy.nam.h, namphy0.nam.h,

	namphy3.nam.h
arpifs/phys_dmn	ac_cloud_model2.F90, accdev.F90, accoll.F90, acdifv2.F90, acdifv3.F90, acevmel.F90, achmt.F90, acmixelen.F90, acmrip.F90, acmris.F90, acmriss.F90, acnebcond.F90, acnebnsc.F90, acptke.F90, acptkes.F90, acraneb2.F90, acraneb_trans.F90, actkecoefk.F90, actkecoefkh.F90, actkehmt.F90, actkezot.F90, apl_arome.F90, aplmini.F90, aplmphys.F90, aplpar.F90, mf_phys.F90, suphy0.F90, suphy3.F90
arpifs/setup	su0phy.F90, suafn1.F90, suafn2.F90, suafn3.F90, suctrl_gflattr.F90, sudefo_gflattr.F90, sudyn.F90, sufa.F90, sugfl1.F90, sugfl2.F90, sugfl3.F90, susc2b.F90
arpifs/utility	dealsc2.F90

Doc:
GIT branch brozkova_CY41_rbtr: ALARO-1 update
- radiation scheme ACRANEB2: retuning of cloud optical properties;
- cloudiness for radiation: modulation of cloudiness diagnostics with vertical;
- interpolation to screen level: intermediate solution between Geleyn 88 and Kullman proposal pending the stability.

List of modified routines:

arpifs/module:

- yomphy0.F90
new QSMODC parameter for cloudiness diagnostics (ACNEBN).

- yomphy3.F90
cloud optical parameter split to ice and water clouds (ACRANEB2).

arpifs/namelist:

- namphy0.nam.h
new QSMODC parameter for cloudiness diagnostics (ACNEBN).

- namphy3.nam.h
cloud optical parameter split to ice and water clouds (ACRANEB2).

arpifs/phys_dmn:

- ac_cloud_model2.F90
use of cloud optical parameters separated to ice and water phase (ACRANEB2).

- acnebn.F90
modulation of stratiform cloudiness diagnostics.

- suphy0.F90
new QSMODC parameter for cloudiness diagnostics (ACNEBN).

- suphy3.F90
cloud optical parameter split to ice and water clouds (ACRANEB2) and
new tuning set to default values.

- actkecls.F90
improved interpolation to screen level.

- aplpar.F90

call to ACNEBN - adding a dummy argument;
Projects: arpifs
Git branch: brozkova_CY41_rbtr
Modified:

arpifs/module	yomphy0.F90, yomphy3.F90
arpifs/namelist	namphy0.nam.h, namphy3.nam.h
arpifs/phys_dmn	ac_cloud_model2.F90, acnebn.F90, actkecls.F90, aplpar.F90, suphy0.F90, suphy3.F90

CEBRON Pierrick

Doc:
This modset...
1) ... allows non-symmetric initial perturbations;
2) ... allows a variable inflation in terms of level.

NO NUMERICAL IMPACT IS EXPECTED.
Projects: utilities
Git branch: cebron_CY41T1_combInfl
Modified:

utilities/combi	combi_pert.F90

Doc:
Bug fix in the reading of namelists.

NO NUMERICAL IMPACT IS EXPECTED.
Projects: utilities
Git branch: cebron_CY41_combiHR
Modified:

utilities/combi	combi_opti.F90, combi_stat.F90

CHAMBON Philippe

Doc:

1) arpifs/module/varbc_setup.F90
Correct for a problem when reading the Varbc coefficients files with the 2 new additional predictors. The number of computed covariances
was larger than the hard-coded character chain length used to read the files.

2) blacklist/mf_blacklist.b
Correct for a phasing problem in the blacklist for the ATMS sensor concerning the assimilation of pixels on the swath sides.

3) arpifs/op_obs/hopad.F90
Correct for a bug in the use of bias correc t ion for ground gps observations

EXPECTED IMPACT:
These modifications have numerical impacts since correction (3) prevent from the misuse of varbc for ground gps data, modification (2) allow
the assimilation of pixels on the swath edges of ATMS for some channels like it is done in the 40_op2.

Projects: arpifs, blacklist

Git branch: chambonp_CY41_validation_arome_03toward04

Modified:

arpifs/module	varbc_setup.F90
arpifs/op_obs	hopad.F90
blacklist	mf_blacklist.b

EL KHATIB Ryad

Doc:
"festat" for ARPEGE.

EXPECTED IMPACT:
Different results compared with the standalone monocore version of festat-arpege, due to a bugfix and reordering of computations.
Projects: utilities
Git branch: khatib_CY41_bf.01%festarp
Added:

utilities/bcov_lam/interface	ebalfestat.h, subalp.h

Modified:

utilities/bcov_lam/interface	balfestat.h, gathkspec.h, subiaspec.h, unbiaspec.h
utilities/bcov_lam/module	yomfestat.F90
utilities/bcov_lam/others	balfestat.F90, calcov.F90, chkcov.F90, ecalcov.F90, eigenmd.F90, eregpdiv.F90, eregpdt.F90, ewgsacov.F90, gathkspec.F90, nmcstat.F90, regpdivo3.F90, regpdt.F90, regvorp.F90, subalp.F90, subiaspec.F90, sufespecg1.F90, sufestat.F90, unbiaspec.F90, wgsabal.F90, wgsacov.F90

Doc:
1) CPU vectorization and optimization
2) Optimization by use of automatic arrays instead of dynamic arrays.
3) Overlapping of communications with pack/unpack operations + use of automatic arrays and mpi_waitany in trltog/trgtol.

NO NUMERICAL IMPACT IS EXPECTED.
Projects: aladin, arpifs, ifsaux, mpa, trans
Git branch: khatib_CY41_bf.01%optims
Added:

arpifs/adiab	call_sl_heap.F90, call_sl_stack.F90
arpifs/control	gp_model_heap.F90, gp_model_stack.F90
ifsaux/module	mpl_waitany_mod.F90

Modified:

aladin/adiab	elarche.F90
arpifs/adiab	call_sl.F90, gprcp.F90, larche.F90
arpifs/control	gp_model.F90, scan2m.F90, stepo_oops.F90
arpifs/dia	cpdyddh.F90
arpifs/fullpos	fpcincape.F90
arpifs/interpol	laitri.F90
arpifs/module	yomct0.F90
arpifs/namelist	namct0.nam.h
arpifs/phys_dmn	acbl89.F90, acdrag.F90, advprcs.F90, apl_arome.F90, aplpar.F90, initaplpar.F90
arpifs/phys_ec	vdfhghtn.F90
arpifs/phys_radi	lwprnuage.F90, rrtm_rtrn1a_140gp.F90, swde.F90, swdead.F90, swdetl.F90, uvde.F90
arpifs/setup	suct0.F90, sufa.F90, sujfh.F90, sumpini.F90
arpifs/var	gp_nearest.F90
ifsaux/module	mpl_module.F90

mpa/micro/internals	ini_cst.F90
mpa/micro/module	modd_cst.F90
mpa/turb/internals	compute_updraft_rhcj10.F90, th_r_from_thl_rt_1d.F90
trans/module	trgtol_mod.F90, trltog_mod.F90

Doc:
1) Pruning of conf. 927/928 .
2) Enable LFPGMVTOCLS in Fullpos-2 .
3) Remove SUNMEN and use TRANS_INQ instead.
4) Optimization of inline/offline reproducibility of Fullpos.
5) Bugfix to check a possible confusion in the list of requested physical fields or fluxes.
6) Bugfix for iso-T levels when Vor or Div are in request.
7) Miscellaneous doctorization.

NO NUMERICAL IMPACT IS EXPECTED.
Projects: aladin, arpifs, ifsaux, surf
Git branch: khatib_CY41_bf.01%prune927C
Modified:

aladin/fullpos	fpezone.F90, sufpezo.F90
aladin/setup	elsac.F90, suedim.F90, sueinif.F90
arpifs/control	cnt1.F90, cnt3.F90, cnt4.F90, cnt4ad.F90, cnt4tl.F90, cprep4.F90, csta.F90
arpifs/dfi	suini.F90
arpifs/dia	suppdate.F90, wroutgpgb.F90
arpifs/fullpos	dynfpos.F90, endpos.F90, extfpfboyd.F90, fpiniphy.F90, fpselezo.F90, gridfpos.F90, ini3wrfp.F90, iofpos.F90, openfpfa.F90, phymfpos.F90, predynfpos.F90, pregpfpos.F90, prespfpos.F90, scan2m_vpos.F90, specfita.F90, specfitg.F90, stepo_fpos.F90, sufpc.F90, sufpconf.F90, sufpd.F90, sufpf.F90, sufpg.F90, sufpg2.F90, sufpmapf.F90, sufpoph.F90, sufpphy.F90, sufptr2.F90, sufpuf.F90, suvfposl.F90, suvpos.F90, updvpos.F90, vpos.F90, wrgp2fafp.F90, wrhfp.F90, wrmlfp.F90, wrmlfpl.F90, wrplfp.F90, wrpvlfp.F90, wrsfp.F90, wrthlfp.F90
arpifs/module	factx_mod.F90, yomafn.F90, yomct0.F90, yomfpc.F90, yomfpct0.F90, yomfpf.F90
arpifs/namelist	namfpc.nam.h, namfpf.nam.h
arpifs/phys_dmn	suphmf.F90
arpifs/pp_obs	pos.F90, pos_prepgfl.F90
arpifs/setup	su0phy.F90, su0yoma.F90, su0yomb.F90, su3yom.F90, su_surf_flds.F90, suafn1.F90, suafn2.F90, suarg.F90, sudefo_gflattr.F90, sufa.F90, sugem1a.F90, sugem_naml.F90, sugfl2.F90, sugridf.F90, sugridg.F90, sugridug.F90, sugridug2.F90, suinif.F90, sunmen.F90, suppvi.F90, surip.F90, susc2c.F90, suspec.F90, suspecg.F90, suvv1.F90
arpifs/utility	freemem.F90, gstats_label_ifs.F90, openfainfo.F90, pkgrida.F90, pkspeca.F90, pksurfa.F90
ifsaux/utilities	echien.F90
surf/offline/driver	surip.F90
surf/offline/setup	surip.F90

Doc:
1) Replace getenv, ec_getenv, and util_cgetenv by f2003 intrinsic get_environment_variable in arpifs project.
2) Portability fixes for Mac OS X .
3) Fix a missing ifdef LFI in soda.F90 .

NO NUMERICAL IMPACT IS EXPECTED.
Projects: aeolus, arpifs, ifsaux, mse, obstat, odb, satrad, surfex, trans, utilities
Git branch: khatib_CY41_t1.01%port
Modified:

aeolus/support	compiler_features_aix.F90, compiler_features_f95.F90, compiler_features_generic.F90, compiler_features_gfortran.F90, compiler_features_hpux.F90, compiler_features_ifort.F90, compiler_features_necsx.F90, compiler_features_pgf90.F90, compiler_features_sgi_irix.F90, compiler_features_sunforte.F90
arpifs/canari	canari.F90, casgra.F90
arpifs/control	cnt4.F90
arpifs/obs_preproc	hatbiasc.F90, readoba.F90, sudimo.F90, tempin.F90
arpifs/prism	couplo4_inimpi.F90
arpifs/sinvect	cun2.F90
arpifs/var	writeoba.F90
ifsaux/ddh	lfa_R8I4.F90
ifsaux/include	ecsort_shared.h
ifsaux/lfi	lfiouv.F90
ifsaux/lfi_alt	lfi_alts.c, lfi_grok.c
ifsaux/linux	linux_bind.c
ifsaux/module	distio_mix.F90, ecsort_mix.F90, mpl_arg_mod.F90, mpl_init_mod.F90, oml_mod.F90, xrd_unix_env.F90
ifsaux/support	dr_hook_util.F90, jfh_bind.F90
ifsaux/utilities	getheapstat.F90, getmemstat.F90
mse/externals	fp2sx1fa.F90, sugridsfx.F90
obstat/bias_sat	hist_plot_meteo.F90, plot_meteo_internet.F90, plot_meteo_metops.F90
odb/cma2odb	init_odb_tables.F90
odb/extras/emos	buevar.F, buivar.F, emosnum.F
odb/pandor/module	bator_lectures_mod.F90
odb/scripts	drhook_ex5.F90
odb/tools	Bator.F90, Create_enkf.F90, Create_fcdiag.F90, Fcqodb.F90, Mandalay.F90, Myprog.F90, Plotobs.F90
satrad/module	rttov_unix_env.F90
surfex/OFFLIN	soda.F90
surfex/SURFEX	mode_crodebug.F90
trans/programs	rgrid.F90
utilities/bcov_lam/programs	stat.F90
utilities/pregpssol	get_model_gpssol.F90
utilities/rdc/programs	master911.F90

Doc:
Portability fixes for the cray compiler.

NO NUMERICAL IMPACT IS EXPECTED.
Projects: ifsaux, utilities
Git branch: khatib_CY41_t1.02%cray
Modified:

ifsaux/lfi_alt	lfi_altm.c
ifsaux/py_interface	FA4py.F90
utilities/pearome	clust.F90, pertsurf.F90

Doc:

1) Recode EDR in a more robust way. In the model part, NVEXTRDI is removed from namelist and replaced by the logical key LEDR in NAMPHY.

2) Enable in-line/offline post-processing of EDR on any kind of post-processing level and with bitwise reproducibility.

3) Use LREQIN_VEXTRDI and LREQOUT_VEXTRDI from namelist NAMPHYDS to handle I/Os in the model for off-line post-processing. In the post-processing part,
the EDR is driven by the the specific structure TFP_EDR. In the model part, more 3D diagnostics can be easily coded (track and mimic the key LEDR).

NO NUMERICAL IMPACT IS EXPECTED.
Projects: arpifs
Git branch: khatib_CY41_t1.02%edr
Modified:

arpifs/control	cnt4.F90
arpifs/fullpos	endpos.F90, endvpos.F90, fpcordyn.F90, pregpfpos.F90, sufpc.F90
arpifs/module	parfpos.F90, surface_fields_mix.F90, yomafn.F90, yomphy.F90
arpifs/namelist	namdphy.nam.h, namphy.nam.h
arpifs/phys_dmn	mf_phys.F90
arpifs/pp_obs	pos.F90
arpifs/setup	su0phy.F90, su_surf_flds.F90, suafn1.F90, suafn2.F90, suafn3.F90, sudimf1.F90

Doc:
Miscellaneous fixes:
- gfortran portability fix;
- add missing TFP_EDR in namelist;
- cleanings;
- fix on hail post-processing;
- fix a format descriptor;
- fix uninitialized variables;
- fix broken vectorizations;
- fix an openmp issue in fa software;
- minor fix for off-line post-processing.

NO NUMERICAL IMPACT IS EXPECTED.
Projects: arpifs, ifsaux, mpa
Git branch: khatib_CY41_t1.03%portfix
Modified:

arpifs/control	cnt4.F90
arpifs/fullpos	fpcorphy.F90
arpifs/module	elbc0b_mod.F90, yomafn.F90
arpifs/namelist	namafn.nam.h
arpifs/phys_dmn	acmtud.F90, advprc.F90, advprcs.F90, advprcsad.F90, advprcstl.F90, aplpar.F90, writemusc.F90
arpifs/setup	suafn3.F90
ifsaux/fa	fandax.F90, faregu.F90
ifsaux/module	fadup_mod.F90
mpa/turb/internals	compute_entr_detr.F90

Doc:
coupling_surf_atmn.F90, suct0.F90: portability fix + optimization for gfortran
others : fix vectorization broken by encapsulation

NO NUMERICAL IMPACT IS EXPECTED.
Projects: arpifs, surfex
Git branch: khatib_CY41_t1.04%morefix
Modified:

arpifs/adiab	sigam.F90, siptp.F90, sitnu.F90
arpifs/phys_dmn	acnebr.F90, acpcmt.F90, aplpar.F90, suphy1.F90
arpifs/setup	suct0.F90
surfex/SURFEX	coupling_surf_atmn.F90

Doc:
- *Fix uninitialized values in MUSC;*
- *add CNDISPP in namelist;*
- *Bugfix for the case only 2D fields should be post-processed;*
- *Optimizations for small I/Os in lustre.*

NO NUMERICAL IMPACT IS EXPECTED.
Projects: arpifs
Git branch: khatib_CY41_t1.05%miscfix
Modified:

arpifs/control	cnt4.F90
arpifs/fullpos	updvpos.F90
arpifs/module	gmv_subs_mod.F90
arpifs/namelist	namct0.nam.h
arpifs/phys_dmn	writemusc.F90
arpifs/setup	sumpini.F90

GCO

Doc:
1) Move "arpifs/get_clinc.F90" to "arpifs/control/get_clinc.F90".
2) Remove useless file "ifsaux/py_interface/raiseException.c".
3) Fixes uppon first version of pre-CY41T1's merge, before introduction of HIRLAM's modset.
4) yemdyn.F90: fix a phasing bug.
5) procor2.F : Fix a code issue concerning name of SURFREFLECT.MAX .
6) LEDR encapsulation.
Projects: aladin, arpifs, ifsaux, surfex, utilities
Git branch: gco_CY41_t1
Deleted:

ifsaux/py_interface	raiseException.c

Renamed:

arpifs	get_clinc.F90 arpifs/control/get_clinc.F90

Modified:

aladin/setup	erlbc_post_req.F90
arpifs/control	cnt4.F90, fpwrncf.F90
arpifs/dia	inifaoutinfo.F90
arpifs/fullpos	fposhor.F90, gridfpos.F90, ini3wrfp.F90
arpifs/module	yemdyn.F90, yomphy.F90
arpifs/phys_dmn	mf_phys.F90
arpifs/pp_obs	pos.F90
arpifs/setup	su0phy.F90, su_surf_flds.F90, suafn1.F90, suctrl_gflattr.F90
arpifs/var	fltbgcalc_crt.F90
surfex/OFFLIN	mode_read_surf_ol.F90
surfex/SURFEX	average1_orography.F90, average2_orography.F90, coupling_surf_atmn.F90, pgd_orography.F90, prep_isba.F90
utilities/combi	combi_pert.F90
utilities/pearome	addpearp.F90, clust.F90
utilities/progrid	procor2.F

Doc:
Catch-up from current parallel suite CY40_op2 .

1) INVERSION (ctpini): optimisations.
2) PROGRID: taking into account 2D fields QNH and 3D flight level fields.*
Projects: utilities
Git branch: gco_CY41_t1.06%catch_up_op2
Modified:

utilities/ctpini/module	fonctions_inversion.F90
utilities/ctpini/programs	inversion_master.F90
utilities/progrid	procor2.F

Doc:
Add mitraillette scripts in pre-cycle CY41T1 (version: v012014).
Projects: mitraille
Git branch: gco_CY41_t1.06%mitraillette
Added:

mitraille/doc	aainfo_mitraille_v122014.pdf

mitraille/namelist	aainfo, namg_4hex, namg_4hey, namg_4hlx, namg_4hly, namg_4hlz, namg_5hex, namg_5hey, namg_5hlx, namg_5hly, namg_5hlz, namg_6hex, namg_6hex_adiab, namg_6hlx, namg_6hlx_adiab, namg_ahea, namg_aheh, namg_ahla, namg_ahlh, namg_ahsa, namg_ahsh, namg_aney, namg_anly, namg_ansy, namg_c901, namg_c923_lin, namg_c923_quad, namg_dila, namg_dila_highres, namg_fila, namg_filb, namg_fpfa, namg_fpfb, namg_fpga, namg_fpla, namg_fpla_avec_meteosat, namg_fpla_nstop0, namg_fplb, namg_fpmb, namg_fpmc, namg_fpsa, namg_fpsu_fc, namg_fpsu_fp, namg_fpsu_fp_l03, namg_fpsu_fp_l15, namg_fpsv_addnhvar, namg_fpsv_addnhvar_l15, namg_fpsv_gpq, namg_fpsv_gpq_l15, namg_mheh, namg_mhlh, namg_mhli, namg_mhlj, namg_mhlk, namg_mhsh, namg_mney, namg_mnly, namg_mnsy, naml_aa1t_e001_lacealaro, naml_aa1t_e001_lacealaro_mix, naml_aa1t_e001_lacealaro_old, naml_ac1t_e001_sl2, naml_ac1u_e001_nh_sl2, naml_ag1t_e001_fr_oper, naml_agit_e001_idfi, naml_ah1e_e001_eul, naml_ah1s_e001_sl3, naml_ah1s_e001_sl3_slhd, naml_ah1t_e001_sl2, naml_ah1t_e001_sl2_slhd, naml_ah2s_e001_2dm_sl3, naml_ah2t_e001_2dm_sl2, naml_ah4e_e401_eul, naml_ah4t_e401_sl2, naml_ah5e_e501_eul, naml_ah5t_e501_sl2, naml_ah6e_e601_eul_physb, naml_ah6t_e601_sl2_physb, naml_ah9e_e927_fp_aru, naml_ah9e_e927_fp_cou, naml_ah9e_ee927_fp_arunes, naml_ahfe_e001_fp_gri1, naml_ahfe_e001_fp_gri2, naml_ahfe_e001_fp_lal, naml_ahfe_e001_fp_lam1, naml_ahfe_e001_fp_lam2, naml_ahfe_e001_fp_mod, naml_ahfe_e001_fp_ope2, naml_ahfe_e001_fp_ope2_avecmeteosat, naml_ahfe_e001_fp_opex, naml_ahfe_e001_inl_fp, naml_ahme_e001_fp_lamars, naml_ahut_e001_sl2, naml_ai1t_e001_hl, naml_an1e_e001_nhsad_d4_eul, naml_an1s_e001_nhsad_d4_sl3, naml_an1t_e001_nhsad_d4_sl2, naml_an2s_e001_nh2dm_d4_sl3, naml_an2t_e001_nh2dm_d4_sl2, naml_ar1t_e001_hyd, naml_ar1t_e001_ios, naml_ar1t_e001_oper, naml_ar1t_e001_oper_avecmeteosat, naml_arut_e001_sl2, naml_as1t_e001_oper_sl2, naml_as1t_e001_oper_sl2_adiab, naml_as1t_e001_oper_sl2_hyd, naml_as1t_e001_oper_sl3, naml_axcx_e923_lalon_franx01, naml_axcx_e923_lelam_france_lin, naml_axcx_e923_lelam_france_quad, naml_axcx_e923_lelam_lace_quad, naml_axcx_e923_lelam_reunion_lin, naml_axcx_e923_lelam_reunion_quad, sel_0, sel_0_avec_meteosat, sel_3, sel_3_avec_meteosat, sel_6, sel_6_avec_meteosat, sel_ag1t_exseg1, sel_ahfe_exseg1, sel_ahme_lamars, sel_ar1t_0, sel_ar1t_3, sel_ar1t_exseg1, sel_arut_exseg1, sel_axsy_makepgd_fa_arome_frangp, ssel_ar1t_frangp0025_0, ssel_ar1t_frangp0025_3, vide, vide_sel_exseg1, vide_sel_fpos, vide_sel_lamars, vide_sel_makepgd, vv_adiab_physics, vv_complete_physics, vv_complete_physics_arome, vv_ddh, vv_simplified_physics, vv_simplified_physics_4, vv_simplified_physics_5, vv_simplified_physics_6, zfutur_naml_ahfe_e001_inl_fp
mitraille/pro_file	PRO_FILE.cy41t1_aldmonoref, PRO_FILE.cy41t1_aldmultiref, PRO_FILE.cy41t1_arpmonoref, PRO_FILE.cy41t1_arpmultiref
mitraille/procedure	.mitrc, mitraillette_v122014.x
mitraille/protojobs	aainfo, config, frame_rtm, jobtrailer, memtable, monoheader, multiheader, timetable, jobg_4hex, jobg_4hey, jobg_4hlx, jobg_4hly, jobg_4hlz, jobg_5hex, jobg_5hey, jobg_5hlx, jobg_5hly, jobg_5hlz, jobg_6hex, jobg_6hlx, jobg_ahea, jobg_aheh, jobg_ahla, jobg_ahlh, jobg_ahsa,

	jobg_ahsh, jobg_aney, jobg_anly, jobg_ansy, jobg_c901, jobg_c923, jobg_dila, jobg_fila, jobg_filb, jobg_fpfa, jobg_fpfb, jobg_fpga, jobg_fpla, jobg_fplb, jobg_fpmb, jobg_fpmc, jobg_fpsa, jobg_fpsu, jobg_fpsv_addnhvar, jobg_fpsv_gpq, jobg_mheh, jobg_mhlh, jobg_mhli, jobg_mhlj, jobg_mhlk, jobg_mhsh, jobg_mney, jobg_mnly, jobg_mnsy, jobg_rgri, jobl_aa1t_e001_lacealaro, jobl_ac1t_e001_sl2, jobl_ac1u_e001_nh_sl2, jobl_ag1t_e001_fr_oper, jobl_agit_e001_idfi, jobl_ah1e_e001_eul, jobl_ah1s_e001_sl3, jobl_ah1t_e001_sl2, jobl_ah2s_e001_2dm_sl3, jobl_ah2t_e001_2dm_sl2, jobl_ah4e_e401_eul, jobl_ah4t_e401_sl2, jobl_ah5e_e501_eul, jobl_ah5t_e501_sl2, jobl_ah6e_e601_eul_physb, jobl_ah6t_e601_sl2_physb, jobl_ah9e_e927_fp_aru, jobl_ah9e_e927_fp_cou, jobl_ah9e_ee927_fp_arunes, jobl_ahfe_e001_fp_gri1, jobl_ahfe_e001_fp_gri2, jobl_ahfe_e001_fp_lal, jobl_ahfe_e001_fp_lam1, jobl_ahfe_e001_fp_lam2, jobl_ahfe_e001_fp_mod, jobl_ahfe_e001_fp_ope2, jobl_ahfe_e001_fp_opex, jobl_ahfe_e001_inl, jobl_ahme_e001_fp_lamars, jobl_ahut_e001_sl2, jobl_ai1t_e001_hl, jobl_an1e_e001_nhsad_d4_eul, jobl_an1s_e001_nhsad_d4_sl3, jobl_an1t_e001_nhsad_d4_sl2, jobl_an2s_e001_nh2dm_d4_sl3, jobl_an2t_e001_nh2dm_d4_sl2, jobl_ar1t_e001_oper, jobl_arut_e001_sl2, jobl_as1t_e001_oper, jobl_axcx_e923, jobl_axsy_makepgd, zjobg_zzzz_frame, zjobl_zzzz_frame
mitraille/protojobs/beaufix	config, frame_rtm, jobtrailer, memtable, monoheader, multiheader, timetable

Doc:

Update of INVERSION (CTPINI) & ADDOZOAER for high resolution.

Projects: utilities

Git branch: gco_CY41_t1_ctpini

Modified:

utilities/addozoaer	addozoaer.F90
utilities/ctpini/module	constantes.F90, fonctions_inversion.F90

GUIDARD Vincent

Doc:
DOCUMENTATION:
arpifs/var/jgvcor.F90
Rewrite a loop to prevent the compiler from re-arranging the code

arpifs/var/suvifce.F90
Bugfix modified interpolation of sigmaBs

NO NUMERICAL IMPACT IS EXPECTED.
Projects: arpifs
Git branch: guidardv_CY41_4dvarBFreport
Modified:

arpifs/var	jgvcor.F90, suvifce.F90

Doc:
More CrIS and IASI channels + ISP for all geostationary imagers

EXPECTED IMPACT:
More CrIS and IASI channels: slightly positive to neutral
Enable ISP: no numerical impacv
Projects: arpifs, blacklist, satrad, utilities
Git branch: guidardv_CY41_moreCrISetISPom
Modified:

arpifs/obs_preproc	defrun.F90
arpifs/phys_dmn	mts_phys.F90
blacklist	mf_blacklist.b
satrad/rttov/ifs	phrtsetup.F90
utilities/progrid	procor2.F

GUILLAUME Frank

Doc:
Report all changes from CY40_op2:
- FCQODB now takes into account new tables;
- BATOR now reads LISTE_NOIRE_DIAP in new format + bugfix on the date control;
- fix in sql queries for PAOB observations (masterodb);
- last phasing : add geopotentiel value and flags in SOLVERIF data.

NO NUMERICAL IMPACT IS EXPECTED.
Projects: odb
Git branch: guillaum_CY41_phasage_20150204_from40op2
Deleted:

odb/pandor/fcq	fcqodb_dribu.F90

Renamed:

odb/pandor/fcq	fcqodb_pilomm.F90 odb/pandor/fcq/fcqodb_pilotverif.F90, fcqodb_tempomm.F90 odb/pandor/fcq/fcqodb_tempverif.F90

Added:

odb/pandor/fcq	fcqodb_solverif.F90
odb/pandor/namelist	fcqodb_namelist.nam.h

Modified:

odb/ddl	fcq_robhdr_0.sql, fcq_robhdr_1.sql, fcq_robhdr_2.sql, obsort_conv.sql, obsort_conv_body.sql, obsort_hdr2conv_body.sql
odb/pandor/fcq	fcqodb_init.F90, fcqodb_pilot.F90, fcqodb_solomm.F90, fcqodb_solverif.F90, fcqodb_synop.F90, fcqodb_temp.F90
odb/pandor/module	bator_decodbufr_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, fcqodb_module.F90
odb/pandor/namelist	bator_namelist.nam.h
odb/tools	Fcqodb.F90

Doc:
Bugfix: sometimes, a parameter's value or varno could be incorrect in tables tempverif and pilotverif.
Projects: odb
Git branch: guillaum_CY41_phasage_fcqodb_20150302
Modified:

odb/pandor/fcq	fcqodb_pilotverif.F90, fcqodb_tempverif.F90

Doc:
Phasing of all modifications in BATOR & FCQODB from CY40_op2 to CY41T1. It also include last modification concerning conv_body
initialization for DRIBU and PAOB data.

NO NUMERICAL IMPACT IS EXPECTED.
Projects: odb
Git branch: guillaum_CY41_phasage_from_40op2
Added:

odb/pandor/fcq	fcqodb_pilomm.F90, fcqodb_solomm.F90, fcqodb_tempomm.F90

Modified:

odb/ddl	fcq_robhdr_0.sql, fcq_robhdr_1.sql, fcq_robhdr_2.sql

odb/pandor/fcq	fcqodb_dribu.F90, fcqodb_pilot.F90, fcqodb_synop.F90, fcqodb_temp.F90
odb/pandor/module	bator_datetime_mod.F90, bator_decodbufr_mod.F90, bator_ecritures_mod.F90, bator_init_mod.F90, bator_lectures_mod.F90, bator_module.F90
odb/pandor/namelist	bator_namelist.nam.h
odb/tools	Fcqodb.F90

LOO Cecile

Doc:

Fix an issue in configurations 401 or 501 (linear), in case LGWDSPNL=TRUE and LVDIFSPNL=FALSE. In this case, gravity wave drag coefficients from
non linear model are saved but are not read then in APLPARSTL by linear models. The fix consists in call RDPHTRAJTM_NL in APLPARSTL in the case
LTRAJPST=TRUE and LGWDSPNL=TRUE, if LGWDSP=TRUE.

Projects: arpifs

Git branch: gco_CY41_cecile_aplparstl

Modified:

arpifs/phys_dmn	aplparstl.F90

MARGUINAUD Philippe

Doc:
Fix bug in Fullpos weight calculations with LSM.

EXPECTED IMPACT:
Post-processing should now reproduce results from cycle 41.
Projects: arpifs
Git branch: marguina_CY41_fpts
Modified:

arpifs/interpol	suhowlsm.func.h

Doc:
Fix bug in io_serv_write; the problem occurs when some Fullpos fields are not meant to be written on any domain.
Projects: arpifs
Git branch: marguina_CY41_ios
Modified:

arpifs/io_serv	io_serv_write.F90

Doc:
Fix memory problem in FA. Hard-wired limits in fa_mod.F90 were too high, and huge arrays had to be allocated. It was necessary to decrease
these limits; people who want to use higher truncations can change these limits using NAMFAINIT.

NO NUMERICAL IMPACT IS EXPECTED
Projects: arpifs, ifsaux
Git branch: marguina_CY41_iosmem
Modified:

arpifs/io_serv	io_serv_create_fa.F90, io_serv_run.F90, io_serv_suiosctmpl.F90
arpifs/module	yomio_serv.F90
ifsaux/module	fa_mod.F90

Doc:
Fix bug in FA files datation; this occurs only within the first half of an hour, when precision up to the minute is requested.

NO NUMERICAL IMPACT IS EXPECTED.
Projects: arpifs, utilities
Git branch: marguina_CY41_pi
Modified:

arpifs/dia	suppdate.F90
utilities/progrid	procor2.F

Doc:
Read coupling files with IO server, handle undef values in FA, bugfixes in lfitools.

NO NUMERICAL IMPACT IS EXPECTED.
Projects: aladin, arpifs, etrans, ifsaux, mse, trans, utilities
Git branch: marguina_CY41_pmio

Added:

aladin/coupling	erlbc_mod.F90
aladin/setup	erlbc_post_req.F90
arpifs/control	fpwrncf.F90
arpifs/fullpos	gridfpos_savefu.F90
arpifs	fpwrncf.F90, gridfpos_savefu.F90, get_clinc.F90, io_serv_dist_flddesc.F90, io_serv_map_recv_part1.F90, io_serv_map_recv_part2.F90, io_serv_recv_ios.F90, io_serv_recv_mdl.F90, io_serv_send_mdl.F90, io_serv_send_sort.F90, namfainit.nam.h, rdfa2sp.F90, sufainit.F90, sugrida_fixup.F90, sugridua_fixup.F90, sugridua_map_part1.F90, sugridua_map_part2.F90, suspeca_fixup.F90, suspeca_map_part1.F90, suspeca_map_part2.F90
arpifs/io_serv	io_serv_dist_flddesc.F90, io_serv_map_recv_part1.F90, io_serv_map_recv_part2.F90, io_serv_recv_ios.F90, io_serv_recv_mdl.F90, io_serv_send_mdl.F90, io_serv_send_sort.F90
arpifs/namelist	namfainit.nam.h
arpifs/setup	rdfa2sp.F90, sufainit.F90, sugrida_fixup.F90, sugridua_fixup.F90, sugridua_map_part1.F90, sugridua_map_part2.F90, suspeca_fixup.F90, suspeca_map_part1.F90, suspeca_map_part2.F90
ifsaux/fa	facil1.F90, facilo.F90, facilo.h, facilo64.h, facilo_mt.h, facilo_mt64.h, facon1.F90, facono.F90, facono.h, facono64.h, facono_mt.h, facono_mt64.h, fadec1.F90, fadoco.F90, fadoco.h, fadoco64.h, fadoco_mt.h, fadoco_mt64.h, fagribex.h, fagrtr.F90, fagrtw.F90, faien1.F90, faieno.F90, faieno.h, faieno64.h, faieno_mt.h, faieno_mt64.h, faprst.F90, faquin.F90, fareor.F90
ifsaux/hack	bdump.c
ifsaux/misc	lfi_alt_index.F90, lfi_alt_merge.F90, lfi_alt_remove.F90, lfi_alt_remv.F90
ifsaux/programs	faprogrid.F90
mse/new	sfxlist.F90

Modified:

aladin/c9xx	eincli1.F90
aladin/coupling	elsrw.F90, erlbc.F90
arpifs/control	cnt0.F90, cnt4.F90
arpifs/dia	inifaoutinfo.F90, suofname.F90, wrgridall_map.F90, wrmlppa.F90, wrspeca.F90, wrspeca_compress1_mt.F90, wrspeca_compress_mt.F90, wrspeca_gp.F90, wrspeca_map.F90
arpifs/fullpos	gridfpos.F90, hpos.F90, ini3wrfp.F90, sufpcfu.F90, wrhfp.F90, wrsfp.F90
arpifs/io_serv	io_poll, io_serv_close.F90, io_serv_create_fa.F90, io_serv_exit.F90, io_serv_get_reqid.F90, io_serv_handlef.F90, io_serv_hdr1_init.F90, io_serv_hdr2_init.F90, io_serv_init.F90, io_serv_map_send_part1.F90, io_serv_map_send_part2.F90, io_serv_prepacka1_compress.F90, io_serv_recv.F90, io_serv_recv_setup.F90, io_serv_run.F90, io_serv_send.F90, io_serv_suiosctmpl.F90, io_serv_sync.F90, io_serv_wrgp2fa_compress.F90, io_serv_write.F90, io_serv_wrspeca_compress.F90
arpifs/module	factx_mod.F90, iofu_mod.F90, iogridua_mod.F90, iospeca_mod.F90, ioxfu_mod.F90, mfioopts_mod.F90, parfpos.F90, yomafn.F90, yomct0.F90, yomfa.F90, yomio_serv.F90, yomio_serv_hdr.F90, yomio_serv_map_plan.F90, yomtag.F90
arpifs/namelist	namafn.nam.h, namct0.nam.h, namfa.nam.h
arpifs/setup	su0yomb.F90, suafn1.F90, suafn2.F90, suafn3.F90, suarg.F90, suct0.F90, sufa.F90, sugrcfu.F90, sugrclia.F90, sugrida.F90, sugridspa.F90, sugridua.F90, sugrxfu.F90, sumpini.F90, suoptproma.F90, suspec.F90,

	suspeca.F90, suspeca_gp.F90, suspecb.F90
arpifs/utility	openfa.F90, prepacka.F90, prepacka1_mt.F90, rdfa2gp.F90, spreordx.F90, wrgp2fa_compress_mt.F90
etrans/external	edist_grid.F90, edist_spec.F90
etrans/interface	edist_grid.h, edist_spec.h
etrans/module	edist_spec_control_mod.F90
ifsaux/fa	faccpl.F90, facile.F90, facine.F90, facodx.F90, facond.F90, facsim.F90, fadcpl.F90, fadeco.F90, fadecx.F90, fagote.F90, fagribexi.h, fagribexr.h, faicor.F90, faienc.F90, fainig.F90, faiopt.F90, faipag.F90, fairme.F90, faisan.F90, faisc1.F90, faisc2.F90, fanfan.F90, fanfar.F90, faregi.F90, faregu.F90, farine.F90, farpar.F90
ifsaux/lfi	lficas.F90, lfinaf.F90
ifsaux/lfi_alt	lfi_, lfi_altm.c, lfi_altm.h, lfi_alts.c, lfi_intf.c, lfi_util.c, lfi_util.h
ifsaux/misc	lfi_alt_copy.F90, lfidiff.F90, lfixxx.F90, testfa.F90
ifsaux/module	fa_mod.F90, fadup_mod.F90, xrd_getoptions.F90
ifsaux/programs	faconvcpl.F90, faconvgrib.F90, facplspec.F90, lfitools.F90, testfagrib.F90
mse/externals	rdclimosfx.F90, wrsfx.F90
mse/programs	sfxtools.F90
trans/external	dist_grid.F90, dist_spec.F90
trans/interface	dist_grid.h, dist_spec.h
trans/module	dist_grid_ctl_mod.F90, dist_spec_control_mod.F90
utilities/progrid	procor2.F, proecr.F, progrid.F, prolec.F
utilities/progrid_cadre	prolec2.F

Doc:
Fullpos/PREP.

NO NUMERICAL IMPACT IS EXPECTED.
Projects: aladin, arpifs, ifsaux, mse, surfex, utilities
Git branch: marguina_CY41_pmprep
Added:

aladin/setup	suemp.F90.orig
arpifs/interpol	fpavg.F90, fpint4x.F90, fpnear.F90, fpscax.F90, suehox1.F90, suhowlsm.decl.h, suhowlsm.func.h, suhox1.F90
arpifs/setup	print_gfp.F90
ifsaux/misc	lficfm.F90
mse/externals	aroini_surfa1.F90, fp2sx2.F90, gridfpossfx_init.F90, hpossfx.F90, prep1_dumm.F90, prep1_real.F90, prep2_dumm.F90, prep2_real.F90, prep_step0.F90, prep_step1.F90, prep_step2.F90, prep_stepx.F90, suafn1sfx.F90, suafn2sfx.F90, suafn3sfx.F90, sufpcsfx.F90
mse/interface	aroexi_surf.h, aroini_surfa1.h, fp2sx2.h, gridfpossfx_init.h, hpossfx.h, prep1_dumm.h, prep1_real.h, prep2_dumm.h, prep2_real.h, prep_step0.h, prep_step1.h, prep_step2.h, prep_stepx.h, suafn1sfx.h, suafn2sfx.h, suafn3sfx.h, sufpcsfx.h
mse/internals	read_surfy1_aro.F90, write_surfy1_aro.F90
mse/module	yomprep.F90
mse/new	sfxlist.F90
surfex/SURFEX	modd_prep_ctl.F90, prep_grid_nogrid.F90

Modified:

aladin/interpol	suehowlsm.F90
aladin/setup	suemp.F90
arpifs/control	cnt0.F90

arpifs/fullpos	fpintphy.F90, fposhor.F90, gridfpos.F90, hpos.F90, ini2wrfp.F90, sufpc.F90, sufpsuw.F90, sufpwfpbuf.F90, sufpwfpds.F90
arpifs/interpol	fpint12.F90, fpint4.F90, fpscaw.F90, suhowlsm.F90
arpifs/io_serv	io_serv_hdr1_init.F90, io_serv_sync.F90
arpifs/module	extfpselect_mod.F90, pardim.F90, parfpos.F90, type_fpdsphys.F90, yomafn.F90, yomfpc.F90, yomfpg.F90, yomfpgind.F90, yomtag.F90, yomwfpb.F90, yomwfpds.F90
arpifs/namelist	namfpc.nam.h
arpifs/phys_dmn	suphmse.F90
arpifs/setup	su_grib_api.F90, suafn1.F90, suafn2.F90, suafn3.F90
ifsaux/lfi	lfiecc.F90, lfiedo.F90, lfilcc.F90, lfildo.F90
ifsaux/module	fa_mod.F90, xrd_getoptions.F90
ifsaux/programs	lfitools.F90
mse/externals	aroini_surfa.F90, aroini_surfb.F90, canari_sx_ics.F90, fp2sx1.F90, fp2sx1fa.F90, ini_prep_surfex_aro.F90, ini_prep_surfex_arob.F90, ini_prep_surfex_aroc.F90, prep_surf_aro.F90, rdclimosfx.F90, sugridsfx.F90, suphmse_surface.F90
mse/interface	ini_prep_surfex_aroc.h, prep_surf_aro.h, rdclimosfx.h, sugridsfx.h
mse/internals	aroend_io_surf_n.F90, aroinit_io_surf_n.F90, aroopen_aux_io_surf.F90, fmattr.F90, read_surfx1_aro.F90, read_surfx2_aro.F90, sfxfagrok.F90, write_surfx1_aro.F90, write_surfx2_aro.F90, xxyy2lfi.F90
mse/module	modd_io_surf_aro.F90, sfxflddesc_mod.F90
mse/new	sfxconv.F90, sfxfa2lfi.F90, sfxlfi2fa.F90
mse/programs	prep.F90, sfxtools.F90
surfex/OFFLIN	ol_read_atm_ascii.F90, ol_read_atm_conf_ascii.F90
surfex/SURFEX	alloc_surfex.F90, bilin.F90, dealloc_flaken.F90, dealloc_isban.F90, dealloc_seafluxn.F90, dealloc_surf_atmn.F90, dealloc_tebn.F90, dealloc_watfluxn.F90, hor_interpol_buffer.F90, mode_modeln_surfex_handler.F90, mode_read_extern.F90, prep_flake.F90, prep_flake_extern.F90, prep_grid_extern.F90, prep_hor_flake_field.F90, prep_hor_isba_field.F90, prep_hor_seaflux_field.F90, prep_hor_snow_field.F90, prep_hor_snow_fields.F90, prep_hor_teb_field.F90, prep_hor_teb_garden_field.F90, prep_hor_teb_greenroof_field.F90, prep_hor_watflux_field.F90, prep_inland_water.F90, prep_isba.F90, prep_isba_extern.F90, prep_nature.F90, prep_sea.F90, prep_seaflux.F90, prep_seaflux_extern.F90, prep_snow_extern.F90, prep_surf_atm.F90, prep_teb.F90, prep_teb_extern.F90, prep_teb_garden.F90, prep_teb_garden_extern.F90, prep_teb_greenroof.F90, prep_teb_greenroof_extern.F90, prep_town.F90, prep_watflux.F90, prep_watflux_extern.F90, read_prep_file_date.F90, read_surf.F90, write_surf.F90
surfex/TRIP	mode_modeln_trip_handler.F90
utilities/aca	prepsurf_arome.F90
utilities/pinuts/module	const_standart_mod.F90, fa_cadre_mod.F90

MARY Alexandre

Doc:
This branch contains:
- bugfix edog.F90 from L. De Cruz (Belgium);
- new directory py_interface in ifsaux, containing Fortran interface to FA, LFI and spectral transforms designed for Python.

NO NUMERICAL IMPACT IS EXPECTED.
Projects: aladin, ifsaux
Git branch: mary_CY41_misc_for41t1
Added:

ifsaux/py_interface	FA4py.F90, LFI4py.F90, bitbuff.c, comppar.F90, compress.F90, decompress.F90, ieee754.h, ieee_is_nan.c, init_gfortran.c, nearestpow2.c, raiseException.c, searchgrp.F90, transforms4py.F90

Modified:

aladin/var	edog.F90

Doc:
The 3 modified sources exempt from the need for raiseException.c and hence Python.h; raiseException.c can be deleted.

Branch to be merged OVER (overwrite for the 3 sources) the mary_CY41_misc_for41t1 branch.
The dependency to TRACARE.F90 has been removed, and the raiseException.c can be removed also, hereby avoiding the need to add the path to Python
libraries at compiling (cf. mary_CY41_misc_for41t1 message).

NO NUMERICAL IMPACT IS EXPECTED.
Projects: ifsaux
Git branch: mary_CY41_pyint_without_py
Added:

ifsaux/py_interface	FA4py.F90, LFI4py.F90, transforms4py.F90

Modified:

ifsaux/py_interface	transforms4py.F90

MEUNIER Louis-Francois

Doc:
Allow the LAM 3var minimisation to run with OpenMP: It improves the elapsed time a little bit.
A batch of optimisations that would improve the elapse time is also available. It will be posted in a later branch.

NO NUMERICAL IMPACT IS EXPECTED.
Projects: aladin
Git branch: meunierlf_CY41_3dvar_omp
Modified:

aladin/var	ebalvert.F90, ebalvertad.F90, ejghcor.F90, ejghcori.F90

Doc:
Several changes/bugfixes in observation related radiative transfer code:
1/ Bugfix in mts_phys (latitude and longitude should be passed to RTTOV in degrees)
2/ Add a new key in NAMSATS that allows the use of partial coefficients files for hyperspectral sounders (the size of such coefficients files would be
a lot smaller). Turned off by default
3/ Add a new key in NAMEMIS_CONF to disable TELSEM emissivity atlases (.false. by default but should be set to .true. in Meteo-France namelists)
4/ Bugfix in rttov_ec to properly store th e em issivity that was actually used by RTTOV (emis_fg@radiance_body in ODB)
5/ Bugfix in RTTVI related to the channels numbering and parallelisation of the coefficients file initialisation
6/ Bugfix in rttov_ec setup and rttov_ec direct/TL/AD in order to obtain a proper initialisation of the CO2 switch

NO NUMERICAL IMPACT IS EXPECTED.
Projects: arpifs, satrad
Git branch: meunierlf_CY41_RTupdate1
Modified:

arpifs/module	sats_mix.F90, yomemis.F90
arpifs/namelist	namemis_conf.nam.h, namsats.nam.h
arpifs/phys_dmn	mts_phys.F90
arpifs/setup	suemis_conf.F90
arpifs/var	rtsetup.F90
satrad/interface	rttvi.h
satrad/programs	calc_radiance_fields.F90, gensatim.F90
satrad/rttov/ifs	phrtsetup.F90, rttov_ec.F90, rttov_ec_ad.F90, rttov_ec_setopts.F90, rttov_ec_tl.F90, rttvi.F90

Doc:
This branch includes several changes previously introduced in cy40_op1 and op2.

1/ FASTEM ----------

Fixes a bug in the RTTOV/FASTEM-3 adjoint for high zenithal angles (>=60Â°).
Tested over a 15 days period with the adjoint test activated. Scores and obstats are neutral.

(original commit in: meunierlf_CY40_ad_fastem3)

2/ Support for the RTTOV internal interpolation ----------

Several changes in the observation operator (radiative transfer) in order to:
- have diag_sigmab running with LRTTOV_INTERPOL=.T. (MF only)
- allow the synthetic satellite image computation in fullpos (with both the external and internal RTTOV interpolation. MF only)

This led to a significant code rewrite, mostly in MF specific parts of the code. However, a few parts of the common code have been modified (deletion of GOTOs, bugfixes on initialised variables)

(original commit in: meunierlf_CY40_radiative_transfer_changes1

3/ Enhancement of the cloud flag for microwave radiances (diagnostic) and bugfix for the matchup task (MF only) ----------

Fixes bugs in the matchup task: it can now be run with MPI on several 32Gb compute nodes.

Moreover, the cloud flag for microwave sounder and imager observations has been modified so that it could be used in the daily COMPAS monitoring.

No numerical impact.

(original commit in: meunierlf_CY40_feedbacks1 and meunierlf_CY40_flag_amsua15)

4/ Incremental solution for VarBC (Passive by default) ----

Allow the second (or subsequent) minimisation to use the latest estimate of the VarBC parameters as a guess (currently, at the beginning of each inner loop, the guess for VarBC parameters is reseted to the background value). This modification can be activated using a new namelist key (lincr) that has been added to NAMVARBC and NAMVARBC_RAD.

The default value for lincr is .False. which doesn't change the current behavior.

Tested over a 2 1/2 months period: Overall forecast scores are neutral but the geopotential and temperature bias in the stratosphere (above 50hPa) is increased. This probably has to do with a suboptimal setting of the observation errors and/or VarBC parameters error statistics.

(original commit in: meunierlf_CY40_varbc_incr)

5/ Memory optimisation for emissivity atlases (MF only) ---

The memory allocated on the heap for the emissivity atlases is now freed earlier in cnt1.F90 (before the call to screen)

(original commit in: meunierlf_CY40_memory)

6/ ATMS (MF only) ----------

Activates the assimilation of additional fields of view for ATMS: All fields of view are now assimilated for channels 6 to 8, and 18 to 22. Regarding channels 9 to 14, a more cautious approach has been chosen.

In order to obtain a more relaxed quality control, It has been found necessary to modify the check based on the standard deviation of the pseudo observation (raw observations are averaged on a 3x3 grid).

This branch has been evaluated over 8 weeks (experiment B42C) leading to a neutral impact.

(original commit in: meunierlf_CY40_bords2)

7/ SSMI/S (MF only) ----------

Activate the assimilation of SSMI/S sounding channels from DMSP-F17 and F18.
- Channels 3, 4 and 5 of F17 and F18 are assimilated over all surfaces
- Channels 9, 10, 11 of F17 are assimilated over all surfaces
- Channels 9, 10, 10 of F18 are assimilated only over open-sea

To allow a successful assimilation of SSMI/S sounding channels, it has been found necessary to:
- Add a new VarBC predictor (cosine of the solar zenith angle) and use it for all the SSMI/S channels (including the window channels)
- Re-tune the emissivity correction over sea-ice (at the 183Ghz frequency).

This branch has been evaluated over a 7 weeks period (Experiment B428 over Dec 2013 and Jan 2014). Scores show a positive impact on the geopotential over NORD20 and SUD20 (with both AC and TP as a reference). Over tropics, geopotential scores are neutral to slightly negative depending on the reference. Humidity scores highlight a small positive impact. When AC is used as a reference, it is found to be statistically significant using the bootstrap test.

(original commit in: meunierlf_CY40_ssmis_assim3)

8/ MeteoSat-7 and MTSAT (MF only) ----------

Allow the assimilation of MeteoSAt-7 and MTSAT Clear Sky radiances.

(orignal commit in: meunierlf_CY40_geosta)

N.B. ----------

- changes from meunierlf_CY40_bf_varbc2, meunierlf_CY40_filtrage_fp and meunierlf_CY40_saphirQC were already taken into account in other MF contributions.
- changes in meunierlf_CY40_bf_ts_sink were already taken into account thanks to ECMWF.
Minor bugfixes after the first compilation attempt

Projects: arpifs, blacklist, odb, satrad

Git branch: meunierlf_CY41_catchup_from_40_op2

Added:

arpifs/op_obs	hradp_ml_o3clrt.F90
satrad/emiss	atlas_deallo.F90

Modified:

arpifs/control	cnt1.F90
arpifs/fullpos	suvpos.F90
arpifs/module	varbc_pred.F90, varbc_rad.F90, varbc_setup.F90, yommts.F90,

	yomsats.F90
arpifs/namelist	nammts.nam.h
arpifs/obs_preproc	defrun.F90
arpifs/op_obs	bgobs.F90, hop.F90, hopad.F90, hoptl.F90, hradp.F90, hradp_ml.F90, hradp_ml_ad.F90, hradp_ml_tl.F90, hradptl.F90, hretr.F90, mw_clearsky_screen.F90, mw_clearsky_screen_ecdecis.F90, mw_clearsky_screen_mfdecis.F90, sat_avg_stdev_filter.F90
arpifs/phys_dmn	mts_phys.F90
arpifs/setup	sumts.F90
arpifs/utility	deallo.F90
arpifs/var	rtsetup.F90, suvazx.F90
blacklist	mf_blacklist.b
odb/ddl	matchup_allsky_body.sql, matchup_atovs_pred.sql, matchup_body.sql, matchup_gbrad.sql, matchup_hdr.sql, matchup_raingg.sql, matchup_update_1.sql, matchup_update_2.sql, matchup_update_3.sql, matchupsink.sql
satrad/rttov/ifs	phrtsetup.F90
satrad/rttov/main	rttov_calcemis_mw_ad.F90

MICHEL Yann

Doc:
Bugfix for the computation and I/O of the Local Correlation Tensor when evaluated over an ensemble (computation of the LCT is under key LDIAG_LCT).

NO NUMERICAL IMPACT IS EXPECTED.
Projects: arpifs
Git branch: michel_CY41_bf_lct_new
Modified:

arpifs/control	forecast_error.F90
arpifs/module	yomvar.F90
arpifs/var	bgevecs.F90, bgvecs.F90, suvar.F90, writelct.F90

Doc:
- Code for computing ensemble variances (and higher order moments) without in-core memory storage of all ensemble members (useful for large ensembles).
- Code for assessing the "optimal" cut-off truncation of filtering variances.
- This is the ARPEGE version of Benjamin Ménétrier's phD work on AROME. For more scientific information see e.g. ~/.public/recyf/michel/note_truncobj.pdf .

NO NUMERICAL IMPACT IS EXPECTED.
Projects: arpifs
Git branch: michel_CY41_flt_varens
Added:

arpifs/var	fltbgcalc_crt.F90

Modified:

arpifs/module	yomjg.F90
arpifs/var	sujb.F90, sujbvarens.F90

Doc:
Code enabling the diagnosis of local correlation tensors in Arpege, used for instance for evaluating horizontal lengthscales of the wavelet Jb.

NO NUMERICAL IMPACT IS EXPECTED.
Projects: arpifs
Git branch: michel_CY41_lct
Added:

arpifs/var	fltlcterr.F90, scalederae.F90, vec2dergp.F90, writelct.F90

Modified:

arpifs/control	forecast_error.F90, scan2mtl.F90
arpifs/module	yomaneb.F90, yomvar.F90
arpifs/namelist	namvar.nam.h
arpifs/utility	dealsc2.F90
arpifs/var	bgevecs.F90, bgvecs.F90, suanebuf.F90, suvar.F90

Doc:
Bugfix for a problem encountered during cy41 validation with simultaneous use of ASSOCIATE and ALLOCATE statements.
This modification allows to run a minimization with AROME 3D-Var.

NO NUMERICAL IMPACT IS EXPECTED.
Projects: aladin
Git branch: michel_CY41_validation
Modified:
aladin/setup suempvar.F90

MOENE Toon

Doc:
HIRLAM contributions for CY41T1
All changes are based on CY41_bf.01

Ulf Andrae
Rename/move files with wrong name or wrong location
ifsaux/programs/lfi_alt_remv.F90 to ifsaux/misc/lfi_alt_remv.F90
utilities/bcov_lam/programs/stat.F90 to utilities/bcov_lam/programs/festat.F90

Ulf Andrae:
Remove duplicated file
surfex/OFFLIN/pgd.F90

Rimvudas Jasinskas:
Add surfex file to enable netcdf (-DNC) compilations.
surfex/OFFLIN/close_namelist_nc.F90

Roger Randriamampianina:
Introduction of observation perturbation:
Observation perturbations
odb/ddl.CCMA/pertcma.sql
odb/ddl.ECMA/pertcma.sql
odb/ddl/pertcma.sql
odb/tools/Pertcma.F90

Mariano Hortal:
Correct uninitialized value
aladin/c9xx/ebicli.F90

Ulf Andrae:
LAM FEMARS changes
Enable creating forecast differences with NAMVAR/LFEMARS=T. In case of Q in gridpoint space set NEMCT0/L_GPQ_DIFF=T

arpifs/control/cnt3.F90
aladin/setup/suect0.F90
arpifs/ald_inc/namelist/nemct0.nam.h
arpifs/module/yemct0.F90
arpifs/module/yomvar.F90
arpifs/namelist/namvar.nam.h
arpifs/setup/suctrl_gflattr.F90
arpifs/var/suvar.F90

Ulf Andrae:
Correct order of declaration of variables to minimize compile time warnings
algor/internal/fourier/qpassf.F
algor/internal/fourier/rpassf.F
arpifs/canari/caspia.F90
arpifs/fullpos/fpsampl.F90
arpifs/module/varbc_airep.F90
arpifs/module/varbc_pred.F90
arpifs/module/varbc_rad.F90
arpifs/module/varbc_sfcobs.F90

arpifs/module/varbc_tcwv.F90
arpifs/module/varbc_to3.F90
arpifs/obs_preproc/radar_profs.F90
ifsaux/support/isrcheq.F
ifsaux/support/isrchfltpv.F
ifsaux/support/qsorti4.F
mse/new/sfxlfi2fa.F90
odb/module/binterpol.F90
odb/module/odb1.F90
odb/pandor/fcq/man_orders.F90
satrad/bias/getbccoef.F90
surf/module/tridag_mod.F90
surfex/ASSIM/oi_latlon_conf_proj.F90
surfex/SURFEX/coupling_seawat_sbln.F90
utilities/bcov_lam/others/sbdiacov.F90
utilities/ctpini/module/fonctions_donnees.F90

Maria Derkova:
Correct location of call to final DR_HOOK
algor/internal/minim/mlis0r.F

Laura Rontu, Kristian Pagh Nielsen, Emily Gleeson:
- Add output of SW radiation of diagnostics
arpifs/adiab/cpg.F90
arpifs/adiab/cpg_dia.F90
arpifs/dia/cpcfu.F90
arpifs/fullpos/hpos.F90
arpifs/fullpos/sufpcfu.F90
arpifs/fullpos/sufptr2.F90
arpifs/module/parfpos.F90
arpifs/module/ptrgfu.F90
arpifs/module/yoerad.F90
arpifs/module/yoesw.F90
arpifs/module/yomafn.F90
arpifs/namelist/naerad.nam.h
arpifs/phys_dmn/apl_arome.F90
arpifs/phys_dmn/aplpar.F90
arpifs/phys_dmn/mf_phys.F90
arpifs/phys_dmn/surdi15.F90
arpifs/phys_ec/callparad.F90
arpifs/phys_ec/radheat.F90
arpifs/phys_ec/radlsw.F90
arpifs/phys_ec/suclopn.F90
arpifs/phys_radi/suecrad.F90
arpifs/phys_radi/sw.F90
arpifs/phys_radi/sw1s.F90
arpifs/phys_radi/swni.F90
arpifs/setup/suafn1.F90
arpifs/setup/suafn2.F90
arpifs/setup/suafn3.F90
arpifs/setup/sucfu.F90

Ulf Andrae
Correct intent in variable declaration to minimize compile time warnings
arpifs/adiab/laconead.F90
arpifs/op_obs/kernel_pbp_ad.F90
arpifs/phys_dmn/acconvsad.F90

arpifs/phys_dmn/aclspsad.F90
arpifs/phys_dmn/acnebsmad.F90
arpifs/phys_dmn/acnuagesad.F90
arpifs/phys_ec/cloud_layer.F90
arpifs/phys_ec/convection_layer.F90
arpifs/phys_ec/convection_s_layer.F90
arpifs/phys_ec/sltend_layer.F90
arpifs/phys_ec/turbulence_layer.F90
arpifs/prism/couplo4_inimpi.F90
arpifs/var/jbtomodelad.F90
etrans/module/euvtvd_comm_mod.F90
etrans/module/euvtvd_mod.F90
etrans/module/suemplatb_mod.F90
mse/internals/write_surft1_aro.F90
odb/pandor/extrtovs/extr_lib_1c.F90
surf/module/ocean_ml_driver_v2_mod.F90
surf/module/srfsn_rsn_mod.F90
surfex/SURFEX/bem.F90
surfex/SURFEX/default_teb_veg.F90
surfex/SURFEX/init_from_data_greenroofn.F90
surfex/SURFEX/init_veg_gardenn.F90
surfex/SURFEX/init_veg_pgd_gardenn.F90
surfex/SURFEX/init_veg_pgdn.F90
surfex/SURFEX/mode_sltmbl.F90
surfex/SURFEX/mode_splines.F90
surfex/SURFEX/mode_write_surf_fa.F90
surfex/SURFEX/prep_hor_snow_fields.F90
surfex/SURFEX/read_gridtype_cartesian.F90
surfex/SURFEX/snowcro.F90
surfex/SURFEX/teb_morpho.F90

Mariken Holmleid:
Correct check on missing values in case of LECSST=T in CANARI
arpifs/canari/caclsst.F90

Trygve Aspelien:
Include call to SODA from CANARI
Changes for EKF under SODA
arpifs/canari/canali.F90
arpifs/module/qactex.F90
arpifs/namelist/nactex.nam.h
arpifs/utility/openfa.F90
arpifs/utility/openfainfo.F90
mse/externals/aroini_surfa.F90
mse/externals/aroini_surfc.F90
mse/externals/canari_sx_ics.F90
mse/externals/deallmse.F90
mse/externals/sugridsfx.F90
mse/externals/suphmse_surface.F90
mse/interface/aroini_surfa.h
mse/interface/sugridsfx.h
mse/internals/fminit.F90
mse/programs/driver_off_omp.F90
mse/programs/prep.F90

Sami Saarinen:
Use ec_getenv rather than getenv

arpifs/canari/canari.F90
arpifs/canari/casgra.F90
arpifs/obs_preproc/hatbiasc.F90
arpifs/obs_preproc/readoba.F90
arpifs/obs_preproc/sudimo.F90
arpifs/obs_preproc/tempin.F90
arpifs/var/writeoba.F90

Ulf Andrae:
Correct kind declaration of constant
arpifs/chem/tm5_chem_ini.F90
arpifs/phys_ec/vdfmain.F90

Lisa Bengtsson:
Updates to Cellular automata
arpifs/control/cuconvca.F90
arpifs/module/yoe_cuconvca.F90
arpifs/module/yomphy0.F90
arpifs/namelist/namphy0.nam.h
arpifs/phys_dmn/accvud.F90
arpifs/phys_dmn/suphy0.F90

Magnus Lindskog:
GNSS varbc handling
arpifs/module/varbc_sfcobs.F90
arpifs/obs_preproc/black.F90
arpifs/op_obs/hop.F90
arpifs/op_obs/hopad.F90
arpifs/op_obs/hoptl.F90
arpifs/utility/prtjo.F90
odb/ddl/getsfcobsid.sql
odb/ddl/varbc_sfcobs_robhdr.sql

Ulf Andrae:
Lower JPFORC to fit with FA name conventions/grib
arpifs/module/yom_ygfl.F90

Karl-Ivar Ivarsson:
Mixed clouds
arpifs/module/yomparar.F90
arpifs/namelist/namparar.nam.h
arpifs/phys_dmn/suparar.F90
mpa/micro/externals/aro_adjust.F90
mpa/micro/externals/aro_rain_ice.F90
mpa/micro/interface/aro_adjust.h
mpa/micro/interface/aro_rain_ice.h
mpa/micro/internals/condensation.F90
mpa/micro/internals/ice_adjust.F90
mpa/micro/internals/ini_cst.F90
mpa/micro/internals/ini_rain_ice.F90
mpa/micro/internals/rain_ice.F90
mpa/micro/module/modd_cst.F90
mpa/micro/module/modi_condensation.F90
mpa/micro/module/modi_ice_adjust.F90
mpa/micro/module/modi_rain_ice.F90

NN

Corrections to run alaro with SURFEX
arpifs/phys_dmn/aplpar.F90
arpifs/phys_dmn/initaplpar.F90
mse/externals/aro_ground_diag.F90
mse/interface/aro_ground_diag.h
surfex/SURFEX/get_fluxn.F90
surfex/SURFEX/get_surf_varn.F90

Ulf Andrae
Correct IVDEP directive locations
arpifs/phys_ec/cuadjtq.F90
arpifs/phys_ec/cubasmcn.F90
arpifs/phys_ec/cuflxn.F90
arpifs/phys_ec/cumastrn.F90
etrans/module/eprfi2b_mod.F90
trans/module/updspbad_mod.F90

Ulf Andrae:
Correct erroneous format statement
arpifs/setup/suvert.F90
odb/extras/emos/bugbts.F

Sami Saarinen:
Corrected memory diagnostics
arpifs/utility/opdis.F90
ifsaux/utilities/gethwm.c
ifsaux/utilities/getrss.c
ifsaux/utilities/getstackusage.c
ifsaux/utilities/getstk.c

Sami Saarinen, Trygve Aspelien:
Increase max length of line and correct possible "Buffer overflow" problem in blacklist compiler when line was too long.
blacklist/compiler/generate.c
blacklist/include/defs.h

Sami Saarinen:
Dr Hook updates
ifsaux/include/drhook.h
ifsaux/module/dr_hook_watch_mod.F90
ifsaux/support/dr_hook_prt.F90
ifsaux/support/drhook.c
ifsaux/utilities/linuxtrbk.c

Ulf Andrae:
Revmoe SAMIO leftovers
ifsaux/lfi/lfiecc.F90
ifsaux/lfi/lfiedo.F90
ifsaux/lfi/lfilcc.F90
ifsaux/lfi/lfildo.F90

Ole Vignes:
Less verbose output
ifsaux/misc/facat.F90
mse/internals/fmlook.F90

Trygve Aspelien:

Correct string length for HREC argument
mse/internals/error_read.F90
mse/internals/error_write.F90
mse/internals/fmreadt0.F90
mse/internals/fmwritt0.F90
mse/internals/old_ndim.F90
mse/internals/read_in_lfi_x2.F90
mse/internals/read_in_lfi_x3.F90
mse/internals/read_surfc0_aro.F90
mse/internals/read_surfl0_aro.F90
mse/internals/read_surfl1_aro.F90
mse/internals/read_surfn0_aro.F90
mse/internals/read_surfn1_aro.F90
mse/internals/read_surft0_aro.F90
mse/internals/read_surft1_aro.F90
mse/internals/read_surfx0_aro.F90
mse/internals/read_surfx1_aro.F90
mse/internals/read_surfx2_aro.F90
mse/internals/write_in_lfi_x1.F90
mse/internals/write_in_lfi_x2.F90
mse/internals/write_in_lfi_x3.F90
mse/internals/write_surft0_aro.F90

Sami Saarinen
ODB updates
odb/aux/curses.c
odb/aux/generic.c
odb/aux/memory.c
odb/aux/newio.c
odb/aux/odb2mysql.c
odb/aux/odbi_direct.c
odb/aux/qtar_sub.c
odb/aux/result.c
odb/aux/upcma.c
odb/cma2odb/create_averaged_values.F90
odb/cma2odb/shuffle_odb.F90
odb/compiler/memory.c
odb/compiler/odb_macros.h
odb/ddl/odb_macros.h
odb/extras/mpi_serial/cmpi.c
odb/extras/mpi_serial/mpi_buffer_attach.F
odb/include/odb_macros.h
odb/lib/evaluate.c
odb/lib/funcs.c
odb/lib/inside.c
odb/lib/symtab.c
odb/lib/vecloops.c
odb/module/odbshared.F90
odb/tools/b4.c
odb/tools/odbi_direct_main.c

Eoin Whelan:
Changes to allow ODB1 to ODB2 conversion
odb/scripts/dcagen

Ulf Andrae:
Extrapolation in prep and OI_main Add NDIM_EXTRAP to allow different search radius

surfex/ASSIM/oi_hor_extrapol_surf.F90
surfex/SURFEX/default_prep_isba.F90
surfex/SURFEX/modd_prep_isba.F90
surfex/SURFEX/modn_prep_isba.F90
surfex/SURFEX/prep_isba_buffer.F90
surfex/SURFEX/prep_snow_buffer.F90

Ulf Andrae:
Change where statement to loop to avoid use of undefined variables
surfex/SURFEX/mode_read_extern.F90

Ulf Andrae:
Correct generic interface
surfex/OFFLIN/mode_read_surf_ol.F90

Sami Saarinen
Add back missing OpenMP
surfex/SURFEX/av_pgd.F90

Jakob Sueld & Trygve Aspelien:
Import needed change from later SURFEX version to be able to run PREP from one LFI file to another when. Needed when input and output domain sizes are not equal.
surfex/SURFEX/prep_snow_extern.F90

Jana Sanches Arriola:
Adaptation of GNSS preprocessing
utilities/pregpssol/filter_gpssol.F90
utilities/pregpssol/pregpssol.F90
utilities/pregpssol/read_obsoul_gpssol.F90
utilities/pregpssol/write_obsoul_gpssol.F90

Projects: aladin, algor, arpifs, blacklist, etrans, ifsaux, mpa, mse, odb, satrad, surf, surfex, trans, utilities

Git branch: moene_CY41_bf.01_hirlam

Deleted:

ifsaux/lfi	lfiecc.F90, lfiedo.F90, lfilcc.F90, lfildo.F90
ifsaux/programs	lfi_alt_remv.F90
surfex/OFFLIN	pgd.F90, soda.F90
utilities/bcov_lam/programs	stat.F90

Added:

ifsaux/lfi	lfiecc.F90, lfiedo.F90, lfilcc.F90, lfildo.F90
ifsaux/misc	lfi_alt_remv.F90
mpa/micro/internals	aro_icecld.F90, aro_tiwmx.F90
mpa/micro/module	modi_aro_icecld.F90, modi_aro_tiwmx.F90
mse/programs	soda.F90
odb/ddl.CCMA	pertcma.sql
odb/ddl.ECMA	pertcma.sql
odb/ddl	pertcma.sql
odb/tools	Pertcma.F90
surfex/OFFLIN	close_namelist_nc.F90
utilities/bcov_lam/programs	festat.F90

Modified:

aladin/c9xx	ebicli.F90
aladin/setup	suect0.F90
algor/internal/fourier	qpassf.F, rpassf.F
algor/internal/minim	mlis0r.F
arpifs/adiab	cpg.F90, cpg_dia.F90, laconead.F90
arpifs/ald_inc/namelist	nemct0.nam.h
arpifs/canari	caclsst.F90, canali.F90, canari.F90, casgra.F90, caspia.F90
arpifs/chem	tm5_chem_ini.F90
arpifs/control	cnt3.F90, cuconvca.F90
arpifs/dia	cpcfu.F90
arpifs/fullpos	fpsampl.F90, hpos.F90, sufpcfu.F90, sufptr2.F90
arpifs/module	parfpos.F90, ptrgfu.F90, qactex.F90, varbc_airep.F90, varbc_pred.F90, varbc_rad.F90, varbc_sfcobs.F90, varbc_tcwv.F90, varbc_to3.F90, yemct0.F90, yhlconst.F90, yhlrad.F90, yoe_cuconvca.F90, yoerad.F90, yoesw.F90, yom_ygfl.F90, yomafn.F90, yomlun.F90, yomparar.F90, yomphy0.F90, yomvar.F90
arpifs/namelist	nactex.nam.h, naerad.nam.h, namparar.nam.h, namphy0.nam.h, namvar.nam.h
arpifs/obs_preproc	black.F90, hatbiasc.F90, radar_profs.F90, readoba.F90, sudimo.F90, tempin.F90
arpifs/op_obs	hop.F90, hopad.F90, hoptl.F90, kernel_pbp_ad.F90
arpifs/phys_dmn	acconvsad.F90, accvud.F90, aclspsad.F90, acnebsmad.F90, acnuagesad.F90, apl_arome.F90, aplpar.F90, hlcldiag.F90, hlradia.F90, initaplpar.F90, mf_phys.F90, suparar.F90, suphy0.F90, surdi15.F90
arpifs/phys_ec	callparad.F90, cloud_layer.F90, convection_layer.F90, convection_s_layer.F90, cuadjtq.F90, cubasmcn.F90, cuflxn.F90, cumastrn.F90, radheat.F90, radlsw.F90, sltend_layer.F90, suclopn.F90, turbulence_layer.F90, vdfmain.F90
arpifs/phys_radi	suecrad.F90, sw.F90, sw1s.F90, swni.F90
arpifs/prism	couplo4_inimpi.F90
arpifs/setup	suafn1.F90, suafn2.F90, suafn3.F90, sucfu.F90, suctrl_gflattr.F90, suhlconst.F90, suhlrad.F90, suvert.F90
arpifs/utility	opdis.F90, openfa.F90, openfainfo.F90, prtjo.F90
arpifs/var	jbtomodelad.F90, suvar.F90, writeoba.F90
blacklist/compiler	generate.c
blacklist/include	defs.h
etrans/module	eprfi2b_mod.F90, euvtvd_comm_mod.F90, euvtvd_mod.F90, suemplatb_mod.F90
ifsaux/include	drhook.h
ifsaux/lfi	lfiecc.F90, lfiedo.F90, lfilcc.F90, lfildo.F90
ifsaux/misc	facat.F90
ifsaux/module	dr_hook_watch_mod.F90
ifsaux/support	dr_hook_prt.F90, drhook.c, isrcheq.F, isrchfltpv.F, qsorti4.F
ifsaux/utilities	gethwm.c, getrss.c, getstackusage.c, getstk.c, linuxtrbk.c
mpa/micro/externals	aro_adjust.F90, aro_rain_ice.F90
mpa/micro/interface	aro_adjust.h, aro_rain_ice.h
mpa/micro/internals	condensation.F90, ice_adjust.F90, ini_cst.F90, ini_rain_ice.F90, rain_ice.F90
mpa/micro/module	modd_cst.F90, modi_condensation.F90, modi_ice_adjust.F90, modi_rain_ice.F90
mse/externals	aro_ground_diag.F90, aroini_surfa.F90, aroini_surfc.F90, canari_sx_ics.F90, deallmse.F90, sugridsfx.F90, suphmse_surface.F90
mse/interface	aro_ground_diag.h, aroini_surfa.h, sugridsfx.h

mse/internals	error_read.F90, error_write.F90, fminit.F90, fmlook.F90, fmreadt0.F90, fmwritt0.F90, old_ndim.F90, read_in_lfi_x2.F90, read_in_lfi_x3.F90, read_surfc0_aro.F90, read_surfl0_aro.F90, read_surfl1_aro.F90, read_surfn0_aro.F90, read_surfn1_aro.F90, read_surft0_aro.F90, read_surft1_aro.F90, read_surfx0_aro.F90, read_surfx1_aro.F90, read_surfx2_aro.F90, write_in_lfi_x1.F90, write_in_lfi_x2.F90, write_in_lfi_x3.F90, write_surft0_aro.F90, write_surft1_aro.F90
mse/new	sfxlfi2fa.F90
mse/programs	driver_off_omp.F90, prep.F90
odb/aux	curses.c, generic.c, memory.c, newio.c, odb2mysql.c, odbi_direct.c, qtar_sub.c, result.c, upcma.c
odb/cma2odb	create_averaged_values.F90
odb/ddl	getsfcobsid.sql, varbc_sfcobs_robhdr.sql
odb/extras/emos	bugbts.F
odb/extras/mpi_serial	cmpi.c, mpi_buffer_attach.F
odb/include	odb_macros.h
odb/lib	evaluate.c, funcs.c, inside.c, symtab.c, vecloops.c
odb/module	binterpol.F90, odb1.F90, odbshared.F90
odb/pandor/extrtovs	extr_lib_1c.F90
odb/pandor/fcq	man_orders.F90
odb/scripts	dcagen
odb/tools	b4.c, odbi_direct_main.c
satrad/bias	getbccoef.F90
surf/module	ocean_ml_driver_v2_mod.F90, srfsn_rsn_mod.F90, tridag_mod.F90
surfex/ASSIM	oi_hor_extrapol_surf.F90, oi_latlon_conf_proj.F90
surfex/OFFLIN	mode_read_surf_ol.F90
surfex/SURFEX	av_pgd.F90, bem.F90, coupling_seawat_sbln.F90, default_prep_isba.F90, default_teb_veg.F90, get_fluxn.F90, get_surf_varn.F90, init_from_data_greenroofn.F90, init_surf_atmn.F90, init_veg_gardenn.F90, init_veg_pgd_gardenn.F90, init_veg_pgdn.F90, modd_prep_isba.F90, mode_read_extern.F90, mode_sltmbl.F90, mode_splines.F90, mode_write_surf_fa.F90, modn_prep_isba.F90, prep_hor_snow_fields.F90, prep_isba_buffer.F90, prep_snow_buffer.F90, prep_snow_extern.F90, read_gridtype_cartesian.F90, snowcro.F90, teb_morpho.F90
trans/module	updspbad_mod.F90
utilities/bcov_lam/others	sbdiacov.F90
utilities/bcov_lam/programs	festat.F90
utilities/ctpini/module	fonctions_donnees.F90
utilities/pregpssol	filter_gpssol.F90, pregpssol.F90, read_obsoul_gpssol.F90, write_obsoul_gpssol.F90

Doc:
Deallocate array ZBUF
arp/dia/wrgathflnm.F90

Deallocate arrays ITO, ZSPBUFL
arp/dia/wrspeca.F90

Test whether LENABLED is allocated before deallocating
tal/external/etrans_end.F90

Various fixes when deallocating arrays, pointer
mse/module/modd_io_surf_aro.F90

Use LSWEMAX,XSWEMAX from MODN_PREP_ISBA_SNOW
surfex/SURFEX/read_prep_greenroof_snow.F90

(from Eoin Whelan)
Projects: arpifs, etrans, mse, surfex
Git branch: moene_CY41_t1.01_hirlam_whelane_cy40_rest
Modified:

arpifs/dia	wrgathflnm.F90, wrspeca.F90
etrans/external	etrans_end.F90
mse/module	modd_io_surf_aro.F90
surfex/SURFEX	read_prep_greenroof_snow.F90

Doc:
Kristian Pagh Nielsen et.al.
Missing initialisation to zero

arpifs/phys_ec/radheat.F90

NN
Make SURFEX work in ALARO

arpifs/phys_dmn/initaplpar.F90
surfex/SURFEX/get_fluxn.F90

Ulf Andrae
Rename program STAT to FESTAT

utilities/bcov_lam/programs/festat.F90
Projects: arpifs, surfex, utilities
Git branch: moene_CY41_t1.02_hirlam_bugfixes
Modified:

arpifs/phys_dmn	initaplpar.F90
arpifs/phys_ec	radheat.F90
surfex/SURFEX	get_fluxn.F90
utilities/bcov_lam/programs	festat.F90

Doc:
HIRLAM contribution LGRADSP for inclusion in CY41_t1.03

The grid-point part of the LGRADSP is maintained exactly as it is in the global version. In the spectral space, subroutine spfilt.F90 is
*replaced by the LAM version espfilt.F90 where the only change is to replace the filtering factor ZFAC*ZFAC by (ZFACX*ZFACX+ZFACY*ZFACY)*
where each of ZFACX and ZFACY have the same shape as a function of the wavenumber as ZFAC has as a function of the total wavenumber.

In the transfoms, the changes made in the global version are also incorporated into the corresponding subroutines of the LAM version.
Projects: aladin, arpifs
Git branch: moene_CY41_t1.02_hirlam_lgradsp
Added:

aladin/adiab	espfilt.F90

Modified:

aladin/control	espcm.F90
aladin/setup	suehdf.F90, sueldynb.F90
aladin/transform	etransdir_mdl.F90, etransinv_mdl.F90, etransinvh.F90
arpifs/module	yemdyn.F90, yomsp.F90
arpifs/utility	sualspa.F90

MOLL Patrick

Doc:
This modification allows the use of MTSAT-2 and METEOSAT-7 CSR data.

EXPECTED IMPACT:
Neutral+ impact on scores. Negligible impact on memory and CPU.
Projects: blacklist
Git branch: moll_CY41_goesimg
Modified:

blacklist	mf_blacklist.b

Doc:
Update of changes implemented in MF's operational version cy40_op2.10 (present E-suite):
Add one module for the selection of radiosonde data in the screening.
The aim is to treat cases of redundancy of TAC/BUFR data as late as possible in the process, in oder to select the most relevant data among all
available for a given station. The use of HR and LR BUFR radiosonde data can be switched off using the logicals LBUFRTPHR and LBUFRTPLR
in namelist NAMOBS.

Modset originally provided by Karine Maynard (MF) for isrchfltpv.body.h:
Add new options for computing obs equivalents on PV-levels. The default option is to keep the presently operational computation (which is bit
reproducible in the new code)

Expected impact:
positive impact in AROME-France and over Europe in ARPEGE (neutral elsewhere).
Projects: arpifs, ifsaux, odb
Git branch: moll_CY41_pm_validcycle
Added:

arpifs/obs_preproc	redtp.F90

Modified:

arpifs/module	yomobs.F90
arpifs/namelist	namobs.nam.h
arpifs/obs_preproc	defrun.F90, redun.F90
ifsaux/include	isrchfltpv.body.h
odb/ddl	redun_robhdr_6.sql

PAYAN Christophe

Doc:
AMV-update:
- virtual satellite dual-MetOp with satid=852;
- Met11 (MSG4), satid=70;
- satellites identification update in JO-table for AMV (obstype=3).

EXPECTED IMPACT:
- dual-MetOp AMV monitoring;
- Met11 AMV assimilation in replacement of Met10 (planned in 2016).

Projects: arpifs, blacklist
Git branch: payan_CY41_bfv02_amvupdt
Modified:

arpifs/module	yomsats.F90
arpifs/var	suamv.F90
blacklist	mf_blacklist.b

PIRIOU Jean-Marcel

Doc:
actke: bugfix, in case LFLEXDIA=T and LGPCMT=T and PCMT 2 version.
suphy0, aplpar : bugfix: suppress equality test between two real values (GRSO); bug is not currently active, only "potential" bug
aplpar: bugfix: ACPCMT call moved after ACTKE one. Bug active only in PCMT 2 option.
acmtud: optimization on initialization.

EXPECTED IMPACT:
No impact on operational predictions. Small impact on PCMT convection scheme predictions (1% of temperature tendencies).
Projects: arpifs
Git branch: piriou_CY41_fixdiv
Modified:

arpifs/phys_dmn	acmtud.F90, actke.F90, aplpar.F90, suphy0.F90

Doc:
1) Radiation (day duration depending on height).
2) PCMT development (optimization, new scheme features)

NO NUMERICAL IMPACT IS EXPECTED.
Projects: arpifs
Git branch: piriou_CY41_rmt
Added:

arpifs/phys_dmn	acdayd.F90, acflsmo.F90, acrso.F90

Modified:

arpifs/adiab	cptend_new.F90
arpifs/dia	cpphddh.F90
arpifs/module	yomparar.F90, yomphy.F90, yomphy0.F90
arpifs/namelist	namparar.nam.h, namphy.nam.h, namphy0.nam.h
arpifs/phys_dmn	acmtud.F90, acpcmt.F90, acpluiz.F90, aplpar.F90, recmwf.F90, suparar.F90, suphy0.F90
arpifs/setup	su0phy.F90

RAYNAUD Laure

Doc:
- Phasing of my modifications from CY40_op (includes new routines for PEARO and modifications for PREP).*
- Bugfix to make routine BGVECS work in LAM.

NO NUMERICAL IMPACT IS EXPECTED.
Projects: algor, arpifs, mse, surfex, utilities
Git branch: raynaudl_CY41_pearo
Added:

surfex/SURFEX	hor_extrapol_surf_cheap.F90
utilities/pearome	addpearp.F90, clust.F90, pertsurf.F90

Modified:

algor/module	spectral_fields_mod.F90
arpifs/adiab	cpg.F90
arpifs/dia	inifaoutinfo.F90
arpifs/utility	random_ctlvec.F90, setimzero.F90
arpifs/var	bgvecs.F90
mse/module	sfxflddesc_mod.F90
surfex/SURFEX	bilin.F90, default_diag_isba.F90, default_diag_teb.F90, init_isban.F90, init_tebn.F90, modn_isban.F90, modn_prep_surf_atm.F90, modn_tebn.F90, prep_isba.F90, read_nam_prep_surfn.F90, read_namelists_isban.F90, read_namelists_tebn.F90

SEITY Yann

Doc:
- Bugfixes for TKE DDH and ORORAD (SURFEX).
- Bugfix in SURFEX for albedo over sea

EXPECTED IMPACT:
Small impact only over sea.
Projects: arpifs, mpa, surfex
Git branch: seity_CY41_AROME-bfs
Modified:

arpifs/phys_dmn	apl_arome.F90
mpa/turb/externals	aro_turb_mnh.F90
mpa/turb/interface	aro_turb_mnh.h
mpa/turb/internals	tke_eps_sources.F90, turb.F90
mpa/turb/module	modi_turb.F90
surfex/SURFEX	albedo_ta96.F90, coupling_surf_atmn.F90

Doc:
Bugfix for 1d ocean model in surfex and for reproductibility in microphysics.

EXPECTED IMPACT:
ini_cst modification reduces numerical differences of AROME forecasts (CY41bf/CY41_T1)
Projects: mpa, surfex
Git branch: seity_CY41_AROME_bfs
Modified:

mpa/micro/internals	ini_cst.F90
mpa/micro/module	modd_cst.F90
surfex/SURFEX	coupling_seafluxn.F90

Doc:
1) Bugfixes from CY40_op .*
2) Surfex bugfixes from CY40T1_bf (export version).
3) New development in order to improve orographic effects (shading, sky view factor) in surfex radiative forcings.

NO NUMERICAL IMPACT IS EXPECTED.
Projects: arpifs, mpa, mse, surfex
Git branch: seity_CY41_aro_for41T1
Deleted:

arpifs/phys_dmn	suphmpa.lst.db
surfex/SURFEX	q

Added:

arpifs/phys_dmn	suphmpa.lst.db
surfex/SURFEX	modd_const_tartes.F90, mode_snowcro_flanner.F90, mode_tartes.F90, q, tridiag_ground_snowcro.F90

Modified:

arpifs/dia	cpdyddh.F90
arpifs/module	yomparar.F90
arpifs/phys_dmn	apl_arome.F90, aplpar.F90, mf_phys.F90, suparar.F90, suphmpa.F90

mpa/chem/externals	aro_mnhc.F90, aro_mnhdust.F90
mpa/chem/module	modd_dust.F90
mpa/turb/externals	aro_turb_mnh.F90
mpa/turb/interface	aro_turb_mnh.h, aroini_mfshal.h
mpa/turb/internals	tke_eps_sources.F90, turb.F90
mpa/turb/module	modi_tke_eps_sources.F90, modi_turb.F90
mse/externals	aro_ground_diag.F90, aro_ground_param.F90
mse/interface	aro_ground_param.h
mse/internals	write_surfx1_aro.F90, write_surfx2_aro.F90
mse/programs	driver_off_omp.F90, offline.F90
surfex/OFFLIN	init_index_mpi.F90, init_io_surf_ncn.F90, mode_read_surf_nc.F90, mode_read_surf_ol.F90, mode_write_surf_nc.F90, mode_write_surf_ol.F90, ol_read_atm_ascii.F90, ol_read_atm_conf_ascii.F90
surfex/SURFEX	average1_orography.F90, average2_orography.F90, ch_init_snapn.F90, coare30_flux.F90, coupling_flake_orographyn.F90, coupling_flaken.F90, coupling_isba_orographyn.F90, coupling_seaflux_orogn.F90, coupling_surf_atmn.F90, coupling_teb_orographyn.F90, coupling_watflux_orogn.F90, dealloc_surf_atmn.F90, default_crocus.F90, default_sso.F90, ecume_flux.F90, gauss_index.F90, get_fluxn.F90, get_surf_varn.F90, init_isban.F90, init_surf_atmn.F90, isba_snow_agr.F90, modd_pgdwork.F90, modd_snow_metamo.F90, modd_snow_par.F90, modd_surf_atm_sson.F90, modd_surfex_omp.F90, mode_crodebug.F90, mode_gauss_index.F90, mode_psychro.F90, mode_read_surf_fa.F90, mode_snow3l.F90, mode_soil.F90, mode_write_surf_fa.F90, modn_isban.F90, modn_sson.F90, pgd_cover.F90, pgd_gauss_index.F90, pgd_orography.F90, pgd_surf_atm.F90, pgd_teb_veg.F90, prep_isba_netcdf.F90, prep_ocean_ascllv.F90, prep_teb_buffer.F90, prep_ver_snow.F90, pt_by_pt_treatment.F90, read_direct.F90, read_isba_confn.F90, read_nam_grid_gauss.F90, read_nam_pgd_gauss_index.F90, read_nam_pgd_orography.F90, read_namelists_isban.F90, read_namelists_surfn.F90, read_prep_garden_snow.F90, read_prep_isba_snow.F90, read_sson.F90, snowcro.F90, snowcroupgrid.F90, sunpos.F90, treat_bathyfield.F90, treat_field.F90, write_gridtype_gauss.F90, write_header_fa.F90, writesurf_sson.F90

Doc:

1) Bugfix in order not to abort in aro_ground_param with orography mismatch (surfex and atmosphere) when orography is near 0.
2) Fix a missing parenthesis.
3) Fix array bound problem.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs, mse

Git branch: seity_CY41_bf_arome

Modified:

arpifs/phys_radi	rrtm_rtrn1a_140gp.F90
mse/externals	aro_ground_param.F90

SPANIEL Oldrich

Doc:
Miscellaneous bugfixes.
Projects: arpifs, surf
Git branch: spaniel_CY41_modset1
Modified:

arpifs/control	cnt4.F90
arpifs/fullpos	cpclimi.F90, fposhor.F90, gridfpos.F90, hpos.F90, scan2m_hpos.F90, scan2m_mpos.F90, sufp_ctl.F90, sufpwfpbuf.F90
arpifs/module	iogrida_mod.F90, yomphyds.F90
arpifs/namelist	namphyds.nam.h
arpifs/phys_dmn	mf_phys.F90
arpifs/phys_ec	vdfexcu.F90
arpifs/setup	su_grib_api.F90, su_surf_flds.F90, suafn1.F90, suct0.F90, sudimf1.F90
surf/module	vexcs_mod.F90

TAILLEFER Francoise

Doc:
Bug fixes for prep, sfxtools, etc...

NO NUMERICAL IMPACT IS EXPECTED.
Projects: mse, surfex
Git branch: tailefer_CY41_db2
Modified:

mse/externals	fp2sx1fa.F90
mse/module	sfxflddesc_mod.F90
surfex/SURFEX	average2_orography.F90, prep_grid_gauss.F90

Doc:
- Last phasing of some modifications from CY40_op to CY41T1 (mainly for surfex and fa/lfi tools).*
- Delete call to SUALSPA1 for conf. 901/923 in SU0YOMB.
- Modifications to be able to produce init surfex files for ARPEGE grids.

NO NUMERICAL IMPACT IS EXPECTED.
Projects: arpifs, ifsaux, mse, surfex
Git branch: tailefer_CY41_phasft
Modified:

arpifs/setup	su0yomb.F90
ifsaux/misc	testfa.F90
mse/externals	ini_prep_surfex_arob.F90
mse/module	sfxflddesc_mod.F90
surfex/SURFEX	write_surf.F90

Doc:
Correct a phasing problem of in version CY41_t1.02, and add new fields due to a physic scheme implementation.

NO NUMERICAL IMPACT IS EXPECTED.
Projects: mse
Git branch: tailefer_CY41_updt1
Modified:

mse/module	sfxflddesc_mod.F90

YESSAD Karim

Doc:
Various corrections:
- bound RNLGINC between 0 and 2 (to enable cubic grids);
- add checkings in suctrl_gflattr.F90 ;
- add printings in sunhsi.F90 .

NO NUMERICAL IMPACT IS EXPECTED.
Projects: aladin, arpifs
Git branch: yessad_CY41_dev41pour41t1
Modified:

aladin/setup	suegem_naml.F90
arpifs/setup	suctrl_gflattr.F90, sugem_naml.F90, sunhsi.F90