

RESEARCH DEPARTMENT
MEMORANDUM



To: RD Scientific Staff and Consultants

Copy: DR, DO, HMD, HMAS, HMOS, John Hodgkinson, François
Bouttier, Claude Fischer, Ryad El Khatib, Karim Yessad,
John Hague

From: Deborah Salmond et al.

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File: RD13-325

Subject: IFS Memorandum Cycle CY40R1

Cycle 40r1 was created in August 2013. This is based on the joint cycle CY40 and the CY39R1 Esuite branch. This will be the 'migration cycle' to the Cray XC30.

Contributors:

Saleh Abdalla, Jean Bidlot, Richard Engelen, Masahiro Kazumori, Simon Lang, Philippe Lopez, Kristian Mogensen, Gabor Radnoti, Deborah Salmond, Irina Sandu, Oliver Treiber, Filip Vana, Drasko Vasiljevic

PHYSICS

Filip Vana - pafv_CY39R1_physfix - not-BR

Bug-fix for interface to cloud and convection schemes

Expts: control=fxbw , test=fxwm

This is a fix to a bug which entered at CY39R1.

There were two issues:

1. Bug in convection scheme being active for any LSLPHY settings.
2. Bug in cloud scheme being active only for LSLPHY=.F. and DDH diagnostics or 1D model.

Files modified(IFS):

phys_ec/callpar.F90 cloud_layer.F90 cloudsc.F90 convection_layer.F90 cucalln.F90

Irina Sandu - pa3_SB38R2_PHYS_for39r1_revert_cou_snow -not-BR

Reverting the coupling for snow under high veg to 15

Files modified(SURF):

module/susveg_mod.F90

Philippe Lopez - BR

Fixes for TL approximation test

These fixes had been lost between CY38R2 and CY39R1.

Files modified(IFS):

adiab/call_sl_tl.F90 interpol/slcomm.F90 slcomm2.F90 slcomm2a.F90
control/testlievol.F90

DATA ASSIMILATION

Drasko Vasiljevic - dad_SB38R2_metar_plus - BR

Add metar data - forgotten when 38r2 esuite was updated.

Files created(ODB):

interface/map_reporttype.h

Files modified(ODB):

cma2odb/buf2cmat_new.F90 map_reporttype.F90

tools/Bufr2odb.F90

Files modified(SCRIPTS):

def/fc.def

sms/climplot_save.sms

SATELLITE

Masahiro Kazumori - stmk_CY39R1_AMSR2_esuite_1 - PASSIVE/BR

AMSR2 monitoring

Expts: control=fxwx , test=fxxd

AMSR2 is a microwave sensor and a successor of AMSR-E. AMSR2 radiance data will be assimilated actively with all-sky approach in IFS in future. And the change includes t2m archiving to odb too. The t2m is already defined in CY39R1 (but not archived yet).

Files created(ODB):

bufr2odb/bufr2odb_amsr2_1d.F90

Files created(SATRAD):

programs/bufr_screen_amsr2_1d.F90

Files created(SCRIPTS):

sms_an/archive_amsr2.sms b2o_amsr2.sms convert_amsr2.sms obstat_amsr2.sms obstat_archive_amsr2.sms odb2odb1_amsr2.sms premwimg_amsr2.sms

Files modified(IFS):

module/get_lwpcoeff_mix.F90 gfl_subs_mod.F90 sats_mix.F90 varbc_allsky.F90

varbc_rad.F90 yoeaeratm.F90 yomsats.F90

mwave/mwave_setup.F90

obs_preproc/defrun.F90

op_obs/bgobs.F90 hopad.F90 hopt1.F90 hretr.F90 hsatang.F90 mopitt_ak_ad.F90

mopitt_ak_op.F90 mopitt_ak_tl.F90

phys_ec/aer_phy2.F90 aer_phy3.F90 aer_phy3_layer.F90 aer_so2so4.F90 aer_src.F90

aerini_layer.F90 callpar.F90 gems_init.F90 local_arrays_ini.F90 su_aerp.F90

su_aerw.F90

utility/sualspajb.F90

var/getsatid.F90

Files modified(ODB):

cma2odb/buf2cmat_new.F90 getdb.F90 map_reportype.F90 subuoctp.F90

ddl/robhdr_screen.sql sensor.h

include/bufr2odb.h

module/yomboctp.F90

tools/Bufr2odb.F90

Files modified(PREPDATA):

mc_tools/decode_track.F90

Files modified(SATRAD):

module/rttov_const.F90

Files modified(SCRIPTS):

def/an.def enkf.def fsobs.def
gen/anil anml anpl ansfc bufr2odb chem_setup cleanodb convert_obsgroup
cycle_times fetcherr fetchmars fetchobs gems_setup get_gems_surface getgrb
getgrbe groupid=35.tables groupid=37.tables ifsvar libsgen mkabs_prepdata
mkabs_satrad mklinks model modeleps_nemo obstat obstat_init preCleanFDB premwimg
prep_couplo4 tctrackbb varconst
sms/archivectm.sms
sms_era/get_obtime.sms
wav/archive_wave prep_wave wave_getrst

Files deleted(ODB):

scripts/bufr2odb

EPS

Simon Lang - nesl_CY39R1_fixes_for_new_tracker - BR

Tropical storm tracker fixes

Files modified(PREPDATA):

mc_tools/decode_track.F90

Files modified(SCRIPTS):

gen/tctrackbb

MACC

Richard Engelen - stj_CY39R1_MACC_esuite - BR

Various bug-fixes for MACC

The largest changes are in some of the aerosol routines. These changes are needed because of a bug fix in the aerosol wet deposition (already in CY38R2) and a bug fix in the dust source term. The aerosol model therefore had to be retuned causing quite a few coefficients to be changed.

Files modified(IFS):

module/gfl_subs_mod.F90 yoeaeratm.F90
op_obs/bgobs.F90 hopad.F90 hoptl.F90 mopitt_ak_ad.F90 mopitt_ak_op.F90
mopitt_ak_tl.F90
phys_ec/aer_phy2.F90 aer_phy3.F90 aer_phy3_layer.F90 aer_so2so4.F90 aer_src.F90
aerini_layer.F90 callpar.F90 gems_init.F90 local_arrays_ini.F90 su_aerp.F90
su_aerw.F90
utility/sualspajb.F90

Files modified(ODB):

cma2odb/getdb.F90

Files modified(SCRIPTS):

def/an.def

gen/anil anml anpl ansfc chem_setup fetcherr fetchmars fetchobs gems_setup
get_gems_surface getgrb getgrbe groupid=35.tables groupid=37.tables ifsvar
libsgen mkabs_prepdata model modeleps_nemo obstat obstat_init preCleanFDB
prep_couplo4 prereo3
sms/archivectm.sms
wav/wave_getrst

MARINE ASPECTS

Jean Bidlot - wab_SB38R2_for_CY39R1 - BR

Bug-fix for restart

Files modified(WAM):

Wam_oper/initmdl.F

Kristian Mogensen - ne1_CY40R1_curr_fix - BR

Bug-fix for coupling of ocean currents

Files modified(IDS):

climate/updclie.F90 updnenoocean.F90

Saleh Abdalla - waa_CY39R1_waveodb -BR

Archiving ODB in MARS

Files modified(ODB):

ddl/ralt_wam.sql

Files modified(SCRIPTS):

gen/anml anpl ansfc convert_obsgroup fetcherr fetchmars getgrbe
groupid=35.tables groupid=37.tables ifsvar libsgen mkabs_prepdata model
modeleps_nemo preCleanFDB
sms_an/archive_obsgroup.sms
sms_era/get_obtime.sms
wav/wave_getrst

Files modified(WAM):

Wam_oper/altas.F90

E-SUITE

Gabor Radnoti - dag_CY39R1_esuite

TECHNICAL

Oliver Treiber - BR

Enhancement to signal handler in Dr.Hook

Files modified(IFS AUX):

support/drhook.c

Deborah Salmond - BR

Fix to remove memory growth in Full-POS

Files modified(IFS):

fullpos/stepo_fpos.F90

Deborah Salmond - BR

Remove OpenMP loop in screen to stop intermittent failures in first trajectory

Files modified(IFS):

obs_preproc/screen.F90