Unitary Test

vn1.0.3

test_unit_warm_phase

test_unit2

Introduction

First unitary test of the warm phase set of unitary test. It is configured to test the basic modules + pw_/th/tvd_advection modules of MONC 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=.false.
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=.false.
forcing_enabled=.false.
iobridge_enabled=.true.
iterativesolver_enabled=.false.
iterativesolver_single_prec_enabled=.false.
kidreader_enabled=.false.
lower_bc_enabled=.false.
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=.false. #This must be set to true if
running with lower_bc
setfluxlook_enabled=.false.
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=2.0
dtm=0.5
```

RESULTS

```
 mean(p)_ts5 =    0.0000000000000000

 mean(su)_ts5 =   -3.6877624914472939E-022
 mean(u)_ts5 =    6.2033758372350700
 mean(zu)_ts5 =    6.2033809152901549

 mean(sv)_ts5 =    0.0000000000000000
 mean(v)_ts5 =    0.0000000000000000
 mean(zv)_ts5 =    0.0000000000000000

 mean(sw)_ts5 =    0.0000000000000000
 mean(w)_ts5 =    0.0000000000000000
 mean(zw)_ts5 =    0.0000000000000000

 mean(sth)_ts5 =    0.0000000000000000
 mean(th)_ts5 =    6.5435410738244064
 mean(zth)_ts5 =    6.5435410738244064

 mean(sqv)_ts5 =    0.0000000000000000
 mean(qv)_ts5 =    6.7235636689015454E-003
 mean(zqv)_ts5 =    6.7235636689015454E-003

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

[INFO] Number of completed timesteps 5
[INFO] Completed 1 timesteps in 25ms
[INFO] Model time 2.00 seconds; dtm=0.500
 TERMINER MONC
 mean(p)_ts6 =    0.0000000000000000

 mean(su)_ts6 =   -3.6877624914472939E-022
 mean(u)_ts6 =    6.2033758372350700
 mean(zu)_ts6 =    6.2033809152901549

 mean(sv)_ts6 =    0.0000000000000000
 mean(v)_ts6 =    0.0000000000000000
 mean(zv)_ts6 =    0.0000000000000000

 mean(sw)_ts6 =    0.0000000000000000
 mean(w)_ts6 =    0.0000000000000000
 mean(zw)_ts6 =    0.0000000000000000

 mean(sth)_ts6 =    0.0000000000000000
 mean(th)_ts6 =    6.5435410738244064
 mean(zth)_ts6 =    6.5435410738244064

 mean(sqv)_ts6 =    0.0000000000000000
 mean(qv)_ts6 =    6.7235636689015454E-003
 mean(zqv)_ts6 =    6.7235636689015454E-003
```