RESEARCH DEPARTMENT MEMORANDUM

To:	RD Scientific Staff and Consultants	
Copy:	HR, HO, HMD, HMAS, HMOS, J.Hodkinson Jean Pailleux, François Bouttier, Claude Fischer	
From:	Mats Hamrud et al.	
Date:	September 21, 2007	File: R48.3/MH/0729
Subject:	**IFS Memorandum Cycle CY32R2**	

Cycle 32r2 was created in May 2007. Cycle 32r2 is not a common cycle with Meteo France. It became the operational cycle on 05/06/07.

Modified libraries: ifs ifsaux trans scripts prepdata satrad wam odb surf scat

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Deborah Salmond, Mats Hamrud, Philippe Lopez, Marta Janiskova

Optimisations of 4D-Var

- Parallelisation of the I/O in getmini/savmini
- Optimisation of cubasen2/ad/tl by reordering of loops and by saving and reusing trajectory calculations
- Optimisation of bgobs by loop reordering

Files modified(IFS):

`phys_ec/cubasen2.F90 cubasen2ad.F90 cubasen2tl.F90 cumastrn2.F90 cumastrn2ad.F90`

`pp_obs/bgobs.F90`

`var/getmini.F90 preppcm.F90 savmini.F90 xformev.F90`

David Tan

Doppler wind lidar assimilation

Infrastructure (no meteorological impact) for assimilation of ADM-Aeolus Doppler wind lidar observations, building on contributions to CY29R2.

Project ifs: assimilation of horizontal-line-of-sight (HLoS) wind components. Project odb: Aeolus ODB table definitions, prototype Bufr2ODB conversion. Project scripts: add tasks for Aeolus.

Files created(IFS):

`obs_preproc/dwlin.F90`

Files created(ODB):

`bufr2odb/bufr2odb_aeolus.F90`

`ddl.ECMA/sathdr_screen_aeolus_1b.sql sathdr_screen_aeolus_2b.sql sathdr_screen_aeolus_auxmet.sql sathdr_screen_aeolus_hdr.sql`

`ddl/sathdr_screen_aeolus_1b.sql sathdr_screen_aeolus_2b.sql sathdr_screen_aeolus_-auxmet.sql sathdr_screen_aeolus_hdr.sql`

Files created(SCRIPTS):

`gen/preaeolus`

`sms_an/b2o_aeolus.sms o2b_aeolus.sms obstat_aeolus.sms preaeolus.sms`

Files modified(IFS):

`common/yomdb_defs.h yomdb_vars.h`

`obs_preproc/conventional_ob.F90 defrun.F90 fgchk.F90 first.F90 gefger.F90 redml.F90 suobarea.F90`

`pp_obs/hop.F90 hopad.F90 hoptl.F90 hretr.F90 ppobsa.F90 ppobsaad.F90 ppobsatl.F90`

Files modified(ODB):

`bufr2odb/get_varindex.F90`

`cma2odb/buf2cmat_new.F90 ctxinitdb.F90 getdb.F90 initmdb.F90 subuoctp.F90 update_obsdb.F90`

`ddl/cma.h varno.h`

`module/getval_module.F90 parbufr.F90 varindex_module.F90 yomboctp.F90`

scripts/create_ioassign
tools/Bufr2odb.F90

Files modified(SCRIPTS):
def/an.def
gen/bufr2odb create_ioassign feedback ifstraj
sms_an/feedback.sms makeodb.sms

Gabor Radnoti

Modifications related to weak-constraint 4DVAR, mainly to the 4d state-vector control variable version (NTYPE_MODERR=1)

Files created(IFS):
utility/model2moderr.F90 modeltojb.F90 modeltojbad.F90

Files modified(IFS):
parallel/gpnorm1.F90
setup/su0yomb.F90 suinimoderr.F90
utility/addbgs.F90 addfgs.F90 rdmoderr.F90 subbgs.F90 subfgs.F90
var/adtest.F90 cainad.F90 cvar2.F90 cvar2ad.F90 cvar2in.F90 cvar2inad.F90 cvtest.F90
evjq.F90 jgnrad.F90 rdfpinc.F90 sujq.F90 sumoderr.F90 suvazx.F90 weak_constraint.F90
weak_constraint_ad.F90 weak_constraint_tl.F90

Jean Bidlot

A bug was corrected in a test designed to remove wrong SAR data when the cut-off wave length does not fall within prescribed values. Default size of arrays containing ASAR input data was increased to avoid systematic resizing of the arrays. A fix was introduced to prevent the opening of fortran unit 1 and explicit writes to unit 6 were removed.

Files modified(WAM):
wam/Alt/i_get_unit.F
wam/Sar/iners1.F sarinvert.F
wam/Wam_oper/dev.F difdate.F incdate.F mpuserin.F readsarspec.F

Andrew Collard

Changes to allow processing of IASI radiances.

IASI processing is enabled.

AIRS/IASI cloud detection has been upgraded

Changes to RTTOV are for efficiency and memory use reasons

IASI pre-processing has been parallelised to reduce processing time to acceptable limits. Channel selection reduces the original 8461 channels to more manageable levels (currently 366).

Satmon (G. van der Grijn) and bufr feedback (M. Dragosavac) changes for IASI are included.

Files created(IFS):

`module/yomiasi.F90`

`namelist/namclddet.h`

`obs_preproc/cloud_detect_setup.F90 read_iasichans.F90`

`pp_obs/aerosol_detect.F90 heapsort.F90`

Files created(ODB):

`bufr2odb/odb2bufr_dep_240.F90 odb2bufr_fos_240.F90 odb2bufr_qc_240.F90`
`ddl.ECMA/smon_hsris.sql smon_hsris_flag.sql ddl/smon_hsris.sql`
`smon_hsris_flag.sql`

Files created(OBSTAT):

`satmon/get_hsris_odb.F90`

Files created(SATRAD):

`pre_screen/bufr_screen_iasi.F90`

Files created(SCRIPTS):

`gen/pre1crad_iasi_split`

`sms_an/b2o_iasi.sms o2b_iasi.sms obstat_iasi.sms odbcmp_iasi.sms`
`pre1crad_iasi.sms pre1crad_iasi_1.sms pre1crad_iasi_10.sms pre1crad_iasi_11.sms`
`pre1crad_iasi_12.sms pre1crad_iasi_13.sms pre1crad_iasi_14.sms`
`pre1crad_iasi_15.sms pre1crad_iasi_16.sms pre1crad_iasi_2.sms`
`pre1crad_iasi_3.sms pre1crad_iasi_4.sms pre1crad_iasi_5.sms pre1crad_iasi_6.sms`
`pre1crad_iasi_7.sms pre1crad_iasi_8.sms pre1crad_iasi_9.sms`
`pre1crad_iasi_split.sms pre1crad_iasi_split_1.sms pre1crad_iasi_split_2.sms`

`sms_era/obtime_iasi.sms`

Files modified(IFS):

`common/yomdb_defs.h yomdb_vars.h`

`module/parcma.F90 yomtvrad.F90 yomvarbc.F90`

`namelist/namvarbc.h`

`obs_preproc/black.F90 defrun.F90 new_thinn.F90 new_thinner_no_sq.F90`
`pre_thinner.F90 rad1cin.F90 thinn.F90 thinner_no_sq.F90`

`pp_obs/bgobs.F90 cf_digital.F90 cloud_detect.F90 hop.F90 hopad.F90 hoptl.F90`
`hretr.F90 hsatang.F90 rad1cemis.F90 rad1cobe.F90 radtr.F90 radtrad.F90`
`radtrcld.F90 radtrk.F90 radtrtl.F90 statpred.F90`

`var/csvarbc.F90 rtsetup.F90 surad.F90 suvarbc.F90`

Files modified(ODB):

`aux/util_numprod.c bufr2odb/bufr2odb_iasi.F90 get_varindex.F90`
`odb2bufr_summary.F90 module/bufr_module.F90 bufr_module1.F90 tools/Fbnew2old.F90`
`Odb2bufr.F90`

`cma2odb/buf2cmat_new.F90 initmdb.F90 subuoctp.F90`

`ddl/cma.h`

`module/init_module.F90 varindex_module.F90 yomboctp.F90`

`scripts/bufr2odb`

`tools/Bufr2odb.F90 numproducts.c`

Files modified(OBSTAT): `module/mod_sat_common.F90 mod_sat_create_netcdf.F90 mod_sat_-`
`monitor.F90 satmon/sat_monitor.F90`

Files modified(SATRAD):

```
bias/getbias.F90 suadvar.F90
interface/rttov_setupindex.h
module/cparam.F90 mod_cparam.F90
rttov/rttov_aitosu.F90 rttov_calcemis_ir.F90 rttov_setupindex.F90 rttov_setupindex_ec.F90 rttov_transmit.F90 rttovcld.F90 rttvi.F90
```

Files modified(SCRIPTS):

```
def/an.def
gen/bufr2odb fdbksave fetchobs mkabs_satmon mkabs_satrad mklinks pre1crad_screen satmon_getdat satmon_monitor smon smon_clean smon_def smon_funcs varconsts
sms_an/makeodb.sms
```

Hans Hersbach

Fine tuning of assimilation of ASCAT

Improve ice flag for scatterometer data

Improved wind inversion for ERS-2 and ASCAT

Files modified(IFS):

```
module/yomscc.F90 yomthlim.F90
namelist/namscc.h
obs_preproc/ascatif.F90 defrun.F90 fgwnd.F90 scaqc.F90 sufglim.F90
```

Files modified(ODB):

```
ddl/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 thinn_robhdr_6.sql thinn_robody_6.sql
```

Files modified(SCRIPTS):

```
gen/fetchobs getbias getini getmars mklinks varconsts
```

Check on validity lat/lon for scat data

Files modified(SCAT):

```
etimesort/timesort.F
```

Files modified(SCRIPTS):

```
gen/prescat
```

Remove calls to uv2sd and sd2uv from eclib

Files created(IFSAUX):

```
module/local_trafos.F90
```

Files modified(IFS):

```
function/stmfun_ifs.h
obs_preproc/airepin.F90 dribuin.F90 ersin.F90 ewprfin.F90 lansyin.F90 metarin.F90 nscatin.F90 pilotin.F90 qscatin.F90 satamin.F90 satobin.F90 scaqc.F90 shipin.F90 tempin.F90 windaux.F90
```

Files modified(ODB):

tools/Fbdecode.F90

Files modified(SCAT):

qretrieve/qscat25to50km.F

Gianpaolo Balsamo

- the HTESSEL land surface scheme (activated by LEVGEN=.true. ; LESSRO=.true.) which includes a new hydrology (variable infiltration runoff and Van Genuchten soil water transfer scheme). This is now deactivate and it should be activated next cycle.

The HTESSEL scheme with LEVGE/LESSRO=.false (default) reproduces bit-identical results to 31R2 (comparison of ifstraj.1 logs in a T159 4D-VAR experiment).

- Offline Surface Model (under surf/offline directory) which allows to run the surface in a forced mode. This sub-directory is excluded for compilation (added to CCEXCLUDE in Makefile.root.surf).

Extra 2d-fields in input - "slt gribcode=43". The file "slt" is already available on $XDATA for most grid.

Other changes: Migrate forcinv from prepdata/odds to prepdata/programs Delete obsolete: prepdata/odds/forcinv prepdata/odds/intsst prepdata/odds/timeint

Files created(PREPDATA):

programs/forceinv.F90

Files created(SURF):

module/srfwexc_vg_mod.F90

offline/additional/include/abor1.intfb.h gppre.intfb.h sucld.intfb.h sucldp.intfb.h suclop.intfb.h suclop15.intfb.h sucond.intfb.h sucumf.intfb.h suecrad.intfb.h suecrad15.intfb.h sugwd.intfb.h sumethox.intfb.h suphli.intfb.h surfexcdriver.h suvdf.intfb.h suvdfs.intfb.h suveg.intfb.h suwcou.intfb.h vdfdifc.intfb.h vdfdifh.intfb.h vdfdifm.intfb.h vdfdpbl.intfb.h vdfevap.intfb.h vdfexcs.intfb.h vdfexcu.intfb.h vdfincr.intfb.h vdfppcfl.intfb.h vdfppcfls.intfb.h vdfppgust.intfb.h vdfsflx.intfb.h vdfsurf.intfb.h vdfupdz0.intfb.h

offline/additional/module/yomhook.F90

offline/driver/bilinear.F90 callpar1s.F90 cnt01s.F90 cnt21s.F90 cnt31s.F90 cnt41s.F90 cntend.F90 cpedia1s.F90 cpg1s.F90 dattim.F90 dtforc.F90 incdat.F90 intpf.F90 minmax.F90 rdclim.F90 rdclimgrb.F90 rdcoor.F90 rdcoorgrb.F90 rdfvar.F90 rdfvargrb.F90 rdres.F90 rdresgrb.F90 rdsupr.F90 rdsuprgrb.F90 stepo1s.F90 su0phy1s.F90 su0yom1s.F90 su1s.F90 sucdfres.F90 sucdh1s.F90 suct01s.F90 sudcdf.F90 sudgrb.F90 sudim1s.F90 sudyn1s.F90 sufarme.F90 sufavign.F90 sufboreas.F90 sufcabauw87r23.F90 sufcabauw9596.F90 sufcdf.F90 suffife.F90 sufgrb.F90 suflitf.F90 sufloobos.F90 sufmobi.F90 sufmurex.F90 sufsahel.F90 sufsebe.F90 sufsmosrex03.F90 sufspeuld.F90 sugc1s.F90 sugdi1s.F90 sugp1s.F90 sugpd1s.F90 sugrbres.F90 suinif1s.F90 sulun1s.F90 supcdf.F90 supgrb.F90 suphec.F90 surdi1s.F90 surip.F90 updcal.F90 upddiag.F90 updtim1s.F90 wrtcgrb.F90 wrtclim.F90 wrtd1s.F90 wrtdcdf.F90 wrtdgrb.F90 wrtp1s.F90 wrtpcdf.F90 wrtpgrb.F90 wrtres.F90 wrtresgrb.F90 yomphy.F90

offline/function/fctast.h fcttim.h fcttre.h fcttrm.h fcvdfs.h

offline/ifsaux/module/parkind1.F90 parkind1.mod yomhook.F90 yomhook.mod

offline/module/ptrgp1s.F90 ptrgpd1s.F90 yoelw.F90 yoephy.F90 yoerad.F90

yoerdi.F90 yoerdi1s.F90 yoerip.F90 yoesoil1s.F90 yoesw.F90 yoethf.F90 yoevdf.F90 yoevdfs.F90 yomcc1s.F90 yomcdh1s.F90 yomcst.F90 yomct01s.F90 yomdphy.F90 yomdyn1s.F90 yomforc1s.F90 yomgc1s.F90 yomgdi1s.F90 yomgf1s.F90 yomgp1s0.F90 yomgp1s1.F90 yomgp1sa.F90 yomgpd1s.F90 yomjfh.F90 yomlog1s.F90 yomlun1s.F90 yomrip.F90 namelist/nam1s.h

offline/namelist/namct01s.h namdim.h namdim1s.h namdyn1s.h namforc1s.h namgc1s.h namgp1s.h namgpd1s.h namphy.h namphy1s.h namrip.h phys_ec/sulwn.F90

offline/phys_ec/surdi.F90 suswn.F90 suvdf.F90 suvdfs.F90 vdfdifc.F90 vdfdifh1s.F90 vdfdifm1s.F90 vdfincr.F90 vdfmain1s.F90

offline/setup/su0phy.F90 sucst.F90 surip.F90

offline/util/abor1.F90 mpl_mod_ctl.F90

Files modified(IFS):

dia/sunddh.F90 wrmlfp.F90

module/parfpos.F90 surface_fields.F90 yoephy.F90 yomafn.F90 yomgrb.F90

namelist/naephy.h namafn.h

phys_ec/callpar.F90 callparad.F90 callpartl.F90 ec_phys.F90 ec_phys_ad.F90 ec_phys_tl.F90 radcfg.F90 radpar.F90 suphec.F90 vdfmain.F90 vdfmains.F90 vdfmainsad.F90 vdfmainstl.F90 vdfouter.F90

pp_obs/hpos.F90 specfitg.F90

setup/modgrin.F90 su0phy.F90 su_surf_flds.F90 suafn1.F90 suafn2.F90 suafn3.F90

Files modified(SCRIPTS):

build/Makefile.root.surf findbin_mk.ksh

gen/ansfc coldstart_tiles fast_sgint getgrb getini ifstraj inter_fp mkabs_prepdata mklinks mknam_fp soilana

sms/p4setup.sms

Files modified(SURF):

external/surf_inq.F90 surfbc.F90 surfexcdriver.F90 surfexcdrivers.F90 surfexcdriversad.F90 surfexcdriverstl.F90 surfrad.F90 surftstp.F90 susurf.F90

interface/surf_inq.h surfbc.h surfexcdriver.h surfexcdrivers.h surfexcdriversad.h surfexcdriverstl.h surfrad.h surftstp.h susurf.h

module/srfene_mod.F90 srfrcg_mod.F90 srfsn_mod.F90 srft_mod.F90 srfwexc_mod.F90 srfwinc_-
mod.F90 srfwng_mod.F90 surfbc_ctl_mod.F90 surfexcdriver_ctl_mod.F90 surfexcdrivers_-
ctl_mod.F90 surfexcdriversad_ctl_mod.F90 surfexcdriverstl_ctl_mod.F90 surfrad_ctl_-
mod.F90 surftstp_ctl_mod.F90 sussoil_mod.F90 susurf_ctl_mod.F90 vsurf_mod.F90 vsurfs_-
mod.F90 vsurfsad_mod.F90 vsurfstl_mod.F90 yos_dim.F90 yos_soil.F90

Files deleted(PREPDATA):

odds/forceinv/Makefile.old forceinv/forceinv.f intsst/Makefile.old intsst/intsst.F timeint/Makefile.old timeint/timeint.f

Files deleted(SURF):

offline/cnt01s.F90

Milan Dragosavac

IASI feedback

Files modified(ODB):

`bufr2odb/odb2bufr_dep_240.F90 odb2bufr_fos_240.F90 odb2bufr_qc_240.F90 odb2bufr_summary.F90 module/bufr_module.F90 bufr_module1.F90 tools/Fbnew2old.F90Odb2bufr.F90`

Thomas Auligne

Removal of Harris and Kelly bias correction in the VarBC configuration

All biases are now corrected through the VarBC 'air-mass' and scan bias correction (while VarBC used to be applied on top of the HK scan correction). The HK files are no longer copied/linked/read. If LVARBC=.false. (old experiments, Meteo-France), the former HarrisKelly bias correction still works.

Advantages:
- Simplicity of the code
- Uses much less CPU (and I/O)
- Smoother scan correction
- The initial bias correction for each cycle is now stored in ODB (allowing to retrieve uncorrected first-guess departures)

Files modified(IFS):

`pp_obs/hop.F90 hretr.F90 rad1cobe.F90 var/csvarbc.F90 surad.F90`

Files modified(SCRIPTS):

`gen/mklinks vardata`

Antenna correction for AMSUA aboard Aqua and Metop (Niels and Blazej)

Antenna correction derived from AAPP coefficients for platforms where no antenna correction is applied in the pre-processing (Aqua and Metop).

Files modified(SATRAD):

`module/mod_antenna_correct.F90 pre_screen/antenna_correct.F90 antenna_read.F90 screen_1c.F90`

Files modified(SCRIPTS):

`gen/pre1crad_screen`

VarBC bugfixes

New version of the 'VARBC.cycle' files (version 2) to write explicitly the number of predictors. Portable code that allows to change the number of predictors.

Files modified(IFS):

`var/rdvarbc.F90 var/wrvarbc.F90`

Bugfix in the gathering of histograms (between threads/procs) for the calculation of the mode of the first-guess departures (Andrew)

Files modified(IFS):

`pp_obs/statpred.F90`

Do not attempt a VarBC warm-start when restarting an experiment with the coldstart option.

Files modified(SCRIPTS):

`gen/vardata`

Judith Berner

Passive changes to the stochastic physics scheme

Files modified(IFS):

`adiab/spchor.F90`
`module/yomstoph.F90`
`namelist/namstoph.h`
`phys_ec/callpar.F90 callparad.F90 cuascn.F90 cucalln.F90 cumastrn.F90 cumastrnad.F90 ec_phys.F90 ec_phys_drv.F90 ec_physg.F90 stochadiaten.F90`
`setup/surand1.F90 surand2.F90`

Soumia Serrar and Dick Dee

Post-process physics tendencies with proper GRIB codes for ERA40

The concerned fields are: Tendency of SW radiation, tendency of LW radiation, Tendency of clear sky SW radiation, Tendency of clear sky LW radiation, Updraught mass flux, Downdraught mass flux, Updraught detrainment rate, Total precipitation flux, Turbulent diffusion coefficient for heat, Tendency of temperature, Tendency of specific humidity, Tendency of u component and Tendency of v component.

These fields were formerly post-processed as extra-fields. Now they have proper GRIB codes within table 162 and are post-processed as GFL fields.

Files modified(IFS):

`control/scan2mdm.F90`
`dia/pregrbenc.F90`
`module/iostream.F90 parfpos.F90 yom_ygfl.F90 yomafn.F90 yomgrb.F90`
`namelist/namgfl.h`
`phys_ec/callpar.F90`
`pp_obs/pos.F90 vpos.F90`
`setup/suafn1.F90 suafn2.F90 sudim1.F90 sudyn.F90 sugfl.F90`

Files modified(SCRIPTS):

`gen/model`

Sami Saarinen

ODB technical modifications

1) NECSX port (memory tracing code in, but passive, since not fully working yet)
2) CRAY XT4 port (both login-nodes compute-nodes)
3) New ODB compiler [for offline jobs] that does not generate C-code
4) Input BUFR-data that is embedded in ECMA-database removed when $DOFDBK != true

5) ODB/SQL SELECT now supports functions
6) ODB/SQL SELECT now supports aggregate functions (MIN, MAX, SUM, STDEV, CORR, you-name-it)
7) Sun angle calculation functions (will be upgraded, refined later)

Files created(BL):

`bl/problem_blacklist.b`

Files created(IFSAUX):

`include/intercept_alloc.h`

`utilities/fnecsx.c`

Files created(ODB):

`aux/cma_readc.c cma_readf.c cma_seekf.c cma_writec.c cma_writef.c curses.c generic.c history.c info.c odbcalc.c odbsql.c result.c`

`compiler/ecstdlib.h funcs.h info.h`

`ddl.CCMA/ecstdlib.h funcs.h info.h`

`ddl.ECMA/ecstdlib.h funcs.h info.h`

`ddl.ECMASCR/ecstdlib.h funcs.h info.h`

`ddl.PREODB/ecstdlib.h funcs.h`

`ddl/PSBIAS.ddl PSBIAS.flags ecstdlib.h funcs.h info.h psbias_compress_method_0.sql psbias_compress_method_1a.sql psbias_compress_method_1b.sql psbiasbody.sql psbiasbody_maintenance.sql psbiashdr.sql psbiashdr_maintenance.sql`

`extras/gribex/ECMWFdefinitions.c ECMWFdefinitions.h abortx.F analsw.F blckcr.F bufrin.F c2bitw.F c2cwid.F c2dosd.F c2gene.F c2ordr.F c2pack.F c2pkvw.F c2rnge.F c2rows.F calcop.F ccf1cr.F cgsloop.c cheknum.F chktab2.F cmpck.F cnbits.F codegb.F codegc.F codegr.F codeps.F comars.h comcomm.h comgrb.h confp.F confp2.F confp3.F confpa.F csect4.F csgnbt.F csgnbt.c d2ordr.F d2rosd.F decext.F decfp.F decfp2.F decogb.F decogc.F decogd.F decogr.F decops.F decops2.F delsp.F dggsec2.F dlasec2.F dllsec2.F dmesec2.F docsec2.F dpssec2.F dsect4.F dsect4a.F dsgnbt.F dshsec2.F dsvsec2.F dswmrs.F ecdef1.F ecdef1.h ecdef10.F ecdef10.h ecdef11.F ecdef11.h ecdef12.F ecdef12.h ecdef13.F ecdef13.h ecdef14.F ecdef14.h ecdef15.F ecdef15.h ecdef16.F ecdef16.h ecdef17.F ecdef17.h ecdef18.F ecdef18.h ecdef19.F ecdef19.h ecdef2.F ecdef2.h ecdef21.h ecdef3.F ecdef3.h ecdef4.F ecdef4.h ecdef5.F ecdef5.h ecdef50.F ecdef50.h ecdef6.F ecdef6.h ecdef7.F ecdef7.h ecdef8.F ecdef8.h ecdef9.F ecdef9.h ecdf190.h ecdf191.F ecdf191.h ecloc1.F eggsec2.F elasec2.F ellsec2.F emesec2.F emoscyc.F emosnum.F eocsec2.F eocsec2.h epssec2.F eshsec2.F esvsec2.F exscal.F extmap.F findLocalDefinitionFile.c fortint.h fortranInterface.c fortvalues.h ftn1cr.F gbitmap.F gbyte.F gbytes.F gdecode.c gdecode.h gdecode1.c gdecode1.h gdecode2.c gdecode2.h gdecodeStruct.h genbin.F gendir.F gengrib.F getchd.F getfb2.F getfpd.F getib1.F getib2.F getib3.F getind.F getlgd.F getsetValues.c getsetValues.h getsys.F getusr.F grbcom.h grchk1.F grchk2.F grchk3.F grchk4.F grib_int_t.h gribex.h gribin.F gribnum.F groutpt.F grpr190.c grprs.h grprs0.F grprs1.F grprs1b.F grprs2.F grprs3.F grprs4.F grprs4w.F grsdbg.F grsdef.F grsmax.F grsmkp.F grsmok.F grsn2o.F grsref.F grsrnd.F grsubc.F grsvck.F grsx2o.F gsbite.F gscale.F handleLocalDefinitions.c handleLocalDefinitions.h inscal.F insmp1.F insmp2.F inxbit.F inxmap.F jabort.c jfree.c jmalloc.c kwchk1.F kwloc1.F kwprs1.F l2u1cr.F ldc1cr.F lnbfcr.F lngbcr.F local2.F local2c.c local2k.F maxmin.F maxmn2.F maxmni.F modval.F mxmncr.F offset.F offset2.F orefdat.c packcf.F parval.F prtbin.F prtbk1.F prtbk2.F prtbl1.F prtbl2.F ptquasi.F qu2reg.F qu2reg2.F qu2reg3.F reclen.F ref2grb.F remsp.F repchr.F revero.F`

rorint.F rowina.F rowina2.F rowina3.F rtb.F sbyte.F sbytes.F scm0.F search.F sencode.c sencode.h sencode1.c sencode1.h sencode2.c sencode2.h setpar.F sfbits.h swap4.c tab2fil.F u2l1cr.F uncmpck.F unpkcf.F valpina.c vod2uv.F xgrdemo.F yyyy2cy.F

include/ecstdlib.h evaluate.h funcs.h history.h info.h node.h result.h

interface/ckeysort.h

lib/ckeysort.F90 eq_regions.c evaluate.c funcs.c random.c rot.c solar.c stack.c symtab.c

scripts/check_links dcaquick make.cray_amd make.cray_xt4 make.ibm_power4 make.linux_O2_no_magics make.necsx8r make.necsx8r_memtrace make.necsx8r_mpi make.nectx_g95 odb_merge odb_prune odb_qsub odbcalc odbmerge odbprune odbqsub odbsql sxcc_wrapper sxmpicc_wrapper

tools/Fodbcalc.F90 Fodbsql.F90 Ps_bias_compress.F90

Files created(SCRIPTS):

gen/odbprune

Files modified(IFS):

mwave/mwave_get.F90 mwave_get_ad.F90 mwave_get_tl.F90 mwave_put.F90 mwave_put_tl.F90

obs_preproc/conventional_ob.F90 sugoms.F90

setup/sulap.F90

var/gp_ssmi.F90 gp_ssmi_inv.F90 suvarbc.F90

Files modified(IFSAUX):

include/cargs.h raise.h

module/ecsort.F90 mpl_abort_mod.F90 mpl_arg_mod.F90 mpl_end_mod.F90 mpl_init_mod.F90 sdl_module.F90

support/cargs.c dr_hook_util.F90 drhook.c endian.c env.c

utilities/ecqsort.c gentrbk.F90 getcurheap.c gethwm.c getrss.c linuxtrbk.c rsort32.c rsort64.c

Files modified(OBSTAT):

src/odbread.F90

Files modified(ODB):

aux/bits.c cardinality.c cma_flpcheck.c cma_open.c cma_rewind.c dca.c ds.c dtnum.c fileutil.c ioassign_read.c iocopy.c ioprealloc.c iotimes.c magicwords.c memmap.c memory.c newio.c pcma_1.c pcma_11to19.c pcma_2.c pcma_21to29.c pcma_31to39.c pcma_5.c pcma_9.c prealloc.c swapbytes.c util.c util_iobuf.c util_numprod.c vpack_bits.c

bufr2odb/bufr2odb_grad.F90 bufr2odb_msg.F90 bufr2odb_ssmis.F90 bufr2odb_tmi.F90

cma2odb/ctxgetdb.F90 ctxinitdb.F90 ctxputdb.F90 gather4poolmask.F90 getdb.F90

compiler/copyfile.c genc.c lex.l odb98.c regex.c tree.c yacc.y

ddl/conventional_robhdr_1.sql conventional_robody_1.sql

extras/emos/buevar.F emos/buivar.F gribex/gribex.F mpi_serial/tracecalls.c

include/alloc.h cma_read.h cmaio.h dca.h defs.h fodb.h idx.h magicwords.h memmap.h mr2d_hdr.h odb.h odb_macros.h pcma.h privpub.h setodbcs.h

interface/ctxgetdb.h getdb.h

lib/Dummies.c Magics_dummy.F90 aggr.c codb.c errtrap.c fodb_propagate_env.F90 hashing.c msgpass_obsdata.F90 orlist.c rsort32_odb.c setup_sort.c tracing.c

twindow.c vecloops.c version.c wildcard.c

module/context.F90 odb.F90 odb_module8.F90 odbmp.F90

scripts/askodb bufr2odb configure configure_drhook create_ioassign
create_static_stubb dcagen dd2ddl drhook_ex.ksh drhook_ex2.F90 drhook_ex3.F90
get_cycle make.amd64 make.amd64_shlib make.decalpha make.i86pc make.i86pc_gcc
make.ia32 make.ia64 make.ia64_icc make.ia64_no_motif make.ia64_plain
make.ia64_plain_no_openmp make.ifort32 make.ifort_hms make.linux make.linux32
make.linux_O0 make.linux_O0_no_magics make.linux_O1 make.linux_O1_no_magics
make.linux_O2 make.linux_O2_new_magics make.linux_O2_pg make.linux_gprof
make.linux_prof make.linux_shlib make.necsx5 make.sun_linux make.sun_linux_gcc
make.sun_linux_gcc_O0 make_depend make_fclibs make_install make_lib make_tarball
make_tarball_drhook makefile mpirun.linux odb1to4 odb2netcdf odb4to1
odb_compress odbcc odbclean odbcomp odbdiff odbdup odbf90 odbgnuplot odbgzip
odbless odbshuffle odbviewer run_fe start_server test_arch use_odb use_odb.sh

tools/Bufr2odb.F90 Create_index.F90 Fscheduler.F90 Odb2mysql_api.F90 Plotobs.F90 Viewer.F90

bufr_add_bias.F dcagen.c ioassign.c numproducts.c pcma_main.c xldummy.c

Files modified(PREPDATA):

module/svtools.F90

Files modified(SCRIPTS):

build/perl/depend.pl

def/an.def

gen/bufr2odb cma2odb create_ioassign ifsmin ifstraj ifsvar matchup mkabs_an
mkabs_b2otools mkabs_odbtools model modeleps modelsv odb2bufr odb_compress
odbclean odbcomp odbshuffle revmatchup simulobs2odb update_psbias

sms/cleanmc.sms ifs.sms

sms_an/4dvar.sms b2otools.sms create_ccma.sms matchup.sms mergeodb.sms revmatchup.sms
update_psbias.sms

Shinya Kobayashi

Enable IFS to store surface emissivities for satellite observations in ODB

Files modified(IFS):

pp_obs/hretr.F90 radtrcld.F90

Files modified(ODB):

ddl/robody_screen.sql

Files modified(SATRAD):

rttov/rttov_ec.F90 rttovcld.F90

Frederic Vitart

The changes in ifs and wam are essentially for introducing a new way of coding hindcasts + there is a change in climate/updclie.F90 which is a bug correction.

Files created(SCRIPTS):

gen/getpersSST

oce/extrafields_veps_create wm_archive_veps_sfc wm_archive_veps_ua
wm_create_veps_sfc wm_create_veps_ua
sms/getpersSST.sms getpersSSTA.sms getpersSSTB.sms getpersSSTC.sms
sms_oc/cleanocean.sms

Files modified(IFS):
climate/updclie.F90
dia/pregrbenc.F90 prepfdb.F90
setup/sugrib.F90 sulap.F90 suoph.F90

Files modified(SCRIPTS):
def/eps_varfc.def
gen/getgrb getgrb_vareps mkabs_b2otools mkidta_eps modeleps sample_svs
oce/extrafields_create ninosst storm
sms/cleanmc.sms flush.sms getiniLeg.sms getvarepsdata.sms ml.sms modeleps.sms
pl.sms pt.sms pv.sms sfc.sms
sms_oc/extrafields.sms wm_sfc.sms wm_sfc_arc.sms wm_ua.sms wm_ua_arc.sms
wav/archive_wave wave_find_stream wave_getgrb wave_getrst

Files modified(WAM):
Wam_oper/fld2fdb.F spec2fdb.F userin.F wstream_strg.F

Martin Leutbecher

Save lnsp as model level 1 instead of model level 0. The change is required in order to be able to put singular vectors into FDB and MARS. Singular vectors will be written into FDB and MARS in the observation targeting suite which is scheduled for operational implementation later this year.

Files modified(IFS):
setup/sulap.F90
sinvect/wrtllcz.F90

Jean-Jacques Morcrette

Bugfixes to correct 2 bugs, that show up only when
- either one tries to run 32R1 with the old albedo and the old radiation configuration
- or the new radiation configuration (RRTM_SW and new cloud optical properties) but without McICA.

Files modified(IFS):
namelist/naerad.h
module/yoerad.F90
phys_ec/radlswr.F90 suecrad.F90 suphec.F90

Rossana Dragani

Passive monitoring of OMI total column ozone.

Files modified(IFS):

`module/yomtvrad.F90`

`var/getsatid.F90 surad.F90`

Files modified(OBSTAT):

`module/mod_sat_monitor.F90`

`satmon/sat_add_geo.F90`

Files modified(SATRAD):

`pre_screen/reo3_prescreen.F90`

Files modified(SCRIPTS):

`gen/fetchobs prereo3 smon_def`

Carole Peubey

Include MTSAT CSRs data in passive monitoring, and secondly to clean-up the geostationary radiance quality control

MTSAT CSRs:

`odb/bufr2odb/bufr2odb_grad.F90 : remove lines about MTSAT because this programme only deals with BUFR code 89 and MTSAT is of BUFR code 189.`

`odb/bufr2odb/bufr2odb_msg.F90 : add MTSAT as the programme deals with BUFR code 189`

`obstat/module/mod_sat_monitor.F90 : add MTSAT CSRs`

`obstat/bias_sat/biasprep_fbcrack_geos.F90 : add MTSAT CSRs`

`scripts/gen/fetchobs : fetch MTSAT data on ecfs`

`scripts/gen/pregeos : add MTSAT CSRs and reorgarnize the script.`

`scripts/gen/smon_def : add MTSAT option file in the list of the satmon option files for CSRs.`

CLEAN UP OF GEO QC

This change is made for future use of the bias corrected departures of the GEO window channel in the black-listing of the GEO WV channels. The blacklist will need to be modified as well.

`/ifs/var/suvarbc.F90 : add the window channel of all the current GEO in the VARBC table.`

George Mozdzynski

Bugfix

Files modified(IFS):

`phys_ec/suecrad.F90`