

ARPEGE MEMORANDUM

From: GCO **Date:** October 18, 2006
To: GMAP, COMPAS, GMGEC, GMME,
DIR/RE/CRC, Mats Hamrud
Subject: New cycle CY31T2

A new cycle CY31T2 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: CY31T2

Modified libraries: aladin, arpege, bla, mpa, mse, odb, sat, trans, utilities, ifsaux

Contributors:

ALIAS Antoinette	Project:arpege	CCase branch:mrpa589_CY31T1_gco
BOUVELOUP Yves	Project:arpege	CCase branch:mrpa648_CY31T1_b268
BOUYSEL Francois	Project:arpege	CCase branch:mrpa649_CY31T1_surfex01
GCO	Project:arpege	CCase branch:marp001_CY31T1_none
HELLO Gwenaelle	Project:arpege	CCase branch:mrpe721_CY31T1_aromrpe721
Jean-Marcel PIRIOU	Project:arpege	CCase branch:mrpm606_CY31T1_ddhlf
Karim YESSAD	Project:arpege	CCase branch:marp001_CY30_bf
	Project:arpege	CCase branch:mrpm603_CY31T1_dev31t1pour31t2
	Project:arpege	CCase branch:mrpm603_CY31T1_none
Ryad El KHATIB	Project:arpege	CCase branch:mrpm602_CY31T1_necbf
SEITY Yann	Project:arpege	CCase branch:mrpm637_CY31T1_arome31t1pour2
	Project:arpege	CCase branch:mrpm637_CY31T1_bft2
VANA Filip	Project:arpege	CCase branch:mrpe706_CY31T1_filip
WATTRELOT Eric	Project:arpege	CCase branch:mrpa652_CY31T1_ewgomradar

ALIAS Antoinette

Doc:

1/ Add REFFWIA15 .

2/ Modifications of PFPEVP and PFFFP fluxes, to follow the new interface.

3/ Bugfix in CSLINT setup of YSDSAT and YCVV GFL .

4/ Bugfix : RZHMER not used any longer.

5/ Miscellaneous modifications:

* Cleaning the source code.

* Add FEVAPC (Facteur d'évaporation des précipitations).

* Fix the print of RKN value.

Project: arpege

ClearCase branch: mrga589_CY31T1_gco

Added:

arp/namelist namclop15.h

Modified:

arp/climate	updcpl.F90	updsst.F90	
arp/module	yomclop15.F90	yomphy0.F90	
arp/namelist	namclop15.h	namphy0.h	
arp/phys_dmn	accvimpgy.F90	acpluis.F90	aplpar.F90
	radlsw15.F90	suclop15.F90	suphy0.F90
arp/setup	sudyn.F90		

BOUTELOUP Yves

Doc:

Introduction of a new switch (LSSD) initialised to FALSE in SU0PHY. In ACPLUIZ this switch control the call to ADVPRCS (new routine).

Project: arpege

ClearCase branch: mrpa648_CY31T1_b268

Added:

arp/phys_dmn advprcs.F90

Modified:

arp/module	yomphy.F90	
arp/namelist	namphy.h	
arp/phys_dmn	acpluiz.F90	advprcs.F90
arp/setup	su0phy.F90	

BOUYSSSEL Francois

Doc:

All of the modifications are concerning coupling between ALADIN and SURFEX.

The subroutine radlsw.F90 is changed to provide shortwave downward fluxes for the case of 2 spectral bands (modification done with J.J.Morcrette).

The following subroutines are modified by V.Masson in order to enable TEB calculations with implicit coupling between SURFEX and the atmospheric model:

```
./mse/module/modi_teb.mnh  
./mse/module/modi_urban_fluxes.mnh  
./mse/internals/coupling_teb_n.mnh  
./mse/internals/teb.mnh  
./mse/internals/urban_fluxes.mnh
```

Project: arpege, mse
ClearCase branch: mrpa649_CY31T1_surfex01

Added:

```
arp/phys_dmn acdifv1.F90          acdifv2.F90  achmtls.F90  
mse/externals aro_ground_diag.mnh
```

Modified:

```
arp/adiab      cpg.F90  
arp/control    stepo.F90  
arp/dia        aro_surf_diagh.F90  
arp/module     yomaras.F90          yomarphy.F90  
arp/namelist   namarphy.h  
arp/phys_dmn  acdifv1.F90          acdifv2.F90          achmtls.F90  
               apl_arome.F90       aplpar.F90           mf_phys.F90  
               suparas.F90         suphmse.F90  
arp/phys_ec    radlsw.F90  
arp/setup      su0phy.F90  
mse/externals  aro_ground_diag.mnh  aro_ground_param.mnh  aro_surf_diag.mnh  
               aroini_surf.mnh  
mse/internals  average_diag.mnh          coupling_teb_n.mnh    teb.mnh  
               urban_fluxes.mnh  
mse/module     modi_teb.mnh          modi_urban_fluxes.mnh
```

GCO

Doc:

1/ Little fix in Eric Wattrelot's contribution: the added SQL routines have been moved from "odb/ddl.ECMA" to "odb/ddl" directory, and links to those 2 routines have been created in "odb/ddl.ECMA" directory. File "ECAM.dep" has been updated.

2/ Add links to "satbody_radar.sql" and sathdr_radar.sql" also in directory "odb/ddl.CCMA".

3/ Update file "odb/ddl.CCMA/CCMA.dep" with those two queries.

Project: odb

ClearCase branch: marp001_CY31T1_none

Added:

odb/ddl.CCMA satbody_radar.sql sathdr_radar.sql

Renamed:

odb/ddl.ECMA satbody_radar.sql to odb/ddl/satbody_radar.sql
sathdr_radar.sql to odb/ddl/sathdr_radar.sql

Modified:

odb/ddl.CCMA CCMA.dep

HELLO Gwenaelle

Doc:

1/ Modifications inside fullpos in order to post-process a new field. This field is reflectivity as seen by the model ("simulated reflectivities"). This is a 3D field that could be activated in namelist NAMFPC, by the name CFP3DF='SIM_REFLECTI'. To post-process this field you need as input hydrometeors fields (Qc, Qr, Qs, Qi & Qg) .

2/ Small corrections :

- * apl_arome : missing include, 1 to 1_jprb ;*
- * suparar : correction of prints for the output.*

Project: arpege

ClearCase branch: mrpe721_CY31T1_aromrpe721

Added:

arp/module yomclmicst.F90
arp/pp_obs gprs0d.F90 suclmicst.F90

Modified:

arp/module yomafn.F90 yomclmicst.F90
arp/phys_dmn apl_arome.F90 suparar.F90
arp/pp_obs endpos.F90 gprs0d.F90 pos.F90
suclmicst.F90
arp/setup suafn1.F90 suafn2.F90 suafn3.F90

Jean-Marcel PIRIOU

Doc:

DDH code of ARPEGE/ALADIN/AROME has been modified, so that those models write directly DDH-files with FA format, and no more in LFI format. The converter "ddh-lfi2lfa" is now useless! This modification applies under the switch ".NOT.LECMWF". For ECMWF runs no modification is done, DDH files are written in pseudo-GRIB format as before.

Project: arpege

ClearCase branch: mrpm606_CY31T1_ddhlf

Modified:

arp/dia posddh.F90 ppfidh.F90 ppsydh.F90
 sunddh.F90 wrifdh.F90
arp/module yomliddh.F90

Karim YESSAD

Doc:

Miscellaneous bugfixes.

Project: aladin, arpege
ClearCase branch: marp001_CY30_bf

Modified:

ald/adiab elarmes.F90
arp/adiab larmes.F90 larmes5.F90

Doc:

DEL : removal of useless routines.

MISC : miscellaneous.

*TRAJHR : bug corrections and developments for LTRAJHR.
- adapt LTRAJHR_ALTI for MF purpose.
- code LTRAJHR_ALTI with reading grid-point trajectory FA files.
- begin to adapt LTRAJHR_SURF for MF purpose (not complete).*

Modified elements:

*arp/control/csta.F90 : TRAJHR
arp/control/scan2mdm.F90 : TRAJHR
arp/namelist/namct0.h : TRAJHR
arp/module/trajectory.F90 : TRAJHR
arp/module/traj_main.F90 : TRAJHR
arp/module/traj_surface.F90 : TRAJHR
arp/module/yomct0.F90 : TRAJHR
arp/parallel/read_spec_fromfa.F90 : TRAJHR
arp/setup/su1yom.F90 : TRAJHR
arp/setup/suct0.F90 : TRAJHR, MISC
arp/setup/sudim1.F90 : MISC
arp/setup/sudyn.F90 : MISC
arp/setup/sugridadm.F90 : TRAJHR
arp/setup/suinif.F90 : TRAJHR
arp/setup/sulun.F90 : TRAJHR
arp/setup/sumpini.F90 : TRAJHR
arp/setup/suoph.F90 : TRAJHR
arp/setup/suspec.F90 : TRAJHR
arp/var/suecgges.F90 : TRAJHR*

Added elements:

arp/setup/sugridspa.F90 : TRAJHR

arp/utility.read_surfgrid_traj_fromfa.F90 : TRAJHR

Removed elements:

ald/c9xx/ebien.F90 : DEL
ald/c9xx/einter3.F90 : DEL
ald/c9xx/einter7.F90 : DEL
ald/c9xx/einter9.F90 : DEL

arp/c9xx/dirvar.F90 : DEL
arp/c9xx/gtopt.F90 : DEL
arp/c9xx/inter5.F90 : DEL
arp/c9xx/inter9.F90 : DEL
arp/c9xx/intrv1.F90 : DEL
arp/c9xx/usnunp.F90 : DEL

Project: arpege
ClearCase branch: mrpm603_CY31T1_dev31t1pour31t2

Added:

arp/setup sugridspa.F90
arp/utility read_surfgrid_traj_fromfa.F90

Modified:

arp/control	csta.F90	scan2mdm.F90
arp/module	traj_main.F90 yomct0.F90	traj_surface.F90 trajectory.F90
arp/namelist	namct0.h	
arp/parallel	read_spec_fromfa.F90	
arp/setup	su1yom.F90 sudyn.F90 suinif.F90 suoph.F90	suct0.F90 sudim1.F90 sugridadm.F90 sugridspa.F90 sulun.F90 sumpini.F90 suspec.F90
arp/utility	read_surfgrid_traj_fromfa.F90	
arp/var	suecges.F90	

Doc:

1/ Remove obsolete routines.

2/ Miscellaneous bugfixes.

Project: aladin, arpege
ClearCase branch: mrpm603_CY31T1_none

Deleted:

ald/c9xx ebien.F90 einter3.F90 einter7.F90
einter9.F90
arp/c9xx dirvar.F90 gtopt.F90 inter5.F90
inter9.F90 intrv1.F90 usnunp.F90

Modified:

arp/adiab larmesad.F90 larmestl.F90

Ryad EI KHATIB

Doc:

1/ Portability and some optimizations for NEC SX platforms.

2/ New blacklist file for METEO-FRANCE .

Project: aladin, arpege, bla, mpa, mse, odb, sat, trans, utilities, ifsaux

ClearCase branch: mrpm602_CY31T1_necbf

Added:

bla mf_blacklist.b

Modified:

ald/adiab	elaskaw.F90		
ald/c9xx	cchien.F90		
arp/adiab	lascaw.F90	lascawad.F90	lascawtl.F90
	rdscaw.F90		
arp/obs_preproc	fgchk.F90		
arp/parallel	dicomout.F90	gather eigmd.F90	gathflnm.F90
	packmsg.F90	unpkmsg.F90	wrgp_surf.F90
arp/phys_dmn	accoefk.F90		
arp/pp_obs	fpkaw.F90	fpkaw2.F90	fptsa_dir.F90
	hop.F90	hopad.F90	hoptl.F90
arp/setup	suhdf.F90		
arp/utility	sualspa.F90		
arp/var	ecset.F90		
mpa/chem/module	mode_dustopt.mnh		
mse/externals	atm2sx_env.mnh	ini_prep_surfex_aro.mnh	prep_surf_aro.mnh
mse/internals	prep_buffer_grid.mnh	prep_isba_buffer.mnh	prep_seaflux_buffer.mnh
	prep_teb_buffer.mnh	prep_watflux_buffer.mnh	
odb/aux	cma_flpcheck.c	iogetsize.c	ioprealloc.c
	prealloc.c	util.c	
odb/cma2odb	getatdb.F90	getdb.F90	
odb/compiler	odb98.c		
odb/lib	forfunc.c	hashing.c	twindow.c
sat/emiss	scan_bias.F90		
sat/interface	rttov_integrate.h	rttov_integrate_ad.h	rttov_integrate_tl.h
	rttov_setupindex.h		
sat/rttov	rttov_ad.F90	rttov_calcemis_ir.F90	rttov_ec.F90
	rttov_integrate.F90	rttov_integrate_ad.F90	rttov_integrate_tl.F90
	rttov_setupindex.F90	rttov_tl.F90	rttov_transmit.F90
	rttov_transmit_ad.F90	rttov_transmit_tl.F90	rttovad.F90
	rttovtl.F90		
tfl/module	spnsdead_mod.F90	sustaonl_mod.F90	
uti/bator	bator.F90	bator_ecritures.F90	bator_lectures.F90
uti/extrtovs	regress_one.F90		
uti/module	bator_module.F90		
uti/prescat/qretrieve	read_qscat25kmbufr.F		
xrd/bufr_io	oldbufr_open.F		

xrd/fa	faisc2.F		
xrd/lfi	lficom0.h		
xrd/module	mpl_init_mod.F90	sdl_module.F90	
xrd/not_used	ismax.F	ismin.F	
xrd/support	cptime.F	sgemmx.F	timef.F
xrd/svipc	svipc.c		
xrd/utilities	getheapstat.F90	rsort32.c	

SEITY Yann

Doc:

1/ Phasing the bugfixes of O.Thouron for Meso-NH in the radiation routines of ECMWF .

Modified routines:

arp/phys_ec/lwc.F90
 arp/phys_ec/radina.F90
 arp/phys_ec/radint.F90
 arp/phys_ec/radintg.F90
 arp/phys_ec/radlsw.F90
 arp/phys_ec/rrtm_ect_140gp.F90
 arp/phys_ec/sw.F90
 arp/phys_ec/sw1s.F90
 arp/phys_ec/sw1sad.F90
 arp/phys_ec/swad.F90
 arp/phys_ec/swclr.F90
 arp/phys_ec/swde.F90
 arp/phys_ec/swni.F90
 arp/phys_ec/swniad.F90
 arp/phys_ec/swr.F90
 arp/phys_ec/swu.F90
 arp/phys_dmn/acradin.F90
 arp/phys_dmn/aplpar.F90
 arp/phys_dmn/hl_aplpar.F90
 arp/phys_dmn/recmwf.F90

2/ Activation of CFU/XFU in AROME .

Modified routines:

arp/phys_dmn/mf_phys.F90
 arp/phys_dmn/apl_rome.F90

3/ Add possibility to run AROME without surface (LMSE=.FALSE.) .

Modified routines:

arp/adiab/cpg_end.F90
 arp/adiab/cpg_gp.F90

4/ Change default of variable LSETADJ .

Modified routine:

arp/phys_dmn/sucvmnh.F90

5/ Update with bugfix n° 5 of surfex1.3 .

Modified routines:

mse/internals/ch_aer_dep.mnh
mse/internals/drag.mnh
mse/internals/goto_wrapper_surfatm.mnh
mse/internals/init_dst_n.mnh
mse/internals/init_seaflux_n.mnh
mse/internals/init_teb_n.mnh
mse/internals/init_watflux_n.mnh
mse/internals/read_latlon.mnh
mse/internals/read_teb_conf_n.mnh
mse/internals/treat_field.mnh
mse/module/modd_dst_n.mnh
mse/module/modi_read_latlon.mnh

6/ Bugfixes for run prepsurfex on NEC .

Modified routines:

mse/externals/atm2sx_env.mnh
mse/externals/ini_prep_surfex_aro.mnh
mse/externals/prep_surf_aro.mnh
mse/internals/prep_buffer_grid.mnh

7/ Bugfixes for run on PC .

Modified routines:

mse/internals/read_seaflux_conf_n.mnh
mse/internals/read_watflux_conf_n.mnh
mse/internals/read_default_seaflux_n.mnh
mse/internals/read_isba_conf_n.mnh

8/ List of new routines:

mse/module/modi_read_latlon.mnh
mse/internals/read_latlon.mnh

Project: arpege, mse
ClearCase branch: mrpm637_CY31T1_arome31t1pour2

Added:

mse/internals read_latlon.mnh
mse/module modi_read_latlon.mnh

Modified:

arp/adiab	cpg_end.F90	cpg_gp.F90	
arp/phys_dmn	acradin.F90	apl_arome.F90	aplpair.F90
	hl_aplpair.F90	mf_phys.F90	recmwf.F90
	sucvmnh.F90		
arp/phys_ec	lwc.F90	radina.F90	radint.F90
	radintg.F90	radlsw.F90	rrtm_ecrt_140gp.F90
	sw.F90	sw1s.F90	sw1sad.F90
	swad.F90	swclr.F90	swde.F90
	swni.F90	swniad.F90	swr.F90
	swu.F90		
mse/externals	atm2sx_env.mnh	ini_prep_surfex_aro.mnh	prep_surf_aro.mnh
mse/internals	ch_aer_dep.mnh	drag.mnh	goto_wrapper_surfatm.mnh

	init_dst_n.mnh	init_seaflux_n.mnh	init_teb_n.mnh
	init_watflux_n.mnh	prep_buffer_grid.mnh	read_default_seaflux_n.mnh
	read_isba_conf_n.mnh	read_latlon.mnh	read_seaflux_conf_n.mnh
	read_teb_conf_n.mnh	read_watflux_conf_n.mnh	treat_field.mnh
mse/module	modd_dst_n.mnh	modi_read_latlon.mnh	

Doc:

1/ Bugfixes for surfex in ALADIN, in the read/write of GPARBUF .

Modified routines:

arp/adiab/cpg_end.F90
arp/adiab/cpg_gp.F90

2/ Bugfixes in "aro_grouns_param.mnh" allowing not to use IFS modules il project "mse", variables are now given as arguments.

Modified routines:

arp/phys_dmn/apl_arome.F90
arp/phys_dmn/aplpar.F90
mse/externals/aro_ground_param.mnh
mse/interface/aro_ground_param.h

3/ Little fixes in "aplpar.F90":

- fix in the test NSWB_MNH/=NSW under key LMSE ;
- fill array PABD from 1 to NSW, and not from 1 to NSWB_MNH .

Modified routine:

arp/phys_dmn/aplpar.F90

4/ Initialize ILUOUT0 to NULOUT to have prints of AROME physics with those of ALADIN part.

Modified routines:

mpa/micro/externals/aroini_cstmnh.mnh
mpa/micro/internals/budget.mnh
mpa/micro/internals/ini_rain_ice.mnh
mpa/micro/module/modd_lunit.mnh

5/ Fix a compilation problem on PC-Linux with the GAMMA function: now the GAMMA function defined in YOMGAMMA is used.

Modified routines:

arp/pp_obs/reflsim.F90
arp/module/yomclmicst.F90

6/ Remove a duplicated line.

Modified routine:

arp/setup/sugfl.F90

Project: arpege, mpa, mse

ClearCase branch: mrpm637_CY31T1_bft2

Modified:

arp/adiab	cpg_end.F90	cpg_gp.F90
arp/module	yomclmicst.F90	
arp/phys_dmn	apl_arome.F90	aplpar.F90
arp/pp_obs	reflsim.F90	
arp/setup	sugfl.F90	
mpa/micro/externals	aroini_cstmnh.mnh	
mpa/micro/internals	budget.mnh	ini_rain_ice.mnh
mpa/micro/module	modd_lunit.mnh	
mse/externals	aro_ground_param.mnh	
mse/interface	aro_ground_param.h	

VANA Filip

Doc:

BUG : Bug corrections.

SLHD_SETUP : Minor corrections in the setup of SLHD, active in ALADIN only when LPSLHDN=F in NAMDYN (default LPSLHDN=T for continuity with CY31T1).

SLTL_LELAM : TL code for SL scheme in ALADIN.

Modified elements:

<i>arp/adiab/call_sl_ad.F90</i>	: <i>SLTL_LELAM</i>
<i>arp/adiab/call_sl_tl.F90</i>	: <i>SLTL_LELAM</i>
<i>arp/adiab/lapinea5.F90</i>	: <i>SLTL_LELAM</i>
<i>arp/adiab/lapineatl.F90</i>	: <i>SLTL_LELAM</i>
<i>arp/adiab/lapinebtl.F90</i>	: <i>SLTL_LELAM</i>
<i>arp/adiab/larcinatl.F90</i>	: <i>SLTL_LELAM</i>
<i>arp/adiab/larmesad.F90</i>	: <i>SLTL_LELAM BUG</i>
<i>arp/adiab/larmestl.F90</i>	: <i>SLTL_LELAM BUG</i>
<i>arp/namelist/namdyn.h</i>	: <i>SLHD_SETUP</i>
<i>arp/setup/sudyn.F90</i>	: <i>SLHD_SETUP</i>

Added elements:

<i>ald/adiab/elarche5.F90</i>	: <i>SLTL_LELAM</i>
<i>ald/adiab/elarchetl.F90</i>	: <i>SLTL_LELAM</i>
<i>ald/adiab/elarmes5.F90</i>	: <i>SLTL_LELAM</i>
<i>ald/adiab/elarmestl.F90</i>	: <i>SLTL_LELAM</i>
<i>ald/adiab/elascawtl.F90</i>	: <i>SLTL_LELAM</i>

Project: aladin, arpege
ClearCase branch: mrpe706_CY31T1_filip

Added:

ald/adiab elarche5.F90 elarchetl.F90 elarmes5.F90
 elarmestl.F90 elascawtl.F90

Modified:

ald/adiab	elarche5.F90	elarchetl.F90	elarmes5.F90
	elarmestl.F90	elascawtl.F90	
arp/adiab	call_sl_ad.F90	call_sl_tl.F90	lapinea5.F90
	lapineatl.F90	lapinebtl.F90	larcinatl.F90

larmesad.F90 larmestl.F90
arp/namelist namdyn.h
arp/setup sudyn.F90

WATTRELOT Eric

Doc:

1/ Prepare for new goms in module goms and prepare structure of new GOMGFL for these three new hydrometeors (arrays dimensionned in setup which allows to dimension directly semi-lagrangien buffers)
:

arp/module/goms.F90

The keys LGOMS, LGOMR, LGOMG are not any more in namelist namdim but directly in the routine sugoms from setup:

arp/obs_preproc/sugoms.F90

So, modifications in the call to the observation operators and the routines of filling by the contents of the tables of GOM-arrays:

arp/pp_obs/bgobs.F90

arp/pp_obs/hop.F90

arp/pp_obs/hopad.F90

arp/pp_obs/hoptl.F90

arp/pp_obs/hretr.F90

arp/pp_obs/preint.F90

For writing new goms called since prtgom:

arp/parallel/gathergom.F90

New writing of goms in :

arp/utility/prtgom.F90

2/Add new monitoring for radar reflectivities

Modified routines:

arp/obs_preproc/defrun.F90

arp/obs_preproc/first.F90

arp/obs_preproc/fgchk.F90

arp/obs_preproc/gefger.F90

arp/obs_preproc/sualscre.F90

arp/obs_preproc/suscre1.F90

arp/obs_preproc/post_prsta.F90

arp/obs_preproc/prsta.F90

arp/pp_obs/preint.F90

arp/var/ecset.F90

odb/cma2odb/ctxinitdb.F90/

odb/cma2odb/getdb.F90

odb/ddl.ECMA/satbody_radar.sql

odb/ddl.ECMA/sathdr_radar.sql

3/ Fix the problem of the unknoww function "dtrap" (for NEC) .

4/ Fix GOM-arrays statistics for TOVs .

5/ Remove the function "MOMG" from routine "reflsim.F90", because this function is already defined as same in module "yomclmicst.F90" .

Project: arpege, odb

ClearCase branch: mrpa652_CY31T1_ewgomradar

Added:

arp/module yomintgt.F90
odb/dl.ECMA satbody_radar.sql sathdr_radar.sql

Modified:

arp/module	goms.F90	yomclmicst.F90	yomintgt.F90
arp/obs_preproc	defrun.F90	fgchk.F90	first.F90
	gefger.F90	post_prsta.F90	prsta.F90
	sualscre.F90	sugoms.F90	suscre1.F90
arp/parallel	gathergom.F90		
arp/pp_obs	bgobs.F90	hop.F90	hopad.F90
	hoptl.F90	hretr.F90	preint.F90
	reflsim.F90		
arp/utility	prtgom.F90		
arp/var	ecset.F90		
odb/cma2odb	ctxinitdb.F90	getdb.F90	
odb/dl.ECMA	satbody_radar.sql	sathdr_radar.sql	