

mtWRF simulations for the Chatain et al (2022) paper on radiative transfer

General: dt=10; dx=2000; esn=2, ewe=1601; periodic bdy conditions; e_vert=60, ztop=20000; damp_opt=3, dampcoef=0.03, zdamp=5000; ra_F_lw_d_ztop=1.55; initial land Tsk=93.47; lake_half_size=75; run during 5 Titan days

Note: all parameters are specified in namelist.input, except the initial RH and wind that are given in input_sounding.

simulation name	initial surface RH (%)	subsurface Tmn (K)	initial lake temperature (K)	lake mixed layer depth (m)	initial U (m/s)	Ls (°)	Lat (°)	comments
run_Huygens	45	93,47	no lake	no lake	0	303	-10	Huygens conditions for test (e_we=101, lake_half_size=0)
run_A	45	93,47	90,5	1	0	0	42	
run_A0	45	93,47	90,5	1	0	no rad	no rad	
run_B	45	93,21	90,5	1	0	0	42	
run_C	0	93,47	86,5	1	0	0	42	
run_D	0	93,21	86,5	1	0	0	42	
run_E	20	93,47	88	1	0	0	42	
run_F	70	93,47	92	1	0	0	42	
run_G	45	93,47	93,47	1	0	0	42	
run_H	45	93,21	93,47	1	0	0	42	
run_I	45	93,47	88	1	0	0	42	
run_J	45	93,47	90,5	10	0	0	42	
run_K	45	93,47	90,5	100	0	0	42	
run_L	45	93,47	90,5	1	1	0	42	4 days, e_ew = 3201
run_M	45	93,47	90,5	1	3	0	42	4 days, e_ew = 3201
run_N	45	93,47	90,5	1	0	90	-85	polar night
run_O	45	93,47	90,5	1	0	270	-42	higher insolation pt summer
run_P	45	93,47	90,5	1	0	270	-85	polar day
run_Q	0	93,47	93,47	1	0	0	42	ref de R&S2020
run_Q0	0	93,47	93,47	1	0	no rad	no rad	ref de R&S2020
run_R	45	93,47	90,5	1	0	90	85	polar day north pole
run_S	45	93,47	90,5	1	0	90	-42	higher insolation pt winter
run_T	20	93,47	88	30	1	270	-72	Ontario Lacus config (lake_half_size=75)
run_U	45	93,47	90,5	1	0	0	70	
run_V	45	93,47	90,5	1	0	0	85	