

Feature	Description	Details
Horizontal grid resolution	0.15° (~ 16 km)	Geographic lat–lon
Number of vertical layers	30 terrain following sigma coordinates	
Simulation time step	60 s	
Land surface scheme	Noah land surface unified model (Tewari et al., 2004)	sf_surface_physics = 2
Cloud microphysics	WRF single-moment (WSM) 3-class simple ice scheme (Hong et al., 2004)	mp_physics = 3
Surface layer	Monin–Obukhov similarity theory (MM5) with Carlson–Boland viscous sublayer and similarity functions from look-up tables (Paulson, 1970; Webb, 1970)	sf_sfclay_physics = 1
Shortwave radiation	Rapid radiative transfer model (RRTMG) (Iacono et al., 2008)	ra_sw_physics = 4
Longwave radiation	Rapid radiative transfer model (RRTMG) (Iacono et al., 2008)	ra_lw_physics = 4
Planetary boundary layer	Yonsei University (YSU) PBL (Hong et al., 2006)	bl_pbl_physics = 1
Cumulus convection	Grell 3D ensemble scheme (Grell and Dévényi, 2002)	cu_physics = 5
Gas-phase chemistry	RACM-KPP (Stockwell et al., 1997b)	chem_opt = 103
Photolysis parameterization	Fast-J (Wild et al., 2000)	phot_opt = 2