

## ARPEGE MEMORANDUM

**From:** GCO **Date:** August 27, 2007  
**To:** GMAP, COMPAS, GMGEC, GMME,  
DIR/RE/CRC, Mats Hamrud  
**Subject:** New cycle CY32T2

A new cycle CY32T2 has been created. This is not a common cycle with the ECMWF. The different contributions for this cycle are described in the following pages.

**ClearCase label:** CY32T2

**Modified libraries:** arpege

### **Contributors:**

ALIAS Antoinette	Project:arpege	CCase branch:mrpa589_CY32T1_gco
AUDOIN Jean-Marcc	Project:arpege	CCase branch:mrpe602_CY32T0_compact
AUGER Ludovic	Project:arpege	CCase branch:mrpa645_CY32T1_varp
Alena Trojakova	Project:arpege	CCase branch:marp001_CY32T1_mrpe694sevb
BAZILE Eric	Project:arpege	CCase branch:mrpm604_CY32T1_CVPPKF
BOUYSSSEL Francois	Project:arpege	CCase branch:mrpa649_CY32T1_fby_surfex
	Project:arpege	CCase branch:mrpa649_CY32T1_fby_surfex2
	Project:arpege	CCase branch:mrpa649_CY32T1_sfx2
BROUSSEAU Pierre	Project:arpege	CCase branch:mrpm613_CY32T0_aromeassim
CHAPNIK Bernard	Project:arpege	CCase branch:mrpa658_CY32T1_narbe
	Project:arpege	CCase branch:mrpa658_CY32T1_narbefb
DZIEDZIC Adam	Project:arpege	CCase branch:mrpe701_CY32T1_adam1
Dominique Puech	Project:arpege	CCase branch:marp001_CY32T0_mrpa660dev
EL-KHATIB Ryad	Project:arpege	CCase branch:mrpm602_CY32T0_fttrace
	Project:arpege	CCase branch:mrpm602_CY32T0_nec
	Project:arpege	CCase branch:mrpm602_CY32T1_slopt
Francoise Taillefer	Project:arpege	CCase branch:marp001_CY32T1_mrpa647c701
GCO	Project:arpege	CCase branch:marp001_CY32T0_op1avarca
	Project:arpege	CCase branch:marp001_CY32T0_op1v02
	Project:arpege	CCase branch:marp001_CY32T1_dble
	Project:arpege	CCase branch:marp001_CY32T1_none
GUILLAUME Frank	Project:arpege	CCase branch:mrpa644_CY32T0_fg07002
HELLO Gwenaelle	Project:arpege	CCase branch:mrpe721_CY32T1_Cvers32t1
IVATEKS-SAH DAN Stjepan	Project:arpege	CCase branch:marp001_CY32T1_mrpm620_ [...]
JIDANE Mohamed	Project:arpege	CCase branch:mrpe731_CY32T1_jidane
Karim Yessad & Francoise Taillefer & Christophe Payan	Project:arpege	CCase branch:marp001_CY32T0_bf
Martina Tudor	Project:arpege	CCase branch:marp001_CY32T1_martino
PAYAN Christophe	Project:arpege	CCase branch:mrpa642_CY32T0_pret2_scat
	Project:arpege	CCase branch:mrpa642_CY32T1_bfscat

PIRIOU Jean-Marcel	Project:arpege	CCase branch:mrpm606_CY32T1_ddhtkp
POLI Paul	Project:arpege	CCase branch:mrpa679_CY32T0_gpsro_may
	Project:arpege	CCase branch:mrpa679_CY32T1_fixdealfpos
PUECH Dominique	Project:arpege	CCase branch:mrpa660_CY32T1_phas
SEITY Yann	Project:arpege	CCase branch:mrpm637_CY32T1_arome2
	Project:arpege	CCase branch:mrpm637_CY32T1_aromeBF
	Project:arpege	CCase branch:mrpm637_CY32T1_arome_diags
	Project:arpege	CCase branch:mrpm637_CY32T1_arome_masdev47
TAILLEFER Francoise	Project:arpege	CCase branch:mrpa647_CY32T0_ft932
Thibaut Montmerle	Project:arpege	CCase branch:marp001_CY31T1_op1NEC
WATTRELOT Eric	Project:arpege	CCase branch:mrpa652_CY32T1_radarew2
WILHELMSSON Tomas	Project:arpege	CCase branch:mrpm636_CY32T1_hirlam
	Project:arpege	CCase branch:mrpm636_CY32T1_hirlamT2
YESSAD Karim	Project:arpege	CCase branch:mrpm603_CY32T1_dev32t1pour32t2

### **ALIAS Antoinette**

#### **Doc:**

*1/ Introduce the mix length of LENDERINCK: add LMLH, LNODIFQC, RLMLH1/RLMLH2/RLMLH3 .*

*2/ Modifications for the nudging:*

- add NSPNU1, NSPNU2 ;
- Ts nudging with land-sea mask .

*3/ Introduce mass correction in ALADIN .*

*4/ Fix optical parameters in aerosols and Rayleigh, and in the recovery of aerosols (A.Grini, O.Thouron).*

**Project:** aladin,arpege  
**ClearCase branch:** mrga589\_CY32T1\_gco

#### **Added:**

arp/climate cormass3a.F90 cormass3b.F90  
arp/module yommal.d.F90

#### **Modified:**

ald/inidata	elsirf.F90		
arp/adiab	spchor.F90		
arp/climate	cormass3a.F90	cormass3b.F90	
arp/control	cnt4.F90		
arp/dia	cpnudg.F90		
arp/module	yommal.d.F90	yomnud.F90	yomphy.F90
	yomphy0.F90		
arp/namelist	namnud.h	namphy.h	namphy0.h
arp/phys_dmn	mf_phys.F90	suphy0.F90	swclr15.F90
arp/setup	su0phy.F90	sunud.F90	

## **AUDOIN Jean-Marcc**

### **Doc:**

#### *Part 1:*

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*a/ PROGRID: introduce new fields for AROME .*

*b/ GOBPTOUT: introduce a new field.*

#### *Part 2:*

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*Compression and optimization of coupling files (second order packing).*

*ald/utility/espereord.F90 & arp/utility/spereord.F90:*

*Reorder spectral arrays of file structure to model structure, and vice versa. In this new version, spectral coefficients are ranged in order JM=0,1,2,3,4 , where JM is the zonal wave number.*

*arp/parallel/disspec0.F90:*

*The distribution of the global spectral array on the different processors is now made in this routine (send phase), and no more in (e)spereord.F90 .*

*arp/parallel/diwspe0.F90 & arp/parallel/trvvtof.F90:*

*Local spectral arrays are ranged in a global spectral array, where spectral coefficients are ranged like JM=0,1,2,3,4 (reception phase).*

*arp/setup/sufpc.F90:*

*Variable NFPGRIB now accepts value -1 . For this value, no compacting, but spectral arrays are ordered in file as in model.*

*arp/utility/prepacka.F90:*

*Change INGRIB(NVGRIB) to KGRIB(NFPGRIB) .*

*arp/setup/suarg.F90:*

*Default value of compacting (NVGRIB) in output is now the same as read in the input file, before it was equal to 2 . So, a forecast starting from an input file where NVGRIB=3 should produce output files with NVGRIB=3, without specify it in namelist.*

*xrd/fa/faipag.F:*

*Cleaning allowing the optimal use of GRIBEX .*

*xrd/fa/facodx & xrd/fa/fainig.F:*

*Handle new geometry of model, and move some prints under keys.*

*xrd/fa/faisc2.F:*

*Handle new geometry of model.*

*xrd/fa/fagiot.F & xrd/fa/fagote.F:*

*Move some prints under keys.*

*xrd/fa/fadecx.F & xrd/fa/facodx.F:*

*Fix a bad processing of humidity fields name.*

**Project:** aladin,arpege,utilitaires,auxiliaire

**ClearCase branch:** mrpe602\_CY32T0\_compact

### **Modified:**

ald/utility espereord.F90

arp/parallel disspec0.F90 diwrspe0.F90 trwvtof.F90  
arp/setup suarg.F90 sufpc.F90  
arp/utility prepacka.F90 spareord.F90  
uti/gobptout procor1.F  
uti/progrid procor2.F  
xrd/fa facodx.F fadecx.F fagiot.F  
fagote.F fainig.F faipag.F  
faisc2.F

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### **AUGER Ludovic**

**Doc:**

*[missing]*

**Project:** aladin,arpege

**ClearCase branch:** mrpa645\_CY32T1\_varp

**Modified:**

ald/setup suefpg3.F90  
arp/obs\_preproc defrun.F90

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### **Alena Trojakova**

**Doc:**

*Following modifications concern the development in program BATOR. Due to problem to install RGB library at HMS an optional read by GRIBEX library was added. Use of RGB library was kept unchanged. Current decision making is based on suffix of input file (sev is RGB option). A new option sevb was defined which uses GRIBEX library (input file should have the name GRIB.sevb).*

*Added routines:*

*uti/bator/decodegrib.F90*

*A new routine based on GRIBEX example reads content of SEVIRI grib file into a 3D array PSEV(:, :, :) where the first two dimension correspond to the horizontal position (longitudinal and latitudinal scan band) of the pixel and the third has 17 components defines all remaining informations about the pixel in following order (the order is kept the same as in original bator\_decodgrib.F90):*

*PSEV(IP,IL,1) ! brightness temperature of channel 1 3.9 microns  
PSEV(IP,IL,2) ! brightness temperature of channel 2 6.2 microns  
PSEV(IP,IL,3) ! brightness temperature of channel 3 7.3 microns  
PSEV(IP,IL,4) ! brightness temperature of channel 4 8.7 microns  
PSEV(IP,IL,5) ! brightness temperature of channel 5 9.7 microns  
PSEV(IP,IL,6) ! brightness temperature of channel 6 10.8 microns  
PSEV(IP,IL,7) ! brightness temperature of channel 7 12.0 microns  
PSEV(IP,IL,8) ! brightness temperature of channel 8 13.4 microns  
PSEV(IP,IL,9) ! date  
PSEV(IP,IL,10) ! Cloud type  
PSEV(IP,IL,11) ! Cloud Top Pressure  
PSEV(IP,IL,12) ! Cloud type QF  
PSEV(IP,IL,13) ! Cloud Top Pressure QF  
PSEV(IP,IL,14) ! Latitude  
PSEV(IP,IL,15) ! Longitude  
PSEV(IP,IL,16) ! Azimuthal angle  
PSEV(IP,IL,17) ! Zenithal angle*

*uti/bator/bator\_lgrib\_sevb.F90*

A new routine (analog to *uti/bator/bator\_decodgrib.F90*) to read SEVIRI data by above mentioned routine.

**Modified routines:**

*uti/module/bator\_module.F90*

New parameters *NLON\_GRIB*, *NLAT\_GRIB* defining horizontal dimension of input SEVIRI grib file were added.

*uti/bator/bator\_init.F90*

Initialization of new namelist variables (*NLON\_GRIB=1500*, *NLAT\_GRIB=750*) and case *sevb*.

*uti/bator/bator\_lectures.F90*

Initialization of case *sevb* and call of *bator\_lgrib\_sevb*.

**Changes in the namelist:**

*uti/bator/bator\_namelist.h*

New parameters *NLON\_GRIB*, *NLAT\_GRIB* defining horizontal dimension of input SEVIRI grib file.

**Project:** utilitaires

**ClearCase branch:** marp001\_CY32T1\_mrpe694sevb

**Added:**

*uti/bator bator\_lgrib\_sevb.F90 decodegrib.F90*

**Modified:**

*uti/bator bator\_init.F90 bator\_lectures.F90 bator\_lgrib\_sevb.F90  
decodegrib.F90*

*uti/module bator\_module.F90*

*uti/namelist bator\_namelist.h*

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**BAZILE Eric**

**Doc:**

1/ Interface for the call of the AROME shallow convection, the so-called KFB scheme (LCVPPKF) in APLPAR .

2/ For the TKE-scheme (LECT):

- new logical : *LNEBECT=T* activate the *F0*, *F1*, *F2* Bougeault functions for the computation of the cloud water and the cloud cover in the case of *LECT=T* (Default=*F*) ;

- compute the radiative cloud water (with *LNSMLIS=T* default) to avoid the layering with the radiation scheme (already done in ACNEBSM with the same logical) .

Caution for the namelist! For the TKE scheme (LECT), instead of:

*CALL ACTKE( KIDIA,KFDIA,KLON,NTCOET,NTNEBU,KLEV,&  
we have*

*CALL ACTKE( KIDIA,KFDIA,KLON,NTCOEF,NTCOET,KLEV,&*

*so be careful in the namelist ! Now we will have Louis from 1 (NTCOEF) to NTCOET-1 and TKE from NTCOET to KLEV .*

3/ Fix two prints in *su0phy.F90* .

**Project:** arpege,Meso-NH physique altitude

**ClearCase branch:** mrpm604\_CY32T1\_CVPPKF

**Added:**

arp/namelist	namcvmnh.h		
arp/phys_dmn	acvppkf.F90	cphflux.F90	cphflux2.F90
mpa/conv/externals	convection_shal.mnh		
mpa/conv/interface	convection_shal.h		

**Modified:**

arp/module	yomcvmnh.F90	yomphy.F90	yomphy0.F90
arp/namelist	namcvmnh.h	namphy.h	namphy0.h
arp/phys_dmn	acevolet.F90	acnebn.F90	actke.F90
	acturb.F90	acvppkf.F90	aplpar.F90
	cphflux.F90	cphflux2.F90	hl_aplpar.F90
	mf_phys.F90	sucvmnh.F90	suphmf.F90
	suphmpa.F90	suphy0.F90	suphy2.F90
arp/setup	su0phy.F90		
mpa/conv/externals	convection_shal.mnh		
mpa/conv/interface	convection_shal.h		

**BOUYSSSEL Francois****Doc:**

1/ Modifications for the implementation of SURFEX in ARPEGE/ALADIN:  
 - modification in implicit coupling between surface and atmosphere;  
 - several minor modifications in the interface routine for physics ("aplpar").

2/ Use of "cptend\_new" interface between physics and dynamics in the case of ARPEGE/ALADIN physics.

3/ Introduction of two corrections in the computation of turbulent exchange coefficients in stable conditions consequently to the introduction of interactive mixing lengths.

4/ New formulation for antifibrillation in case of "XMULAF>0".

5/ Writing surface latent heat fluxes in 1D profiles ("writeprofile").

**Project:** arpege  
**ClearCase branch:** mrpa649\_CY32T1\_fby\_surfex

**Modified:**

arp/adiab	cptend_new.F90		
arp/phys_dmn	accoefk.F90	acdifv1.F90	acdifv2.F90
	achmt.F90	achmtls.F90	apl_arome.F90
	aplpar.F90	hl_aplpar.F90	mf_phys.F90
	profilechet.F90	suphy2.F90	writephysio.F90
	writeprofile.F90		

**Doc:**

Fixes in the case we use SURFEX in ARPEGE or ALADIN .

**Project:** arpege,Meso-NH surface  
**ClearCase branch:** mrpa649\_CY32T1\_fby\_surfex2

**Modified:**

arp/dia cpphddh.F90  
mse/externals aro\_ground\_diag.mnh

**Doc:**

*Use atmospheric model relief in SURFEX .*

**Project:** Meso-NH surface

**ClearCase branch:** mrpa649\_CY32T1\_sfx2

**Added:**

mse/internals put\_zs\_inland\_water\_n.mnh put\_zs\_nature\_n.mnh put\_zs\_surf\_atm\_n.mnh  
put\_zs\_town\_n.mnh

**Modified:**

mse/internals put\_zs\_inland\_water\_n.mnh put\_zs\_n.mnh put\_zs\_nature\_n.mnh  
put\_zs\_surf\_atm\_n.mnh put\_zs\_town\_n.mnh

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**BROUSSEAU Pierre**

**Doc:**

*1/ Blending of AROME fields (NH, TKE, and microphysics) .*

*2/ In the humidity field guess of control variable, add or removal of grid point humidity.*

*3/ Add of LAM part when SPJB\_VARS\_INFO(JFIELD)%L\_IN\_GPGFL is true (grid point model field, but in spectral in control variable), not coded yet.*

**Project:** aladin,arpege

**ClearCase branch:** mrpm613\_CY32T0\_aromeassim

**Modified:**

ald/programs blend.F90  
arp/utility add5to3.F90 jbtomodel.F90 jbtomodelad.F90  
sub5to3.F90 subfgs.F90  
arp/var suecges.F90

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**CHAPNIK Bernard**

**Doc:**

*The goal of all those modifications is to put in place a FGAT assimilation in ALADIN .*

*1/ cnt4tl.F90 & cnt4ad.F90:*

*- Rationalization of STEPO calls in FGAT mode;*

*- We now enter in a temporal loop only if timestep corresponds to a timeslot.*

*2/ suedfi.F90: aborts "JC-DFI : TIMESTEPS DIFFER" and "JC-DFI : SPANS DIFFER" are moved under key LJCDFI .*

3/ blend.F90: introduce key L\_NOCHKDAT . If this key is equal to .TRUE., it is possible to add two files with different dates (necessary to add increment to the guess in FGAT mode). Yet, a warning is written. The default of this key is .FALSE. .

**Project:** aladin,arpege  
**ClearCase branch:** mrpa658\_CY32T1\_narbe

**Modified:**

ald/programs blend.F90  
arp/control cnt4ad.F90 cnt4tl.F90  
arp/dfi suedfi.F90

**Doc:**

*Fix for 4D-VAR .*

**Project:** arpege  
**ClearCase branch:** mrpa658\_CY32T1\_narbebf

**Modified:**

arp/control cnt4tl.F90

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**DZIEDZIC Adam**

**Doc:**

*Bugfixes for ALADIN 3DVAR .*

**Project:** arpege,odb  
**ClearCase branch:** mrpe701\_CY32T1\_adam1

**Modified:**

arp/obs\_preproc flgdmx.F90 new\_thinn.F90  
odb/cma2odb ctxinitdb.F90

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**Dominique Puech**

**Doc:**

*1/ Changes for METOP datas: sensor=15 .*

*2/ Fix for AIRS: missing value in bufr for "Orbit number" and "Major frame count".*

*3/ Bugfix in creation of CCMA database .*

*4/ Fix in pool 1 on ECMA .*

*5/ Remove a useless print.*

*6/ Phasing ODBTOOLS for radar datas.*

**Project:** odb,utilitaires  
**ClearCase branch:** marp001\_CY32T0\_mrpa660dev



**Modified:**

odb/cma2odb copie\_radsta.F90      ctxinitdb.F90      getdb.F90  
                 putatdb.F90      shuffledb.F90  
uti/bator      bator\_decodbuf.F90 bator\_ecritures.F90

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**EL-KHATIB Ryad**

**Doc:**

*Bugfix for NECSX : do not export environment from mpi-task #0 because variables could be local to a mpi-task.*

**Project:**                    auxiliaire  
**ClearCase branch:** mrpm602\_CY32T0\_ftrace

**Modified:**

xrd/module mpl\_init\_mod.F90

**Doc:**

*Cleanings (compilation directives) :*

=====  
ald/var/suejbcor.F90  
arp/phys\_ec/rtrm\_kgb1.F90  
arp/phys\_ec/rtrm\_kgb10.F90  
arp/phys\_ec/rtrm\_kgb11.F90  
arp/phys\_ec/rtrm\_kgb12.F90  
arp/phys\_ec/rtrm\_kgb13.F90  
arp/phys\_ec/rtrm\_kgb14.F90  
arp/phys\_ec/rtrm\_kgb15.F90  
arp/phys\_ec/rtrm\_kgb16.F90  
arp/phys\_ec/rtrm\_kgb2.F90  
arp/phys\_ec/rtrm\_kgb4.F90  
arp/phys\_ec/rtrm\_kgb5.F90  
arp/phys\_ec/rtrm\_kgb6.F90  
arp/phys\_ec/rtrm\_kgb7.F90  
arp/phys\_ec/rtrm\_kgb8.F90  
arp/phys\_ec/rtrm\_kgb9.F90  
arp/phys\_ec/rtrm\_rtrn1a\_140gp.F90  
arp/phys\_ec/srtm\_kgb16.F90  
arp/phys\_ec/srtm\_kgb17.F90  
arp/phys\_ec/srtm\_kgb18.F90  
arp/phys\_ec/srtm\_kgb19.F90  
arp/phys\_ec/srtm\_kgb20.F90  
arp/phys\_ec/srtm\_kgb21.F90  
arp/phys\_ec/srtm\_kgb22.F90  
arp/phys\_ec/srtm\_kgb23.F90  
arp/phys\_ec/srtm\_kgb24.F90  
arp/phys\_ec/srtm\_kgb25.F90  
arp/phys\_ec/srtm\_kgb26.F90  
arp/phys\_ec/srtm\_kgb27.F90  
arp/phys\_ec/srtm\_kgb28.F90  
arp/phys\_ec/srtm\_kgb29.F90  
arp/phys\_ec/su\_mcica.F90  
arp/setup/suallo.F90  
arp/setup/sucoaphy.F90

arp/setup/suct0.F90  
arp/setup/sudyn.F90  
arp/setup/sudyna.F90  
arp/setup/suhcp.F90  
arp/setup/sunhsi.F90  
arp/setup/supol.F90  
arp/setup/susi.F90  
arp/utility/prtjo.F90  
arp/var/sujbcor.F90

Bugfixes (with the help of E. Sevault and D. Salmond) :

=====  
arp/module/gfl\_subs.F90  
arp/module/type\_fprqdyns.F90  
arp/module/type\_fprqphys.F90  
arp/parallel/slcomm.F90  
arp/phys\_ec/suecrad.F90  
arp/setup/su0phy.F90  
arp/setup/su0yoma.F90  
arp/setup/su0yomb.F90  
arp/setup/su\_surf\_fds.F90  
arp/setup/sudim1.F90  
arp/setup/sufpg.F90  
arp/setup/suhlph.F90  
arp/setup/susc2b.F90  
arp/utility/chien.F90  
arp/utility/updtim.F90  
arp/var/sualges.F90  
arp/var/sujq.F90  
bla/compiler/generate.c  
xrd/module/sdl\_module.F90  
arp/utility/wrresf.F90  
arp/adiab/lattex.F90  
arp/control/scan2h.F90  
arp/module/gridpoint\_buffers.F90  
arp/obs\_preproc/sudimo.F90  
arp/setup/suhdir.F90  
xrd/module/sdl\_module.F90  
arp/module/control\_vectors\_comm.F90

Optimizations (for Fullpos):

=====  
arp/pp\_obs/fpts\_a\_dir.F90  
arp/pp\_obs/fpts\_a\_inv.F90  
arp/pp\_obs/ppflev.F90  
arp/pp\_obs/ppintp.F90  
arp/pp\_obs/ppltp.F90  
tfl/module/sustaonl\_mod.F90

Other business :

=====  
- Re-enable the possibility to invoke MASTER without mpi. One should both set  
LMPOFF=.TRUE., in namelist NAMPAR0 and export the environment variable  
DR\_HOOK\_NOT\_MPI=1 to ensure that no mpi program will be called.  
arp/setup/suarg.F90  
arp/setup/sumpini.F90  
uti/sst\_nesdis/lect\_bdap.F90  
xrd/support/dr\_hook\_util.F90  
xrd/support/get\_opt.F  
- RGRID is the program to compute gaussian reduced grid with a tunable maximum  
rate of aliasing. It has been updated to cycle 32 and ported to NEC.  
The modsets includes the support for vectorized quadruple precision.

tfl/programs/rgrid.F90  
 tfl/module/suleg\_mod.F90  
 tfl/module/supol\_mod.F90  
 xrd/module/quad\_emu.F90  
 xrd/utilities/sufftp.F90  
 xrd/utilities/n\_precision.c

**Project:** aladin,arpege,black\_list,transformées arpege,utilitaires,auxiliaire  
**ClearCase branch:** mrpm602\_CY32T0\_nec

**Added:**

tfl/programs rgrid.F90  
 xrd/module quad\_emu.F90  
 xrd/utilities sufftp.F90

**Modified:**

ald/var	suejbcor.F90		
arp/adiab	lattice.F90		
arp/control	scan2h.F90		
arp/module	control_vectors_comm.F90	gfl_subs.F90	gridpoint_buffers.F90
	type_fprqdyns.F90	type_fprqphys.F90	
arp/obs_preproc	sudimo.F90		
arp/parallel	slcomm.F90		
arp/phys_ec	rstm_kgb1.F90	rstm_kgb10.F90	rstm_kgb11.F90
	rstm_kgb12.F90	rstm_kgb13.F90	rstm_kgb14.F90
	rstm_kgb15.F90	rstm_kgb16.F90	rstm_kgb2.F90
	rstm_kgb4.F90	rstm_kgb5.F90	rstm_kgb6.F90
	rstm_kgb7.F90	rstm_kgb8.F90	rstm_kgb9.F90
	rstm_rtm1a_140gp.F90	srtm_kgb16.F90	srtm_kgb17.F90
	srtm_kgb18.F90	srtm_kgb19.F90	srtm_kgb20.F90
	srtm_kgb21.F90	srtm_kgb22.F90	srtm_kgb23.F90
	srtm_kgb24.F90	srtm_kgb25.F90	srtm_kgb26.F90
	srtm_kgb27.F90	srtm_kgb28.F90	srtm_kgb29.F90
	su_mcica.F90	suecrad.F90	
arp/pp_obs	fptsa_dir.F90	fptsa_inv.F90	ppflv.F90
	ppintp.F90	ppltp.F90	
arp/setup	su0phy.F90	su0yoma.F90	su0yomb.F90
	su_surf_fds.F90	suallo.F90	suarg.F90
	sucoaphy.F90	suct0.F90	sudyn.F90
	sudyna.F90	sufpg.F90	suhcp.F90
	suhdir.F90	suhlph.F90	sumpini.F90
	sunhsi.F90	supol.F90	susc2b.F90
	susi.F90		
arp/utility	chien.F90	prtjo.F90	updtim.F90
	wrresf.F90		
arp/var	sualges.F90	sujbcor.F90	sujq.F90
bla/compiler	generate.c		
tfl/module	suleg_mod.F90	supol_mod.F90	sustaonl_mod.F90
tfl/programs	rgrid.F90		
uti/sst_nesdis	lect_bdap.F90		
xrd/module	quad_emu.F90	sdl_module.F90	
xrd/support	dr_hook_util.F90	get_opt.F	
xrd/utilities	n_precision.c	sufftp.F90	

**Doc:**

*Set LSLONDEM and LIM\_NOOLAP to .TRUE. unconditionally.*

**Project:** arpege  
**ClearCase branch:** mrpm602\_CY32T1\_slopt

**Modified:**

arp/setup sump0.F90 sumpini.F90

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**Francoise Taillefer**

**Doc:**

*1/ Fix the initialization and prints of geographical selection parameters for OI, and add one oth those parameters in namelist.*

*2/ Update blacklist flag for CANARI ODB in BATOR .*

**Project:** arpege,utilitaires  
**ClearCase branch:** marp001\_CY32T1\_mrpa647c701

**Modified:**

arp/canari canali.F90  
arp/namelist nadock.h  
uti/bator bator\_echivures.F90

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**GCO**

**Doc:**

*Allow the treatment of the upper-air only by relaxing the LSM test via LLCNTROL switch.*

**Project:** arpege  
**ClearCase branch:** marp001\_CY32T0\_op1avarc

**Modified:**

arp/control cprep1.F90

**Doc:**

*Fix allowing to extract EUMETSAT HIRS datas on whole earth in many bands.*

**Project:** utilitaires  
**ClearCase branch:** marp001\_CY32T0\_op1v02

**Modified:**

uti/oulan oulan\_extract.F

**Doc:**

Miscellaneous stuff from new ARPEGE parallel suite, based on cycle CY32T0 . Some of the following modifications (arp/obs\_preproc and BATOR) are documented somewhere else in this memorandum. For the physics part, the goal is to reduce precipitations evaporation during their falls, in order to avoid creation of unrealistic local circulations (too strong) around resulting cold air.

**Project:** aladin,arpege,black\_list,utilitaires

**ClearCase branch:** marp001\_CY32T1\_dble

**Added:**

uti/oulan build oulan\_mkpack

**Modified:**

ald/setup	suefpg3.F90		
arp/module	yomphy0.F90	yomscs.F90	
arp/namelist	namphy0.h		
arp/obs_preproc	black.F90	pre_thinner.F90	
arp/phys_dmn	advprc.F90	advprcs.F90	suphy0.F90
arp/var	eigenmd.F90		
bla	mf_blacklist.b		
uti/bator	bator.F90	bator_ecritures.F90	bator_init.F90
	bator_lectures.F90	bator_saisies.F90	
uti/oulan	build	oulan_mkpack	
uti/sst_nesdis	lect_bdap.F90		

**Doc:**

1/ Remove obsolete routines.

2/ Move "mode\_aero\_psd.mnh" in directory "mpa/chem/module".

3/ Change subroutines included in "extr\_lib\_1c.F90" into dummy ones. This file will be removed at the creation of cycle CY32T2 .

**Project:** utilitaires

**ClearCase branch:** marp001\_CY32T1\_none

**Renamed:**

mpa/chem/internals mode\_aero\_psd.mnh to mpa/chem/module/mode\_aero\_psd.mnh

**Deleted:**

ald/coupling	ebipaux.F90		
ald/dia	espos.F90	ewmoviedm.F90	
ald/parallel	egatherspa.F90		
ald/setup	suehow.F90		
ald/transform	ebechfi.F90		
ald/var	ebalads.F90	ejgalfa.F90	ejgvcorad.F90
	ejgvcoriad.F90	swap37.F90	
arp/dia	wmoviedm.F90	wmovoro.F90	
arp/module	pargc5.F90	traj_const.F90	yemfppsp.F90
	yoeast.F90	yomdgc5.F90	yomgpn.F90
	yomgpuab.F90	yomirclid.F90	yommvo.F90
	yomradact.F90		

arp/namelist            namgoes.h  
arp/parallel            ircvgpffp.F90                            isndgpffp.F90                            orcvgpffp.F90  
                          osndgpffp.F90  
arp/pp\_obs              fpolis.F90  
mpa/chem/internals    ch\_aer\_sedimentation\_n.mnh  
mpa/chem/module      modi\_ch\_aer\_rhcalcn.mnh      modi\_ch\_aer\_sedimentation\_n.mnh

**Modified:**

uti/extrtovs extr\_lib\_1c.F90

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**GUILLAUME Frank**

**Doc:**

*This modification allows to get the full name of the station (without "-"). If a station name is not correct, it will be pointed out in the file OULOOUTPUT .*

**Project:**                utilitaires  
**ClearCase branch:** mrpa644\_CY32T0\_fg07002

**Modified:**

uti/oulan ext\_gpssol.F

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**HELLO Gwenaelle**

**Doc:**

- 1/ New fullpos variable : thetav ('THETA\_VIRTUA' in NAMFPC).
- 2/ Add ice phase for simulated reflectivities.

**Project:**                arpege  
**ClearCase branch:** mrpe721\_CY32T1\_Cvers32t1

**Added:**

arp/pp\_obs ppcvirt.F90

**Modified:**

arp/module yomafn.F90  
arp/pp\_obs endpos.F90    gpprs0d.F90    pos.F90  
                          ppcvirt.F90  
arp/setup    suafn1.F90    suafn2.F90    suafn3.F90

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**IVATEKS-SAH DAN Stjepan**

**Doc:**

*Bugfixes for ALARO, echkevo, and for configuration 401/501/601/801 .*

**Project:**                arpege  
**ClearCase branch:** marp001\_CY32T1\_mrpm620\_ZGPAR-ZGPNH

**Modified:**

arp/adiab	cpg.F90	cpg5_gp.F90	cpg_dia.F90
	cpg_dyn.F90	cpg_dyn_ad.F90	cpg_dyn_tl.F90
	cpg_end.F90	cpg_end_ad.F90	cpg_end_tl.F90
	cpg_gp.F90	cpg_gp_ad.F90	cpg_gp_tl.F90
	cpg_zero_ad.F90	cpgad.F90	cpgtl.F90
arp/phys_dmn	apl_arome.F90	aplpdr.F90	mf_phys.F90
	suparar.F90		

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**JIDANE Mohamed**

**Doc:**

*Bugfixes.*

**Project:** arpege  
**ClearCase branch:** mrpe731\_CY32T1\_jidane

**Modified:**

arp/adiab pre\_sladrep.F90  
arp/control gp\_model.F90 gp\_model\_ad.F90 gp\_model\_tl.F90

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**Karim Yessad & Francoise Taillefer & Christophe Payan**

**Doc:**

*arp/setup/sulap.F90:*

*Variable IU is used as a fortran unit number before being assigned (to NULOUT). The fix is trivial, just to move the IU = NULOUT statement to the top of the routine.*

*arp/adiab/lacone.F90  
arp/pp\_obs/hoptl.F90  
arp/pp\_obs/ppreq.F90  
sat/rttov/rttov\_calcbt.F90  
sat/rttov/rttov\_calcbt\_ad.F90  
sat/rttov/rttov\_calcbt\_tl.F90  
uti/combi/stat.F90  
uti/oulan/ext\_gpssol.F  
uti/oulan/ext\_radomeh.F:*

- Last modifications from parallel suite.*
- Fix a bug on passive observations (Christophe Payan - hoptl.F90).*

*arp/canari/can1.F90  
arp/canari/caprsurf.F90  
arp/canari/carcli.F90:*

*Fix a problem in CANARI: update of climatological constants in the historical file at the first day of each month.*

**Project:** arpege,satrad,utilitaires  
**ClearCase branch:** marp001\_CY32T0\_bf

**Added:**

arp/canari caprsurf.F90

**Modified:**

arp/adiab lacone.F90  
arp/canari can1.F90 caprsurf.F90 carcli.F90  
arp/pp\_obs hoptl.F90 ppreq.F90  
arp/setup sulap.F90  
sat/rttov rttov\_calcbt.F90 rttov\_calcbt\_ad.F90 rttov\_calcbt\_tl.F90  
uti/combi stat.F90  
uti/oulan ext\_gpssol.F ext\_radomeh.F

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**Martina Tudor**

**Doc:**

*Remove some extra commas at the end of format specifications.*

**Project:** arpege  
**ClearCase branch:** marp001\_CY32T1\_martino

**Modified:**

arp/phys\_dmn suphy0.F90  
arp/pp\_obs rad1cnne.F90

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**PAYAN Christophe**

**Doc:**

*Part 1:*

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*a/ Some bugfixes (especially format specifications, initialization of sensor for scat type in thinning).*

*b/ Change variable LMKCMARPL in a 2D-array (codetype\_sq, obstype\_sq). This allows to reach code part MKCMARPL by obstype and codetype (instead of use switch LECMWF to reach TEMPINF, for example).*

*Part 2:*

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*a/ Merge with branch "ascat" from ECMWF, concerning "ascat" use.*

*b/ Modifications (simplifications) in tables scatt and scatt\_body, ODB part was merged by Dominique Puech.*

*Part 3:*

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*a/ Modifications "ersuwi" to use BDM datas ERSWUI, either with BDM wind pre-processing (CMOD4, LMKCMARPL(2,9)=.FALSE.), or with reversed winds in the screening (CMOD5, LMKCMARPL(2,9)=.TRUE.) .*



*b/ Modifications "ascat" and tables scatt/scatt\_body in BATOR. For BDM ASCAT datas, if level datas is equal to 2 (KNMI=99), inversion is not possible in the screening. If level datas is equal to 1 (without wind), inversion is possible in the screening (LMKCMARPL(2,9)=.TRUE. [satellite ERS2], LMKCMARPL(3,9)=.TRUE. [satellite Metop], inversion algorithm CMOD5) .*

*c/ Add some switches allowing to:*

- assimilate ERS2 and ASCAT datas, without unbias file (to be built);
- chose quality control for Quikscat datas (rain contamination and distance to the cone);
- balance the Quikscat JO according to required weight in namelist (historical value 0.25);
- assimilate only 2 ambiguous winds for each scatt datas (NB: this control was limited to Quikscat datas, in case KNMI would produce more than 2 winds);
- bugfix in pre\_thinner.F90 (in the case of many calls to this routine by new\_thinn.F90 in the same loop [(KBOXNO=1), MDB\_THINNINGKEY\_AT\_HDR was re-initialized to RMDI, and initial useful value was overwritten).

**Project:** arpege,black\_list,odb,utilitaires

**ClearCase branch:** mrpa642\_CY32T0\_pret2\_scat

**Added:**

arp/obs_preproc	ascatif.F90	ascatin.F90	
odb/bufr2odb	bufr2odb_ascat.F90	odb2bufr_dep_139.F90	odb2bufr_fos_139.F90
	odb2bufr_qc_139.F90		

**Modified:**

arp/module	parersca.F90	yomcmbdy.F90	yomcmhdr.F90
	yomcosjo.F90	yomersca.F90	yommkodb.F90
	yomobs.F90	yomscs.F90	yomthlim.F90
	yomvnmb.F90		
arp/namelist	namjo.h	nammkodb.h	namscs.h
arp/obs_preproc	ascatif.F90	ascatin.F90	conventional_ob.F90
	crscscode.F90	decis.F90	defrun.F90
	dupli_no_sq.F90	ers1if.F90	ersin.F90
	fgwnd.F90	iniersca.F90	mkcmarpl.F90
	new_thinn.F90	nscatin.F90	obadat.F90
	pre_thinner.F90	qscatin.F90	readoba.F90
	repsel.F90	scaqc.F90	scat_ob.F90
	scatbe.F90	scatsin.F90	sufglim.F90
	suobs.F90	thinn.F90	upecma.F90
arp/pp_obs	hjo.F90	hretr.F90	ppobsac.F90
arp/setup	sucmoctp.F90	suvnmb.F90	
arp/utility	prtgom.F90		
bla	mf_blacklist.b		
odb/bufr2odb	bufr2odb_ascat.F90	bufr2odb_qscat.F90	bufr2odb_scat.F90
	get_odb2bufr_varindex.F90	get_varindex.F90	odb2bufr_dep_139.F90
	odb2bufr_fos_139.F90	odb2bufr_qc_139.F90	odb2bufr_summary.F90
odb/cma2odb	buf2cmat_new.F90	buoctrmap.F90	subuoctp.F90
odb/ddl	decis_robhdr_4.sql	decis_robody_4.sql	fb_getscatt_body.sql
	new_thinn_robhdr_6.sql	post_thinn_robhdr_6.sql	post_thinn_robody_6.sql
	pre_thinn_robhdr_6.sql	pre_thinn_robody_6.sql	satbody_scat.sql
	sathdr_scat.sql	scat_robody_1.sql	thinn_robhdr_6.sql
	thinn_robody_6.sql	varno.h	
odb/module	bufr_module.F90	bufr_module1.F90	getval_module.F90
	odb2bufr_varindex_module.F90	varindex_module.F90	yomboctp.F90
odb/tools	Bufr2odb.F90	Fbnew2old.F90	Odb2bufr.F90

uti/bator	bator.F90	bator_decodbuf.F90	bator_ecritures.F90
	bator_init.F90	bator_lectures.F90	bator_saisies.F90
	bator_util.F90		
uti/module	bator_module.F90		
uti/namelist	bator_namelist.h		

**Doc:**

*Reject ascat HR observations, if present in BDM (NB: this is not the case now).*

**Project:** arpege,utilitaires  
**ClearCase branch:** mrpa642\_CY32T1\_bfscat

**Modified:**

arp/module	parersca.F90	yomersca.F90
arp/obs_preproc	scaqc.F90	
uti/bator	bator_decodbuf.F90	bator_init.F90
uti/module	bator_module.F90	
uti/namelist	bator_namelist.h	

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**PIRIOU Jean-Marcel**

**Doc:**

*1/ 3 bugfixes in AROME DDH: non-intialized variables, dimension of DDH AROME buffers in multiprocs mode, sign of flux conversion.*

*2/ A bugfix in ARPEGE DDH, in the routine POSDDH, only active on IBM of ECMWF, and in the case of many required limited areas. This bug is not active at METEO-FRANCE, it was pointed out by Mats Hamrud.*

**Project:** arpege,Meso-NH physique altitude  
**ClearCase branch:** mrpm606\_CY32T1\_ddhtkp

**Modified:**

arp/adiab	cpg_dia.F90		
arp/dia	aro_cpphddh.F90	posddh.F90	sualtdh.F90
arp/module	yomphft.F90		
arp/phys_dmn	apl_arome.F90	aro_iniapft.F90	
mpa/micro/externals	aroend_budget.mnh		

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**POLI Paul**

**Doc:**

*1/ METOP: modifications were made inside BATOR to accept METOP observations and inside ARPODB (mf\_blacklist.b) in order to use the same blacklisting for METOP-MHS as the one of NOAA18-MHS.*

*2/ SEVIRI clear sky radiances: modifications were made inside BATOR to save the brightness temperatures for Meteosat-8 and -9.*

3/ BATOR: the sampling of the satellite data is now controlled with a namelist (avoids recompilation whenever sampling needs to be changed). This applies to AIRS, AMSU-A, AMSU-B and MHS, HIRS, and SSMI.

4/ Ground-based GPS ("GPSSOL"): upgrade of the preprocessing task PREGPSSOL to account for the new way GPS station names are encoded: on 8-character strings (unchanged), but without the dash between the station name and the analysis center name (consequently, the name of the analysis center is now encoded on 4 characters instead of 3 previously). The maximum number of GPS observation records that can be handled by the task has been increased from 20000 to 30000.

5/ GPS radio occultation ("GPSRO") .

The following additions/modifications were made inside BATOR:

\*) application of basic quality control procedures on all parameters saved in the ODB (essentially upper- and lower-bound checking for all numerical values),

\*) application of a quality control to observations of bending angles based on the refractivity lapse rate calculated from refractivity observations,

\*) inclusion in the ODB of the profiles of refractivities versus heights above the geoid and profiles of retrieved temperatures versus geopotential heights.

Note that one observation of bending angle (1 body) is associated with 1 header, i.e. each header is followed by only one body for GPSRO at MF. This enables to take into account the tangent point drift during radio occultation events by affixing a different lat, lon to each bending angle observation.

Besides the usual time, lat, lon, variable number information etc, the following parameters are saved in the ODB for GPSRO at MF:

\*) at "hdr" level:

- radius of curvature (inside MDBRADCURV),
- geoid undulation (inside MDB\_UNDULATION),
- azimuth angle of the observation link with respect to the North,
- positive clockwise (inside MDB\_LIMB\_AZIMUTH),
- sounding id (inside MDB\_IDENT\_AT\_HDR) reset to zero every 6 hours,
- incremented by 1 for every new occultation event (independently of the satellite id),
- quality flag (inside RETRTYPE\_AT\_HDR, bits 0-15 are reported by the data producers according to the WMO BUFR format, and the following bits are set in BATOR: bit 16 if the occultation starts below 10 km altitude, bit 17 if the vertical refractivity lapse rate from the observations is suspicious, bit 18 if the derivative of the vertical refractivity lapse rate is suspicious),
- satellite identifier (inside MDBSID) which is also stored in numerical form in the "sat" table under MDB\_SATID\_AT\_SAT ;

\*) at "body" level:

- the impact parameter (inside MDBPPP),
- the corresponding height above the geoid (if any, inside MDBPRL),
- the bending angle observation (inside MDBVAR),
- the corresponding refractivity observation (if any, inside MDB\_AUX\_AT\_BODY(2)),
- the corresponding refractivity lapse rate calculated from the observations (if any, inside MDB\_AUX\_AT\_BODY(1)),
- the vertical coordinate type set to 2 (inside MDBVCO),
- the retrieved (or dry) temperature (if any, inside MDBTBV)
- the geopotential height at which the temperature is valid (if any, inside MDBTBVAD).

The following additions/modifications were made inside ARPODB:

\*) the observation error standard deviations of GPSRO bending angles for MF (LECMWF=FALSE) are set by the routine gpsro\_ob, with values different than those used at ECMWF (three altitude bands instead of two);

*\*) the background error standard deviations of GPSRO bending angles at MF (LECMWF=FALSE) are set inside the routine gefger (instead of inside the routine fgchk for ECMWF) and set equal to one time the observation error standard deviations (instead of twice for ECMWF);*

*\*) the rejection threshold is two times (instead of four times, at ECMWF) the root sum of squares of observation and background error standard deviations at MF (LECMWF=FALSE);*

*\*) a 70-km horizontal thinning is used for the assimilation of GPSRO bending angles at MF (LECMWF=FALSE);*

*\*) a vertical thinning is also used to retain only one bending angle observation per model layer for the assimilation at MF (LECMWF=FALSE);*

*\*) the call to the bending angle observation operators for MF returns the following extra outputs during the screening (LMFSCREEN=TRUE):*

- the model layer number where lies the bending angle observation (inside MDB\_SURFEMISS\_AT\_BODY),*
- the refractivity from the first-guess (inside MDB\_CSR\_PCLEAR\_AT\_BODY) given the observed impact parameter,*
- the refractivity lapse rate from the first guess (inside MDB\_CSR\_PLOUDY\_AT\_BODY) given the observed impact parameter,*
- the temperature from the first-guess (inside MDBTBVTL) given the observed geopotential height.*

*The observation operator for GPSRO bending angles was modified to calculate the optional outputs above, only when requested. The blacklisting (mf\_blacklist.b) for GPSRO at MF rejects observations down to certain altitudes which are latitude-dependent*

*Modification in the next parallel suite of the names of ground GPS stations ("STAT-CEN" in current operational suite, and "STATCENT" in the future).*

**Project:** arpege,black\_list,odb,utilitaires

**ClearCase branch:** mrpa679\_CY32T0\_gpsro\_may

**Added:**

odb/ddl.ECMA	new_thinn_robhdr_9.sql	post_thinn_robhdr_9.sql	post_thinn_roboddy_9.sql
	pre_thinn_robhdr_9.sql	pre_thinn_roboddy_9.sql	
odb/ddl	new_thinn_robhdr_9.sql	post_thinn_robhdr_9.sql	post_thinn_roboddy_9.sql
	pre_thinn_robhdr_9.sql	pre_thinn_roboddy_9.sql	

**Modified:**

arp/module	yomobs.F90	yomscf.F90	
arp/namelist	namobs.h	namscf.h	
arp/obs_preproc	black.F90	defrun.F90	fgchk.F90
	gefger.F90	new_thinn.F90	new_thinner.F90
	new_thinner_no_sq.F90	post_thinner.F90	pre_thinner.F90
arp/pp_obs	gpscalc_alpha.F90	gpsro_oberror.F90	gpsro_op.F90
	hop.F90	hretr.F90	rad1cobe.F90
bla	mf_blacklist.b		
odb/cma2odb	ctxinitdb.F90		
odb/ddl	hretr_canari_roboddy.sql	new_thinn_robhdr_9.sql	obsortca_body.sql
	post_thinn_robhdr_9.sql	post_thinn_roboddy_9.sql	pre_thinn_robhdr_9.sql
	pre_thinn_roboddy_9.sql	robhdr.sql	roboddy_traj.sql
uti/bator	bator_decodbuf.F90	bator_ecritures.F90	bator_init.F90
	bator_lectures.F90	bator_saisies.F90	
uti/module	bator_module.F90		
uti/namelist	bator_namelist.h		

uti/pregpsol filter\_gpssol.F90 pregpsol.F90 read\_obsoul\_gpssol.F90

**Doc:**

*Remove a duplicated call to DR\_HOOK in DEALFPOS , which made the "diag\_sigtab" task crash when DR\_HOOK is activated.*

**Project:** arpege  
**ClearCase branch:** mrpa679\_CY32T1\_fixdealpos

**Modified:**

arp/utility dealpos.F90

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**PUECH Dominique**

**Doc:**

*1/ Add columns, move and change names for tables atovs, scatt, and scatt\_body .*

*2/ Updates for ODB cycle CY32R1 .*

**Project:** arpege,odb  
**ClearCase branch:** mrpa660\_CY32T1\_phas

**Modified:**

arp/common yomdb\_defs.h yomdb\_vars.h  
arp/module pardimo.F90  
odb/cma2odb initmdb.F90  
odb/ddl cma.h  
odb/lib version.c

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**SEITY Yann**

**Doc:**

*1/ Version 2 of externalized surface.*

*2/ Remove some useless prints .*

**Project:** arpege,Meso-NH surface  
**ClearCase branch:** mrpm637\_CY32T1\_arome2

**Modified:**

arp/phys_dmn	supmpa.F90	supmse.F90	
arp/setup	su_surf_fds.F90		
mse/dummy	close_file_ol.mnh	create_file.mnh	def_var_netcdf.mnh
	get_dimlen_netcdf.mnh	handle_err.mnh	init_outfn_isba_n.mnh
	init_outfn_sea_n.mnh	init_outfn_surf_atm_n.mnh	init_outfn_teb_n.mnh
	init_outfn_water_n.mnh	ol_alloc_atm.mnh	ol_find_file.mnh
	ol_read_atm.mnh	ol_read_atm_conf.mnh	ol_read_prescribed_veg.mnh
	ol_time_interp_atm.mnh	open_file_ol.mnh	
mse/externals	aro_ground_param.mnh		

mse/internals	alloc_diag_surf_atm_n.mnh	av_patch_pgd_1d.mnh	average_diag.mnh
	average_diag_isba_n.mnh	averaged_albedo_emis_isba.mnh	campaign_water_flux.mnh
	ch_aer_dep.mnh	ch_aer_emission.mnh	ch_aer_velgrav1d.mnh
	ch_dep_isba.mnh	ch_dep_town.mnh	co2_init_n.mnh
	coare25_flux.mnh	coare30_flux.mnh	coare30_seaflux.mnh
	convert_cover_isba.mnh	cotwoinit_n.mnh	cotwores.mnh
	cotworessstress.mnh	coupling_dst_n.mnh	coupling_isba_n.mnh
	coupling_seaflux_n.mnh	coupling_slit_n.mnh	coupling_surf_atm_n.mnh
	coupling_teb_n.mnh	coupling_watflux_n.mnh	dealloc_diag_surf_atm_n.m
	default_agri.mnh	default_diag_isba.mnh	default_diag_seaflux.mnh
	default_diag_surf_atm.mnh	default_diag_teb.mnh	default_diag_watflux.mnh
	default_seaflux.mnh	default_slit_n.mnh	diag_inline_isba_n.mnh
	diag_inline_seaflux_n.mnh	diag_inline_surf_atm_n.mnh	diag_isba_init_n.mnh
	diag_misc_isba_n.mnh	diag_surf_atm_n.mnh	dst_dep.mnh
	dst_init_names.mnh	dst_velgrav1d.mnh	e_budget.mnh
	error_write_surf_txt.mnh	get_adj_mes_gauss.mnh	get_adjacent_meshes.mnh
	get_grid_coord.mnh	get_grid_coord_gauss.mnh	get_grid_coord_lonlat_reg.
	get_grid_dim.mnh	get_mesh_dim.mnh	get_mesh_dim_gauss.mnh
	get_mesh_dim_lonlat_reg.mnh	get_mesh_index.mnh	get_mesh_index_conf_proj
	get_mesh_index_gauss.mnh	get_mesh_index_lonlat_reg.mnh	get_near_meshes.mnh
	get_near_meshes_gauss.mnh	get_surf_var_n.mnh	get_var_nature_n.mnh
	goto_wrapper_isba.mnh	grid_from_file.mnh	grid_modif.mnh
	grid_modification_cartesian.mnh	grid_modification_conf_proj.mnh	hydro.mnh
	hydro_soil.mnh	ini_data_cover.mnh	ini_data_param.mnh
	ini_sun_aro.mnh	init_dst_n.mnh	init_from_data_isba_n.mnh
	init_from_data_teb_n.mnh	init_io_surf_n.mnh	init_io_surf_txt_n.mnh
	init_isba_n.mnh	init_seaflux_n.mnh	init_slit_n.mnh
	init_surf_atm_n.mnh	init_teb_n.mnh	init_watflux_n.mnh
	init_write_txt.mnh	interpol_3pts.mnh	interpol_splines.mnh
	irrigation_update.mnh	isba.mnh	isba_fluxes.mnh
	ismin.mnh	latlon_grid.mnh	latlon_gridtype_gauss.mnh
	latlon_gridtype_lonlat_reg.mnh	latlonmask_cartesian.mnh	major_patch_pgd_1d.mnh
	nitro_decline.mnh	offline.mnh	open_file.mnh
	pack_diag_patch_n.mnh	pack_grid.mnh	pack_grid_gauss.mnh
	pack_grid_lonlat_reg.mnh	pack_isba_patch_n.mnh	param_cls.mnh
	pgd_field.mnh	pgd_frac.mnh	pgd_grid.mnh
	pgd_isba.mnh	pgd_isba_par.mnh	prep.mnh
	prep_grid_gauss.mnh	prep_hor_isba_field.mnh	prep_hor_seaflux_field.mnh
	prep_hor_snow_field.mnh	prep_hor_teb_field.mnh	prep_hor_watflux_field.mnh
	prep_isba_buffer.mnh	prep_isba_grib.mnh	prep_seaflux_buffer.mnh
	prep_snow_buffer.mnh	prep_snow_extern.mnh	prep_snow_grib.mnh
	prep_teb_buffer.mnh	prep_teb_unif.mnh	prep_watflux_buffer.mnh
	read_default_dst_n.mnh	read_default_isba_n.mnh	read_default_seaflux_n.mnh
	read_default_slit_n.mnh	read_default_surf_atm_n.mnh	read_default_teb_n.mnh
	read_default_watflux_n.mnh	read_grib.mnh	read_gridtype.mnh
	read_gridtype_gauss.mnh	read_gridtype_lonlat_reg.mnh	read_isba_conf_n.mnh
	read_nam_gridtype.mnh	read_nam_gridtype_gauss.mnh	read_nam_gridtype_lonlat
	read_pgd_isba_n.mnh	read_pgd_teb_n.mnh	read_pgd_teb_par_n.mnh
	read_pre_seaf_dat_conf.mnh	read_pre_watf_dat_conf.mnh	read_prep_isba_conf.mnh
	read_prep_isba_snow.mnh	read_prep_seaflux_conf.mnh	read_prep_surf_atm_conf.r
	read_prep_teb_conf.mnh	read_prep_watflux_conf.mnh	read_seaflux_conf_n.mnh
	read_slit_conf_n.mnh	read_sso_n.mnh	read_surf_atm_conf_n.mnh
	read_surfn1_asc.mnh	read_surft0_asc.mnh	read_surft2.mnh
	read_surft2_asc.mnh	read_teb_conf_n.mnh	read_teb_n.mnh
	read_watflux_conf_n.mnh	read_watflux_date.mnh	readhead.mnh

	scopy.mnh	slt_dep.mnh	slt_init_modes.mnh
	slt_init_names.mnh	slt_velgrav1d.mnh	sunpos.mnh
	surf_version.mnh	sxpost.mnh	teb.mnh
	unitfp_flux.mnh	unitfp_seaflux.mnh	unpack_diag_patch_n.mnh
	unpack_isba_patch_n.mnh	urban_fluxes.mnh	urban_solar_abs.mnh
	vegetation_evol.mnh	vegetation_update.mnh	vegtype_to_patch.mnh
	wet_leaves_frac.mnh	write_cover_tex_cover.mnh	write_cover_tex_end.mnh
	write_cover_tex_isba.mnh	write_cover_tex_isba_par.mnh	write_cover_tex_start.mnh
	write_cover_tex_teb.mnh	write_cover_tex_water.mnh	write_diag_misc_isba_n.mnh
	write_diag_pgd_isba_n.mnh	write_diag_seb_isba_n.mnh	write_diag_seb_seaflux_n.mnh
	write_diag_seb_surf_atm_n.mnh	write_diag_seb_teb_n.mnh	write_diag_seb_watflux_n.mnh
	write_grid.mnh	write_gridtype_gauss.mnh	write_gridtype_lonlat_reg.mnh
	write_surf_atm_n.mnh	write_surfc0.mnh	write_surfc0_txt.mnh
	write_surfl0.mnh	write_surfl0_txt.mnh	write_surfl1.mnh
	write_surfl1_txt.mnh	write_surfn0.mnh	write_surfn0_txt.mnh
	write_surfn1.mnh	write_surfn1_asc.mnh	write_surfn1_txt.mnh
	write_surft0.mnh	write_surft0_txt.mnh	write_surft2.mnh
	write_surft2_asc.mnh	write_surft2_txt.mnh	write_surfx0.mnh
	write_surfx0_txt.mnh	write_surfx1.mnh	write_surfx1_asc.mnh
	write_surfx1_txt.mnh	write_surfx2.mnh	write_surfx2_asc.mnh
	write_surfx2_txt.mnh	writesurf_atm_conf_n.mnh	writesurf_ch_emis_n.mnh
	writesurf_pgd_seaflux_n.mnh	writesurf_pgd_teb_n.mnh	writesurf_seaflux_conf_n.mnh
	writesurf_seaflux_n.mnh	writesurf_sso_n.mnh	writesurf_teb_n.mnh
	writesurf_watflux_n.mnh	zoom_pgd_isba.mnh	zsfilter.mnh
mse/module	modd_agri.mnh	modd_agri_n.mnh	modd_ch_isba_n.mnh
	modd_ch_seaflux_n.mnh	modd_ch_teb_n.mnh	modd_ch_watflux_n.mnh
	modd_data_cover.mnh	modd_diag_isba_n.mnh	modd_diag_misc_isba_n.mnh
	modd_diag_seaflux_n.mnh	modd_diag_surf_atm_n.mnh	modd_diag_teb_n.mnh
	modd_diag_watflux_n.mnh	modd_dst.mnh	modd_dst_surf.mnh
	modd_get_mesh_index_conf_proj.mnh	modd_get_mesh_index_gauss.mnh	modd_get_mesh_index_lonlat_reg.mnh
	modd_io_surf_ol.mnh	modd_io_surf_txt.mnh	modd_isba_n.mnh
	modd_ol_fileid.mnh	modd_pack_diag_isba.mnh	modd_pack_isba.mnh
	modd_seaflux_n.mnh	modd_slit.mnh	modd_slit_n.mnh
	modd_slit_surf.mnh	modd_sv_n.mnh	modd_write_txt.mnh
	mode_aer_surf.mnh	mode_coare30_psi.mnh	mode_cover.mnh
	mode_dstmbl.mnh	mode_eggangles.mnh	mode_geo_gauss.mnh
	mode_gridtype_gauss.mnh	mode_gridtype_lonlat_reg.mnh	mode_slit_surf.mnh
	mode_slitmbl.mnh	modi_av_pgd.mnh	modi_averaged_albedo_er
	modi_close_file_ol.mnh	modi_close_namelist_ol.mnh	modi_coare30_flux.mnh
	modi_coare30_seaflux.mnh	modi_convert_cover_isba.mnh	modi_default_agri.mnh
	modi_default_diag_isba.mnh	modi_default_diag_seaflux.mnh	modi_default_diag_surf_atm
	modi_default_diag_teb.mnh	modi_default_diag_watflux.mnh	modi_default_seaflux.mnh
	modi_default_slit_n.mnh	modi_diag_inline_isba_n.mnh	modi_diag_inline_surf_atm
	modi_diag_misc_isba_n.mnh	modi_e_budget.mnh	modi_error_write_surf_txt.r
	modi_get_adj_mes_gauss.mnh	modi_get_mesh_dim_gauss.mnh	modi_get_near_meshes_g
	modi_get_surf_var_n.mnh	modi_get_var_nature_n.mnh	modi_hydro.mnh
	modi_init_io_surf_ol_n.mnh	modi_init_io_surf_txt_n.mnh	modi_init_write_txt.mnh
	modi_interpol_splines.mnh	modi_irrigation_update.mnh	modi_isba.mnh
	modi_ol_alloc_atm.mnh	modi_ol_find_file.mnh	modi_ol_read_atm.mnh
	modi_ol_read_atm_conf.mnh	modi_ol_read_prescribed_veg.mnh	modi_ol_time_interp_atm.n
	modi_open_file_ol.mnh	modi_open_namelist.mnh	modi_open_namelist_ol.mnh
	modi_prep_grid_gauss.mnh	modi_read_default_slit_n.mnh	modi_read_slit_conf_n.mnh
	modi_read_surf.mnh	modi_read_surfx1_ol.mnh	modi_slit_dep.mnh
	modi_slit_init_modes.mnh	modi_slit_init_names.mnh	modi_slit_velgrav1d.mnh
	modi_unitfp_flux.mnh	modi_unitfp_seaflux.mnh	modi_vegetation_evol.mnh

modi\_vegetation\_update.mnh  
modn\_isba\_n.mnh  
modn\_surf\_atm\_n.mnh

modi\_write\_surf.mnh  
modn\_seaflux\_n.mnh  
modn\_teb\_n.mnh

modn\_agri.mnh  
modn\_slt.mnh  
modn\_watflux\_n.mnh

**Doc:**

\* arp/phys\_dmn/apl\_arome.F90:  
Fix filling of ACPRG .

\* mse/internals/soil.mnh:  
Fix a HIRLAM crash.

\* mse/internals/write\_cover\_tex\_isba.mnh  
mse/internals/write\_cover\_tex\_isba\_par.mnh  
mse/internals/write\_cover\_tex\_teb.mnh  
mse/internals/write\_cover\_tex\_water.mnh:  
Fix Latex files.

\* Add hail and ground graupels in CFU/XFU and Fullpos.

\* Bugfix for prepsurfex .

\* Fix for AROME precipitations.

**Project:** Meso-NH physique altitude  
**ClearCase branch:** mrpm637\_CY32T1\_aromeBF

**Modified:**

arp/namelist	namafn.h	namcfu.h	namxfu.h
arp/phys_dmn	apl_arome.F90		
arp/setup	su_surf_fds.F90		
mpa/micro/internals	condensation.mnh		
mse/internals	soil.mnh	write_cover_tex_isba.mnh	write_cover_tex_isba_par.mnh
	write_cover_tex_teb.mnh	write_cover_tex_water.mnh	

**Doc:**

1/ Add diagnostics in AROME (new rain fluxes CFU & XFU for graupel and hail and fullpos, gusts) .

2/ Get directly, in apl\_arome, fields coming from surfex (T2m, V10m, Hu2m) via aro\_ground\_diag .

3/ Add a coherence test between 923 clim files and PGD in prepsurfex, on LAT0, LON0, DELX et DELY .

**Project:** arpege,Meso-NH surface  
**ClearCase branch:** mrpm637\_CY32T1\_arome\_diags

**Modified:**

arp/adiab	cpg.F90	cpg_dia.F90	
arp/dia	cpcfu.F90	cpxfu.F90	posddh.F90
arp/module	ptrgfu.F90	ptrxfu.F90	yomafn.F90
	yomcfu.F90	yomxfu.F90	
arp/phys_dmn	apl_arome.F90	arocldia.F90	initaplpar.F90
	mf_phys.F90		
arp/pp_obs	fp2sx1.F90	fpcorphy.F90	fpmodcfu.F90
	fpmodxfu.F90	hpos.F90	



arp/setup	suafn1.F90	suafn2.F90	suafn3.F90
	sucfu.F90	sucfufp.F90	sufpc.F90
	suxfu.F90	suxfufp.F90	
mse/externals	aro_ground_diag.mnh	ini_prep_surfex_aro.mnh	
mse/interface	aro_ground_diag.h	ini_prep_surfex_aro.h	

**Doc:**

*Version MASDEV47 of Meso-NH physics (project "mpa"):*  
 1/ chemical (modifications of aerosols, dusts, and add sea salts)  
 2/ microphysics (modifications of microphysics scheme with Grêle phase in option, and bugfix in condensation)

**Project:** Meso-NH physique altitude  
**ClearCase branch:** mrpm637\_CY32T1\_arome\_masdev47

**Modified:**

mpa/chem/externals	aro_mnhc.mnh	aro_mnhdust.mnh	aroini_mnhc.mnh
	aroini_nsv0.mnh	ch_aer_init.mnh	
mpa/chem/include	parameter.h		
mpa/chem/internals	ch_aer_coag.mnh	ch_aer_driver.mnh	ch_aer_eqm_init0d.mnh
	ch_aer_eqsam.mnh	ch_aer_growth.mnh	ch_aer_init_soa.mnh
	ch_aer_mineral.mnh	ch_aer_mpmpo.mnh	ch_aer_organic.mnh
	ch_aer_pun.mnh	ch_aer_reallfi_n.mnh	ch_aer_sedim_n.mnh
	ch_aer_solv.mnh	ch_aer_surf.mnh	ch_aer_trans.mnh
	ch_aer_velgrav_n.mnh	ch_convect_scaevenging.mnh	ch_exqssa.mnh
	ch_ini_orilam.mnh	ch_init_jvalues.mnh	ch_init_output.mnh
	ch_init_scheme.mnh	ch_interp_jvalues.mnh	ch_jvalues_clouds.mnh
	ch_jvalues_n.mnh	ch_meteo_trans.mnh	ch_orilam.mnh
	ch_output.mnh	ch_prodloss.mnh	ch_show_chem.mnh
	ch_solver_n.mnh	ch_svode.mnh	ch_update_jvalues.mnh
	ch_update_meteo.mnh	ch_write_chem.mnh	dust_filter.mnh
	dust_velgrav.mnh	dusttfti_n.mnh	init_dust.mnh
	mode_aero_psd.mnh	nn.mnh	qgaus.mnh
	salt_filter.mnh	salt_velgrav.mnh	salttfti_n.mnh
	sedim_dust.mnh	sedim_salt.mnh	
mpa/chem/module	modd_aunifacparam.mnh	modd_binsolu.mnh	modd_bunifacparam.mnh
	modd_ch_aero_n.mnh	modd_ch_aerosol.mnh	modd_ch_aerosol0d.mnh
	modd_ch_dep_n.mnh	modd_ch_jvalues_n.mnh	modd_ch_m9.mnh
	modd_ch_mnhc_n.mnh	modd_ch_model0d.mnh	modd_ch_solver_n.mnh
	modd_csts_dust.mnh	modd_csts_salt.mnh	modd_dust.mnh
	modd_dust_opt_lkt.mnh	modd_glo.mnh	modd_salt.mnh
	modd_sub_ch_field_value_n.mnh	modd_sub_ch_monitor_n.mnh	modd_unifacparam.mnh
	mode_ain.mnh	mode_bmain.mnh	mode_dust_psd.mnh
	mode_dustopt.mnh	mode_firstguess.mnh	mode_modeln_handler.mnh
	mode_oain.mnh	mode_salt_psd.mnh	mode_soaeql.mnh
	mode_soaeqlutl.mnh	mode_soatinit.mnh	mode_typea.mnh
	mode_typeb.mnh	mode_unifac.mnh	mode_zsrpun.mnh
	modi_ch_aer_driver.mnh	modi_ch_aer_eqm_init0d.mnh	modi_ch_aer_eqm_init_n.mnh
	modi_ch_aer_init_soa.mnh	modi_ch_aer_mineral.mnh	modi_ch_aer_mpmpo.mnh
	modi_ch_aer_pun.mnh	modi_ch_aer_reallfi_n.mnh	modi_ch_aer_sedim_n.mnh
	modi_ch_aer_solv.mnh	modi_ch_aer_trans.mnh	modi_ch_convect_linux.mnh
	modi_ch_diagnostics.mnh	modi_ch_field_value_n.mnh	modi_ch_ini_orilam.mnh
	modi_ch_init_jvalues.mnh	modi_ch_interp_jvalues.mnh	modi_ch_jvalues_clouds.mnh
	modi_ch_jvalues_n.mnh	modi_ch_monitor_n.mnh	modi_ch_orilam.mnh

	modi_ch_output.mnh	modi_ch_read_chem.mnh	modi_ch_show_chem.mnh
	modi_ch_update_jvalues.mnh	modi_ch_write_chem.mnh	modi_dustf1_n.mnh
	modi_mpdata_scalar.mnh	modi_salt_filter.mnh	modi_salt_velgrav.mnh
	modi_saltf1_n.mnh	modi_sedim_dust.mnh	modi_sedim_salt.mnh
	modn_ch_orilam.mnh	modn_dust.mnh	modn_salt.mnh
mpa/conv/externals	convect_chem_transport.mnh	deep_convection.mnh	
mpa/micro/externals	aro_adjust.mnh	aro_rain_ice.mnh	aroini_budget.mnh
	aroini_cstmnh.mnh	aroini_micro.mnh	
mpa/micro/externals	budget.mnh	condensation.mnh	ice_adjust.mnh
	ini_budget.mnh	ini_rain_ice.mnh	rain_ice.mnh
	read_xker_gweth.mnh	read_xker_sweth.mnh	rrolss.mnh
	rscolrg.mnh		
mpa/micro/module	modd_blank.mnh	modd_budget.mnh	modd_conf.mnh
	modd_conf_n.mnh	modd_cst.mnh	modd_dyn.mnh
	modd_les.mnh	modd_lunit.mnh	modd_nsv.mnh
	modd_param_c1r3.mnh	modd_param_c2r2.mnh	modd_param_ice.mnh
	modd_parameters.mnh	modd_rain_ice_descr.mnh	modd_rain_ice_param.mnh
	modi_budget.mnh	modi_ice_adjust.mnh	modi_ini_budget.mnh
	modi_ini_rain_ice.mnh	modi_mask_compress.mnh	modi_rain_ice.mnh
	modi_read_xker_gweth.mnh	modi_read_xker_sweth.mnh	modi_rrolss.mnh
	modi_rscolrg.mnh		
mpa/turb/externals	aro_turb_mnh.mnh		
mpa/turb/externals	bl89.mnh	bl_depth_diag_1d.mnh	bl_depth_diag_3d.mnh
	emoist.mnh	etheta.mnh	ini_cturb.mnh
	prandtl.mnh	rmc01.mnh	sbl_depth.mnh
	tke_eps_sources.mnh	tm06.mnh	tm06_h.mnh
	tridiag.mnh	tridiag_thermo.mnh	tridiag_tke.mnh
	tridiag_wind.mnh	turb.mnh	turb_ver.mnh
	turb_ver_dyn_flux.mnh	turb_ver_sv_corr.mnh	turb_ver_sv_flux.mnh
	turb_ver_thermo_corr.mnh	turb_ver_thermo_flux.mnh	
mpa/turb/module	modd_cturb.mnh	modd_diag_in_run.mnh	mode_prandtl.mnh
	modi_bl_depth_diag.mnh	modi_bl_depth_diag_3d.mnh	modi_emoist.mnh
	modi_etheta.mnh	modi_prandtl.mnh	modi_rmc01.mnh
	modi_sbl_depth.mnh	modi_tke_eps_sources.mnh	modi_tm06.mnh
	modi_tm06_h.mnh	modi_tridiag.mnh	modi_tridiag_thermo.mnh
	modi_tridiag_tke.mnh	modi_tridiag_wind.mnh	modi_turb.mnh
	modi_turb_ver.mnh	modi_turb_ver_dyn_flux.mnh	modi_turb_ver_sv_corr.mnh
	modi_turb_ver_sv_flux.mnh	modi_turb_ver_thermo_corr.mnh	modi_turb_ver_thermo_flux.mnh
	modi_update_lm.mnh	modn_turb.mnh	

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## **TAILLEFER Francoise**

### **Doc:**

*Bugfix: initialization of some variables, which are used to allocate dynamic arrays, was missing.*

**Project:** arpege  
**ClearCase branch:** mrpa647\_CY32T0\_ft932

### **Modified:**

arp/setup sudim2.F90

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## **Thibaut Montmerle**

### **Doc:**

*Prepare the use of METEOSAT 9 .*

**Project:** utilitaires  
**ClearCase branch:** marp001\_CY31T1\_op1NEC

### **Modified:**

uti/bator bator\_decodgrib.F90

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## **WATTRELOT Eric**

### **Doc:**

*Assimilation of reflectivities and radial speeds:  
1/ thinning, observation operator and his TL/AD (for speeds);  
2/ prepare bayesian inversion of reflectivities, and use of 2D-GOMs .*

**Project:** arpege,odb,utilitaires  
**ClearCase branch:** mrpa652\_CY32T1\_radarew2

### **Added:**

arp/obs_preproc	radar_profs.F90	thinn_radar.F90	
arp/pp_obs	doplsim.F90	doplsim_ad.F90	doplsim_tl.F90
	reflsim_2dop.F90		
odb/cma2odb	copie_radsta.h		
odb/ddl.ECMA	new_thinn_robhdr_10.sql	new_thinn_robody_10.sql	
odb/ddl.ECMASCR	satbody_radar.sql	sathdr_radar.sql	
odb/ddl	new_thinn_robhdr_10.sql	new_thinn_robody_10.sql	satbody_radar.sql
	sathdr_radar.sql		
uti/bator	filter_radar.F90	radar_wind_cleaner.F90	reduce_radar.F90

### **Modified:**

arp/module	goms.F90	pardimo.F90	yomcosjo.F90
	yomsc.F90	yomvnmb.F90	
arp/obs_preproc	defrun.F90	fgchk.F90	first.F90
	gefger.F90	mkglobstab.F90	new_thinn.F90
	radar_profs.F90	sugoms.F90	thinn_radar.F90
arp/pp_obs	doplsim.F90	doplsim_ad.F90	doplsim_tl.F90
	hop.F90	hopad.F90	hoptl.F90
	hretr.F90	hvnmtl.F90	mpobseqad.F90
	preint2d.F90	reflsim.F90	reflsim_2dop.F90
arp/setup	suvnmb.F90		
odb/cma2odb	copie_radsta.h	ctxinitdb.F90	
odb/ddl	new_thinn_robhdr_10.sql	new_thinn_robody_10.sql	satbody_radar.sql
	sathdr_radar.sql		
odb/module	buf_r_module.F90		
uti/bator	bator_decodbuf.F90	bator_ecritures.F90	bator_init.F90
	bator_lectures.F90	filter_radar.F90	radar_wind_cleaner.F90
	reduce_radar.F90		

## **WILHELMSSON Tomas**

### **Doc:**

1/ Update of HIRLAM physics (i.e. radiation, turbulence, convection and condensation) to the same level as HIRLAM 7.1.

More information about the HIRLAM physics from: <https://hirlam.org/trac/wiki/ReleaseNotes7.1>

2/ HIRLAM physics interface update (mf\_phys.F90 and hl\_aplpar.F90) to catch up the latest developments in aplpar.F90.

3/ Minor bug fixes.

**Project:**                  arpege,Meso-NH surface

**ClearCase branch:** mrpm636\_CY32T1\_hirlam

### **Added:**

arp/phys\_dmn    hlstraco.F90    hlturb.F90

### **Modified:**

arp/function	hlesat.h		
arp/module	yh1cond.F90	yh1const.F90	yhloption.F90
	yh1rad.F90	yh1turb.F90	
arp/phys_dmn	aplpar.F90	hl_aplpar.F90	hlcldia.F90
	hlcldiag.F90	hlcloudcv.F90	hlcondcv.F90
	hlcondfc.F90	hlconds.F90	hlcondst.F90
	hlnocondcv.F90	hlprevap.F90	hlqcamp1i.F90
	hlrad.F90	hlradia.F90	hlstraco.F90
	hltend2fx.F90	hltridiag.F90	hlturb.F90
	hlvcbr.F90	mf_phys.F90	suphy0.F90
arp/pp_obs	fp2sx1.F90	rad1cnne.F90	
arp/setup	suh1cond.F90	suh1const.F90	suhloption.F90
	suh1ph.F90	suh1rad.F90	suh1turb.F90
mse/externals	atm2sx_env.mnh	prep_surf_aro.mnh	
mse/interface	atm2sx_env.h		
mse/internals	soil.mnh		

### **Doc:**

1/ Phasing on last APLPAR modifications.

2/ Fix some compilation problems on Linux cluster using Inter Fortran compiler, and on HPCE.

**Project:**                  arpege,Meso-NH physique altitude,auxiliaire

**ClearCase branch:** mrpm636\_CY32T1\_hirlamT2

### **Modified:**

arp/phys_dmn	apl_arome.F90	hl_aplpar.F90	hlcondcv.F90
	hlvcbr.F90	sucvmnh.F90	
mpa/micro/internals	ini_rain_ice.mnh		
xrd/module	quad_emu.F90		

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## **YESSAD Karim**

### **Doc:**

#### *Modification code:*

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*BUG* : bug correction.

*MOSU* : modularisation of some set-up routines (SUDIM1, SUDYN).

*NETADTLSL* : update the TL and AD codes according to the direct code under LARCINBTL and LARCINBAD, LATTEXTL and LATTEXAD.

*NETDFI* : cleanings (mainly printings) in SUEDFI.

*NETGWS* : separate between surface and upper-air calculations in the NH-(LSLAG+LGWADV) model (previously separation between top and other half-levels); remove useless calculations for surface (gw), especially about SL interpolations.

*OPTDMFP* : optimisations in the distributed memory environment in FULL-POS.

*RMOBSOLETE* : remove the obsolete options LREPHD=T and LVERAVE\_HLUV=T; remove some obsolete routines.

*SLADLAM* : F.Vana code: AD of SL2TL in ALADIN.

*TRAJHRS* : some corrections for LTRAJHR\_SURF.

#### *Ccase branch name:*

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*mrpm603\_CY32T1\_dev32t1pour32t2*

#### *Modified elements:*

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<i>ald/adiab/elarche5.F90</i>	: SLADLAM
<i>ald/adiab/elarmes.F90</i>	: SLADLAM
<i>ald/adiab/elarmes5.F90</i>	: SLADLAM
<i>ald/adiab/elarmestl.F90</i>	: SLADLAM
<i>ald/adiab/elascaw.F90</i>	: SLADLAM
<i>ald/pp_obs/endeapos.F90</i>	: OPTDMFP
<i>ald/pp_obs/extfpezo.F90</i>	: OPTDMFP
<i>ald/pp_obs/incfpezo.F90</i>	: OPTDMFP
<i>ald/setup/suefpbjp.F90</i>	: OPTDMFP
<i>ald/setup/suemp.F90</i>	: NETGWS
<i>arp/adiab/call_sl.F90</i>	: NETGWS
<i>arp/adiab/call_sl_ad.F90</i>	: SLADLAM
<i>arp/adiab/call_sl_tl.F90</i>	: SLADLAM
<i>arp/adiab/cpg_dyn.F90</i>	: NETGWS
<i>arp/adiab/gnh_tndlagadiab_gw.F90</i>	: NETGWS
<i>arp/adiab/gphluv.F90</i>	: RMOBSOLETE
<i>arp/adiab/gphluvad.F90</i>	: RMOBSOLETE
<i>arp/adiab/gphluvtl.F90</i>	: RMOBSOLETE

arp/adiab/lacdyn.F90 : NETGWS  
arp/adiab/lacone.F90 : BUG  
arp/adiab/lanhsi.F90 : NETGWS  
arp/adiab/lapinea.F90 : SLADLAM NETGWS  
arp/adiab/lapinea5.F90 : SLADLAM  
arp/adiab/lapineaad.F90 : SLADLAM  
arp/adiab/lapineatl.F90 : SLADLAM  
arp/adiab/lapineb.F90 : NETGWS  
arp/adiab/lapinebad.F90 : SLADLAM  
arp/adiab/larcin2.F90 : SLADLAM  
arp/adiab/larcina.F90 : SLADLAM  
arp/adiab/larcinaad.F90 : SLADLAM  
arp/adiab/larcinbad.F90 : SLADLAM NETADTLSL  
arp/adiab/larcinbtl.F90 : NETADTLSL  
arp/adiab/larcinha.F90 : SLADLAM NETGWS  
arp/adiab/larcinhb.F90 : NETGWS  
arp/adiab/larmes.F90 : SLADLAM  
arp/adiab/larmes5.F90 : SLADLAM  
arp/adiab/larmesad.F90 : SLADLAM  
arp/adiab/lattex.F90 : NETGWS  
arp/adiab/lattexad.F90 : NETADTLSL  
arp/adiab/lattextl.F90 : NETADTLSL

arp/dfi/suedfi.F90 : NETDFI

arp/module/gmv\_subs.F90 : NETGWS  
arp/module/ptrslb2.F90 : NETGWS  
arp/module/type\_gmvs.F90 : NETGWS  
arp/module/yomdim.F90 : NETGWS  
arp/module/yomdyn.F90 : RMOBSOLETE  
arp/module/yomfpg.F90 : OPTDMFP  
arp/module/yomfpgind.F90 : OPTDMFP  
arp/module/yomfpsc2.F90 : OPTDMFP  
arp/module/yommp.F90 : OPTDMFP  
arp/module/yomtag.F90 : OPTDMFP  
arp/module/yomwfpb.F90 : OPTDMFP

arp/namelist/namdyn.h : RMOBSOLETE  
arp/namelist/namfpg.h : OPTDMFP

arp/parallel/disgridfp.F90 : OPTDMFP  
arp/parallel/diwrgrfp.F90 : OPTDMFP  
arp/parallel/sutag.F90 : OPTDMFP

arp/pp\_obs/fpcliphy.F90 : OPTDMFP  
arp/pp\_obs/fpintdyn.F90 : OPTDMFP  
arp/pp\_obs/fpintphy.F90 : OPTDMFP  
arp/pp\_obs/fpnilphy.F90 : OPTDMFP  
arp/pp\_obs/fposhor.F90 : OPTDMFP  
arp/pp\_obs/fpsampl.F90 : OPTDMFP  
arp/pp\_obs/fpscaw.F90 : OPTDMFP  
arp/pp\_obs/gridfpos.F90 : OPTDMFP  
arp/pp\_obs/slrint.F90 : SLADLAM  
arp/pp\_obs/slrintad.F90 : SLADLAM

arp/setup/su0yoma.F90 : BUG  
arp/setup/subfpos.F90 : OPTDMFP  
arp/setup/sudim1.F90 : MOSU  
arp/setup/sudim2.F90 : NETGWS  
arp/setup/sudyn.F90 : MOSU RMOBSOLETE  
arp/setup/sufpcip.F90 : OPTDMFP  
arp/setup/sufpg.F90 : OPTDMFP

arp/setup/sufpg1.F90 : OPTDMFP  
 arp/setup/sufpsc2.F90 : OPTDMFP  
 arp/setup/sufpsuw.F90 : OPTDMFP  
 arp/setup/suhdir.F90 : RMOBSOLETE  
 arp/setup/sulap.F90 : BUG  
 arp/setup/sump.F90 : OPTDMFP  
 arp/setup/sumpfpos.F90 : OPTDMFP  
 arp/setup/suprocfp.F90 : OPTDMFP  
 arp/setup/surfbbuf.F90 : OPTDMFP  
 arp/setup/suslb.F90 : NETGWS  
 arp/setup/suwfbbuf.F90 : OPTDMFP  
  
 arp/utility/dealfpos.F90 : OPTDMFP  
 arp/utility/extfpf.F90 : OPTDMFP  
 arp/utility/extgpf.F90 : OPTDMFP  
 arp/utility/read\_surfgrid\_traj\_fromfa.F90 : TRAJHRS  
  
 arp/var/eigenmd.F90 : BUG

Added elements:

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ald/adiab/elaiditlad.F90 : SLADLAM  
 ald/adiab/elaititlad.F90 : SLADLAM  
 ald/adiab/elaitritlad.F90 : SLADLAM  
 ald/adiab/elarchead.F90 : SLADLAM  
 ald/adiab/elarmesad.F90 : SLADLAM  
 ald/adiab/elascawad.F90 : SLADLAM  
  
 arp/adiab/lattex5.F90 : NETADTSL  
 arp/adiab/lattex\_dnt5.F90 : NETADTSL  
 arp/adiab/lattex\_dnt\_ad.F90 : NETADTSL  
  
 arp/namelist/namfpsc2\_dep.h : OPTDMFP  
  
 arp/parallel/fptrdtoa.F90 : OPTDMFP  
 arp/parallel/fptratod.F90 : OPTDMFP  
  
 arp/setup/sudefo\_gflattr.F90 : MOSU  
 arp/setup/suctrl\_gflattr.F90 : MOSU  
 arp/setup/sudyn\_setgflattr.F90 : MOSU  
 arp/setup/sufpsc2\_dep.F90 : OPTDMFP  
 arp/setup/sumpfpos\_dep.F90 : OPTDMFP  
 arp/setup/suprocfp\_dep.F90 : OPTDMFP

Removed elements:

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ald/coupling/ebipaux.F90 : RMOBSOLETE  
  
 ald/dia/ewmoviedm.F90 : RMOBSOLETE  
 ald/dia/espos.F90 : RMOBSOLETE  
  
 ald/parallel/egatherspa.F90 : RMOBSOLETE  
  
 ald/setup/suehow.F90 : RMOBSOLETE  
  
 ald/transform/ebechfi.F90 : RMOBSOLETE  
  
 ald/var/ebalads.F90 : RMOBSOLETE

ald/var/ejgalfa.F90 : RMOBSOLETE  
 ald/var/ejgvcoriad.F90 : RMOBSOLETE  
 ald/var/ejgvcorad.F90 : RMOBSOLETE  
 ald/var/swap37.F90 : RMOBSOLETE  
  
 arp/dia/wmoviedm.F90 : RMOBSOLETE  
 arp/dia/wmovoro.F90 : RMOBSOLETE  
  
 arp/module/traj\_const.F90 : RMOBSOLETE  
  
 arp/parallel/ircvgpffp.F90 : RMOBSOLETE (OPTDMFP)  
 arp/parallel/isndgpffp.F90 : RMOBSOLETE (OPTDMFP)  
 arp/parallel/orcvgpffp.F90 : RMOBSOLETE (OPTDMFP)  
 arp/parallel/osndgpffp.F90 : RMOBSOLETE (OPTDMFP)  
  
 arp/pp\_obs/fpolis.F90 : RMOBSOLETE

**Modifications in namelists:**

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- remove variables LVERAVE\_HLUV and LREPHD.
- add namelist element NAMFPSC2\_DEP.
- when NFPROMA is present in NAMFPSC2, replace it by NFPROMA\_DEP (same value) in NAMFPSC2\_DEP

**Project:** aladin,arpege  
**ClearCase branch:** mrpm603\_CY32T1\_dev32t1pour32t2

**Added:**

ald/adiab	elaidditlad.F90	elaitlittlad.F90	elaitritlad.F90
	elarchead.F90	elarmesad.F90	elascawad.F90
arp/adiab	lattex5.F90	lattex_dnt5.F90	lattex_dnt_ad.F90
arp/namelist	namfpssc2_dep.h		
arp/parallel	fptratod.F90	fptrdtoa.F90	
arp/setup	suctrl_gflattr.F90	sudefo_gflattr.F90	sudyn_setgflattr.F90
	sufpsc2_dep.F90	sumpfpos_dep.F90	suprocfp_dep.F90

**Modified:**

ald/adiab	elaidditlad.F90	elaitlittlad.F90	elaitritlad.F90
	elarche5.F90	elarchead.F90	elarmes.F90
	elarmes5.F90	elarmesad.F90	elarmestl.F90
	elascaw.F90	elascawad.F90	
ald/coupling	ebipaux.F90		
ald/dia	espos.F90	ewmoviedm.F90	
ald/parallel	egatherspa.F90		
ald/pp_obs	endepos.F90	extfpezo.F90	incfpezo.F90
ald/setup	suefbip.F90	suehow.F90	suemp.F90
ald/transform	ebechfi.F90		
ald/var	ebalads.F90	ejgalfa.F90	ejgvcorad.F90
	ejgvcoriad.F90	swap37.F90	
arp/adiab	call_sl.F90	call_sl_ad.F90	call_sl_tl.F90
	cpg_dyn.F90	gnh_tndlagadiab_gw.F90	gphluv.F90
	gphluvad.F90	gphluvtl.F90	lacdyn.F90
	lacone.F90	lanhsi.F90	lapinea.F90
	lapinea5.F90	lapineaad.F90	lapineatl.F90
	lapineb.F90	lapinebad.F90	larcin2.F90



	larcina.F90	larcinaad.F90	larcinbad.F90
	larcinbtl.F90	larcinha.F90	larcinhb.F90
	larmes.F90	larmes5.F90	larmesad.F90
	lattex.F90	lattex5.F90	lattex_dnt5.F90
	lattex_dnt_ad.F90	lattexad.F90	lattextl.F90
arp/dfi	suedfi.F90		
arp/dia	wmoviedm.F90	wmovoro.F90	
arp/module	gmv_subs.F90	ptrslb2.F90	traj_const.F90
	type_gmvs.F90	yomdim.F90	yomdyn.F90
	yomfpg.F90	yomfpgind.F90	yomfpsc2.F90
	yommp.F90	yomtag.F90	yomwfpb.F90
arp/namelist	namdyn.h	namfpg.h	namfpsc2_dep.h
arp/parallel	disgridfp.F90	diwrgfp.F90	fptratod.F90
	fptrdtoa.F90	ircvpgffp.F90	isndgpffp.F90
	orcvgpffp.F90	osndgpffp.F90	sutag.F90
arp/pp_obs	fpcliphy.F90	fpintdyn.F90	fpintphy.F90
	fpnilphy.F90	fpolis.F90	fposhor.F90
	fpsampl.F90	fpscaw.F90	gridfpos.F90
	slint.F90	slintad.F90	
arp/setup	su0yoma.F90	subfpos.F90	suctrl_gflattr.F90
	sudefo_gflattr.F90	sudim1.F90	sudim2.F90
	sudyn.F90	sudyn_setgflattr.F90	sufpcip.F90
	sufpg.F90	sufpg1.F90	sufpsc2.F90
	sufpsc2_dep.F90	sufpsuw.F90	suhdir.F90
	sump.F90	sumpfpos.F90	sumpfpos_dep.F90
	suprocfp.F90	suprocfp_dep.F90	surfpbuf.F90
	suslb.F90	suwfpbuf.F90	
arp/utility	dealfpos.F90	extfpf.F90	extgpf.F90
	read_surfgrid_traj_fromfa.F90		
arp/var	eigenmd.F90		