

ARPEGE MEMORANDUM

From: GCO
Date: Feb 28, 2019
Subject: New cycle CY46T1

A new cycle CY46T1 has been created. This is not a common cycle with ECMWF. The different contributions for this cycle are described in the following pages.

Contributors:

ALIAS Antoinette	alias_CY46_norgwd gco_CY46_t1.01%alias_norgwd_bf
ARBOGAST Etienne	arbogaste_CY46_oopstests arbogaste_CY46_oopstestvar
ARBOGAST Etienne & PAYAN Christophe & MONTMERLE Thibaut & CHAMBON Philippe	arbogaste_CY46_assim07
AUGER Ludovic	auger_CY46_CY46_grib2 auger_CY46_grib2
BERRE Loik	berre_CY46_aearp_covb_bf berre_CY46_pertobs_bf
BIRMAN Camille	birmanc_CY46_cy46_t1_v02.valid_canari birmanc_CY46_report_prep
BIRMAN Camille & PUECH Dominique & MOLL Patrick	moll_CY46_canari_birmanpuech
BOUTELOUP Yves	boutelou_CY46_b533 boutelou_CY46_b534
CEBRON Pierrick	cebron_CY46_combiGrib
CHAMBON Philippe	chambonp_CY46_bayrad
EL KHATIB Ryad	khatib_CY46_fpos khatib_CY46_t1.01%fix khatib_CY46_t1.02%fix khatib_CY46_t1.03%morefix khatib_CY46_t1.04%fix

	khatib_CY46_t1.05%fixezo
	khatib_CY46_t1.05%single
	khatib_CY46_t1.07%port
	khatib_CY46_t1.08%sp
ETCHEVERS Ingrid	etcheversi_CY46_FPINT
GCO	gco_CY46_a8cd3e4d5f7a707a68e9c272d4683a124ef335be%fixes
	gco_CY46_b50647a89831d22337fbed0a11516fb6120814af%fixes
	gco_CY46_montmerl_valid
	gco_CY46_t1
	gco_CY46_t1.03%algor
	gco_CY46_t1.03%cy43t2_op1_ldfs
	gco_CY46_t1.05%odb_nmxupd
	gco_CY46_t1.06%decis_robhdr_2
GUIDARD Vincent	guidardv_CY46_ObsCorrFileFix
	guidardv_CY46_SatIR_from43t2op
GUILLAUME Frank	guillaum_CY46_43_46merging
	guillaum_CY46_fixOdim
	guillaum_CY46_rad_postpro
	guillaum_CY46_rad_postproc
JARON Olivier	jaron CY46_DEFORM
	jaron CY46_PTOP
MARGUINAUD Philippe	marguina_CY46_cnt4updtim
	marguina_CY46_lfiC
	marguina_CY46_nstar2cpl_t1
	marguina_CY46_rdfa2gpundf
	marguina_CY46_restart
	marguina_CY46_t1fixiospp
MARTET Maud	martetm_CY46_t1_assimradar_correcalt
	martetm_CY46_t1_assimradar_report43
MARY Alexandre	mary_CY46_fix_bc
	mary_CY46_rpt_hirlam_B2
	mary_CY46_rpt_hirlam_G
MASEK Jan	masekj_CY46_alaro
MENETRIER Benjamin	menetrie_CY46_famembers_bugfix

MICHEL Yann	micHEL_CY46_aearo
MONTMERLE Thibaut	montmerl_CY46_bgfx
	montmerl_CY46_valid
	montmerl_CY46_valid_AROME
MONTMERLE Thibaut, ARBOGAST	montmerl_CY46_t1.05.common_stuff
Etienne, CHAMBON Philippe, GUIDARD	
Vincent	
PAYAN Christophe	payan_CY46_main01_amvupdate
	payan_CY46_main01_newscatt
	payan_CY46_t1v1_scattsig0fix
RASPAUD Dominique	raspaudd_CY46_newobsGPSRO
RAYNAUD Laure	raynaudl_CY46_pearo
SAEZ Patrick	saez_CY46_saez
SEITY Yann	seity_CY46_ARO_from43t2op
SMOLIKOVA Petra	smolikovap_CY46_festatbf
SMOLIKOVA Petra & YESSAD Karim	gco_CY46_smolikovap_settlsod
SPANIEL Oldrich	spaniel_CY46_blendsur
SUZAT Florian	suzat_CY46_newMW
VOITUS Fabrice	voitus_CY46_arome_ddhfix
	voitus_CY46_arome_ddhfix_bis
	voitus_CY46_setup_anal
	voitus_CY46_voitus
YESSAD Karim	yessad_CY46_46allplus
	yessad_CY46_t1V01cor
	yessad_CY46_t1V02cor
	yessad_CY46_t1V04cor
	yessad_CY46_t1V05cor

ALIAS Antoinette

Doc:

*Integration of the non orographique gravity wave parametrisation from Lott et al, 2012.
This is a stochastic parametrisation.*

*1 - New module and namelist NAMNORGWD, ****namelist compulsory****
arpifs/module/yomnorgwd.F90
arpifs/namelist/namnorgwd.nam.h
arpifs/setup/sunorgwd.F90*

*2 - LNORGWD key added in NAMHY0 : .TRUE. to use the parametrisation (default=.FALSE.)
arpifs/module/yomphy.F90
arpifs/namelist/namphy.nam.h
arpifs/setup/su0phy.F90*

*3 - TNORGWD is a new attribut of MODEL_PHYSICS_MF_TYPE
arpifs/module/model_physics_mf_mod.F90*

*4 - YDMODEL%YRML_PHY_MF%YRNORGWD is an argument sunorgwd
arpifs/phys_dmn/mf_phys.F90
arpifs/phys_dmn/aplpar.F90
arpifs/phys_dmn/acnorgwd.F90 : new routine
arpifs/setup/suctrl_gflattr.F90*

Turbulence modifications.

*1 - Turbulence - Option LCVTURB
LCVTURB key added to increase turbulence in case of convection (convective ice above 600hPa)
arp/phys_dmn/actke.F90
arp/phys_dmn/acturb.F90
arp/phys_dmn/aplpar.F90
arp/namelist/namphy.h*

arp/setup/su0phy.F90
arp/module/yomphy.F90

2 - Turbulence - condensate diffusion

If LDIFCONS=T et LNODIFQC=F, activation of the turbulent diffusion of the condensate, temperature and specific humidity, with the computing of the fluxes after the implicit computation of the conservative variable fluxes.

arp/phys_dmn/aca1.F90
arp/phys_dmn/aplpar.F90

3 - Turbulence - Options LPBLE/LDISTUR

Traitement spécifique de l'entraînement au sommet de couche limite (sous l'option LPBLE) lorsque que $AGREF < 0$. Passage d'un entraînement faible à fort en fonction du $d\theta$ à l'inversion (cas stratocumulus au cas cumulus). Ajout d'une option de discrétisation verticale de $qsat$ sous LDISTUR. Limitation de l'eau condensée à l'eau totale du pas de précédent et calcul de ϕ_{3min} sous LECTQ1 cohérent avec celui de $acbl89$.

arp/module/yomphy.F90
arp/module/yomphy0.F90
arp/namelist/namphy.h
arp/namelist/namphy0.h
arp/phys_dmn/acturb.F90
arp/setup/su0phy.F90

4 - Turbulence - Options LDIFCEXP

Diffusion des variables du modèle (non conservatives) sous LDIFCEXP. Calcul dans acturb des coefficients d'échange des variables du modèle (PKTROV, PKQROV, PKQLROV) à partir de ceux des variables conservatives et passage à $acdifv1$ et $acdifv2$ pour calcul implicite des flux.

arp/module/yomphy.F90
arp/namelist/namphy.h
arp/phys_dmn/acdifv1.F90
arp/phys_dmn/acdifv2.F90
arp/phys_dmn/actke.F90
arp/phys_dmn/acturb.F90
arp/phys_dmn/aplpar.F90
arp/setup/su0phy.F90

Modifications for MUSC

arpifs/adiab/cp_forcing.F90
arpifs/adiab/cp_forcing_ps.F90
arpifs/adiab/cpg_gp.F90
arpifs/module/yomlsforc.F90
arpifs/namelist/namlsforc.nam.h
arpifs/setup/sulsforc.F90

Introduction of a Interactive Chimestry scheme.

This scheme , used in ARPEGE-Climat, describes the evolution of 87 species and the 160 chemical reactions.

modified routines

arpifs/chem/chem_init.F90
arpifs/chem/chem_main.F90
arpifs/module/yomchem.F90
arpifs/namelist/namchem.nam.h
arpifs/phys_dmn/aplpar.F90
arpifs/phys_dmn/mf_phys.F90
arpifs/setup/sugfl1.F90

new routines

arpifs/chem/acch_csvr.F90
arpifs/chem/acch_elem.F90
arpifs/chem/acchem.F90
arpifs/chem/acch_equi.F90
arpifs/chem/acch_hana.F90
arpifs/chem/acch_hden.F90
arpifs/chem/acch_hete.F90
arpifs/chem/acch_hsed.F90
arpifs/chem/acch_krat.F90
arpifs/chem/acch_nebj.F90
arpifs/chem/acch_phot.F90
arpifs/chem/acch_rela.F90
arpifs/chem/acch_sola.F90
arpifs/chem/acch_tend.F90

arpifs/chem/arpclim_chem_ini.F90
arpifs/module/arpclim_chem_module.F90

Projects: arpifs

Git branch: alias_CY46_norgwd

Added:

arpifs/adiab cp_forcing_ps.F90
arpifs/chem acch_csvr.F90, acch_elem.F90, acch_equi.F90, acch_hana.F90, acch_hden.F90, acch_hete.F90,
acch_hsed.F90, acch_krat.F90, acch_nebj.F90, acch_phot.F90, acch_rela.F90, acch_sola.F90, acch_tend.F90,
acchem.F90, arpclim_chem_ini.F90
arpifs/module arpclim_chem_module.F90, yomnorgwd.F90
arpifs/namelist namnorgwd.nam.h
arpifs/phys_dmn acaa1.F90, acnorgwd.F90
arpifs/setup sunorgwd.F90

Modified:

arpifs/adiab cp_forcing.F90, cpg_gp.F90
arpifs/chem chem_init.F90, chem_main.F90
arpifs/module model_physics_mf_mod.F90, yomchem.F90, yomlsforc.F90, yomphy.F90, yomphy0.F90
arpifs/namelist namchem.nam.h, namlsforc.nam.h, namphy.nam.h, namphy0.nam.h
arpifs/phys_dmn acdifv1.F90, acdifv2.F90, actke.F90, acturb.F90, aplpar.F90, mf_phys.F90, suphmf.F90, suphy0.F90
arpifs/setup su0phy.F90, suctrl_gflattr.F90, sugfl1.F90, sulsforc.F90

Doc:

- 1) LNSMLIS key deleted.
- 2) The default value of LNODIFQC modified to .TRUE.

EXPECTED IMPACT:

No bit reproductibility for :

GM_FCTI_HYD_SL2_VFE_ARPPHYISBA_SETTLS_NDEC_TL030S and GM_FPIN_HYD_GPLALON_ARPPHYISBA configurations.

Projects: arpifs

Git branch: gco_CY46_t1.01%alias_norgwd_bf

Modified:

arpifs/module yomphy.F90

arpifs/namelist
arpifs/phys_dmn
arpifs/setup

namphy.nam.h
actke.F90, acturb.F90
su0phy.F90, sugfl1.F90

ARBOGAST Etienne

Doc:

Improve TestSuiteVariational.

Fix OOPS Lanczos minimizer.

Fix ObsErrorCovariance.

Add missing initialization in ppobsac,tl,ad.

Fix OpenMP use in non linear balance and jgvcor.

Add 4D model space covariance and localization classes connected to the new fields container.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs, oops_src, oopsifs

Git branch: arbogaste_CY46_oopstests

Deleted:

oops_src/src/test/base TestSuiteModelTLAD.h, TestSuiteOpObs.h, TestSuiteOpObsTL.h, TestSuiteOpObsTLAD.h

Added:

arpifs/oops localization_data_mod.F90

oops_src/src/oops/base Advector.h, EnsembleCovariance4D.h, HybridCovariance4D.h, ModelSpaceCovariance4DBase.h, StaticCovariance4D.h

oops_src/src/oops/interface Interpolator.h

oops_src/src/test/base TestSuiteEnsemble.h, TestSuiteModel.h, TestSuiteOpObsTrajFile.h, TestSuiteOpObsTrajModel.h

oopsifs/src/ifs InterpolatorIFS.cc, InterpolatorIFS.h, InterpolatorIFS.interface.F90

Modified:

arpifs/oops allobs_error_mod.F90, allobs_oper_mod.F90, fields_io_mod.F90, localization_mod.F90

arpifs/pp_obs ppobsac.F90, ppobsacad.F90, ppobsactl.F90

arpifs/var balnonlinad.F90, balnonlintl.F90, jgvcor.F90

oops_src/src/oops/assimilation CostFct4DEnsVar.h, CostJb4D.h, IncrCtlVec.h, PLanczos.h, State4D.h

oops_src/src/oops/base Ensemble.h, EnsemblesCollection.h, instantiateCovarFactory.h

oops_src/src/oops/interface Localization.h

oops_src/src/test/base TestSuiteB.h, TestSuiteChangeResolution.h, TestSuiteVariationalFixture.h

oopsifs/mains
oopsifs/src/ifs

TestSuiteVariational.cc
FieldsIFS.interface.F90, IfsTraits.h, LocalizationMatrixIFS.cc, LocalizationMatrixIFS.interface.F90,
StateIFS.cc, StateIFS.h

Doc:

- OOPS unit tests for observations operators, model, TL/AD model and change of resolution with fullpos
- Remove the obsolete oops directory
- Fix surface fields use in TL/AD model for OOPS
- Encapsulate global variables NGP5_OOPS, NTRAJ_CST_OOPS in YRSURF
- Fix GFL use in TL/AD model for OOPS

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs, oops, oops_src, oopsifs

Git branch: arbogaste_CY46_ooptestvar

Deleted:

oops/ifs

CMakeLists.txt, FindIFS.cmake, CMakeLists.txt, RunIFS.h, ifs4dvar.cc, ifsEnsemble.cc, ifsForecast.cc, ifsHofX.cc, ifsMakeObs.cc, ifsTest.cc, AllObs.cc, AllObs.h, AllObs.interface.F90, AllObsCovariance.cc, AllObsCovariance.h, AllObsCovariance.interface.F90, AllObsTraj.h, AllObsTraj.interface.F90, CMakeLists.txt, ErrorCovariance3D.cc, ErrorCovariance3D.h, ErrorCovariance3D.interface.F90, ErrorCovariance3D.test.cc, FieldsIFS.cc, FieldsIFS.h, FieldsIFS.interface.F90, GeometryIFS.h, GeometryIFS.interface.F90, GomsIFS.h, GomsIFS.interface.F90, IfsFortran.h, IfsTraits.h, IncrementIFS.cc, IncrementIFS.h, LinearModelIFS.cc, LinearModelIFS.h, LocalizationMatrixIFS.cc, LocalizationMatrixIFS.h, LocalizationMatrixIFS.interface.F90, LocationsIFS.h, LocationsIFS.interface.F90, ModelBias.cc, ModelBias.h, ModelBiasCovariance.h, ModelBiasIncrement.cc, ModelBiasIncrement.h, ModelIFS.cc, ModelIFS.h, ModelIFS.interface.F90, ObsBias.cc, ObsBias.h, ObsBiasCovariance.cc, ObsBiasCovariance.h, ObsBiasIncrement.cc, ObsBiasIncrement.h, ObsVector.cc, ObsVector.h, ObsVector.interface.F90, StateIFS.cc, StateIFS.h, VariablesIFS.h, VariablesIFS.interface.F90, ifs_init_wrapper.F90, instantiateCovarFactory.h, instantiateObsErrorFactory.h, mpi_wrapper.F90, fieldstest.xml, ifs_hofx.xml, test.xml

oops/ifs/cmake

FindIFS.cmake

oops/ifs/mains

CMakeLists.txt, RunIFS.h, ifs4dvar.cc, ifsEnsemble.cc, ifsForecast.cc, ifsHofX.cc, ifsMakeObs.cc, ifsTest.cc

oops/ifs/model

AllObs.cc, AllObs.h, AllObs.interface.F90, AllObsCovariance.cc, AllObsCovariance.h, AllObsCovariance.interface.F90, AllObsTraj.h, AllObsTraj.interface.F90, CMakeLists.txt, ErrorCovariance3D.cc, ErrorCovariance3D.h, ErrorCovariance3D.interface.F90, ErrorCovariance3D.test.cc,

FieldsIFS.cc, FieldsIFS.h, FieldsIFS.interface.F90, GeometryIFS.h, GeometryIFS.interface.F90, GomsIFS.h, GomsIFS.interface.F90, IfsFortran.h, IfsTraits.h, IncrementIFS.cc, IncrementIFS.h, LinearModelIFS.cc, LinearModelIFS.h, LocalizationMatrixIFS.cc, LocalizationMatrixIFS.h, LocalizationMatrixIFS.interface.F90, LocationsIFS.h, LocationsIFS.interface.F90, ModelBias.cc, ModelBias.h, ModelBiasCovariance.h, ModelBiasIncrement.cc, ModelBiasIncrement.h, ModelIFS.cc, ModelIFS.h, ModelIFS.interface.F90, ObsBias.cc, ObsBias.h, ObsBiasCovariance.cc, ObsBiasCovariance.h, ObsBiasIncrement.cc, ObsBiasIncrement.h, ObsVector.cc, ObsVector.h, ObsVector.interface.F90, StateIFS.cc, StateIFS.h, VariablesIFS.h, VariablesIFS.interface.F90, ifs_init_wrapper.F90, instantiateCovarFactory.h, instantiateObsErrorFactory.h, mpi_wrapper.F90

oops/ifs/scripts

fieldstest.xml, ifs_hofx.xml, test.xml

oops/src

CMakeLists.txt, Logger.cc, Logger.h, logger_f.cc, logger_f.h, logger_mod.F90, setLogging.cc, setLogging.h, BMatrix.h, CostFct4DVar.h, CostJb3D.h, CostJb4D.h, CostJbJq.h, CostJo.h, DPCGMinimizer.h, DPLanczosMinimizer.h, DoubleMinimizer.h, HBHtMatrix.h, HtRinvHMatrix.h, IncrementalAssimilation.h, Minimizer.h, State4D.h, UpTriSolve.h, instantiateMinFactory.h, Accumulator.h, EnsembleCovariance.h, HybridCovariance.h, IdentityMatrix.h, ModelIncrement.h, ModelSpaceCovarianceBase.h, ModelState.h, ObsErrorBase.h, ObsErrorCovariance.h, Observations.h, Observer.h, StateInfo.h, StateWriter.h, TrajSaver.h, Variables.h, instantiateObsErrorFactory.h, oopsNamespaceDoc.h, EnsForecasts.h, ExternalDFI.h, Forecast.h, GenEnsPertB.h, HofX.h, MakeObs.h, Run.h, Test.h, Variational.h, CMakeLists.txt, TestEnvironment.h, IncrementBase.h, ModelIncrement.h, ModelState.h, globalTestFixture.h, DepType_test.cc, Config.cc, Config.h, ConfigImplBase.h, ObjectCounter.h, XmlDom.cc, XmlDom.h, abort1_cpp.cc, asser1.cc, asser1.h, config_f.cc, config_f.h, dateFunctions.h, dot_product.h, kinds.F90, random_vector_f90.h, random_vectors_gauss_mod.F90, random_vectors_mod.F90, set_err_trap.F90, Config.cc, DateTime.cc, Duration.cc, XmlDom.cc, test_main.cc, utilNamespaceDoc.h

oops/src/logger

Logger.cc, Logger.h, logger_f.cc, logger_f.h, logger_mod.F90, setLogging.cc, setLogging.h

oops/src/oops/assimilation

BMatrix.h, CostFct4DVar.h, CostJb3D.h, CostJb4D.h, CostJbJq.h, CostJo.h, DPCGMinimizer.h, DPLanczosMinimizer.h, DoubleMinimizer.h, HBHtMatrix.h, HtRinvHMatrix.h, IncrementalAssimilation.h, Minimizer.h, State4D.h, UpTriSolve.h, instantiateMinFactory.h

oops/src/oops/base

Accumulator.h, EnsembleCovariance.h, HybridCovariance.h, IdentityMatrix.h, ModelIncrement.h, ModelSpaceCovarianceBase.h, ModelState.h, ObsErrorBase.h, ObsErrorCovariance.h, Observations.h, Observer.h, StateInfo.h, StateWriter.h, TrajSaver.h, Variables.h, instantiateObsErrorFactory.h

oops/src/oops

BMatrix.h, CostFct4DVar.h, CostJb3D.h, CostJb4D.h, CostJbJq.h, CostJo.h, DPCGMinimizer.h, DPLanczosMinimizer.h, DoubleMinimizer.h, HBHtMatrix.h, HtRinvHMatrix.h, IncrementalAssimilation.h, Minimizer.h, State4D.h, UpTriSolve.h, instantiateMinFactory.h, Accumulator.h, EnsembleCovariance.h, HybridCovariance.h, IdentityMatrix.h, ModelIncrement.h, ModelSpaceCovarianceBase.h, ModelState.h,

	ObsErrorBase.h, ObsErrorCovariance.h, Observations.h, Observer.h, StateInfo.h, StateWriter.h, TrajSaver.h, Variables.h, instantiateObsErrorFactory.h, oopsNamespaceDoc.h, EnsForecasts.h, ExternalDFI.h, Forecast.h, GenEnsPertB.h, HofX.h, MakeObs.h, Run.h, Test.h, Variational.h
oops/src/oops/runs	EnsForecasts.h, ExternalDFI.h, Forecast.h, GenEnsPertB.h, HofX.h, MakeObs.h, Run.h, Test.h, Variational.h
oops/src/test	CMakeLists.txt, TestEnvironment.h, IncrementBase.h, ModelIncrement.h, ModelState.h, globalTestFixture.h, DepType_test.cc
oops/src/test/base	IncrementBase.h, ModelIncrement.h, ModelState.h
oops/src/test/observations	DepType_test.cc
oops/src/util	Config.cc, Config.h, ConfigImplBase.h, ObjectCounter.h, XmlDom.cc, XmlDom.h, abort1_cpp.cc, asser1.cc, asser1.h, config_f.cc, config_f.h, dateFunctions.h, dot_product.h, kinds.F90, random_vector_f90.h, random_vectors_gauss_mod.F90, random_vectors_mod.F90, set_err_trap.F90, Config.cc, DateTime.cc, Duration.cc, XmlDom.cc, test_main.cc, utilNamespaceDoc.h
oops/src/util/test	Config.cc, DateTime.cc, Duration.cc, XmlDom.cc, test_main.cc
Renamed:	
oops/src/oops/assimilation	ControlIncrement.h oops_src/src/oops/assimilation/ControlIncrement.h, ControlVariable.h oops_src/src/oops/assimilation/ControlVariable.h, CostFct3DVar.h oops_src/src/oops/assimilation/CostFct3DVar.h, CostFct4DEnsVar.h oops_src/src/oops/assimilation/CostFct4DEnsVar.h, CostFctWeak.h oops_src/src/oops/assimilation/CostFctWeak.h, CostFunction.h oops_src/src/oops/assimilation/CostFunction.h, CostJbState.h oops_src/src/oops/assimilation/CostJbState.h, CostJbTotal.h oops_src/src/oops/assimilation/CostJbTotal.h, CostJcDFI.h oops_src/src/oops/assimilation/CostJcDFI.h, CostTermBase.h oops_src/src/oops/assimilation/CostTermBase.h, DGMRESRMinimizer.h oops_src/src/oops/assimilation/DRGMRESRMinimizer.h, DIPCGMinimizer.h oops_src/src/oops/assimilation/DRIPCGMinimizer.h, DualMinimizer.h oops_src/src/oops/assimilation/DualMinimizer.h, DualVector.h oops_src/src/oops/assimilation/DualVector.h, FGMRES.h oops_src/src/oops/assimilation/FGMRES.h, FGMRESMinimizer.h oops_src/src/oops/assimilation/FGMRESMinimizer.h, FtnTriDiagSpectrum.F90 oops_src/src/oops/assimilation/FtnTriDiagSpectrum.F90, FullGMRES.h oops_src/src/oops/assimilation/FullGMRES.h, GMRESR.h oops_src/src/oops/assimilation/GMRESR.h, GMRESRMinimizer.h oops_src/src/oops/assimilation/GMRESRMinimizer.h, HMatrix.h oops_src/src/oops/assimilation/HMatrix.h, HessianMatrix.h oops_src/src/oops/assimilation/LBHessianMatrix.h, HtMatrix.h oops_src/src/oops/assimilation/HtMatrix.h, IPCG.h oops_src/src/oops/assimilation/IPCG.h, IPCGMinimizer.h

oops_src/src/oops/assimilation/IPCGMinimizer.h, Increment4D.h
oops_src/src/oops/assimilation/Increment4D.h, JqTerm.h oops_src/src/oops/assimilation/JqTerm.h,
JqTermAD.h oops_src/src/oops/assimilation/JqTermAD.h, JqTermTL.h
oops_src/src/oops/assimilation/JqTermTL.h, MINRES.h oops_src/src/oops/assimilation/MINRES.h,
MINRESMinimizer.h oops_src/src/oops/assimilation/MINRESMinimizer.h, PCG.h
oops_src/src/oops/assimilation/PCG.h, PCGMinimizer.h oops_src/src/oops/assimilation/PCGMinimizer.h,
PLanczos.h oops_src/src/oops/assimilation/PLanczos.h, PLanczosMinimizer.h
oops_src/src/oops/assimilation/PLanczosMinimizer.h, PrimalMinimizer.h
oops_src/src/oops/assimilation/PrimalMinimizer.h, QNewtonLMP.h
oops_src/src/oops/assimilation/QNewtonLMP.h, RPCGMinimizer.h
oops_src/src/oops/assimilation/RPCGMinimizer.h, RPLanczosMinimizer.h
oops_src/src/oops/assimilation/RPLanczosMinimizer.h, RinvMatrix.h
oops_src/src/oops/assimilation/RinvMatrix.h, SaddlePointLMPMatrix.h
oops_src/src/oops/assimilation/SaddlePointLMPMatrix.h, SaddlePointMatrix.h
oops_src/src/oops/assimilation/SaddlePointMatrix.h, SaddlePointMinimizer.h
oops_src/src/oops/assimilation/SaddlePointMinimizer.h, SaddlePointPrecondMatrix.h
oops_src/src/oops/assimilation/SaddlePointPrecondMatrix.h, SaddlePointVector.h
oops_src/src/oops/assimilation/SaddlePointVector.h, SpectralLMP.h
oops_src/src/oops/assimilation/SpectralLMP.h, TriDiagSolve.h
oops_src/src/oops/assimilation/TriDiagSolve.h, TriDiagSpectrum.h
oops_src/src/oops/assimilation/TriDiagSpectrum.h, instantiateCostFactory.h
oops_src/src/oops/assimilation/instantiateCostFactory.h, rotmat.h oops_src/src/oops/assimilation/rotmat.h
Departures.h oops_src/src/oops/base/Departures.h, DiagonalMatrix.h
oops_src/src/oops/base/DiagonalMatrix.h, DolphChebyshev.cc oops_src/src/oops/base/DolphChebyshev.cc,
DolphChebyshev.h oops_src/src/oops/base/DolphChebyshev.h, Ensemble.h
oops_src/src/oops/base/Ensemble.h, EnsemblesCollection.h oops_src/src/oops/base/EnsemblesCollection.h,
GeneralizedDepartures.h oops_src/src/oops/base/GeneralizedDepartures.h, ObsErrorDiag.h
oops_src/src/oops/generic/ObsErrorDiag.h, ObserverAD.h oops_src/src/oops/base/ObserverAD.h,
ObserverTL.h oops_src/src/oops/base/ObserverTL.h, PostBase.h oops_src/src/oops/base/PostBase.h,
PostBaseAD.h oops_src/src/oops/base/PostBaseAD.h, PostBaseTL.h oops_src/src/oops/base/PostBaseTL.h,
PostProcessor.h oops_src/src/oops/base/PostProcessor.h, PostProcessorAD.h
oops_src/src/oops/base/PostProcessorAD.h, PostProcessorTL.h oops_src/src/oops/base/PostProcessorTL.h,
PostTimer.cc oops_src/src/oops/base/PostTimer.cc, PostTimer.h oops_src/src/oops/base/PostTimer.h,
WeightedDiff.h oops_src/src/oops/base/WeightedDiff.h, WeightedDiffAD.h
oops_src/src/oops/base/WeightedDiffAD.h, WeightedDiffTL.h oops_src/src/oops/base/WeightedDiffTL.h,

oops_src/src/oops/base

WeightedMean.h oops_src/src/oops/base/WeightedMean.h, WeightingFct.cc
oops_src/src/oops/base/WeightingFct.cc, WeightingFct.h oops_src/src/oops/base/WeightingFct.h,
instantiateCovarFactory.h oops_src/src/oops/base/instantiateCovarFactory.h

oops/src/util
DateTime.cc oops_src/src/util/DateTime.cc, DateTime.h oops_src/src/util/DateTime.h, Duration.cc
oops_src/src/util/Duration.cc, Duration.h oops_src/src/util/Duration.h, abor1_cpp.h
oops_src/src/util/abor1_cpp.h, abor1_ftn.F90 oops_src/src/util/abor1_ftn.F90, config.intfb.h
oops_src/src/util/config.intfb.h, config_mod.F90 oops_src/src/util/config_mod.F90, dateFunctions.cc
oops_src/src/util/dateFunctions.cc, datetime.intfb.h oops_src/src/util/datetime.intfb.h, datetime_f.cc
oops_src/src/util/datetime_f.cc, datetime_f.h oops_src/src/util/datetime_f.h, datetime_mod.F90
oops_src/src/util/datetime_mod.F90, duration.intfb.h oops_src/src/util/duration.intfb.h, duration_f.cc
oops_src/src/util/duration_f.cc, duration_f.h oops_src/src/util/duration_f.h, duration_mod.F90
oops_src/src/util/duration_mod.F90, signal_trap.c oops_src/src/util/signal_trap.c, string_f_c_mod.F90
oops_src/src/util/string_f_c_mod.F90

Added:

arpifs/module
arpifs/oops
oops_src/src/oops/assimilation
surface_fields_oper_traj.F90
fields_fp_mod.F90
BMatrix.h, ControlVector.h, CostFct4DVar.h, CostJb3D.h, CostJb4D.h, CostJbJq.h, CostJo.h,
DRMinimizer.h, DRPCGMinimizer.h, DRPFOMMinimizer.h, DRPLanczosMinimizer.h, HBHtMatrix.h,
HessianMatrix.h, HtRinvHMatrix.h, IncrCtlVec.h, IncrCtlVec4D.h, IncrementalAssimilation.h, JbMatrix.h,
LBGMRESRMinimizer.h, LBMinimizer.h, Minimizer.h, SQRTMinimizer.h, SQRTPCGMinimizer.h,
SQRTPLanczosMinimizer.h, State4D.h, UpHessSolve.h, UpTriSolve.h, UtHtRinvHUMatrix.h,
instantiateMinFactory.h

oops_src/src/oops/base
Accumulator.h, EnsembleCovariance.h, HybridCovariance.h, IdentityMatrix.h,
ModelSpaceCovarianceBase.h, Observations.h, Observer.h, PostProcessorFactory.h, StateInfo.h,
StateWriter.h, TrajectorySaver.h, instantiatePostProcessorStateFactory.h

oops_src/src/oops/generic
oops_src/src/oops/interface
LinearModelId.h, instantiateObsErrorFactory.h, instantiateTlmFactory.h
ErrorCovariance.h, Geometry.h, IncrEnsCtlVec.h, IncrModCtlVec.h, Increment.h, LinearModel.h,
LinearModelBase.h, LinearObsOperator.h, Localization.h, Locations.h, Model.h, ModelAtLocations.h,
ModelAuxControl.h, ModelAuxCovariance.h, ModelAuxIncrement.h, ObsAuxControl.h,
ObsAuxCovariance.h, ObsAuxCtlVec.h, ObsAuxIncrement.h, ObsErrorBase.h, ObsErrorCovariance.h,
ObsOperator.h, ObsVector.h, ObservationSpace.h, PostProcessorModel.h, State.h, Variables.h

oops_src/src/oops
BMatrix.h, ControlVector.h, CostFct4DVar.h, CostJb3D.h, CostJb4D.h, CostJbJq.h, CostJo.h,
DRMinimizer.h, DRPCGMinimizer.h, DRPFOMMinimizer.h, DRPLanczosMinimizer.h, HBHtMatrix.h,
HessianMatrix.h, HtRinvHMatrix.h, IncrCtlVec.h, IncrCtlVec4D.h, IncrementalAssimilation.h, JbMatrix.h,

LBGMRRESRMinimizer.h, LBMinimizer.h, Minimizer.h, SQRTMinimizer.h, SQRTPCGMinimizer.h,
 SQRTPLanczosMinimizer.h, State4D.h, UpHessSolve.h, UpTriSolve.h, UtHtRinvHUMatrix.h,
 instantiateMinFactory.h, Accumulator.h, EnsembleCovariance.h, HybridCovariance.h, IdentityMatrix.h,
 ModelSpaceCovarianceBase.h, Observations.h, Observer.h, PostProcessorFactory.h, StateInfo.h,
 StateWriter.h, TrajectorySaver.h, instantiatePostProcessorStateFactory.h, LinearModelId.h,
 instantiateObsErrorFactory.h, instantiateTlmFactory.h, ErrorCovariance.h, Geometry.h, IncrEnsCtlVec.h,
 IncrModCtlVec.h, Increment.h, LinearModel.h, LinearModelBase.h, LinearObsOperator.h, Localization.h,
 Locations.h, Model.h, ModelAtLocations.h, ModelAuxControl.h, ModelAuxCovariance.h,
 ModelAuxIncrement.h, ObsAuxControl.h, ObsAuxCovariance.h, ObsAuxCtlVec.h, ObsAuxIncrement.h,
 ObsErrorBase.h, ObsErrorCovariance.h, ObsOperator.h, ObsVector.h, ObservationSpace.h,
 PostProcessorModel.h, State.h, Variables.h, oopsNamespaceDoc.h, Application.h, EnsForecasts.h,
 ExternalDFI.h, Forecast.h, GenEnsPertB.h, HofX.h, MakeObs.h, Run.cc, Run.h, Test.h, Variational.h
 Application.h, EnsForecasts.h, ExternalDFI.h, Forecast.h, GenEnsPertB.h, HofX.h, MakeObs.h, Run.cc,
 Run.h, Test.h, Variational.h

oops_src/src/oops/runs

oops_src/src/test

oops_src/src/test/base

oops_src/src/util

oopsifs/mains

oopsifs/src/ifs

Modified:

arpifs/adiab

arpifs/control

arpifs/fullpos

arpifs/module

arpifs/oops

Setup.h, TestEnvironment.h, TestFixture.h, TestSuiteB.h, TestSuiteChangeResolution.h,
 TestSuiteModelTLAD.h, TestSuiteOpObs.h, TestSuiteOpObsTL.h, TestSuiteOpObsTLAD.h,
 TestSuiteVariationalFixture.h, dummy.F90

TestSuiteB.h, TestSuiteChangeResolution.h, TestSuiteModelTLAD.h, TestSuiteOpObs.h,
 TestSuiteOpObsTL.h, TestSuiteOpObsTLAD.h, TestSuiteVariationalFixture.h

LibOOPS.cc, LibOOPS.h, Logger.h, ObjectCountHelper.cc, ObjectCountHelper.h, ObjectCounter.h,
 PrintAdjTest.h, Printable.h, Timer.cc, Timer.h, TimerHelper.cc, TimerHelper.h, abor1_cpp.cc, config_f.cc,
 config_f.h, dateFunctions.h, dot_product.h, formats.h, kinds.F90, set_err_trap.F90, utilNamespaceDoc.h
 TestSuiteVariational.cc

FullPosIFS.cc, FullPosIFS.h, FullPosIFS.interface.F90

cpg5_gp.F90, cpg_drv_ad.F90, cpg_drv_tl.F90, cpg_dyn_ad.F90, cpg_dyn_tl.F90, cpgad.F90, cpgtl.F90
 gp_model_ad.F90, gp_model_tl.F90, scan2mad.F90, scan2mtl.F90

sufpdyn.F90

field_container_base_mod.F90, field_container_gp_mod.F90, field_gfl_wrapper.F90, fields_mod.F90,
 fullpos.F90, fullpos_oops_mod.F90, gom_plus.F90, jo_table_mod.F90, model_mod.F90,
 surface_fields_mix.F90, traj_global_mod.F90, traj_surface_mod_oops.F90, trajectory_mod_oops.F90,
 yomtraj_oops.F90, yomvert.F90

allobs_error_mod.F90, allobs_oper_mod.F90, error_covariance_3d_mod.F90, fields_io_mod.F90,
 ifs_init.F90, locations_mod.F90, obs_space_mod.F90, scan2m_oops.F90, scan2mad_oops.F90,

arpifs/parallel
arpifs/phys_dmn
arpifs/setup
arpifs/var
oopsifs/src/ifs

scan2mtl_oops.F90, transdir_mdl_from_t0_ad.F90
gathereigmd.F90
mf_physad.F90, mf_phystl.F90
su_surf_flds.F90, suctrl_gflattr.F90, sugfl1.F90
jbtomodel.F90, jbtomodelad.F90, sujbbal.F90, sujbcor.F90, sujbcosu.F90, sujbdad.F90, suvar.F90
ErrorCovariance3D.interface.F90, FieldsIFS.cc, FieldsIFS.interface.F90, GeometryIFS.interface.F90,
IfsFortran.h, IfsTraits.h, LinearModelIFS.cc, ObsBias2.interface.F90, RunIFS.cc, StateIFS.cc,
Trajectory.list.F90, VariablesIFS.interface.F90

ARBOGAST Etienne & PAYAN Christophe & MONTMERLE Thibaut & CHAMBON Philippe

Doc:

- *fix the SCATT JO table printing and the choice of the ambiguous wind in the minimization.*
- *JO computing correction for the SCATT winds in the trajectories.*
- *various cleanings for SCATT observations.*
- *thresholdind of PCD and PCD5 in ACHMT,tl/ad in order to avoid NaN in ACNTCLS,tl/ad.*
- *fix OpenMP use in SURFEX setup.*
- *fix uninitialized variables in SURFEX setup and DECIS.*
- *improve OpenMP uses in CPGLAG and SPECRT.*
- *restore OpenMP uses in TASKOB,tl/ad.*
- *add jac obian_peak in robody_min.sql for OOPS unit tests with gps observations.*

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs, mse

Git branch: arbogaste_CY46_assim07

Modified:

arpifs/adiab	cpglag.F90, spectrt.F90
arpifs/obs_preproc	decis.F90
arpifs/op_obs	bayrad_inv.F90, hjo.F90, hqscatt.F90, obsop_conv.F90
arpifs/phys_dmn	achmt.F90, achmtad.F90, achmttl.F90
arpifs/var	taskob.F90, taskobad.F90, taskobtl.F90
mse/externals	aroini_surfb.F90, aroini_surfc.F90

AUGER Ludovic

Doc:

Catching up grib2 modifications from parallel suite CY43T2_op1.

EXPECTED IMPACT:

Numerical impact in FA files.

Projects: arpifs, ifsaux

Git branch: auger_CY46_CY46_grib2

Modified:

arpifs/io_serv	io_serv_create_fa.F90
arpifs/module	factx_mod.F90
ifsaux/fa	facgra.F90, facgrm.F90
ifsaux/programs	faconvgrib.F90

Doc:

Modifications for grib2.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: ifsaux

Git branch: auger_CY46_grib2

Modified:

ifsaux/fa	facgrm.F90
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BERRE Loik

Doc:

Catchup of bugfix for AEARP and covb from 43t2 :

- *comment one line in ecset.F90 ;*
- *adjust list of default values for wavelet cutoffs ;*
- *add correct option for computing total variances (for low resolution minim, from high resolution wavelet file, optionally) ;*
- *add option (LGRIBVEC_FULL) in namvar.h, for writing files of (full) forecast fields produced by B-randomization.*

Note that another bugfix has been previously submitted for fixing usage of FA files in some AEARP tasks, which should also be included in cy46t1 (see previous message of B. Ménétrier about his branch menetrier_CY46_famembers_bugfix).

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs

Git branch: berre_CY46_aearp_covb_bf

Modified:

arpifs/namelist

namvar.nam.h

arpifs/var

ecset.F90, sujbwavelet.F90, sujbwavelet0.F90

Doc:

Report bugfixes for pertobs (from 43t2 to 46): extended list of private variables for openmp loop.

EXPECTED IMPACT:

Avoids a crash.

Projects: arpifs

Git branch: berre_CY46_pertobs_bf

Modified:

arpifs/obs_preproc

pertobs.F90

BIRMAN Camille

Doc:

Modifications to make the surface analysis working in cy46.

EXPECTED IMPACT:

Validation of canari cy46.

Projects: arpifs

Git branch: birmanc_CY46_cy46_t1_v02.valid_canari

Modified:

arpifs/canari

caapar.F90, cacova.F90, cadavr.F90, cah2as.F90, cahuax.F90, cafc1.F90, calico.F90, calver.F90, camelo.F90, canaco.F90, canada.F90, canali.F90, canari.F90, cancer.F90, caneva.F90, cantik.F90, capotx.F90, capsax.F90, caraco.F90, carcfo.F90, caredo.F90, carnak.F90, casela.F90, casgqa.F90, casgra.F90, casgva.F90, casnas.F90, caspia.F90, cassva.F90, castas.F90, cat2as.F90, catrma.F90, cav1as.F90, caviar.F90, cavodk.F90, cavtax.F90 scan2m.F90

arpifs/control

gom_plus.F90

arpifs/module

arpifs/op_obs

departure_jo.F90, hop.F90, obsop_conv.F90

Doc:

Porting of SURFEX prep stuff from branches cy43t2_op1 (berre_CY43T2_prepSFa_wavBMe, faure_CY43T2_IAUq, guidardv_CY43T2_4dvarPrep).

EXPECTED IMPACT:

Bugfixes for prep.

Projects: mse, surfex

Git branch: birmanc_CY46_report_prep

Modified:

mse/externals

canari_sfx.F90

mse/programs

prep.F90

surfex/SURFEX

adapt_horibl_surf.F90, convert_cover_isba.F90, ecume_flux.F90, get_mesh_index_gauss.F90, hor_interpol_gauss.F90, hor_interpol_latlon.F90, horibl_surf.F90, modd_grid_gauss.F90, modd_prep_isba.F90, modd_prep_snow.F90, modd_prep_teb.F90, mode_gridtype_gauss.F90,

mode_read_buffer.F90, mode_read_extern.F90, mode_read_grib.F90, mode_read_netcdf_mercator.F90,
mode_snow3l.F90, prep_grid_gauss.F90, prep_hor_isba_cc_field.F90, prep_hor_isba_field.F90,
prep_hor_ocean_field.F90, prep_hor_ocean_fields.F90, prep_hor_snow_field.F90,
prep_hor_snow_fields.F90, prep_hor_teb_field.F90, prep_isba.F90, prep_isba_buffer.F90,
prep_isba_extern.F90, prep_isba_grib.F90, prep_snow_buffer.F90, prep_snow_extern.F90,
prep_snow_grib.F90, prep_snow_unif.F90, prep_teb_buffer.F90, prep_teb_extern.F90, prep_teb_grib.F90,
prep_teb_unif.F90, read_oceann.F90

BIRMAN Camille & PUECH Dominique & MOLL Patrick

Doc:

Rewriting, cleaning et validation of Canari in cycle 46_t1.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs, odb

Git branch: moll_CY46_canari_birmanpuech

Added:

arpifs/canari	casetup.F90
arpifs/control	ca_scan2m.F90
odb/ddl.ECMA	canada_robhdr.sql, canada_robbody.sql, canari_conv_hdr.sql, canari_robhdr.sql, canari_robbody.sql, caredo_robhdr_2.sql
odb/ddl	canada_robhdr.sql, canada_robbody.sql, canari_conv_hdr.sql, canari_robhdr.sql, canari_robbody.sql, caredo_robhdr_2.sql

Modified:

arpifs/canari	caapar.F90, can1.F90, canaco.F90, canada.F90, canami.F90, canari.F90, cancer.F90, caneva.F90, capotx.F90, capredi.F90, carcfo.F90, caredo.F90, carnak.F90, casgra.F90, casino.F90, caspia.F90, cassva.F90, caviar.F90, dealcan.F90
arpifs/cma2odb	ctxinitdb.F90
arpifs/control	scan2m.F90
arpifs/module	qaimpo.F90, qanada.F90, qapavu.F90, qavara.F90, yomoba.F90
arpifs/namelist	nampre.nam.h
arpifs/op_obs	departure_jo.F90, hop.F90, hop_decide_required_sqls.F90
odb/ddl	caifc1.sql, carcfo.sql, caredo_robhdr.sql, caredo_robbody.sql

BOUTELOUP Yves

Doc:

Add interface to ecrad radiation scheme for Arpege and Arome.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs

Git branch: boutelou_CY46_b533

Modified:

arpifs/phys_radi

recmwf.F90

Doc:

Phasing branch b502 on cy46:

- remove PL98 modifications ;

- set LCOMOD=TRUE in su0phy.F90 ;

- modify default value of CQSAT in ini_surf_csts.F90 .

EXPECTED IMPACT:

Modify behaviour of SURFEX V8 in accordance with cy43t2_op1 e-suite.

Projects: arpifs, surfex

Git branch: boutelou_CY46_b534

Modified:

arpifs/setup

su0phy.F90

surfex/SURFEX

ecume_flux.F90, heatcapz.F90, ini_surf_csts.F90, init_veg_pgdn.F90, soil.F90

CEBRON Pierrick

Doc:

Phasing of the grib2 facilities in combi from cy43 to cy46.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: utilities

Git branch: cebron_CY46_combiGrib

Modified:

utilities/combi

combi_opti.F90, combi_pert.F90

CHAMBON Philippe

Doc:

These modifications allow the all-sky assimilation of microwave observations using a Bayesian inversion of brightness temperatures, with the same methodology than for radar reflectivities.

EXPECTED IMPACT:

These modifications have a numerical impact if several namelists variables are activated. By default, it should not have any impact.

Projects: arpifs, blacklist, odb

Git branch: chambonp_CY46_bayrad

Added:

arpifs/obs_preproc	bayrad_new_thin.F90, bayrad_pre_thin.F90, bayrad_thinn.F90
arpifs/op_obs	bayrad_inv.F90, bayrad_opobs.F90, bayrad_setup.F90, bayrad_sim.F90
odb/ddl.ECMA	bay_thinn1_robhdr.sql, bay_thinn2_robhdr.sql, bay_thinn_robhdr.sql, bay_thinn_roboddy.sql

Modified:

arpifs/cma2odb	ctxinitdb.F90
arpifs/module	gom_mod.F90, gom_plus.F90, sats_mix.F90, yomlocs.F90
arpifs/namelist	namsats.nam.h
arpifs/obs_preproc	defrun.F90, fgchk.F90, new_thinn.F90, radar_profs.F90, sugoms.F90
arpifs/op_obs	cobs.F90, hop.F90, mw_clearsky_screen.F90, mw_clearsky_screen_mfdecis.F90, obsop_rad.F90
arpifs/phys_dmn	aplpars.F90, mf_phys.F90
arpifs/var	rtsetup.F90
blacklist	mf_blacklist.b
odb/ddl	mkglobstab.sql, roboddy.sql, sugoms.sql
odb/pandor/module	bator_decodbufr_mod.F90, bator_ecritures_mod.F90, bator_init_mod.F90, bator_module.F90

EL KHATIB Ryad

Doc:

- Finalization of the change of resolution for Fullpos-in-oops ; new configuration 904 to test it.
- Remove prints if FA GRIB2 encoding (misphasing in cycle 46).
- fix uninitialized variable in suspqlim_part2.F90
- fix a memory leak in vpos.F90
- fix usage of NFPSEVER=-1 in the configuration 903
- fix ooforecast for Arpege
- fix usage of chemical species in Arpege and allow up to 200 species.
- portability fix to open fortran binary files on little endian machines
- extract ifs_init from su0yoma/su0yomb and use the setup of objects for the configuration 903
- support for multiple objects in the configuration 903 (new namelist : NAMFPOBJ)
- refactoring of monio and partly of cnt4 to get closer to oops.
- use explicitly the spectral transforms resolution tag whenever easily possible to support multi-instantiations of geometry
- Miscellaneous optimizations in Fullpos (mainly in pos.F90)
- Support of Fast Legendre Transforms in post-processing spectral transforms (NFPFLT in namfpg)

NO NUMERICAL IMPACT IS EXPECTED.

Projects: aladin, arpifs, etrans, ifsaux, mse, trans

Git branch: khatib_CY46_fpos

Added:

arpifs/control	cprep4.F90, stepx.F90, varfpos.F90
arpifs/fullpos	fields_fp_change_resol.F90, fpchresol.F90, fpserver.F90, sufproj.F90
arpifs/module	yomfproj.F90
arpifs/namelist	namfproj.nam.h
arpifs/setup	falsify_surf_flds.F90, rdfasporo.F90
arpifs/var	suqlimsat.F90

Modified:

aladin/c9xx	eincli8.F90
aladin/setup	sueorog.F90

aladin/utility	cchien.F90, create_pert.F90, read_pert.F90
aladin/var	ecvargpad.F90, ecvargptl.F90, ediagb_psot.F90, einflcalc.F90
arpifs/adiab	cpedia.F90, cpg.F90, cpg_dia.F90, cpg_drv.F90
arpifs/c9xx	incl8.F90
arpifs/control	allfpos.F90, cnt0.F90, cnt3.F90, cnt4.F90, cnt4ad.F90, cnt4tl.F90, cprep3.F90, monfpos.F90, monio.F90, monio_t.F90, restart_cnt3.F90
arpifs/dfi	suini.F90
arpifs/dia	cpxfu.F90, supupdate.F90, wrsp2fa.F90
arpifs/fp_serv	fp_serv_suiosctmpl.F90
arpifs/fullpos	cpfpfilter.F90, dynfpos.F90, endpos.F90, endpos_prepfpl.F90, endvpos.F90, fpcordyn.F90, fpcorphy.F90, fullpos_drv.F90, gridfpos.F90, hpos.F90, prepfpl.F90, rdfpfilter.F90, stepo_fpos.F90, su4fpos.F90, subfpos.F90, sufpc.F90, sufpdata.F90, sufpdyn.F90, sufpg.F90, sufpioh.F90, sufpmodegeo.F90, sufpoph.F90, sufptr2.F90, sufusergeo.F90, sufpv.F90, vpos.F90, wrfpfilter.F90
arpifs/io_serv	io_serv_suiosctmpl.F90
arpifs/module	field_container_gp_mod.F90, field_definitions.F90, fields_mod.F90, fullpos.F90, fullpos_oops_mod.F90, geometry_setup_mod.F90, gfl_subs_mod.F90, ioфу_mod.F90, ioxfu_mod.F90, model_mod.F90, par_gfl.F90, parfpos.F90, surface_fields_mix.F90, traj_main_mod_oops.F90, type_fluxes.F90, type_fposbuf.F90, type_geometry.F90, yom_ygfl.F90, yomafn.F90, yomcfu.F90, yomct1.F90, yomfpl.F90, yomfpg.F90, yomfpios.F90, yomgfl.F90, yomlfi.F90, yommcfu.F90, yomoph.F90, yomxfu.F90
arpifs/namelist	namafn.nam.h
arpifs/oops	fields_io_mod.F90, ifs_init.F90, stepo_oops.F90, transdir_mdl_from_t0.F90
arpifs/phys_radi	rrtm_kgb1.F90, srtm_kgb16.F90, su_c11clim.F90, su_c12clim.F90, su_c22clim.F90, su_ccl4clim.F90, su_ch4clim.F90, su_co2clim.F90, su_gch4clim.F90, su_gco2clim.F90, su_gozoclim.F90, su_mch4clim.F90, su_mcica.F90, su_mco2clim.F90, su_mozoclim.F90, su_n2oclim.F90, su_no2clim.F90, su_ozoclim.F90, suecozc.F90, sulwneur.F90
arpifs/pp_obs	pos.F90, pos_prepfpl.F90, ppreq.F90
arpifs/programs	hop_driver.F90
arpifs/setup	su0phy.F90, su0yoma.F90, su0yomb.F90, su1yom.F90, su_surf_flds.F90, suafn1.F90, suafn2.F90, suafn3.F90, suct0.F90, suct1.F90, suctrl_gflattr.F90, sudefo_gflattr.F90, sudimf1.F90, sudimf2.F90, sudyn.F90, sufplmod.F90, sudeometry.F90, sulfi.F90, sulun.F90, sumcc.F90, sumcfu.F90, sumpout.F90, suoph.F90, suorog.F90, suspecb.F90, suvv1.F90
arpifs/utility	logdis.F90, openfa.F90, pkspeca.F90, pksurfa.F90, wrgp2fa.F90
arpifs/var	lhtcalc.F90, rdfpinc.F90, suensmem.F90, subjwavrenorm.F90, suspqlim_part2.F90, varcalc.F90

etrans/module
ifsaux/fa
ifsaux/grib_mf
mse/externals
mse/interface
mse/new
trans/module

suestaonl_mod.F90
faigra.F90, fasgra.F90
gsbyte_mf.F
prep_step2.F90, wrsfx.F90
wrsfx.h
sfxlfi2fa.F90
sustaonl_mod.F90

Doc:

Various portability and merge bugfixes.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs, odb, utilities

Git branch: khatib_CY46_t1.01%fix

Modified:

arpifs/fullpos
arpifs/module
arpifs/namelist
arpifs/obs_preproc
arpifs/oops
arpifs/op_obs
arpifs/phys_dmn
arpifs/pp_obs
arpifs/setup
arpifs/transform
odb/bufr2odb
odb/pandor/module
utilities/pearome

fpctica.F90, fpintdyn.F90, fpintphy.F90, sufpxfu.F90, vpos.F90
field_gfl_wrapper.F90, yomxfu.F90
namxfu.nam.h
new_thinn.F90
ifs_init.F90
bayrad_sim.F90
achmt.F90, mf_phys.F90
pos.F90
suxfu.F90
transinvh.F90
satobfreq_bynam.F90
bator_decodbufr_mod.F90
addpearp.F90

Doc:

suorog.F90 : bugfix for Arpege NH

allocate_empty_trajectory.F90 : bugfix for DFI

suparar.F90, sugfl1.F90 : add missing prints of namelist variables
pos.F90 : fix against a non-initialized variable
cpg_drv.F90 : fix a merge issue from cycle 46
inv_levels.F90 : minor fix

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs, mpa

Git branch: khatib_CY46_t1.02%fix

Modified:

arpifs/adiab	cpg_drv.F90
arpifs/phys_dmn	suparar.F90
arpifs/pp_obs	pos.F90
arpifs/setup	allocate_empty_trajectory.F90, sugfl1.F90, suorog.F90
mpa/chem/module	inv_levels.F90

Doc:

eslxtpol.F90 : portability fix for MPI
m1qn3.F90, m1qn3a.F90, m1qn3a.h, m1qn3.h, mlis0.h, cva2.F90 : portability fix
allfpos.F90 : bugfix for 2D dynamic post-processed fields management
achmt.F90, apl_arome.F90 : fix against uninitialized variables
yemlbc_model.F90, yemlbc_init.F90 : bugfix (was affecting LIMA)
etrans/interface/esetup_trans.h : bugfix (was affecting LFFTW)
ifsaux/module/sdl_mod.F90, gentrbk.F90 : portability fix for Intel compiler : use Intel native traceback routine rather than linux traceback routine which was hanging on mpi_abort. Linux traceback can still be used with Intel compiler if the environment variable EC_LINUX_TRBK=1 is defined.
aroini_micro_lima.F90, ini_lima_warm.F90, ini_lima.F90, ini_lima_cold_mixed.F90 : bugfix for LIMA
coupling_seaflux_orogn.F90 : add missing interface
lect_bdap.F90 : mark as dead code.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: aladin, algor, arpifs, etrans, ifsaux, mpa, surfex, utilities

Git branch: khatib_CY46_t1.03%morefix

Renamed:

algor/interface

m1qn3.intfb.h algor/interface/m1qn3.h, m1qn3a.intfb.h algor/interface/m1qn3a.h, mlis0.intfb.h
algor/interface/mlis0.h

Modified:

aladin/interpol

eslextpol.F90

algor/external/minim

m1qn3.F90

algor/internal/minim

m1qn3a.F90

arpifs/control

allfpos.F90, cva2.F90

arpifs/module

yemlbc_init.F90, yemlbc_model.F90

arpifs/phys_dmn

achmt.F90, apl_arome.F90

etrans/interface

esetup_trans.h

ifsaux/module

sdl_mod.F90

ifsaux/utilities

gentrbk.F90

mpa/micro/externals

aroini_micro_lima.F90

mpa/micro/internals

ini_lima.F90, ini_lima_cold_mixed.F90, ini_lima_warm.F90

surfex/SURFEX

coupling_seaflux_orogn.F90

utilities/sst_nedis

lect_bdap.F90

Doc:

apl_arome : cleaning

ppobsacad.F90, bator_decodbufr_mod.F90, bator_decodhdf5_mod.F90 : portability fix for Cray

sufptr2.F90 : bugfix for isothermic levels

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs, odb

Git branch: khatib_CY46_t1.04%fix

Modified:

arpifs/fullpos

sufptr2.F90

arpifs/phys_dmn

apl_arome.F90

arpifs/pp_obs

ppobsacad.F90

odb/pandor/module

bator_decodbufr_mod.F90, bator_decodhdf5_mod.F90

Doc:

Fix virtual location of E-zone in Fullpos-Aladin/Arome.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs
Git branch: khatib_CY46_t1.05%fixezo
Modified:
arpifs/fullpos sufpg2.F90

Doc:

Fixes for single precision compilation.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs, ifsaux, odb
Git branch: khatib_CY46_t1.05%single
Modified:
arpifs/control allfpos.F90
arpifs/module yomlocs.F90
arpifs/oops obsvec_mod.F90, stepo_oops.F90
arpifs/op_obs bayrad_inv.F90
ifsaux/py_interface FA4py.F90, transforms4py.F90
odb/pandor/module bator_util_mod.F90

Doc:

arpifs/op_obs/bayrad_sim.F90 : portability fix
arpifs/module/yemblc_model.F90 : fix bounds violations
arpifs/setup/suct0.F90, arpifs/control/cprep3.F90 : fix against misuse of NFPOS in configuration 903
arpifs/fullpos/sufpxfu.F90 : fix against uninitialized variable
mpa/micro/internals/rain_ice_old.F90, arpifs/setup/sunhsi_testconv.F90 : cleaning
arpifs/setup/suafn2.F90 : bugfix on the pp levels to discard for each pp field
ifsaux/fa/fasgra.F90, ifsaux/fa/fadecoga.F90 : support for simple precision with GRIB Edition 0
ifsaux/ddh/lfa_R8I4.F90 : support for simple precision with LFA (for ddh)

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs, ifsaux, mpa
Git branch: khatib_CY46_t1.07%port

Modified:

arpifs/control	cprep3.F90
arpifs/fullpos	sufpxfu.F90
arpifs/module	yemlbc_model.F90
arpifs/op_obs	bayrad_sim.F90
arpifs/setup	suafn2.F90, suct0.F90, sunhsi_testconv.F90
ifsaux/ddh	lfa_R8I4.F90
ifsaux/fa	fadecoga.F90, fasgra.F90
mpa/micro/internals	rain_ice_old.F90

Doc:

Various fixes for simple precision.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs, satrad, surfex
Git branch: khatib_CY46_t1.08%sp

Modified:

arpifs/fullpos	sufpf.F90, sufpusergeo.F90
arpifs/namelist	namfpg.nam.h
satrad/module	rttov_scattering_mod.F90
surfex/SURFEX	mode_gridtype_conf_proj.F90

ETCHEVERS Ingrid

Doc:

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

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs

Git branch: etcheversi_CY46_FPINT

Modified:

arpifs/fullpos

fpintdyn.F90, fpintphy.F90

GCO

Doc:

- 1) *Fix phasing bugs.*
- 2) *Remove file "ifsaux/misc/crm.F90".*

Projects: aladin, arpifs, ifsaux, mse, utilities

Git branch: gco_CY46_a8cd3e4d5f7a707a68e9c272d4683a124ef335be%fixes

Deleted:

ifsaux/misc crm.F90

Modified:

aladin/setup	sueqlimsat.F90
arpifs/fullpos	fpintdyn.F90, fpintphy.F90
arpifs/obs_preproc	defrun.F90
arpifs/oops	ifs_init.F90
arpifs/op_obs	hret_r_rad.F90
arpifs/var	jbtomodel.F90, jbtomodelad.F90
mse/externals	canari_sfx.F90
utilities/combi	combi_pert.F90

Doc:

- 1) *Fix phasing bugs.*
- 2) *Update some SQL routines from beaufix:/home/montmerl/pack/cy46_main_dbg/src/local .*

Projects: arpifs, mse, odb

Git branch: gco_CY46_b50647a89831d22337fbed0a11516fb6120814af%fixes

Modified:

arpifs/control	cnt4.F90, reresf_part2.F90
mse/externals	wrresf_sfx.F90
odb/ddl	cancer_roboddy.sql, carcfo.sql, hop_canari_robhdr.sql, roboddy.sql

Doc:

1) Remove auto-generated files odb/dll.*CMA/*CMA.h & odb/dll.*CMA/*CMA_Sstatic.c .

2) Some SQL files were updated directly inside directory "odb/dll.CCMA", whereas this has to be done in "odb/dll" directory.

This has been fixed: those SQL files have been updated in "odb/dll" directory, and replaced by links in "odb/dll.*CMA" directories.

Projects: odb

Git branch: gco_CY46_montmerl_valid

Deleted:

odb/dll.CCMA CCMA.h, CCMA_Sstatic.c

odb/dll.ECMA ECMA.h, ECMA_Sstatic.c

Modified:

odb/dll cancer_roboty.sql, carcfo.sql, hop_canari_robhdr.sql

Doc:

Remove obsolete routines.

Remove file "README" .

Remove file "arpifs/local_DEF.tar" .

Projects: README, arpifs, ifsaux

Git branch: gco_CY46_t1

Deleted:

.

arpifs local_DEF.tar

ifsaux/lfi lfiicc.F90, lfiecd.F90, lfiexc.F90, lfiedo.F90, lfiefr.F90, lfiems.F90, lfieng.F90, lfifmp.F90, lfiist.F90, lfilcc.F90, lfildo.F90, lfimoe.F90, lfipha.F90, lfipim.F90, lfiran.F90, lfirc.F90, lfirce.F90, lfisee.F90, lfiuto.F90, lfivid.F90

ifsaux/lfi_alt lfi_fort.c

Doc:

* Rename interfaces "algor/interface/(m1qn3|m1qn3a|mlis0).intfb.h" to "algor/interface/(m1qn3|m1qn3a|mlis0).h" .

* Remove spaces before directives "#include".

* Add missing argument ZTEMP in the interface of "mlis0.F90".

Projects: algor, arpifs

Git branch: gco_CY46_t1.03%algor

Renamed:

algor/interface m1qn3.intfb.h algor/interface/m1qn3.h, m1qn3a.intfb.h algor/interface/m1qn3a.h, mlis0.intfb.h
algor/interface/mlis0.h

Modified:

algor/external/minim m1qn3.F90
algor/internal/minim m1qn3a.F90, mlis0.F90
arpifs/control cva2.F90

Doc:

Introduction of boolean variable LDFS:

- declaration in yomsc.F90 ;
- declaration in namelist block NAMSCC ;
- initialization (to FALSE) in defrun.F90 ;
- use in pertobs_uncorr.F90 .

If LDFS is set to TRUE: activation of all observations (active + passive) in order to perturbate also radar reflectivity data for AROME analysis.

Projects: arpifs

Git branch: gco_CY46_t1.03%cy43t2_op1_ldfs

Modified:

arpifs/module yomsc.F90
arpifs/namelist namsc.nam.h
arpifs/obs_preproc defrun.F90, pertobs_uncorr.F90

Doc:

Value of \$NMXUPD can now be defined at compilation step using CPP key ODB_NMXUPD . If this key is not defined, \$NMXUPD is set to 10 .

Projects: odb

Git branch: gco_CY46_t1.05%odb_nmxupd

Modified:

odb/ddl cma.h

Doc:

- 1) Rehabilit SQL request "decis_robhdr_2.sql" .
- 2) Move SQL requests "bay_thinn*.sql" to "odb/ddl", and replace them by links in "odb/ddl.ECMA" .

Projects: odb

Git branch: gco_CY46_t1.06%decis_robhdr_2

Added:

odb/ddl.CCMA

decis_robhdr_2.sql

odb/ddl.ECMA

decis_robhdr_2.sql

odb/ddl

bay_thinn1_robhdr.sql, bay_thinn2_robhdr.sql, bay_thinn_robhdr.sql, bay_thinn_roboddy.sql,

decis_robhdr_2.sql

GUIDARD Vincent**Doc:**

Fix for reading observations error correlation files.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs

Git branch: guidardv_CY46_ObsCorrFileFix

Modified:

arpifs/obs_preproc defrun.F90

Doc:

Various reports from cy43t2_op for IR sensors + ODB version + negative humidity.

EXPECTED IMPACT:

Various impacts documented in cy43t2_op suite.

Projects: arpifs, blacklist, odb

Git branch: guidardv_CY46_SatIR_from43t2op

Modified:

arpifs/adiab	gpiau.F90
arpifs/module	varbc_rad.F90
arpifs/obs_preproc	black.F90, defrun.F90, fgchk_setup.F90, new_thinn.F90, pre_thinner.F90
arpifs/op_obs	bgobs.F90, hradp_ml.F90, hretr_rad.F90, rad1cemis.F90
blacklist	mf_blacklist.b
odb/lib	version.c

GUILLAUME Frank

Doc:

Phasing BATOR from cycle CY43T2_op1 .

Change ODB's major version to 46 in version.c .

Projects: odb

Git branch: guillaum_CY46_43_46merging

Modified:

odb/lib	version.c
odb/pandor/module	bator_decodbufr_mod.F90, bator_decodhdf5_mod.F90, bator_ecritures_mod.F90, bator_init_mod.F90, bator_module.F90, bator_saisies_mod.F90, bator_util_mod.F90
odb/pandor/namelist	bator_namelist.nam.h
odb/tools	Bator.F90

Doc:

1) Adaptation des tâches BATODB aux nouvelles productions SEVIRI prévues de Lannion.

sources BATOR :

- bugfixes dans les routines de décodage des données ODIM au format HDF5,*
- préparation au monitoring/assimilation des données SEVIRI de GOES-16 & 17 au format NETCDF,*
- adaptation à l'évolution du produit SEVIRI Arome,*
- initialisation de Z_CANZONE a 0 (lamflag).*

2) AMDAROMM subroutine changes in Bator to deal with ASDAR template 311001.

3) La table ODB MODSURF était incorrectement définie en sortie de BATOR. Cette mauvaise définition pouvait impacter CANARI.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: odb

Git branch: guillaum_CY46_fixOdim

Modified:

odb/pandor/module

bator_decodbufr_mod.F90, bator_decodhdf5_mod.F90, bator_decodnetcdf_mod.F90,
bator_ecritures_mod.F90, bator_module.F90, bator_util_mod.F90

Doc:

bugfix : format de lecture incorrect dans la fonction ReadAvgMask() (ouverture du fichier masque).

*** Sortie en erreur uniquement en compilant en mode 'Debugging + Bound checking' ***

NO NUMERICAL IMPACT IS EXPECTED.

Projects: odb

Git branch: guillaum_CY46_rad_postpro

Modified:

odb/pandor/module

bator_rad_postproc_mod.F90

Doc:

bugfix : débordement de tableau dans la routine RadSortHdr() du module bator_rad_postproc_mod.F90 (report du correctif effectué dans le CY43t2).

NO NUMERICAL IMPACT IS EXPECTED.

Projects: odb

Git branch: guillaum_CY46_rad_postproc

Modified:

odb/pandor/module

bator_rad_postproc_mod.F90

JARON Olivier

Doc:

Deformation terms in FullPos

1) *Modify the behavior of LUVDER in FullPos to always compute wind zonal derivatives.*

2) *Correction of the formula of deformation terms in POS.*

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs

Git branch: jaronno_CY46_DEFORM

Added:

arpifs local_DEF.tar

Modified:

arpifs/fullpos predynfpos.F90, vpos.F90

arpifs/module gmv_subs_mod.F90

arpifs/pp_obs pos.F90

arpifs/transform transinv_mdl.F90, transinvh.F90

Doc:

Phasing from cy43t2 to compute the top of deep convection, in pressure.

Diagnostic of the summit of deep convection, in pressure [Pa].

Based on the convective cloud cover.

New subroutine in ACNPART.

Add LPTOPC key to NAMPHY to compute the pressure of the top of deep convection in ACNPART. By default, LPTOPC=.FALSE.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs

Git branch: jaronno_CY46_PTOP

Modified:

arpifs/adiab cpg.F90, cpg_dia.F90

arpifs/dia
arpifs/fullpos
arpifs/module
arpifs/namelist
arpifs/phys_dmn
arpifs/setup

cpxfu.F90
fpcorphy.F90, hpos_xfu.F90, sufpxfu.F90
ptrxfu.F90, yomafn.F90, yomfa.F90, yomphy.F90
namafn.nam.h, namphy.nam.h
acnpart.F90, aplpar.F90, initaplpar.F90, mf_phys.F90, writemusc.F90, writephysio.F90
su0phy.F90, suafn1.F90, suafn2.F90, suafn3.F90, sufa.F90, suxfu.F90

MARGUINAUD Philippe**Doc:**

Fix broken reproducibility of AROME restart configuration. The OL3_FCST_HYD_SL2_VFD_AROPHYSFEX_REST_AROMALP1300 mitraillette test case now works.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs
Git branch: marguina_CY46_cnt4updtim
Modified:
arpifs/control cnt4.F90

Doc:

Remove Fortran LFI library.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: ifsaux
Git branch: marguina_CY46_lfiC
Modified:
ifsaux/lfi lfiadm.F90, lfiact.F90, lfiafm.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, 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, lfirc.F90, lfirce.F90, lfiren.F90, lfisee.F90, lfisfm.F90, lfista.F90, lfisup.F90, lfitam.F90, lfiuto.F90, lfiver.F90, lfivid.F90
ifsaux/lfi_alt lfi_alts.c, lfi_fort.c, lfi_fort.h, lfi_grok.c, lfi_hndl.c, lfi_intf.c, lfi_verb.c
ifsaux/misc tstlfi.F90
ifsaux/module fa_mod.F90, fadup_mod.F90, lfimod.F90

Doc:

Move NSTAR2CPL in YOMCT2.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: aladin, arpifs

Git branch: marguina_CY46_nstar2cpl_t1

Modified:

aladin/coupling	elsrw.F90
arpifs/control	cnt3_lam.F90
arpifs/module	yemlbc_init.F90, yomct2.F90
arpifs/setup	su2yom.F90

Doc:

Set undefined values when reading fields. This corrects a problem when reading SURFEX files for Canari.

EXPECTED IMPACT:

The file written by CANARI is not correct; this modification will fix the issue.

Projects: arpifs

Git branch: marguina_CY46_rdfa2gpundf

Modified:

arpifs/utility	rdfa2gp.F90
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Doc:

Restart model ARPEGE, AROME with or without SURFEX.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: aladin, arpifs, ifsaux, mse, surfex

Git branch: marguina_CY46_restart

Added:

aladin/setup	elsac_rdbc.F90
arpifs/control	resf_part1.F90, resf_part2.F90
arpifs/utility	wresf_time.F90

ifsaux/misc	faddate.F90, faddate.h
mse/externals	eresf_sfx.F90, eresf_sfx.h, wrresf_sfx.F90, wrresf_sfx.h
Modified:	
aladin/coupling	elsrw.F90
aladin/setup	elsac.F90, elsac_rdbc.F90
arpifs/adiab	cpwts.F90
arpifs/control	cnt0.F90, cnt3_glo.F90, cnt3_lam.F90, cnt4.F90, cprep1.F90, iopack.F90
arpifs/dia	inifaoutinfo.F90, wrfu.F90, wrgrida.F90, wrgridall.F90, wrgridua.F90, wrmlppa.F90, wrspeca_gp.F90, wrxfu.F90
arpifs/interpol	slcomm2a.F90
arpifs/io_serv	io_serv_hdr1_init.F90
arpifs/module	mfioopts_mod.F90, yemlbc_init.F90, yomoph0.F90
arpifs/setup	rdfa2sp.F90, su_surf_flds.F90, sugrcfu.F90, sugrclia.F90, sugrida.F90, sugridua.F90, sugridva.F90, sugrxfu.F90, suspeca.F90, suspeca_gp.F90
arpifs/utility	openfa.F90, rdfa2gp.F90, wrgp2fa.F90, wrresf.F90
ifsaux/fa	faigra.F90, fasgra.F90
ifsaux/misc	fadate.F90, lfixxx.F90
mse/externals	aro_surf_diag.F90, aro_surf_diagh.F90, aroini_surfb.F90, aroini_surfc.F90, canari_sx_ics.F90, fp2sx1.F90, fp2sx2.F90, gridfpossfx_init.F90, ini_prep_surfex_aroc.F90, sugridsfx.F90, suphmse_surface.F90, wrsfx.F90
mse/interface	aro_surf_diagh.h, sugridsfx.h, wrsfx.h
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_surfy1_aro.F90
mse/module	modd_io_surf_aro.F90
surfex/SURFEX	init_isban.F90

Doc:

Post-processed data for all forecast terms is written in the same file by the IO server. This problem is due to a wrong datation of data sent to the IO server by the model. This branch fixes this issue.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs

Git branch: marguina_CY46_t1fixiospp

Modified:

arpifs/control

arpifs/fullpos

allfpos.F90

wrhfp.F90

MARTET Maud

Doc:

Add radar station altitude in hdr ODB table.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: odb

Git branch: martetm_CY46_t1_assimradar_correcalt

Modified:

odb/pandor/module bator_decodhdf5_mod.F90

Doc:

Modifications for radar data assimilation:

- *mf_blacklist to take into account Ajaccio radar;*
- *modification of the precipitation attenuation correction in BUFR radar data;*
- *correction of threshold calculation for ODIM HDF5 radar data.*

EXPECTED IMPACT:

*Allow to use data from Ajaccio radar (masked azimuths not taken into account).
Correct bugs in BUFR and ODIM HDF5 radar data assimilation.*

Projects: arpifs, blacklist, odb

Git branch: martetm_CY46_t1_assimradar_report43

Modified:

arpifs/obs_preproc black.F90, blinit.F90
blacklist mf_blacklist.b
odb/ddl black_roboddy_9.sql
odb/pandor/module bator_decodbufr_mod.F90, bator_decodhdf5_mod.F90

MARY Alexandre

Doc:

*Fix a bound-checking bug in larcinhb.F90, which did not compile with bound checking otherwise.
Due to an erroneous report of development onto cy46.*

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs

Git branch: mary_CY46_fix_bc

Modified:

arpifs/adiab larcinhb.F90

Doc:

*Modifications to shallow convection scheme in orde to improve precipitation falling from shallow convective clouds. LTROPEC=TRUE (default=FALSE)
precipitation tendencies in SC scheme are added to the source terms of precipitation entering in the cloud microphysics, such that they are
advected before next time step (Lisa Bengtsson).*

Projects: arpifs

Git branch: mary_CY46_rpt_hirlam_B2

Modified:

arpifs/module yomparar.F90
arpifs/namelist namparar.nam.h
arpifs/phys_dmn apl_arome.F90, suparar.F90, vdfhghthl.F90, vdfhghtnhl.F90

Doc:

The listed technical changes have been checked against a git repository obtained from Toon Moene on September 25th 2018:

** Correct use of interface blocks detected by gmckpack. Add abort in the code where it states it should abort svn changesets (Trygve Aspelinen).*

** Miscellaneous fixes/modifications (Ulf Andrae):*

- Bugfix in pressure calculations aladin/programs/addpert.F90 ;

- Avoid usage of uninitialized data arpifs/op_obs/dopplsim.F90 arpifs/obs_preproc/dupli_no_sq.F90 ;

- Change satellite blacklisting: *blacklist/mf_blacklist.b* ;
- Fix for potential MPI deadlock: *ifsaux/support/gstats_psut.F90* .

* Correct the number of aircraft codetypes (Jan Barkmeijer).

Projects: aladin, arpifs, ifsaux, odb

Git branch: mary_CY46_rpt_hirlam_G

Modified:

aladin/utility	create_pert.F90, read_pert.F90
arpifs/fullpos	endpos.F90, sufpc.F90
arpifs/module	yomcoctp.F90, yomfpc.F90
arpifs/namelist	namfpc.nam.h
arpifs/obs_preproc	dupli_no_sq.F90
arpifs/op_obs	dopplsim.F90
arpifs/pp_obs	pos.F90
ifsaux/sup port	gstats_psut.F90
odb/pandor/module	bator_util_mod.F90

MASEK Jan

Doc:

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

* *Description:*

Modset contains ALARO-1 fixes from cy43t2_bf.08 and from planned cy43t2_bf.10 that were not transferred to cy44 and higher. It also contains 3 new diagnostic fields implemented on APLPAR side:

*'SURFTCVS.POS.F00' - temperature of convection (TFP_TCVS; CFP2DF)
'CLSMEAN.RAD.TEMP' - mean radiant temperature (GFP_XMRT; CFPXFU)
'SURFGLB NORM IRR' - global normal irradiance (GFP_CGNI; CFPCFU)*

Temperature of convection can be diagnosed in offline fullpos. Mean radiant temperature and global normal irradiance must be written to historical files during integration, then they can be postprocessed by offline fullpos. Output to historical files is activated by namelist keys LXMRT (NAMXFU) and LRAYS (NAMCFU).

ALARO-1 fixes from cy43t2_bf.08:

These fixes affect only ALARO-1 configuration:

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

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

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

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

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

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

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

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

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

arpifs/dia/cpphddh.F90

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

arpifs/module/traj_main_mod.F90

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

7) fix of misplaced arguments of ACRANEB2 call in APL_AROME (E. Gleeson):

arpifs/phys_dmn/apl_arome.F90

Without this fix, ACRANEB2 radiation does not work in AROME

(it either crashes or gives meaningless output). The bug was introduced by J. Masek in cy43t2_main and it reentered also cy40t1_bf.06.

ALARO-1 fixes from planned cy43t2_bf.10:

Vectorization fix of ACCVUD with Intel compiler was omitted since it is not needed any longer in cy46. Remaining fixes affect only diagnostics, not the integration itself:

8) fixed convective cloud cover in subroutine ACNPART when WMXOV or RDECRDRED differ from 1 (J. Masek):

arpifs/phys_dmn/acnpart.F90

9) fixed CIN/CAPE calculated from most unstable layer, independent on NPROC (R. Brozkova):

arpifs/fullpos/fpcica.F90

arpifs/module/yomcape.F90

arpifs/phys_dmn/suphmf.F90

arpifs/setup/sucape.F90

10) added calculation of moisture convergence CLPMOCON.POS in an off-line fullpos (R. Brozkova, A. Bucanek):

arpifs/fullpos/endpos.F90

arpifs/fullpos/fpachmt.F90

arpifs/fullpos/phymfpos.F90

arpifs/fullpos/vpos.F90

Without this fix, zero field CLPMOCON.POS would be produced.

New diagnostic fields:

These fields are available on APLPAR side.

11) added temperature of convection, mean radiant temperature, and global normal irradiance (R. Brozkova, J. Masek):

*arpifs/adiab/cpg.F90
arpifs/adiab/cpg_dia.F90
arpifs/dia/cpcfuf.F90
arpifs/dia/cpxfuf.F90
arpifs/fullpos/endpos.F90
arpifs/fullpos/fpcica.F90
arpifs/fullpos/fpcorphy.F90
arpifs/fullpos/hpos_cfu.F90
arpifs/fullpos/hpos_xfu.F90
arpifs/fullpos/phymfpos.F90
arpifs/fullpos/sufpcfuf.F90
arpifs/fullpos/sufptr2.F90
arpifs/fullpos/sufpxfuf.F90
arpifs/module/parfpos.F90
arpifs/module/ptrgfu.F90
arpifs/module/ptrxfuf.F90
arpifs/module/yomafn.F90
arpifs/module/yomfa.F90
arpifs/module/yomxfuf.F90
arpifs/namelist/namafn.nam.h
arpifs/namelist/namxfuf.nam.h
arpifs/phys_dmn/aplpar.F90
arpifs/phys_dmn/initaplpar.F90
arpifs/phys_dmn/mean_rad_temp.F90
arpifs/phys_dmn/mf_phys.F90
arpifs/setup/suafn1.F90
arpifs/setup/suafn2.F90
arpifs/setup/suafn3.F90
arpifs/setup/sucfuf.F90
arpifs/setup/sufa.F90*

arpifs/setup/suxfu.F90

Security of direct normal irradiance for ACRANEB2 radiation was refined as well.

** Validation:*

Modset does not affect ARPEGE and AROME integrations. It preserves bit identical spectral norms for ALARO-0 with respect to cy46_main reference. For ALARO-1, validation must be done against modset cy43t2_bf.09_alaro, containing all necessary modifications. Here the meteorological reproducibility is achieved - spectral norms after 2 hour integration on CHMI domain (dx = 4.7km, 87 levels, dt = 180s) match on at least 3 digits. Meteorological reproducibility is confirmed also by visual comparison of cloudiness (with RDECRDRED=1) and precipitation fields after 12 hour integration. For recommended ALARO-0 and ALARO-1 settings, fix 8) increases diagnostic convective cloud cover.

Projects: arpifs

Git branch: masekj_CY46_alaro

Deleted:

arpifs/phys_radi acraneb_trans.F90

Added:

arpifs/phys_dmn mean_rad_temp.F90

Modified:

arpifs/adiab cpg.F90, cpg_dia.F90

arpifs/dia cpcfu.F90, cphddh.F90, cpxfu.F90

arpifs/fullpos endpos.F90, fpachmt.F90, fpcica.F90, fpcorphy.F90, hpos_cfu.F90, hpos_xfu.F90, phymfpos.F90, sufpcfu.F90, sufptr2.F90, sufpxfu.F90, vpos.F90

arpifs/module parfpos.F90, ptrgfu.F90, ptrxfu.F90, traj_main_mod.F90, yomafn.F90, yomcape.F90, yomfa.F90, yomxfu.F90

arpifs/namelist namafn.nam.h, namxfu.nam.h

arpifs/phys_dmn acclph.F90, acmrip.F90, acnebcond.F90, acnpart.F90, acscctr.F90, acsol.F90, actkecls.F90, actkehmt.F90, apl_arome.F90, aplpar.F90, initaplpar.F90, mf_phys.F90, suphmf.F90

arpifs/setup suafn1.F90, suafn2.F90, suafn3.F90, sucupe.F90, sucfu.F90, sufa.F90, suxfu.F90

MENETRIER Benjamin

Doc:

Small bugfix for reading FA files instead of GRIB files in the AEARP.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs

Git branch: menetrie_CY46_famembers_bugfix

Modified:

arpifs/var

subjwavgen_hybrav.F90, varcalc.F90

MICHEL Yann

Doc:

Development branch for the AROME EDA and use of EDA information in AROME :

- *phasing of cy43T2_op1 contribution (pertsurf, sigmabs, bugfix grib IO)*
- *parallel version of the recursive filters for filtering in LAM*
- *extension of control variable under key LENSVCV for EnVar*

NO NUMERICAL IMPACT IS EXPECTED.

Projects: aladin, arpifs, utilities

Git branch: michel_CY46_aearo

Added:

aladin/module	yomenscov.F90
aladin/utility	ewrite_jbctlvec_grib.F90, ewrite_spec_grib.F90
aladin/var	suecvtest.F90, suenscov.F90, suensdim.F90, sugpensmem.F90, sugploc.F90, susploc.F90
arpifs/namelist	namenscov.nam.h
arpifs/var	apply_rf1d.F90, apply_rf1dad.F90, calc_rf_alpha.F90, censcov3.F90, censcov3ad.F90, eapply_pll_rf3d.F90, egploc.F90, egplocad.F90, esploc.F90, esplocad.F90, interp_cubic1d.F90, interp_cubic1dad.F90, jb2model_hybrid.F90, jb2model_hybrid_ad.F90

Modified:

aladin/var	suescal.F90
arpifs/control	adjotest.F90, sim4d.F90
arpifs/module	control_vectors_base_mix.F90, control_vectors_data_mix.F90, control_vectors_oper_mod.F90, control_vectors_para_mod.F90, yomcosjb.F90, yomvar.F90
arpifs/namelist	namvar.nam.h
arpifs/parallel	dot_product_ctlvec.F90
arpifs/setup	su0yomb.F90
arpifs/utility	prt_ctlvec_max.F90, prt_ctlvec_norms.F90, random_ctlvec.F90, setimzero.F90, state2spec.F90, state2specad.F90, write_ctlvec_grib.F90
arpifs/var	adtest.F90, bgpert.F90, bgvecs.F90, cvar2in.F90, cvar2inad.F90, sualctv.F90, sujb.F90, suvar.F90

utilities/pearome

pertsurf.F90

MONTMERLE Thibaut

Doc:

Removal of unnecessary comments.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs

Git branch: montmerl_CY46_bgfx

Modified:

arpifs/module

surface_fields_mix.F90, trajectory_mod.F90, yomdyna.F90, yomspjb.F90, yomtraj.F90

arpifs/op_obs

hdepart.F90, obsop_rad.F90

Doc:

Several contributions allowing to run an ARPEGE 4DVar in cy46_main, including bugfixes by O. Marsden and D. Salmond in July 2018.

** Because of compilation problems with ODB, it has been compiled with Intel compiler in version 18 .*

** The screening crashes with OpenMP, to be investigated.*

** Still some work to do in achmt* routines to get valid TL/AD tests for SYNOP and TEMP.*

** The screening and the minim now use emissivity atlas in HDF for IR radiances available in:
/home/gmap/mrpa/montmerl/pack/cy46_main_dbg/files/uw_ir_emis_atlas_hdf5.tar*

** CANARI not included in the tests.*

** The nb of updates has been set to 10 vs. 3 in previous cycles: need to account for this change in compilation scripts in gmckpack and to use the right create_ioassign in the screening. Ideally, the 3 value should be kept to avoid the increase of the size of some odb bases (specific odb/ddl/cma.h for MF ?).*

EXPECTED IMPACT:

Still to be investigated at higher resolutions.

Projects: arpifs, mse, odb, surfex

Git branch: montmerl_CY46_valid

Added:

odb/ddl.CCMA

CCMA.h, CCMA_Sstatic.c, decis_robhdr_2.sql, sat_atovs_hyper.sql

odb/ddl.ECMA

ECMA.h, ECMA_Sstatic.c, sat_atovs_hyper.sql

odb/ddl

sat_atovs_hyper.sql

Modified:

arpifs/canari

caapar.F90, cacova.F90, cadavr.F90, cah2as.F90, cahuax.F90, caifc1.F90, calico.F90, calver.F90, camelo.F90, can1.F90, canaco.F90, canada.F90, canali.F90, canari.F90, cancer.F90, caneva.F90, cantik.F90, capotx.F90, capsax.F90, caraco.F90, carcfo.F90, caredo.F90, carnak.F90, casela.F90, casgqa.F90, casgra.F90, casgva.F90, casnas.F90, caspia.F90, cassva.F90, castas.F90, cat2as.F90, catrma.F90, cav1as.F90, caviar.F90, cavodk.F90, cavtax.F90

arpifs/cma2odb

context.F90, ctxinitdb.F90

arpifs/control

cnt3.F90, cnt3_glo.F90, cnt4.F90, cnt4ad.F90, cnt4tl.F90, scan2m.F90, scan2mad.F90, scan2mtl.F90, stepo.F90

arpifs/dfi

dfi.F90, dfi2.F90, dfi3.F90

arpifs/module

field_gfl_wrapper.F90, fields_mod.F90, gom_plus.F90, jo_table_mod.F90, obsop_sets.F90, pardimo.F90, surface_fields_mix.F90, traj_main_mod.F90, trajectory_mod.F90, yomcosjo.F90, yomdyna.F90, yomemis.F90, yomspjb.F90, yomtraj.F90

arpifs/obs_preproc

defrun.F90, fgwnd.F90, obatabs.F90, obsprep.F90, pre_prsta.F90, sugoms.F90, suobs.F90

arpifs/oops

allobs_oper_mod.F90, scan2m_oops.F90, stepo_oops_traj.F90

arpifs/op_obs

bgobs.F90, departure_jo.F90, departure_joad.F90, departure_jotl.F90, hdepart.F90, hjo.F90, hop.F90, hop_decide_required_sqls.F90, hradp_ml.F90, hretr_conv.F90, hretr_rad.F90, map_varno_to_nvar.F90, obsop_conv.F90, obsop_rad.F90, obsvad.F90

arpifs/phys_dmn

achmt.F90, achmtad.F90, achmttl.F90, acntclsad.F90, acntclstl.F90

arpifs/pp_obs

ppobsac.F90, ppobsacad.F90, ppobsactl.F90

arpifs/setup

suemis_conf.F90

arpifs/var

chavarin.F90, chavarinad.F90, chkobtim.F90, ecset.F90, jbtomodel.F90, jbtomodelad.F90, suecges.F90, surad.F90, taskob.F90, taskobad.F90, taskobtl.F90

mse/externals

canari_sfx.F90

odb/ddl

cancer_robody.sql, carcfo.sql, decis_robhdr_2.sql, hop_canari_robhdr.sql, hop_canari_robody.sql, robhdr.sql, robody.sql, sat_atovs.sql

odb/lib

cread_iomap.c

surfex/ASSIM
surfex/SURFEX

oi_control.F90
read_gridtype_gauss.F90

Doc:

Modifications diverses pour AROME, bugfixes pour les achmt.
M1QN3 fonctionne pour la minim AROME avec des interfaces explicitement créées.*

NB: il a fallu renommer les routines suivantes en "F90":

*algor/external/minim/m1qn3.F => algor/external/minim/m1qn3.F90
algor/internal/minim/m1qn3a.F => algor/internal/minim/m1qn3a.F90
algor/internal/minim/mlis0.F => algor/internal/minim/mlis0.F90*

NO NUMERICAL IMPACT IS EXPECTED.

Projects: algor, arpifs

Git branch: montmerl_CY46_valid_AROME

Renamed:

algor/external/minim m1qn3.F algor/external/minim/m1qn3.F90
algor/internal/minim m1qn3a.F algor/internal/minim/m1qn3a.F90, mlis0.F algor/internal/minim/mlis0.F90

Added:

algor/interface m1qn3.intfb.h, m1qn3a.intfb.h, mlis0.intfb.h

Modified:

algor/external/minim m1qn3.F
algor/internal/minim m1qn3a.F, mlis0.F
arpifs/control cva2.F90
arpifs/module field_container_sp_mod.F90
arpifs/phys_dmn achmt.F90, achmtad.F90, achmttl.F90
arpifs/var cvar2in.F90, cvar2inad.F90, jbtomodel.F90, jbtomodelad.F90, suecges.F90

MONTMERLE Thibaut, ARBOGAST Etienne, CHAMBON Philippe, GUIDARD Vincent

Doc:

- Fixes in PPOBSAC* allowing to use 43T2's ACHMT*, by using before a new surface fields checks.
- Use of 'statid' instead of 'satellite_identifier' for SCAT first guess check.
- Improve TestSuiteVariational, Fix orography in OOPS-4DVar, Fix time handling in OOPS TL model.
- 1st round of bugfixes for using gom_2D for radar and cloudy mwave radiances.
- bugfix allowing to activate CO2 slicing for IASI.

EXPECTED IMPACT:

Tests ongoing.

Projects: arpifs, blacklist, odb, oops_src, oopsifs, satrad

Git branch: montmerl_CY46_t1.05.common_stuff

Deleted:

odb/ddl.CCMA	decis_robhdr_2.sql
odb/ddl.ECMA	decis_robhdr_2.sql
odb/ddl	decis_robhdr_2.sql

Added:

arpifs/phys_dmn	chksurf.F90
oops_src/src/oops/assimilation	DPLanczosJMinimizer.h, DoubleMinimizer.h
satrad/module	bayrad_const.F90

Modified:

arpifs/control	scan2mtl.F90
arpifs/module	field_gfl_wrapper.F90, fields_mod.F90, gom_mod.F90, gom_plus.F90, iospeca_mod.F90, model_mod.F90, sats_mix.F90, supergom_class.F90, yomlocs.F90
arpifs/obs_preproc	bayrad_thinn.F90, fgchk.F90, fgwnd.F90, sugoms.F90
arpifs/oops	allob_error_mod.F90, error_covariance_3d_mod.F90
arpifs/op_obs	bayrad_inv.F90, bayrad_opobs.F90, bayrad_setup.F90, bayrad_sim.F90, cobs.F90, hop.F90, hretr_conv.F90, hretr_rad.F90, mw_clearsky_screen.F90, obsop_conv.F90, obsop_rad.F90, obsvad.F90
arpifs/phys_dmn	achmt.F90, achmtad.F90, achmttl.F90, acntclsad.F90, acntclstl.F90, aplpar.F90

arpifs/pp_obs	ppobsac.F90, ppobsacad.F90, ppobsactl.F90
arpifs/setup	rdfasporo.F90, susc2c.F90
arpifs/utility	updtim.F90
blacklist	mf_blacklist.b
odb/ddl	robody.sql
oops_src/src/oops/assimilation	CostJo.h, instantiateMinFactory.h
oops_src/src/oops/base	Departures.h
oops_src/src/test/base	TestSuiteEnsemble.h, TestSuiteOpObsTrajFile.h, TestSuiteOpObsTrajModel.h, TestSuiteVariationalFixture.h
oopsifs/mains	TestSuiteVariational.cc, ifs4dvar.cc
oopsifs/src/ifs	ModelIFS.interface.F90, ObsBias.interface.F90, ObsBiasIncrement.interface.F90

PAYAN Christophe

Doc:

Various updates for AMV data, mainly at level of ODB content:

- reportype informed for MetOp-3(C), MET11, Himawari8/9, NPP, GOES16/17
- expected error computed when information is available (NPP, GOES15 onwards), requires a param_bator.cfg update
- mf_blacklist.b update
- cleaning of &NAMSATFREQ block in namel_bator allowed by satobfreq_bynam.F90 update

EXPECTED IMPACT:

ODB columns reportype and ee are filled for AMVs when information is available.

No impact in assimilation results.

Projects: blacklist, odb

Git branch: payan_CY46_main01_amvupdate

Modified:

blacklist	mf_blacklist.b
odb/bufr2odb	satobfreq_bynam.F90
odb/pandor/module	bator_decodbufr_mod.F90, bator_ecritures_mod.F90, bator_init_mod.F90, bator_saisies_mod.F90, bator_util_mod.F90

Doc:

Pre-merging of an EC's branch so-called 4newSCATT provided by GDC, with miscellaneous improvements.

Built on the branch guillaum_CY46_43_46merging, from CY46.

This branch allows to process data from new scatterometers which should be available in a near future:

- ASCAT on MetOp-3(C)
- RFSCAT on CFOSAT
- OSCAT on OceanSat-3
- WindRAD on FY-3E

CFOSAT and FY-3E processing code will be completed when their data format (new BUFR template) will be known.

EXPECTED IMPACT:

Impact when data will be present otherwise no impact.

New scatterometers handling 2

Projects: arpifs, blacklist, odb

Git branch: payan_CY46_main01_newscatt

Added:

arpifs/obs_preproc fscatin.F90, wscatin.F90

Modified:

arpifs/module jo_table_mod.F90, parersca.F90, yomcoctp.F90, yomcosjo.F90, yomsccl.F90, yomthlim.F90

arpifs/namelist namsccl.nam.h

arpifs/obs_preproc ascatif.F90, decis.F90, defrun.F90, fgwnd.F90, kscatin.F90, new_thinn.F90, scaqc.F90, scat_ob.F90, sufglim.F90

arpifs/setup cmoctmap.F90, cmoctmap_inv.F90

arpifs/var suscat.F90

blacklist mf_blacklist.b

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

Doc:

1) *Fix various sleeping bugs regarding scatt data processing:*

- *ASCAT processing: producer correctly defined if backscatter measurements are written in ODB (under llmkcmrpl key)*

- *all scatt: seems to be safer to use an index for initializing an array (idxord) different of the loop index in which this is done!*

2) *Updates after various checking of first 46_t1 merging.*

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs, blacklist, odb

Git branch: payan_CY46_t1v1_scattsig0fix

Modified:

arpifs/module jo_table_mod.F90, yomsccl.F90

arpifs/obs_preproc defrun.F90, fgwnd.F90, scaqc.F90

blacklist mf_blacklist.b

odb/pandor/module bator_decodbufr_mod.F90

RASPAUD Dominique

Doc:

- *Modifications to enable the monitoring of FY-3C and Megha-Tropiques radio-occultation data.*
- *Preparation for the assimilation of METOP-C radio-occultation measurements.*
- *Update of the list of the GPSRO satellites for the JO-table.*

EXPECTED IMPACT:

More observations.

Projects: arpifs, blacklist

Git branch: raspaudd_CY46_newobsGPSRO

Modified:

arpifs/module	yomlimb.F90
arpifs/var	sulimb.F90
blacklist	mf_blacklist.b

RAYNAUD Laure

Doc:

Phasing of 43t2_op1 contributions for PEARO.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: aladin, utilities

Git branch: raynaudl_CY46_pearo

Modified:

aladin/setup
utilities/pearome

sueqlimsat.F90
addpearp.F90, clust.F90

SAEZ Patrick

Doc:

Bugfix for mitraillette tests.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs, mse

Git branch: saez_CY46_saez

Modified:

arpifs/dfi

dfi2.F90

arpifs/module

ddh_mix.F90, yomcoctp.F90

mse/internals

aroget_desfm_n.F90

SEITY Yann

Doc:

Add the possibility to distinguish time of the surface guess and time for XFU fluxes.

It fixes a bug in AROME-France surface analysis process.

In AROME, we have to add in namel_ana_surfex :

&NAM_NACVEG

NECHGU=3,

NECHGXFU=1,

By default, NECHGXFU=6, as required for ARPEGE.

EXPECTED IMPACT:

Impact only in SURFEX surface analysis process.

Projects: mse, surfex

Git branch: seity_CY46_ARO_from43t2op

Modified:

mse/internals

surfex/ASSIM

aroget_desfm_n.F90

assim_nature_isba_oi.F90, default_assim.F90, ini_assim.F90, modd_assim.F90, modn_assim.F90,
oi_cacsts.F90, oi_control.F90, read_namelists_assim.F90

SMOLIKOVA Petra

Doc:

Bugfix of festat by Bucanek chmi: missing namelist params, improved reading of namelist, fix of overwriting some diagnostic files.

Projects: utilities

Git branch: smolikovap_CY46_festatbf

Modified:

utilities/bcov_lam/others

diagcov.F90, sbdiacov.F90, sufestat.F90

utilities/bcov_lam/programs

diacov.F90

SMOLIKOVA Petra & YESSAD Karim

Doc:

Phasing to CY46 and validation: Petra Smolikova, CHMU . Author: Jozef Vivoda, SHMU .

Contains the following modifications:

1) LSETTLS & LPC_CHEAP enabled.

adiab/lapineb - ZC9_NL, ZGMV9_NL

- call larcinb

- call larcinhb

- add NL part specific to SETTLS to PXT1

adiab/larcinb - YDTLSCAW, YDTRSCAW used

- PGMVF_NL, PCF_NL added

- call laitli for PGMVF_NL, PCF_NL

adiab/larcinhb - call laitli for PB1(1,MSLB1VD9_NL), add to PGWF_NL

adiab/latte_bbc - remove abort

adiab/lattes - remove abort

- PB1(:,MSLB1C9) devided in PB1(:,MSLB1C9)

and PB1(:,MSLB1C9_NL) for LPC_CHEAP

adiab/lattex - add MSLB2[X]9_NL

- add PB1(1,MSLB1[X]9_NL)) to calls for lattex_dnt

adiab/lattex_dnt - remove abort

- use PXLFO for LPC_CHEAP

adiab/lattextl - adjust calls to lattex_dnt

module/ptrslb1 - buffers for NL part

setup/sudyn - abort for N[X]LAG<>3 and LSETTLS with LPC_CHEAP

setup/suslb - initialize MSLB1[X]9_NL

setup/sudyna - remove abort

2) LPC_DYN: mixed NESC/SETTLS scheme.

Variable ISETTLOFF/KSETTLOFF is used as in LSETFSTAT, abort added fro LPC_DYN&LSETFSTAT to sudyn.

adiab/cpg_drv - compute global characteristics for LPC_DYN and print them in listing if LPC_PRINT

adiab/lacdyn - call latte_nl to compute which kind of extrapolation will be used in each GP

- set ZMIXNL=1 for LPC_DYN=F

- call lattex, latte_bbc, lattes, lanhsib with ZMIXNL

adiab/lanhsib - use ZMIXNL to save in PB1

adiab/latte_bbc - combine SETTLS and NESC parts to PB1(:,MSLB1DPHI9), PB1(:,MSLB1DBBC9)

adiab/latte_nl - determine the way NL residuals are extrapolated(NEW ROUTINE)

adiab/lattes - settls part multiplied with ZMIXNL

adiab/lattex - add ZMIXNL to calls to lattex_dnt

adiab/lattex_dnt - fill buffers using ZMIXNL

adiab/lattextl - adjust calls to lattex_dnt

module/yomdyna - new keys LPC_DYN, LPC_PRINT

namelist/namdyna - new keys LPC_DYN, LPC_PRINT

setup/sudyn - abort for LPC_DYN with LSETFSTAT

setup/sudyna - default for new keys

- abort for restricted choices and prints

3) Print spnorms of PD,VD in ifs.stat if NH: these norms are crucial for stability, to monitor a NH experiment one needs to check PD,VD norms.

dia/spnorm.F90

module/yomspnrm.F90

utility/opdis.F90

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VALIDATIONS

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The experiments for modset smolikovap_CY46_settlesod validation were done on a small domain 30x30

grid points, integration for 24 hours, in the following configurations:

NTLAG=3, NVLAG=3, NWLAG=3, NSVDLAG=3, NSPDLAG=3, ND4SYS=2,

LSETTLST=T, LSETTLSV=T, LNESCT=F, LNESCV=F in all experiments.

SETTLS means *LSETTLS=T, LNESEC=F, LPC_FULL=F, LPC_CHEAP=F, NSITER=0*

NESC+FULL means *LNESEC=T, LPC_FULL=T, LPC_CHEAP=F, NSITER=1*

NESC+CHEAP means *LNESEC=T, LPC_FULL=T, LPC_CHEAP=T, NSITER=1*

SETTLS+FULL means *LSETTLS=T, LNESEC=F, LPC_FULL=T, LPC_CHEAP=F, NSITER=1*

Newly enabled configuration:

SETTLS+CHEAP means *LSETTLS=T, LNESEC=F, LPC_FULL=T, LPC_CHEAP=T, NSITER=1* .

"bit identical with cy46" means that the spectral norms are bit identical after 24 hours.

"reasonable results" means that the field of temperature and pressure departure look similar as for *SETTLS*; other fields were not checked.

Hydrostatic runs:

SETTLS bit identical with cy46

NESC+FULL bit identical with cy46

NESC+CHEAP bit identical with cy46

SETTLS+FULL bit identical with cy46

SETTLS+CHEAP reasonable results

NH runs with *LGWADV=T, LRDBBC=F*:

SETTLS bit identical with cy46

NESC+FULL bit identical with cy46

NESC+CHEAP bit identical with cy46

SETTLS+FULL bit identical with cy46

SETTLS+CHEAP reasonable results

SETTLS+CHEAP+LPC_DYN=T reasonable results

NH runs with *LGWADV=F, LRDBBC=T*:

SETTLS bit identical with cy46

NESC+FULL bit identical with cy46

NESC+CHEAP bit identical with cy46

SETTLS+FULL bit identical with cy46

SETTLS+CHEAP reasonable results

Projects: arpifs

Git branch: gco_CY46_smolikovap_settlsod

Added:

arpifs/adiab latte_nl.F90

Modified:

arpifs/adiab cpg_drv.F90, lacdyn.F90, lanhsib.F90, lapineb.F90, larcinb.F90, larcinhb.F90, latte_bbc.F90, lattes.F90, lattex.F90, lattex_dnt.F90, lattextl.F90

arpifs/dia spnorm.F90

arpifs/module ptrslb1.F90, yomdyna.F90, yomspnrm.F90

arpifs/namelist namdyna.nam.h

arpifs/setup sudyn.F90, sudyna.F90, suslb.F90

arpifs/utility opdis.F90

SPANIEL Oldrich**Doc:**

Some correction regarding Hirlam: sokka_CY43_hirlam_contrib_part1 contribution. The modification done in this contribution is cleaning by request from Bogdan/Alena.

Projects: aladin

Git branch: spaniel_CY46_blendsur

Modified:

aladin/programs

blendsur.F90

SUZAT Florian

Doc:

- 1) *Added monitoring for MWRI, AMSR2 and anticipation of future Mw sensors that will be available soon.*
- 2) *Bugfix in varbc_pred.F90 by P.Chambon (nullify XX-YY hPa thickness if they are above the model top --> causing problem in AROME).*

EXPECTED IMPACT:

More observations.

Projects: arpifs, blacklist, satrad

Git branch: suzat_CY46_newMW

Modified:

arpifs/module	varbc_pred.F90
arpifs/namelist	namemis_conf.nam.h
arpifs/obs_preproc	new_thinner_no_sq.F90, pre_thinner.F90
arpifs/op_obs	departure_jo.F90, emis_atlas.F90, hsatang.F90, mw_clearsky_screen.F90, mw_clearsky_screen_mfdecis.F90
blacklist	mf_blacklist.b
satrad/emiss	atlas_iniall.F90

VOITUS Fabrice

Doc:

Flexible DDH + openMP fix + Budget correction for LIMA.

Projects: arpifs, mpa

Git branch: voitus_CY46_arome_ddhfix

Modified:

arpifs/control	gp_model.F90
arpifs/dia	sunddh.F90
arpifs/module	ddh_mix.F90, yemlbc_init.F90, yemlbc_model.F90
arpifs/phys_dmn	apl_arome.F90
mpa/micro/externals	aro_startbu.F90, aro_suintbudget_omp.F90
mpa/micro/interface	aro_startbu.h
mpa/micro/internals	budget.F90, lima_cold_hom_nucl.F90, lima_meyers.F90, lima_mixed.F90, lima_phillips.F90, rain_ice_old.F90
mpa/turb/externals	aro_turb_mnh.F90
mpa/turb/interface	aro_turb_mnh.h
mpa/turb/internals	turb.F90
mpa/turb/module	modi_turb.F90

Doc:

Bugfix for DDH budgets in LIMA microphysic, and for SI SL Predictor-Corrector DDH Budgets

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs, mpa

Git branch: voitus_CY46_arome_ddhfix_bis

Modified:

arpifs/adiab	cpg.F90, cpg_dia.F90, cpglag.F90
arpifs/dia	cpdyddhlag.F90
arpifs/module	ddh_mix.F90

arpifs/phys_dmn
mpa/micro/externals
mpa/micro/internals

apl_arome.F90
aro_lima.F90
rain_ice_old.F90

Doc:

ACAD setup fix.

Projects: arpifs

Git branch: voitus_CY46_setup_anal

Modified:

arpifs/setup suspecg2.F90

Doc:

Setup for analytical initial conditions in ARPEGE: Small planet tests-cases with a prescribed orography and dry baroclinic waves test-cases.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: arpifs

Git branch: voitus_CY46_voitus

Modified:

arpifs/setup sudcmip12_spec.F90, suspecg2.F90

YESSAD Karim

Doc:

Contribution for CY46T1:

- * alternate formulation of semi-implicit scheme in NHEE model (key LSI_NHEE).*
- * corrections for NHQE (non-linear Laplacian term).*
- * new variable `RATIO_HDI_TOP` to be used to increase horizontal diffusion near the top (rather than `NSREFDH`).*
- * possibility to use moist `R` in the definition of vertical divergence (`HYD`, `NHEE`): new variable `L_RDRY_VD`.*
- * code under `LNHEE_SVDLAPL_FIRST`: alternate treatment of non-linear Laplacian term in the NHEE model.*
- * minor cleanings.*

NO NUMERICAL IMPACT IS EXPECTED.

Projects: aladin, arpifs

Git branch: yessad_CY46_46allplus

Added:

aladin/adiab espnheesi.F90
arpifs/adiab gnhee_lapl.F90, gnhee_tndlagadiab_gw.F90, gnhee_tndlagadiab_svd.F90, gnhqe_lkap.F90, spnheesi.F90
arpifs/setup sunheebmat.F90, sunheesi.F90

Modified:

aladin/control espcm.F90
aladin/setup suedynb.F90
arpifs/adiab cpg_gp_hyd.F90, cpg_gp_nhee.F90, cpg_gp_nhqe.F90, gnh_conv_nhvar.F90, gnhd3.F90, gnhpreh.F90,
 gnhqe_conv_nhvar.F90, gnhqe_preh.F90, gnhqe_tndlagadiab_gw.F90, gnhqe_tndlagadiab_svd.F90,
 lapineb.F90
arpifs/control cnt4.F90, spcm.F90
arpifs/dfi dfi3.F90
arpifs/module yomdyn.F90, yomdyna.F90
arpifs/namelist namdyn.nam.h, namdyna.nam.h
arpifs/phys_dmn mf_phys.F90
arpifs/pp_obs pos.F90
arpifs/setup sualdynb.F90, sudyn.F90, sudyna.F90, suheg.F90

Doc:

Mitraillette update for CY46_T1V01.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: [...], validation

Git branch: yessad_CY46_t1V01cor

Added:

validation/mitraille/procedure

directives_updnam_cy46_to_cy46t1.py

validation/mitraille/protojobs/beaufix

config_CY46T1

Modified:

.

validation/mitraille/doc

history_difnam

validation/mitraille/namelist

GE_C901.nam, GM_C401_HYD_EUL_VFD_ADIAB_TL030S.nam,
GM_C401_HYD_EUL_VFD_ADIAB_TL031U.nam, GM_C401_HYD_EUL_VFD_SIM4PHYISBA.nam,
GM_C401_HYD_SL2_VFE_ADIAB_SLHD_TL030S.nam,
GM_C401_HYD_SL2_VFE_ADIAB_SLHD_TL031U.nam,
GM_C401_HYD_SL2_VFE_ADIAB_TL030S.nam, GM_C401_HYD_SL2_VFE_ADIAB_TL031U.nam,
GM_C401_HYD_SL2_VFE_SIM4PHYISBA.nam

validation/mitraille/namelist_ref

L3_FPOF_HYD_GPLELAM_CIE_LAM1.nam, L3_FPOF_HYD_GPLELAM_CI_GRI1.nam,
L3_FPOF_HYD_GPLELAM_CI_GRI2.nam, L3_FPOF_HYD_GPLELAM_CI_OPEX.nam,
L3_FPOF_HYD_MODEL.nam, L3_FPOF_HYD_SPLELAM_ARUNES.nam, aainfo, vide

validation/mitraille/pro_file

PRO_FILE.currentcycle_aldref, PRO_FILE.currentcycle_arpref

validation/mitraille/protojobs/beaufix

config_CY46

Doc:

MITRAILLETTE updates.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: validation

Git branch: yessad_CY46_t1V02cor

Added:

validation/mitraille/procedure directives_normalise_namelists.py

Modified:

validation/mitraille/doc history_difnam

Doc:

New v122018 version of MITRAILLETTE

New v122018 version of MITRAILLETTE

+ MITRAILLETTE fixes for GM_FPOF_HYD_SPLELAM_COU.nam

NO NUMERICAL IMPACT IS EXPECTED.

Projects: [...], validation

Git branch: yessad_CY46_t1V04cor

Added:

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validation/mitraille/namelist GM_FCST_HYD_SL2_VFD_ADIAB_SETTLS_DCMIP200TL239U.nam,
GM_FCST_HYD_SL2_VFD_ADIAB_SETTLS_DCMIP210TL319U.nam,
GM_FCST_HYD_SL2_VFD_ADIAB_SETTLS_DCMIP400TL179U.nam,
GM_FCST_HYD_SL2_VFD_ADIAB_SETTLS_DCMIP410TL2249U.nam,
GM_FCST_HYD_SL2_VFD_ADIAB_SETTLS_DCMIP410TL799U.nam
validation/mitraille/protojobs L3_PGDS_LELAM_OC0275.pjob, L3_PGDS_LELAM_OC0375.pjob, L3_PGDS_LELAM_OC0750.pjob,
L3_PGDS_LELAM_OC1000.pjob, L3_PGDS_LELAM_OC1300.pjob

Modified:

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validation/mitraille/doc doc_mitraillette.pdf, history_difnam
validation/mitraille/namelist GM_FCST_NHE_SL2_VFD_ADIAB_GWADV2_PCC_TL030S.nam,
GM_FCST_NHE_SL2_VFD_ADIAB_GWADV2_PCF_TL030S.nam,
GM_FCST_NHE_SL2_VFD_ADIAB_GWADV2_SI_TL030S.nam
validation/mitraille/protojobs/beaufix config_CY45, config_CY45T1, config_CY46, config_CY46T1, profil_table

Doc:

MITRAILLETTE fixes: set LSCALC=F in LAM conf E601.

NO NUMERICAL IMPACT IS EXPECTED.

Projects: validation

Git branch: yessad_CY46_t1V05cor

Modified:

validation/mitraille/namelist

L3_C601_HYD_EUL_VFD_VSIPHY_PGAL.nam, L3_C601_HYD_SL2_VFD_VSIPHY_PGAL.nam,
L3_C601_HYD_SL2_VFE_VSIPHY_PGAL.nam

validation/mitraille/namelist_ref

L3_C601_HYD_EUL_VFD_VSIPHY_PGAL.nam, L3_C601_HYD_SL2_VFD_VSIPHY_PGAL.nam,
L3_C601_HYD_SL2_VFE_VSIPHY_PGAL.nam