Basic information on the PATH system Horizontal Domains:

Domain	Horizontal Spacing (km)	WRF	CMAQ
D1	27	282 x 183 grid	182 x 138 grid
D2	9	222 x 162 grid	98 x 74 grid
D3	3	171 x 129 grid	152 x 110 grid
D4	1	213 x 162 grid	179 x 125 grid
D4 reduced	1		74 x 74 grid

Vertical spacing assuming standard atmosphere:

WRF Level	Location of Centre (m above ground)	WRF Level	Location of Centre (m above ground)
1	9	20	1654
2	26	21	1968
3	45	22	2318
4	66	23	2711
5	89	24	3150
6	114	25	3642
7	141	26	4192
8	174	27	4809
9	213	28	5500
10	260	29	6273
11	316	30	7140
12	383	31	8111
13	462	32	9200
14	557	33	10462
15	669	34	11876
16	804	35	13422
17	964	36	15163
18	1155	37	17136
19	1383	38	19381

The twenty lowest vertical layers of the CMAQ grid (up to 1654m) coincide with those of WRF, while the remaining layers extend over two or more WRF layers, up to the common top of both models.

Vertical coordinates:

Terrain-following Sigma coordinate

Projection:

Lambert Conformal projection, central longitude of 114E, standard parallels 15N and 40N Land

use data:

1km: gridded distribution of the categories over HK from Lands Department with local adjustment

3, 9 and 27 km: 1 km-spacing land-use data set from the U.S. Geological Survey's EROS Data Centre with local adjustment

Category	Description
1	Urban
2	Dryland Cropland Pasture
3	Irrigated Cropland Pasture.
4	Mixed Dryland/Irrigated Cropland Pasture
5	Cropland/Grassland Mosaic
6	Cropland/Woodland Mosaic
7	Grassland
8	Shrubland
9	Mixed Shrubland/Grassland
10	Savanna
11	Deciduous Broadleaf Forest.
12	Deciduous Needle leaf Forest
13	Evergreen Broadleaf Forest
14	Evergreen Needle leaf Forest
15	Mixed Forest
16	Water Bodies
17	Herbaceous Wetland
18	Wooded wetland

19	Barren or Sparsely Vegetated
20	Herbaceous Tundra
21	Wooden Tundra
22	Mixed Tundra
23	Bare Ground Tundra
24	Snow or Ice

Terrain data:
United States Geophysical Survey 1 km-spacing data

Emission processor:
SMOKE
consists of modules
- Grid Definition
- Area Based
- Motor Vehicles
- Biogenics
- Point Sources
- Speciation
- Growth and Control

Meteorological processor:
WRF ARW V3.7.1

Turbulence parameterisation:
- a local scheme, due to Blackadar , with four stability regimes - a non-local approach based on a representation of the K profile in a well-mixed PBL and a countergradient transport scheme.

Cumulus parameterisation:
D1 and D2: Grell-Devenyi cumulus parameterisation scheme
D3 and D4: Warm Rain explicit moisture scheme

CTM: CB05
51 species represented in subclasses which include inorganic, organic explicit, organic carbon bond surrogate, organic molecular surrogate) in 156 reactions

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Simulation period for EIA: 1 January, 2015 to 31 December, 2015

(Updated: Jun 28, 2021)