Unitary Test

vn1.0.3

test_unit_warm_phase

test_unit1

Introduction

First unitary test of the warm phase set of unitary test. It is configured to test the basic 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=.false.
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=.false.
tvd_advection_enabled=.false.
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 13ms
[INFO] Model time 2.00 seconds; dtm=0.500
 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
```