

Environmental Science: Atmospheres

rsc.li/esatmospheres

The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

IN THIS ISSUE

ISSN 2634-3606 CODEN ESANC9 3(11) 1579–1686 (2023)



Cover

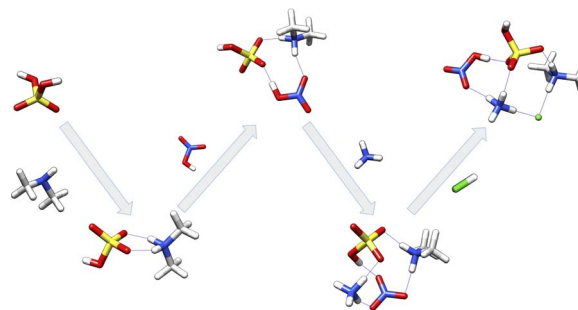
© Jose A. Bernat Bacete/Getty Images.

PAPERS

1585

The driving effects of common atmospheric molecules for formation of clusters: the case of sulfuric acid, nitric acid, hydrochloric acid, ammonia, and dimethylamine

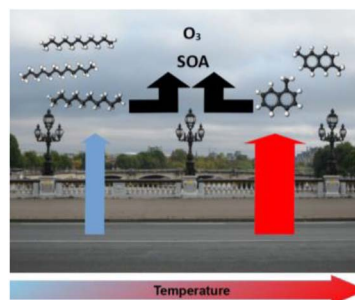
Olivia M. Longworth, Conor J. Bready, Macie S. Joines and George C. Shields*



1601

VOC emissions by fresh and old asphalt pavements at service temperatures: impacts on urban air quality

J. Lasne,* A. Lostier, M. N. Romanias, S. Vassaux, D. Lesueur, V. Gaudion, M. Jamar, R. G. Derwent, S. Dusanter and T. Salameh*



Executive Editor

Emma Eley

Editorial Production Manager

Sarah Whitbread

Deputy Editor

Jon Ferrier

Assistant EditorsJamie Purcell, Alexander John, Emily Ellison, Jack Pitchers,
Clare Fitzgerald**Editorial Assistant**

Alex Holiday

Publishing Assistant

Lee Colwill

Publisher

Neil Hammond

For queries about submitted papers, please contact
Sarah Whitbread, Editorial Production Manager in the first
instance. E-mail: esatmospheres@rsc.org

For pre-submission queries please contact
Emma Eley, Managing Editor.
Email: esatmospheres-rsc@rsc.org

Environmental Science: Atmospheres (electronic:
ISSN 2634-3606) is published 12 times a year by the
Royal Society of Chemistry, Thomas Graham House,
Science Park, Milton Road, Cambridge, UK CB4 0WF.
Environmental Science: Atmospheres is a Gold Open Access
journal and all articles are free to read.
Please email orders@rsc.org to register your interest
or contact Royal Society of Chemistry Order Department,
Royal Society of Chemistry, Thomas Graham House,
Science Park, Milton Road, Cambridge, CB4 0WF, UK
Tel +44 (0)1223 432398; E-mail: orders@rsc.org

Whilst this material has been produced with all due care, the
Royal Society of Chemistry cannot be held responsible or liable
for its accuracy and completeness, nor for any consequences
arising from any errors or the use of the information contained
in this publication. The publication of advertisements does
not constitute any endorsement by the Royal Society of
Chemistry or Authors of any products advertised. The views
and opinions advanced by contributors do not necessarily
reflect those of the Royal Society of Chemistry which shall not
be liable for any resulting loss or damage arising as a result of
reliance upon this material. The Royal Society of Chemistry is
a charity, registered in England and Wales, Number 207890,
and a company incorporated in England by Royal Charter
(Registered No. RC000524), registered office:
Burlington House, Piccadilly, London W1J 0BA, UK,
Telephone: +44 (0) 207 4378 6556.

Advertisement sales:

Tel +44 (0) 1223 432246; Fax +44 (0) 1223 426017;
E-mail advertising@rsc.org

For marketing opportunities relating to this journal,
contact marketing@rsc.org

Environmental Science: Atmospheres

Interdisciplinary open access journal advancing the understanding of atmospheric science and related challenges.

rsc.li/esatmospheres

Led by Neil Donahue (Carnegie Mellon University), *Environmental Science: Atmospheres* is a gold open access journal committed to bringing the wider environmental science and climate change communities together in a fresh, open approach.

Editorial Board

Editor-in-Chief

Neil Donahue, Carnegie Mellon University,
USA

Associate Editors

Claudia Mohr, Paul Scherrer Institute,
Switzerland
Nonne Prisle, University of Oulu, Finland

Lin Wang, Fudan University, China
Stephen Klippenstein, Argonne National
Laboratory, USA
Tzung-May Fu, Southern University of
Science and Technology, China

Members

Joel Thornton, University of Washington,
USA
Dwayne Heard, University of Leeds, UK

Advisory Board

Katye Altieri, University of Cape Town,
South Africa
Federico Bianchi, University of Helsinki,
Finland
Muhammad Bilal, University of Wisconsin—
Madison, USA
William Bloss, University of Birmingham,
UK
Ann Marie Carlton, University of California
Irvine, USA
Peter DeCarlo, Johns Hopkins University,
USA
Aijun Ding, Nanjing University, China
Delphine Farmer, Colorado State University,
USA
Barbara Finlayson-Pitts, University of
California, Irvine, USA
Christian George, CNRS, University Claude

Bernard Lyon 1, France
Marianne Glasius, Aarhus University,
Denmark
Mattias Hallquist, University of Gothenburg,
Sweden
Thomas Hanisco, NASA Goddard Space
Flight Center, USA
Lucy Hutyra, Boston University, USA
Maria Kanakidou, University of Crete, Greece
Prashant Kumar, University of Surrey, UK
Tuhin Kumar Mandal, National Physical
Laboratory, India
Randall Martin, Washington University in
St Louis, USA
Ottmar Möhler, Karlsruhe Institute of
Technology, Germany
Yujing Mu, Research Center for Eco-
Environmental Sciences, Chinese Academy

of Sciences, China
Patricia K. Quinn, National Oceanic and
Atmospheric Administration, Pacific Marine
Environment Laboratory, USA
Andrew Rickard, University of York, UK
Ilona Riipinen, Stockholm University,
Sweden
Alfonso Saiz-Lopez, CSIC, Spain
Sachchida Nand Tripathi, Indian Institute of
Technology, Kanpur, India
Ying I. Tsai, Chia Nan University of
Pharmacy and Science, Taiwan
Marina Vance, University of Colorado
Boulder, USA
Bingbing Wang, Xiamen University, China
Shuxiao Wang, Tsinghua University, China

Information for Authors

Full details on how to submit material for publication in
Environmental Science: Atmospheres are given in the Instructions for
Authors (available from <http://www.rsc.org/authors>).
Submissions should be made via the journal's homepage:
rsc.li/esatmospheres

Authors may reproduce/republish portions of their published
contribution without seeking permission from the Royal Society of
Chemistry, provided that any such republication is accompanied by
an acknowledgement in the form: (Original Citation)–
Reproduced by permission of the Royal Society of Chemistry.

This journal is © The Royal Society of Chemistry 2023.
Apart from fair dealing for the purposes of research or private study
for non-commercial purposes, or criticism or review, as permitted
under the Copyright, Designs and Patents Act 1988 and the
Copyright and Related Rights Regulation 2003, this publication may
only be reproduced, stored or transmitted, in any form or by any
means, with the prior permission in writing of the Publishers or in
the case of reprographic reproduction in accordance with the terms
of licences issued by the Copyright Licensing Agency in the UK.
US copyright law is applicable to users in the USA.

Registered charity number: 207890

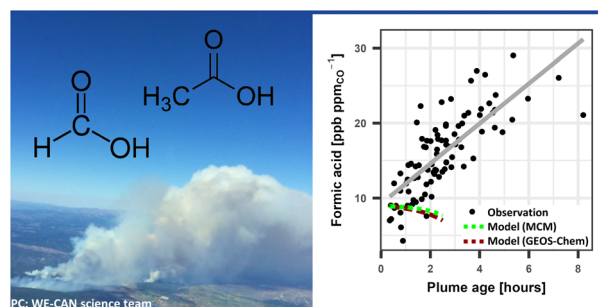


PAPERS

1620

Assessing formic and acetic acid emissions and chemistry in western U.S. wildfire smoke: implications for atmospheric modeling

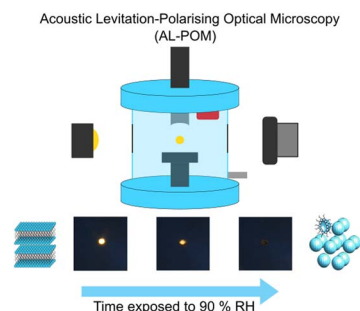
Wade Permar,^{*} Catherine Wielgasz, Lixu Jin, Xin Chen, Matthew M. Coggon, Lauren A. Garofalo, Georgios I. Gkatzelis, Damien Ketcherside, Dylan B. Millet, Brett B. Palm, Qiaoyun Peng, Michael A. Robinson, Joel A. Thornton, Patrick Veres, Carsten Warneke, Robert J. Yokelson, Emily V. Fischer and Lu Hu



1642

Acoustic levitation with polarising optical microscopy (AL-POM): water uptake in a nanostructured atmospheric aerosol proxy

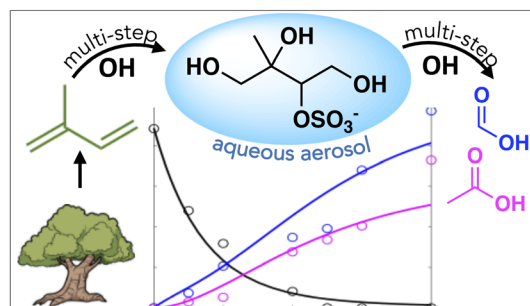
Adam Milsom, Adam M. Squires, Christopher Brasnett, William N. Sharratt, Annela M. Seddon and Christian Pfrang^{*}



1651

Emerging investigator series: aqueous oxidation of isoprene-derived organic aerosol species as a source of atmospheric formic and acetic acids

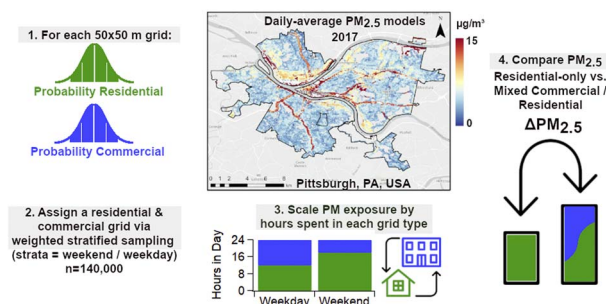
Kelvin H. Bates, Daniel J. Jacob, James D. Cope, Xin Chen, Dylan B. Millet and Tran B. Nguyen^{*}

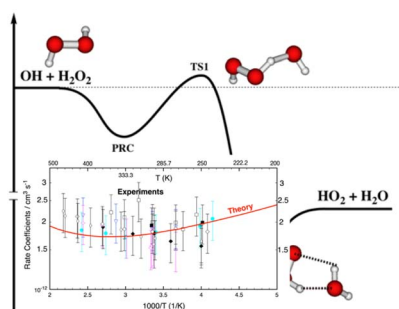


1665

Using spatiotemporal prediction models to quantify PM_{2.5} exposure due to daily movement

Sakshi Jain, Albert A. Presto and Naomi Zimmerman^{*}





Ab initio rate coefficients for the reaction of OH and H₂O₂ under upper troposphere and lower stratosphere conditions

Thanh Lam Nguyen^{*} and John F. Stanton^{*}

