Evaluation of regional air quality models over Sydney, Australia: surface ozone and PM2.5

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Abstract

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1. Introduction

Air quality models are valuable tools to investigate the complex and dynamic interactions between meteorology and chemistry leading to poor air quality episodes

2. Methods

2.1. Description of models

2.2. Description of observations

2.3. Statistical analyses

2.3.1. Ozone

$$NMSE = \frac{\Sigma_{i=1}^{N}(M_i - O_i)^2}{Nx\overline{M}x\overline{O}} \tag{1}$$

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[1]Since 1880.

Table 1: HCHO yields from various species, and lifetime against oxidation by OH.

Species	HCHO Yield (molar %)	Life vs OH	Notes	Source
Isoprene	315±50		High NO_X	a
	285±30		High NO_X	a
	225	35 min	High NO_X	b
	150		Low NO_X	b
	150		Low NO_X	d
	450		High NO_X	d
α-Pinene	28±3		Low NO_X	c
	X±3		X NO_X	d
	230±90		High NO_X	a
	190±50		High NO_X	a
	19	1 hour		b
β-Pinene	65±6		Low NO_X	c
	X±3		X NO_X	d
	540±50		High NO_X	a
	450±80		High NO_X	a
	45	40 min		b
Methane	100	1 year		b
Ethane	180	10 days		b
Propane	60	2 days		b
Methylbutanol	.13(per C)	1 hour		b
HCHO	100	2 hour		b
Acetone	.67(per C)	10 days		b
Methanol	100	2 days		b

a **?**]: Table 2, Yield from Isoprene reaction with OH, two values are from two referenced papers therein.

b **?**]: lifetimes assume [OH] is 1e15 mol cm^{-3}.

c [**?**]: Calculated through change in concentration of parent and product linear least squares regression. Estimates assume 20° C conditions.

d **?**]: "prompt yield": change in HCHO per change in $ISOP_0$. $[ISOP]_0 = [ISOP]\exp(k_1[\mathrm{OH}]t)$; where k_1 is first order loss rate. Effectively relates HCHO abundance with isoprene emission strength

where $\overline{M}$ is the average modeled value

2.3.2. PM2.5

3. Model evaluation results

3.1. Ozone

3.1.1. Region/domain-wide analysis

All site combined, look at diurnal cycles and statistics for each model

3.1.2. Spatial analysis

3.2. PM2.5

3.2.1. Region/domain-wide analysis

Look at all results combined - stats (and timeseries?)

3.2.2. Spatial analysis

3.3. PM2.5 speciation

4. Discussion

4.1. Installation

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Here are two sample references: [1, 2].

References

[1] R. Feynman, F. Vernon Jr., The theory of a general quantum system interacting with a linear dissipative system, Annals of Physics 24 (1963) 118–173. doi:10.1016/0003-4916(63)90068-X.

[2] P. Dirac, The lorentz transformation and absolute time, Physica 19 (1-12) (1953) 888–896. doi:10.1016/S0031-8914(53)80099-6.