Evaluation of regional air quality models over Sydney, Australia: surface ozone and $PM_{2.5}$

Elsevier[1]

Radarweg 29, Amsterdam

Elsevier Inc[a,b], Global Customer Service[b,]*

[a]1600 John F Kennedy Boulevard, Philadelphia
[b]360 Park Avenue South, New York

Abstract

This template helps you to create a properly formatted LaTeX manuscript.

Keywords: `elsarticle.cls`, LaTeX, Elsevier, template

2010 MSC: 00-01, 99-00

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

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

*Corresponding author
Email address: `support@elsevier.com` (Global Customer Service)
URL: `www.elsevier.com` (Elsevier Inc)
[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

If the document class *elsarticle* is not available on your computer, you can download and install the system package *texlive-publishers* (Linux) or install the LaTeX package *elsarticle* using the package manager of your TeX installation, which is typically TeX Live or MikTeX.

Once the package is properly installed, you can use the document class *elsarticle* to create a manuscript. Please make sure that your manuscript follows the guidelines in the Guide for Authors of the relevant journal. It is not necessary to typeset your manuscript in exactly the same way as an article, unless you are submitting to a camera-ready copy (CRC) journal.

The Elsevier article class is based on the standard article class and supports almost all of the functionality of that class. In addition, it features commands and options to format the

- document style

- baselineskip
- front matter
- keywords and MSC codes
- theorems, definitions and proofs
- lables of enumerations
- citation style and labeling.

The author names and affiliations could be formatted in two ways:

(1) Group the authors per affiliation.
(2) Use footnotes to indicate the affiliations.

5. Bibliography styles

There are various bibliography styles available. You can select the style of your choice in the preamble of this document. These styles are Elsevier styles based on standard styles like Harvard and Vancouver. Please use BibTeX to generate your bibliography and include DOIs whenever available.

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.