WRF/WRF-Chem model setup	Description
Model version	3.5.1
Domain	
Domain D01	Resolution: 15×15 km^2
	Latitude: 15.5–43.5°, longitude: 67.6–107.4°
	Number of grid cells: west–east 221, north–south 201
Domain D02	Resolution: 3×3 km^2
	Latitude: 25.4–29.6°, longitude: 82.6–87.9°
	Number of grid cells: west–east 171, north–south 151
	One-way nesting
Vertical levels	Number of levels: 31σ levels, model top: 10 hPa
Physics	
Microphysics scheme	Lin et al. (option 2) (Lin et al., 1983)
Longwave radiation scheme	RRTMG (option 4) (Iacono et al., 2008)
Shortwave radiation scheme	Goddard (option 2) (Chou and Suarez, 1994)
PBL physics scheme	YSU (option 1) (Hong et al., 2006)
Surface layer	Revised MM5 scheme (option 11) (Jiménez et al., 2012)
Cumulus parameterization scheme	New Grell (option 5) (Grell, 1993; Grell and Dévényi, 2002)
Land-surface model	Noah land-surface model (option 2) (Tewari et al., 2004)
Chemistry	
Chemistry option	RADM2/SORGAM with aqueous reactions included
	feedback between meteorology and chemistry switched on (option 41)
	(Ackermann et al., 1998; Schell et al., 2001)
Biogenic emission	MEGAN biogenic emissions online based upon the weather,
	land use data (Guenther et al., 2006)
Biomass burning	Biomass burning emissions (Fire Inventory from the National Center for Atmospheric Research
	(NCAR) version 1: FINN, Wiedinmyer et al. (2011) and plume rise calculation
Dry deposition	Dry deposition of gas and aerosol species
Dust	GOCART dust emissions with AFWA modifications (Ginoux et al., 2001)
Input data	
Boundary cond. meteorology	ERA-Interim (Dee et al., 2011), resolution: $0.75° \times 0.75°$,
	37 vertical levels from surface to 1 hPa
Sea surface temperature (SST)	NOAA OI SST (Reynolds et al., 2007)
Land use	USGS
Albedo	NCEP
Anthropogenic emissions	EDGAR HTAP (Janssens-Maenhout et al., 2015)
Boundary conditions chemistry	MOZART (global CTM)