6. Recommended Namelist Configurations for COSMO-Model 5.04g

At DWD we still have problems when activating all new features in the COSMO-ICON physics, therefore it is difficult to recommend a special namelist configuration. We tested three different configurations:

- Old Settings: Turbulence and TERRA are run in a way to reproduce the results of the old COSMO-Versions as close as possible.
  These settings are now preferred at DWD.

- Conservative: The settings for the turbulence scheme activate the new parts of the code, while settings for TERRA still are for the old scheme. Alternatively, also some new features of TERRA can be activated (e.g. itype evsl=4).

- Advanced: These settings come very close to the ICON settings, but COSMO results are not really satisfying. Please note that you need to run INT2LM also with special namelist settings:
  – itype aerosol = 2
  – itype ndvi = 1
  – itype rootdp = 4
  – lemiss = .TRUE.
  – lstomata = .TRUE.

In addition to the namelist variables, that have to be set in a different way for the above configurations, there are also some hardcoded switches in the turbulence, that have to be different when reproducing the old COSMO-version of the turbulence. To be able to modify these switches at once, we implemented a new namelist switch loldtur. Per default loldtur=.FALSE. and the new way of running the turbulence is activated. To reproduce the old way, it has to be set to .TRUE. and all other namelist switches regarding turbulence have to be set for the "Old Settings".

The following table lists all namelist variables that have to be set for the three different configurations and specifies, which are related to turbulence, and which are not:

Name	Old Settings	Conservative	Advanced
/TUNING/ (turbulence)			
tkhmin	0.4	0.75	0.75
tkmmin	0.4	0.75	0.75
rat_sea	20.0	7.5	7.5
patlen	500.0	750.0	750.0
turlen	150.0	500.0	500.0
a_hshr	0.2	2.0	2.0
c_soil	1.0	1.75	1.75
/PHYCTL/ (turbulence)			
loldtur	.TRUE.	.FALSE.	.FALSE.
itype_vdif	-1	-1	1
ltkeshs	.FALSE.	.TRUE.	.TRUE.
itype_sher	1	0	0
imode_tran	1	0	0
imode_turb	1	1	1
icldm_tran	0	2	2
/PHYCTL/ (other)			
itype_aerosol	1	1	2
itype_root	1	1	2
itype_heatcond	1	3	3
itype_evsl	2	2	2
idiag_snowfrac	1	1	1
cwimax_ml	1.0E-6	0.0005	0.0005
lemiss	.FALSE.	.FALSE.	.TRUE.
lstomata	.FALSE.	.FALSE.	.TRUE.

- *To these 3 configurations of v5.05 one more configuration will be added for the PT. this configuration will use the old turbulence (loldtur=TRUE) together with the appropriate turbulence setup (TUNING and PHYSICS namelists as in "Old Configuration"), while "other" namelist parameters will be set as in the "advanced" configuration. (Added by Yiftach Ziv – not part of the original document by Uli S.)*