Unitary Test

vn1.0.3

test_unit_warm_phase

test_unit5

Introduction

First unitary test of the warm phase set of unitary test. It is configured to test the test_unit3 modules of MONC + setfluxlook + coriolis + flux_budget and to get the mean results after each main part of the calculation of a timestep. It is based on a DOGRA Gaurav's test. In vn1.0.3, the print statement can be activated by setting option ‘tracking_variables_enabled’ to true.

Configuration

```
clearsourceterms_enabled=.true.
decomposition_enabled=.true.
gridmanager_enabled =.true.
pressure_source_enabled=.true.
grid_manager_enabled=.true.
halo_swapper_enabled=.true.
model_synopsis_enabled=.true.
stepfields_enabled=.true.
stepping_direction_enabled=.true.
swap_smooth_enabled=.true.
termination_check_enabled=.true.

# Component enable configuration
tracking_variables_enabled=.true.
buoyancy_enabled=.false.
cfltest_enabled=.false.
checkpointer_enabled=.false.
coriolis_enabled=.true.
damping_enabled=.false.
debugger_enabled=.false.
diagnostics_3d_enabled=.false.
diffusion_enabled=.true.
diverr_enabled=.true.
fftsolver_enabled=.true.
vert_filter_enabled=.false.
filter_enabled=.false.
flux_budget_enabled=.true.
forcing_enabled=.false.
iobridge_enabled=.true.
iterativesolver_enabled=.false.
iterativesolver_single_prec_enabled=.false.
kidreader_enabled=.false.
lower_bc_enabled=.true.
mean_profiles_enabled=.true.
petsc_solver_enabled=.false.
physicsa_enabled=.false.
profile_diagnostics_enabled=.false.
```

```
#profile_diagnostics_inc_rhi_enabled=.true.
psrce_enabled=.true.
pstep_enabled=.true.
pw_advection_enabled=.true.
scalar_diagnostics_enabled=.false.
set_consistent_lowbc_enabled=.true. #This must be set to true if
running with lower_bc
setfluxlook_enabled=.true.
simplecloud_enabled=.false.
simplesetup_enabled=.true.
smagorinsky_enabled=.true.
subgrid_profile_diagnostics_enabled=.false.
socrates_couple_enabled=.false.
th_advection_enabled=.true.
tvd_advection_enabled=.true.
viscosity_enabled=.true.
randomnoise_enabled=.false.
casim_enabled=.false.
casim_profile_dgs_enabled=.false.
lwrad_exponential_enabled=.false.
lateral_bcs_enabled=.false.
immersed_boundary_enabled=.false.
ib_finalise_enabled=.false.
conditional_diagnostics_column_enabled=.false.
conditional_diagnostics_whole_enabled=.false.
pdf_analysis_enabled=.false.
tracers_enabled=.false.
trajectories_enabled=.false.
radioactive_tracers_enabled=.false.
#test_component_enabled=.true.


termination_time=40.0
dtm=0.5
```

RESULTS

```
 mean(p)_ts5 =   -3.6408009725710454E-017

 mean(su)_ts5 =    2.9529695803313401E-004
 mean(u)_ts5 =    6.1641766159418934
 mean(zu)_ts5 =    6.1639403272283673

 mean(sv)_ts5 =   -9.5552116590648251E-005
 mean(v)_ts5 =   -3.4996798551691733E-004
 mean(zv)_ts5 =   -2.7234970784305090E-004

 mean(sw)_ts5 =   -2.1154965640907910E-026
 mean(w)_ts5 =    5.5445065539874959E-020
 mean(zw)_ts5 =    1.4770371559920196E-020

 mean(sth)_ts5 =    5.3790006881691462E-006
 mean(th)_ts5 =    6.5934255865777285
 mean(zth)_ts5 =    6.5934202177333807

 mean(sqv)_ts5 =    1.2563682010189195E-008
 mean(qv)_ts5 =    6.8400784625962515E-003
 mean(zqv)_ts5 =    6.8400659226363321E-003

###################################################################

[INFO] Number of completed timesteps 5
[INFO] Completed 1 timesteps in 24ms
[INFO] Model time 2.00 seconds; dtm=0.500

 mean(p)_ts6 =   -3.6408009725710454E-017

 mean(su)_ts6 =    2.9529695803313401E-004
 mean(u)_ts6 =    6.1641766159418934
 mean(zu)_ts6 =    6.1639403272283673

 mean(sv)_ts6 =   -9.5552116590648251E-005
 mean(v)_ts6 =   -3.4996798551691733E-004
 mean(zv)_ts6 =   -2.7234970784305090E-004

 mean(sw)_ts6 =   -2.1154965640907910E-026
 mean(w)_ts6 =    5.5445065539874959E-020
 mean(zw)_ts6 =    1.4770371559920196E-020

 mean(sth)_ts6 =    5.3790006881691462E-006
 mean(th)_ts6 =    6.5934255865777285
 mean(zth)_ts6 =    6.5934202177333807

 mean(sqv)_ts6 =    1.2563682010189195E-008
 mean(qv)_ts6 =    6.8400784625962515E-003
 mean(zqv)_ts6 =    6.8400659226363321E-003
```