

Model	Meteorological driver	Research group	Vertical layers (vl) Vertical extent (ve) Surface concentration (sc) Depth first layer (dl)	Biogenic VOC	Dry deposition (dd) Stomatal resistance (sr)	Land use database(lu) Advection scheme (ad) Vertical diffusion (vd)
CHIMERE	WRF (common driver)	INERIS	vl: 9 sigma ve: surface to 500 hPa sc: First model level dl: 20 m	MEGAN model v2.1 with high-resolution spatial and temporal leaf area index (LAI; Yuan et al., 2011) and recomputed emissions factors based on the land use (Guenther et al., 2006)	dd: Resistance model (Emberson et al., 2000a, b) sr: Emberson et al. (2000a, b)	lu: GLOBCOVER (24 classes) ad: van Leer (1984) vd: vertical diffusion coefficient (Kz) approach following Troen and Mahrt (1986)
EMEP	WRF (common driver)	MET Norway	vl: 20 sigma ve: surface to 100 hPa sc: Downscaled to 3 m dl: 90 m	Online emissions based on maps of 115 species from Koeble and Seufert (2001), and hourly temperature and light using Guenther et al. (1993, 1994). See Simpson et al. (1995, 2012)	dd: Resistance model for gases (Venkatram and Pleim, 1999); for aerosols: Simpson et al. (2012) sr: DO3SEEMEP: Emberson et al. (2000a, b), Tuovinen et al. (2004), Simpson et al. (2012)	lu: CCE/SEI for Europe, elsewhere GLC2000 ad: Bott (1989) vd: Kz approach following O'Brien (1970) and Jericevic et al. (2010)
LOTOS-EUROS	RACMO2	TNO	vl: 5 (4 dynamic layers and a surface layer) ve: 5000 m sc: Downscaled to 3 m dl: 25 m	Based on maps of 115 species from Koeble and Seufert (2001), and hourly temperature and light (Guenther et al., 1991, 1993). See Beltman et al. (2013)	dd: Resistance model, DEPAC3.11 for gases, Van Zanten et al. (2010) and Zhang et al. (2001) for aerosols rs: Emberson et al. (2000a, b)	lu: Corine Land Cover 2000 (13 classes) ad: Walcek (2000) vd: Kz approach Yamartino et al. (2004)
MATCH	HIRLAM EURO4M	SMHI	vl: 39 hybrid levels of the meteorological model layers ve: surface to ca. 5000 m (4700–6000 m) sc: Downscaled to 3 m dl: ca. 60 m	Online emissions based on Simpson et al. (2012), dependent on hourly temperature and light	dd: Resistance model depending on aerodynamic resistance and land use (vegetation). Similar to Andersson et al. (2007) sr: Simple, seasonally varying, diurnal variation of surface resistance for gases with stomatal resistance (similar to Andersson et al., 2007 and Simpson et al., 2012)	lu: CCE/SEI for Europe ad: Fourth-order mass-conserved advection scheme based on Bott (1989) vd: Implicit mass conservative Kz approach (see Robertson et al., 1999); Boundary layer parameterisation as detailed in Robertson et al. (1999) forms the basis for vertical diffusion and dry deposition
MINNI	WRF (common driver)	ENEA/Arianet S.r.l	vl: 16 fixed terrain-following layers ve 10 000 m sc: First model level dl: 40 m	MEGAN v2.04 (Guenther et al., 2006)	dd: Resistance model based on Wesely (1989) sr: Wesely (1989)	lu: Corine Land Cover 2006 (22 classes) ad: Blackman cubic polynomials (Yamartino, 1993) vd: Kz approach following Lange (1989)