

JOHN A. GILLIES, Ph.D.

Research Professor
 Division of Atmospheric Sciences
 Desert Research Institute
 2215 Raggio Parkway
 Reno, Nevada U.S.A. 89512

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Education

Ph.D.	Physical Geography	1995	University of Guelph, Ont.
M.S.	Physical Geography	1987	University of Guelph, Ont.
B.S. Honors	Physical Geography	1983	University of Guelph, Ont.

Experience

Dr. John A. Gillies has 30 years' experience in the research field of aeolian processes. Currently his research focuses on the physics of sand transport and fugitive dust emission by wind and anthropogenic processes. This work covers the full spectrum of the system from the controls on the initiation of sediment and the transport phase through to the deposition process. As part of his research he has also been involved in developing mitigative actions that can be used to ameliorate environmental problems associated with aeolian sediment transport processes. A second research initiative he is pursuing is understanding and modeling boundary-layer flow over sparsely vegetated rangelands, Antarctic polar desert surfaces, and Martian surfaces to characterize the effects of the roughness elements on sand transport and dust emissions. He is using shear stress partitioning theory and full scale field-testing to reconcile model predictions with measurements. Dr. Gillies is also investigating the effectiveness of engineered roughness and managed vegetation covers to reduce dust emissions from susceptible surfaces. Dr. Gillies has collaborated in the design, construction, and utilization of portable field wind tunnels and the attendant specialized instrumentation for measuring surface shear stress and the *in situ* emission rates of particulates from various types of surface that are susceptible to wind erosion and fugitive emissions. He has also been involved in developing tower-based monitoring systems for measuring particulate concentration profiles in the atmosphere for estimating vertical fluxes. This instrumentation was developed primarily for use in remote, logistically difficult situations. He has also been involved in research that has examined the role of the surficial characteristics that control the release of dust to the atmosphere in the southwest United States, West Africa, and Canada.

Dr. Gillies also has experience in administration having served as Interim Executive Director, Division of Atmospheric Sciences at the Desert Research Institute for 14 months (September 2010 – November 2011).

Professional Experience

July 2007 to Present Research Professor
Division of Atmospheric Sciences, Desert Research Institute, Reno
NV

January 2018 to
December 2021 Special Graduate Faculty Appointment
Environmental & Life Sciences Graduate Program,
Trent University, Peterborough, ON, Canada

September 2010
to November 2011 Interim Executive Director,
Division of Atmospheric Sciences, Desert Research Institute, Reno
NV

2001 to 2007 Associate Research Professor
Division of Atmospheric Sciences, Desert Research Institute, Reno
NV

2001 to 2013 Associate Graduate Faculty
Department of Geography, University of Guelph, Guelph, ON,
Canada

1997 to Present Member Graduate Faculty
Physics Department, University of Nevada, Reno

1996 to 2000 Assistant Research Professor
Division of Atmospheric Sciences, Desert Research Institute, Reno,
NV.

1994 - 1996 Post-Doctoral Research Associate
Energy and Environmental Engineering Center, Desert Research
Institute, Reno, NV.

1990 - 1994 Graduate Student, Graduate Teaching Assistant, Course Instructor,
& Occasional Lecturer
Department of Geography, University of Guelph, Guelph, ON,
Canada

1987-1990 Research Coordinator, Sahelian Aerosols Project
International Development Research Centre, Ottawa, Canada
(position held at the Department of Geography, University of
Guelph)

 Research Coordinator
MND Associates, Environmental Consultants, Guelph, ON, Canada

1985-1987 Graduate Student
Department of Geography, University of Guelph, Guelph, ON,
Canada

 Research Assistant
MND Associates, Environmental Consultants, Guelph, ON, Canada

Awards

L.R. Moore Visiting Scholar, Dept. of Geography, Sheffield University, UK, 2011
Fellowship, Japan Society for the Promotion of Science, International Program
Department, Arid Lands Research Center, Tottori University, Tottori, Japan, 2010
U.S. Army Corp of Engineers, Construction Engineering Laboratory, Research and
Development Award, 2008
U.S. National Science Foundation Antarctica Service Medal of the United States, 2005
U.S. Department of Defense, Strategic Environmental Research and Development
Program, Compliance Project of the Year Award, 2004
University Graduate Scholarship, University of Guelph, Guelph, ON, Canada, 1991
Ontario Graduate Scholarship, Provincial Government of Ontario, 1992-1994

Professional Service

Associate Editor, *Journal of Sedimentary Research* (2002 – present)
Associate Editor, *Aeolian Research* (2015 – present)
Board of Directors, International Society for Aeolian Research (2014-2017)
Chair, Distinguished Career Award Committee, International Society for Aeolian Research
(2017-2018)
Member, American Geophysical Union (2009-2016)
Member, European Geophysical Union (2013-present)

Journals Reviewed for:

*Aeolian Research; Agriculture, Ecosystems and Environment; American Society of
Agricultural Engineers; American Society of Agricultural and Biological Engineers; Arid
Land Research and Management; Atmospheric Chemistry and Physics Discussions;
Atmospheric Environment; Boundary-Layer Meteorology; Climate Change; Contributions
to Atmospheric Physics; Earth Surface Processes and Landforms; Environmental Earth
Sciences; Environmental Engineering Science; Environmental Fluid Mechanics;
Environmental Science and Technology; Geology; Geomorphology; Geophysical Research
Letters; Global and Planetary Change; GSA Bulletin; Institute of Mining and Metallurgy
Transactions; Jacobs Journal of Environmental Sciences; Journal of the Air & Waste
Management Association; Journal of Applied Meteorology; Journal of Arid Environments;
Journal of Environmental Management; Journal of Environmental Quality; Journal of
Geophysical Research–Atmospheres; Journal of Geophysical Research–Earth Surface;
Journal of Geophysical Research–Planets; Journal of Hazardous Material; Journal of Soil
and Water Conservation; Journal of Hydraulic Research; Journal of Wood Science;
Kuwaiti Journal of Science and Engineering; Journal of Sedimentary Research; Land;
Physical Geography; Polar Research; Reviews of Geophysics; Sedimentology; Scientific
OnLine Letters on the Atmosphere; Soil and Water Conservation; Soil Science Society of
America Journal; Transactions of the American Society of Agricultural and Biological
Engineers; Water, Air and Soil Pollution*

Proposals Reviewed for:

Deutsch-Amerikanisches Akademisches Konzil (DAAK)
German Israeli Foundation for Scientific Research and Development (GIF)
Israel Science Foundation
National Geographic Society
Natural Sciences and Engineering Research Council of Canada
National Aeronautics and Space Administration, Mars Fundamental Research
National Oceanic and Atmospheric Administration, Climate Observations and Monitoring (COM) Program
Mitacs-Accelerate
National Aeronautics and Space Administration, Outer Planets Research
Royal Geographic Society
United Arab Emirates University, Research Affairs, Proposal Evaluation
U.S. Army Research Office
U.S. Department of Agriculture, Cooperative State Research, Education and Extension Service
U.S. Department of Agriculture, Small Business Innovation Research
U.S. Environmental Protection Agency, STAR Peer Review Panel: Sources, Composition, and Health Effects of Coarse Particulate Matter (06-Q1)
United States-Israel Binational Science Foundation
U.S. National Science Foundation: 1) DEB Ecosystem Science Cluster, 2) Ecosystems Studies Program, 3) Geobiology and Low Temperature Geochemistry, 4) Geography and Spatial Sciences, 5) Geomorphology and Land Use Dynamics Program, 6) Hydrologic Sciences, 7) Office of Polar Programs, Antarctic Earth Sciences, 8) Physical and Dynamic Meteorology
U.S. National Science Foundation, Geomorphology and Land Use Dynamics Program Panel Review, 8-10 November 2010, 7-10 November, 2011

Conferences Organized:

Session Organizer and Chair, Fundamental Aeolian Processes, *Joint Meeting of the 5th International Conference on Aeolian Research (ICAR V) & The Global Change and Terrestrial Ecosystem-Soil Erosion Network*, Texas Tech University, Lubbock, TX, USA, 22-25 July, 2002.

Session Organizer and Chair, Dust Entrainment, Transport and Deposition I & II, *The Sixth International Conference on Aeolian Research (ICAR VI)*, University of Guelph, Ontario, Canada, 23-28 July, 2006

Co-organizer, *The Sixth International Conference on Aeolian Research (ICAR VI)*, University of Guelph, Ontario, Canada, 23-28 July, 2006.

Organizing Committee, *The Seventh International Conference on Aeolian Research (ICAR VII)*, Santa Rosa, Argentina, 5-9 July 2010.

Organizing Committee, *The Eighth International Conference on Aeolian Research (ICAR VIII)*, Lanzhou, China, 21-25 July 2014.

Session Organizer and Co-Convener, Aeolian Sediments, from process to landforms, *European Geosciences Union General Assembly 2014*, Vienna, Austria, 12-17 April 2014.

Session Organizer and Co-Convener, Aeolian Processes and Landforms (Earth and other Planets), *European Geosciences Union General Assembly 2016*, Vienna, Austria, 17-22 April 2016.

Session Organizer and Co-Convener, Aeolian Processes and Landforms (Earth and other Planets), *European Geosciences Union General Assembly 2016*, Vienna, Austria, 23-28 April 2017.

Session Organizer and Co-Convener, *The Tenth International Conference on Aeolian Research (ICAR X)*, Bordeaux, France, 25-29 June 2018.

Institutional Service

Chair, DRI Institute Project Assignments (2009)

Chair, Effective Designs to Generate Enhanced Support (EDGES) Program, Division of Atmospheric Sciences, DRI (2012)

Committee Member, DRI, Peter B. Wagner Memorial Award for Women in Atmospheric Sciences (2002 – present)

Committee Member, DRI Institute Project Assignments (2006 – 2009, 2019 – 2021)

Member DAS Promotions Committee (2009 – present)

Member DRI Promotions Committee (2017 – present)

Member DRI Faculty By-Laws Committee (2012 – present)

Member DRI Faculty Senate (2006 – 2009, 2015 – 2018)

Member, DRI Library Committee (2002 – 2009)

DRI President Search Advisory Committee Member (2016 – 2017)

Academic Service

M.S. Students Supervised:

Michael O'Connor (Atmospheric Sciences, University of Nevada, Reno, 1998)

M.S. Committee Service:

Flora Gofa (Atmospheric Sciences, University of Nevada, Reno, 1998)

Carroll Luttmer (Geography, University of Guelph, 2002)

Jennifer Bryant (Geography, University of Guelph, 2004)

Gayathri Parthasarathy (Computer Engineering, University of Nevada, Reno, 2006)

Torin Mcpherson (Geography, University of Guelph, 2006)

Shannon Brown (Geography, University of Guelph, 2006)

Monika Saaliste (Geography, University of Guelph, 2008)
Jerrold McAlpine (Atmospheric Sciences, University of Nevada, Reno, 2009)
Michael Tilson (Geography, University of Guelph, 2010)
Jeff Ord (Geography, University of Guelph, 2010)
Ashley St. Hilaire (Geography, University of Guelph, 2011)
Christina von Bulow (School of the Environment, Trent University)

Ph.D. Committee Service:

M. Abu-Allaban (Physics, University of Nevada, Reno, 2003)
Julide Koračin (Atmospheric Sciences, University of Nevada, Reno, 2005)
James King (Geography, University of Guelph, 2007)
Laura Brown (Geography, University of Guelph, 2007)
Davis Zhu (Atmospheric Sciences, University of Nevada, Reno, 2009)
Esmaeel Masadeh (Chemistry, University of Nevada, Reno, 2010)
Jerold D. McAlpine (Atmospheric Sciences, University of Nevada, Reno, 2012)

Ph.D. External Examiner:

Harry Butler (Environmental Sciences, Griffith University, 2004)
Stephen Sutton (Department of Geography, Trent University, 2012)
Abbas Miri (School of Geosciences, University of Sydney, 2016)
Johanna von Holdt (Department of Environmental and Geological Sciences, University of Cape Town, 2018)
Patrick O'Brien (School of the Environment, Trent University, 2018)
Michael J. Grilliot (Department of Geography, University of Victoria, 2019)

Post-Doctoral Supervision:

James King (DRI, Division of Atmospheric Sciences, 2006-2010)
Dongzi Zhu (DRI, Division of Atmospheric Sciences, 2010-2013)

Courses Taught

Measurement in the Atmosphere, Course 748, Atmospheric Sciences Program, Department of Physics, University of Nevada, Reno

Progress in Aeolian Geomorphology, Invited Short Course, Arid Lands Research Center, Tottori University, Tottori, Japan

Publications

Chapters in books:

- Nickling, W.G., J.A. Gillies (1989). Emission of fine-grained particulate from desert soils. In *Paleoclimatology and Paleometeorology: Modern and Past Patterns of Global Atmospheric Transport*, M. Leinen and M. Sarnthein (eds.), Kluwer Academic Publishers, pp. 133-165.
- Hashmonay, R.A., R.H. Kagann, M.J. Rood, B.J. Kim, M.R. Kemme, J. Gillies (2009). An advanced test method for measuring fugitive dust emissions using a hybrid system of optical remote sensing and point monitor techniques. In *Atmospheric and Biological Environmental Monitoring*, Y.J. Kim, U. Platt, H. Iwahashi (eds), Springer B.V., doi: 10.10007/978-1-4020-9674-7_6.
- Gillies, J.A. (2010). Bull pass ventifacts. In *Environments of McMurdo Sound*, A. Isern and B. Herried (eds.), U.S. National Science Foundation, Arlington VA.
- Gillies, J.A. (2013). Fundamentals of aeolian sediment transport | dust emissions and transport – near surface. In *Treatise on Geomorphology*, Shroder, J. (ed. in chief) and Lancaster, N. (ed.), Vol. **11**: 43-63, doi: 10.1016/B978-0-12-374739-6.00297-9, Academic Press, San Diego, CA.

Edited Journal Volumes:

- Gillies, J., N. Lancaster, C. McKenna Neuman, I. Livingstone, W. Nickling (2004). Special Issue, Aeolian Research: processes, instrumentation, landforms and paleoenvironments. *Geomorphology* **59**: 1-291.

Edited Conference Abstracts:

- Lancaster, N., K. Redmond, J.A. Gillies (1997). *Program and Abstracts: Changing Water Regimes in Drylands*, 9-13 June, 1997, 61 p.
- Nickling, W.G., S. Turner, J.A. Gillies, M. Puddister (2006). *Program and Abstracts: Sixth International Conference on Aeolian Research*, 24-28 July, 2006, 234 p.

Refereed Journals:

- Nickling, W.G., J.A. Gillies (1993). Dust emission and transport in Mali, West Africa. *Sedimentology* **40**: 859-868.
- Gillies, J.A., W.G. Nickling, G. McTainsh (1996). Dust concentrations and particle-size characteristics of an intense dust haze event: Inland Delta Region, Mali, West Africa. *Atmospheric Environment* **30** (7): 1081-1090.
- Moosmüller, H., J.A. Gillies, C.F. Rogers, D.W. DuBois, J.C. Chow, J.G. Watson, R. Langston (1998). Particulate emission rates for unpaved shoulders along paved roads. *The Journal of the Air & Waste Management Association* **48**: 398-407.
- Chow, J.C., J.G. Watson, D. DuBois, M. Green, D. Lowenthal, S. Kohl, R. Egami, J.A. Gillies, C.F. Rogers, C. Frazier (1999). Middle- and neighborhood-scale variations of PM₁₀ source contributions in Las Vegas, Nevada. *The Journal of the Air & Waste Management Association* **49**: 641-654.

- Gillies, J.A., C.M. O'Connor, Y. Mamane, A.W. Gertler (1999). Chemical profiles for characterizing dust sources in an urban area, western Nevada, USA. *Zeitschrift für Geomorphologie Supplementband* **116**: 19-44.
- Gillies, J.A., J.G. Watson, C.F. Rogers, D. DuBois, J.C. Chow, R. Langston, J. Sweet (1999). Long term efficiencies of dust suppressants to reduce PM₁₀ emissions from unpaved roads. *The Journal of the Air & Waste Management Association* **49**: 3-16.
- Gertler, A.W., J.A. Gillies, W.R. Pierson (2000). An assessment of the mobile source contributions to PM₁₀ and PM_{2.5} in the United States. *Water, Air and Soil Pollution* **123 / 1-4**: 203-214.
- Gillies, J.A., A.W. Gertler (2000). Comparison and evaluation of chemically speciated mobile source PM_{2.5} particulate matter profiles. *The Journal of the Air & Waste Management Association* **50**: 1459-1480.
- Gillies, J.A., N. Lancaster, W.G. Nickling, D. Crawley (2000). Field determination of drag forces and shear stress partitioning effects for a desert shrub (*Sarcobatus vermiculatus*, Greasewood). *Journal of Geophysical Research - Atmospheres* **105** (D20): 24871-24880.
- Gertler, A.W., M. Abu-Allaban, W. Coulombe, J.A. Gillies, W. Pierson, C.F. Rogers, J.C. Sagebiel, L. Tarnay, T.A. Cahill (2001). Measurements of mobile source particulate emissions in a highway tunnel. *International J. of Vehicle Design* **27** (1/2/3/4): 86-93.
- Gillies, J.A., A.W. Gertler (2001). Comparison and evaluation of chemically speciated mobile source PM_{2.5} profiles. *International J. of Vehicle Design* **27** Nos. 1/2/3/4: 209-216.
- Gillies, J.A., A.W. Gertler, J.C. Sagebiel, W.A. Dippel (2001). On-road PM_{2.5} and PM₁₀ emission factors in the Sepulveda Tunnel, Los Angeles, California. *Environmental Science & Technology* **35**: 1054-1063.
- Moosmüller, H., W. P. Arnott, C. F. Rogers, J. L. Bowen, J.A. Gillies, W. R. Pierson, J. F. Collins, T. D. Durbin, J. M. Norbeck (2001). Time resolved characterization of diesel particulate emissions: 2. Instruments for elemental and organic carbon measurements. *Environmental Science & Technology* **35**: 1935-1942.
- Moosmüller, H., W.P. Arnott, C.F. Rogers, J.L. Bowen, J.A. Gillies, W.R. Pierson, J.F. Collins, T.D. Durbin, J. M. Norbeck (2001). Time resolved characterization of diesel particulate emissions: 1. Instruments for particle mass measurements. *Environmental Science & Technology* **35**: 781-787.
- Abu-Allaban, M., W. Coulombe, A.W. Gertler, J.A. Gillies, W.R. Pierson, C.F. Rogers, J. C. Sagebiel, L. Tarnay (2002). Exhaust particle size distribution measurements at the Tuscarora Mountain Tunnel. *Aerosol Science & Technology* **36**: 771-789.
- Gillies, J.A., W.G. Nickling, J. King (2002). Drag coefficient and plant form-response to wind speed in three plant species: Burning Bush (*Euonymus alatus*), Colorado Blue Spruce (*Picea pungens glauca.*), and Fountain Grass (*Pennisetum setaceum*). *Journal of Geophysical Research - Atmospheres* **107** (D24): 10-1 – 10-15.

- Abu-Allaban, M., J.A. Gillies, A.W. Gertler (2003). Applications of a multi-lag regression approach to determine on-road PM₁₀ and PM_{2.5} emission rates. *Atmospheric Environment* **37**: 5157-5164.
- Abu-Allaban, M., J.A. Gillies, A.W. Gertler (2003). Tailpipe, resuspended road dust, and brake-wear emission factors from on-road vehicles. *Atmospheric Environment* **37**: 5283-5293.
- Etyemezian, V., H. Kuhns, J.A. Gillies, J. Chow, M. Green, K. Hendrickson, M. McGowan, M. Pitchford. (2003). Vehicle based road dust emissions measurement (III): effect of speed, traffic volume, location, and season on PM₁₀ road dust emissions. *Atmospheric Environment* **37**: 4583–4593.
- Etyemezian, V., H. Kuhns, J.A. Gillies, M. Green, M. Pitchford, J. Watson (2003). Vehicle based road dust emissions measurement (I): methods and calibration. *Atmospheric Environment* **37**: 4559–4571.
- Gillies, J.A., W.G. Nickling (2003). Entrainment of radio frequency chaff by wind as a function of aerodynamic roughness. *The Journal of the Air & Waste Management Association* **53**: 206-216.
- Etyemezian, V., J.A. Gillies, H. Kuhns, D. Gillette, S. Ahonen, D. Nikolic, J. Veranth (2004). Deposition and removal of fugitive dust in the arid southwestern United States: measurements and model results. *Journal of the Air and Waste Management Association* **54**: 1099-1111.
- Gillies, J.A., L. Berkofsky, (2004). Eolian suspension above the saltation layer, the concentration profile. *Journal of Sedimentary Research* **74** (2): 176-183.
- Gillies, J.A., V. Etyemezian, H. Kuhns, D. Nikolic, D.A. Gillette (2005). Effect of vehicle characteristics on unpaved road dust emissions. *Atmospheric Environment* **39**: 2341–2347.
- Kuhns, H., V. Etyemezian, J.A. Gillies, S. Ahonen, C. Durham, D. Nikolic (2005). Spatial variability of unpaved road dust emissions factors near El Paso, Texas. *Journal of the Air and Waste Management Association* **55**: 3-12.
- Moosmüller, H., R. Varma, W.P. Arnott, H.D. Kuhns, V. Etyemezian, J.A. Gillies (2005). Scattering cross section emission factors for visibility and radiative transfer applications: military vehicles traveling on unpaved roads. *Journal of the Air and Waste Management Association* **55**: 1743-1750.
- King, J., W.G. Nickling, J.A. Gillies (2006). Representation of vegetation and other non-erodible elements in aeolian shear stress partitioning models for predicting transport threshold. *Journal of Geophysical Research – Earth Surface* **110** (F4): F04015 doi: 10.1029/2004JF000281.
- Abu-Allaban, M., J. Gillies, A. Gertler, R. Clayton, D. Proffitt (2006). Motor vehicle contributions to ambient PM₁₀ and PM_{2.5} at selected urban areas in the U.S. *Environmental Monitoring and Assessment* **132**: 155-163, doi: 10.1007/s10661-006-9511-3.

- Gertler, A., H. Kuhns, M. Abu-Allaban, C. Damm, J. Gillies, V. Etyemezian, R. Clayton, D. Proffitt (2006). A case study of the impact of winter road sand/salt and street sweeping on road dust re-entrainment. *Atmospheric Environment* **40** (31): 5976-5985.
- Gillies, J.A., W.G. Nickling, J. King (2006). Aeolian sediment transport through large patches of roughness in the atmospheric inertial sublayer. *Journal of Geophysical Research – Earth Surface* **111**: F02006, doi: 10.1029/2005JF000434.
- King, J., W.G. Nickling, J.A. Gillies (2006). Aeolian shear stress ratio measurements within mesquite-dominated landscapes of the Chihuahuan Desert, New Mexico, USA. *Geomorphology* **82** (3-4): 229-244, doi: 10.1016/j.geomorph.2006.05.004.
- Lancaster, N., J.A. Gillies, W.G. Nickling (2006). Recent progress in aeolian research. *EOS* **87** (45), 7 November 2006.
- Etyemezian, V., G. Nikolich, S. Ahonen, M. Pitchford, M. Sweeney, J. Gillies, H. Kuhns (2007). The Portable In-Situ Wind Erosion Laboratory (PI-SWERL): a new method to measure PM₁₀ windblown dust properties and potential for emissions. *Atmospheric Environment* **41**: 3789-3796.
- Gillies, J.A., V. Etyemezian, H. Kuhns, J. Engelbrecht, S. Uppapalli, G. Nikolich (2007). Dust emissions caused by backblast from Department of Defense artillery testing. *Journal of the Air & Waste Management Association* **57**: 551–560, doi: 10.3155/1047-3289.57.5.551.
- Gillies, J.A., W.G. Nickling, J. King (2007). Shear stress partitioning in large patches of roughness in the atmospheric inertial sublayer. *Boundary-Layer Meteorology* **122** (2): 367-396, doi: 10.1007/s10546-006-9101-5.
- Brown, S. W.G. Nickling, J.A. Gillies (2008). A wind tunnel examination of shear stress partitioning for an assortment of surface roughness distributions. *Journal of Geophysical Research – Earth Surface* **113**: F02S06, doi: 10.1029/2007JF000790.
- Engelbrecht, J.P., E.V. McDonald, J.A. Gillies, A.W. Gertler (2008). Enhanced particulate matter surveillance program: A multidisciplinary approach to understanding mineral dusts from the Middle East. *Geochimica et Cosmochimica Acta* **72** (12): A243.
- Gillies, J.A., M. Abu-Allaban, A.W. Gertler, D. Lowenthal, B. Jennison, A. Goodrich (2008). Enhanced PM_{2.5} source apportionment using chemical mass balance receptor modeling and scanning electron microscopy. *Jordan Journal of Earth and Environmental Sciences* **1** (1): 1-9.
- King, J., W.G. Nickling, J.A. Gillies (2008). Investigations of the law-of-the-wall over sparse roughness elements. *Journal of Geophysical Research – Earth Surface* **113**: F02S07, doi: 10.1029/2007JF000804.
- Macpherson, T., W.G. Nickling, J.A. Gillies, V. Etyemezian (2008). Dust emissions from undisturbed and disturbed supply limited desert surfaces. *Journal of Geophysical Research – Earth Surface* **113**: F02S04, doi: 10.1029/2007JF000800.
- Sweeney, M., V. Etyemezian, T. Macpherson, W. Nickling, J. Gillies, G. Nikolich, E. McDonald (2008). Comparison of PI-SWERL with dust emission measurements

- from a straight-line field wind tunnel. *Journal of Geophysical Research – Earth Surface* **113**: F01012, doi: 10.1029/2007JF000830.
- Engelbrecht, J.P., E.V. McDonald, J.A. Gillies, R.K.M. Jayanty, G. Casuccio, A.W. Gertler (2009). Characterizing mineral dusts and other aerosols from the Middle East - Part 1: Ambient sampling. *Inhalation Toxicology* **21**: 297–326, doi: 10.1080/08958370802464273.
- Engelbrecht, J.P., E.V. McDonald, J.A. Gillies, R.K.M. Jayanty, G. Casuccio, A.W. Gertler (2009). Characterizing mineral dusts and other aerosols from the Middle East - Part 2: Grab samples and re-suspensions. *Inhalation Toxicology* **21**: 327–336, doi: 10.1080/08958370802464299.
- Gillies, J.A., W.G. Nickling, M. Tilson (2009). Ventifacts and wind eroded rock features in the Taylor Valley, Antarctica. *Geomorphology* **107**: 149-160, doi: 10.1016/j.geomorph.2008.12.007.
- Kavouras, I.G., V. Etyemezian, G. Nikolich, M. Young, J. Gillies, D. Shafer (2009). A new technique for characterizing the efficacy of fugitive dust suppressants. *Journal of the Air & Waste Management Association* **59**: 603-612, doi: 10.3155/1047-3289.595.603.
- Zhu, D., H.D. Kuhns, S. Brown, J.A. Gillies, V. Etyemezian, A.W. Gertler (2009). Fugitive dust emissions from paved road travel in the Lake Tahoe basin, *Journal of the Air & Waste Management Association* **59**: 1219–1229, doi: 10.3155/1047-3289.59.10.1219.
- Gillies, J.A., V. Etyemezian, H. Kuhns, J.D. McAlpine, S. Uppapalli, G. Nikolich, J. Engelbrecht (2010). Dust emissions created by low-level rotary-winged aircraft flight over desert surfaces. *Atmospheric Environment* **44** (8): 1043-1053.
- Gillies, J.A., W.G. Nickling, J. King, N. Lancaster (2010). Modeling aeolian sediment transport thresholds on Mars: a shear stress partitioning approach. *Geomorphology* **121**: 15-21, doi: 10.1016/j.geomorph.2009.02.016.
- Kuhns, H., J.A. Gillies, V. Etyemezian, G. Nikolich, J. King, D. Zhu, S. Uppapalli, J. Engelbrecht, S. Kohl (2010). Particulate matter emissions from wheeled and tracked vehicles operating on unpaved roads. *Aerosol Science and Technology* **44**: 193-202.
- Lancaster, N., W.G. Nickling, J.A. Gillies (2010). Sand transport by wind on complex surfaces: field studies in the McMurdo Dry Valleys, Antarctica. *Journal of Geophysical Research–Earth Surface* **115**: F03027, doi: 10.1029/2009JF001408.
- McAlpine, J.D., D. Koračin, D. Boyle, J.A. Gillies, E. McDonald (2010). Assessment of the applicability of a CFD method to simulate a rotorcraft dust emission source. *Environmental Fluid Mechanics* **10**: 691-710, doi: 10.1007/s10652-010-9191-y.
- Zhu, D., H. Kuhns, J.A. Gillies, V. Etyemezian, A. Gertler, S. Brown (2011). Inferring deposition velocities from changes in aerosol size distributions downwind of a roadway. *Atmospheric Environment* **45**: 957-966, doi: 10.1016/j.atmosenv.2010.11.004.

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- Gillies, J.A., W.G. Nickling, and N. Lancaster (2001). Aeolian sediment flux characteristics observed at Owens Lake, CA. Paper presented: *97th Annual Meeting of the Association of American Geographers*, New York, NY, 26 Feb. - 3 March, 2001.
- Nickling, W.G., J.A. Gillies, and N. Lancaster (2001). Surface controls on dust emissions, Owens (dry) Lake, California. Paper presented: *97th Annual Meeting of the Association of American Geographers*, New York, NY, 26 Feb.-3 March, 2001.
- Abu-Allaban, M., J.A. Gillies, A.W. Gertler, R. Clayton, and D. Proffitt (2001). Characterizing particulate matter emitted from on-road motor vehicles. Paper presented: *11th CRC On-Road Vehicle Emissions Workshop*, San Diego, CA, 26-28 March, 2001.

- Abu-Allaban, M., J.A. Gillies, A.W. Gertler, R. Clayton, and D. Proffitt (2001). Characterizing particulate matter emitted from on-road motor vehicles. Paper presented: *94th Annual Meeting, Air & Waste Management Association*, Orlando, FL, 24-28 June, 2001.
- Gertler, A.W. and J.A. Gillies (2001). A fast, cost effective method for apportioning the sources of ambient particulate matter. Paper presented: *94th Annual Meeting, Air & Waste Management Association*, Orlando, FL, 24-28 June, 2001.
- Gillies, J.A., W.P. Arnott, V. Etyemezian, D.A. Gillette, H. Kuhns, E. McDonald, H. Moosmüller, W.G. Nickling, G. Schwemmer, and T. Wilkerson (2001). Characterizing and quantifying local and regional particulate matter emissions from Department of Defense installations. Poster presented: *Partners in Environmental Technology Technical Symposium and Workshop*, Washington, D.C., 27-29 Nov., 2001.
- Kuhns, H., V. Etyemezian, J.A. Gillies, M. Green, and M. Pitchford (2002). Spatially-resolved, direct measurement of road dust emission from vehicles. Paper presented: *Real World Clean Air Symposium*, San Diego, CA, 21–23 May, 2002.
- Etyemezian, V., H. Kuhns, J.A. Gillies, M. Green, and M. Pitchford (2002). Temporally and spatially-resolved road dust emissions from vehicles. Paper presented: *7th International Highway and Urban Pollution Symposium*, Barcelona, Spain, 20–23 May, 2002.
- Lancaster, N., W.G. Nickling, and J.A. Gillies (2002). Exceptionally coarse-grained wind ripples in the Wright Valley, Antarctica. Poster presented: *ICAR5/GCTE-SEN Joint Conference*, International Center for Arid and Semiarid Land Studies, Texas Tech. University, Lubbock, TX, 22-25 July, 2002.
- Varma, R., W.P. Arnott, H. Moosmüller, J.A. Gillies, H. Kuhns, and V. Etyemezian (2002). A new integrating nephelometer for aerosol light scattering studies. Paper presented: *21st Annual Conference of the American Association for Aerosol Research*, Charlotte, NC, 7-11 Oct., 2002.
- Gillies, J.A., W.P. Arnott, V. Etyemezian, D.A. Gillette, H. Kuhns, E. McDonald, H. Moosmüller, W.G. Nickling, G. Schwemmer, and T. Wilkerson (2002). Characterizing and quantifying local and regional particulate matter emissions from Department of Defense installations. Paper and Poster presented: *Partners in Environmental Technology Technical Symposium and Workshop*, Washington, D.C., 2-5 Dec., 2002.
- Etyemezian, V., D. Gillette, J.A. Gillies, H. Kuhns, D. Nikolic, G. Seshadri, J. Veranth, and J. Watson (2003). PM₁₀ emissions from unpaved roads: correction for near-field deposition. Poster presented: *American Association for Aerosol Research Particulate Matter: Atmospheric Sciences, Exposure and the Fourth Colloquium on PM and Human Health (AAAR PM)*, Pittsburgh, PA, 31 March- 4 April, 2003.
- Etyemezian, V., J.A. Gillies, H. Kuhns, D. Nikolic, and John Vernath (2003). Reconciling fugitive dust emissions with ambient measurement: along the unpaved road. Paper presented: *12th Annual Symposium on Emission Inventories, USEPA, Office of Air Quality Planning and Standards, Emission Factor and Inventory Group, and the Emission Inventory Improvement Program (EIIP). "Emission Inventories -Applying New Technologies"*, San Diego, CA, 28 April – 1 May, 2003.

- Mansell, G., P. Fields, M. Wolfe, J. Gillies, B. Barnard, M. Omary, and M. Uhl (2003). Determining Fugitive Dust from Wind Erosion. Paper presented: *12th Annual Symposium on Emission Inventories, USEPA, Office of Air Quality Planning and Standards, Emission Factor and Inventory Group, and the Emission Inventory Improvement Program (EIIP)*. “Emission Inventories -Applying New Technologies”, San Diego, CA, 28 April – 1 May, 2003.
- Etyemezian, V., D. Nikolic, J.A. Gillies, H. Kuhns, G. Seshadri, J. Veranth (2003). Estimating near-field removal of fugitive dust: the regionally-transportable fraction of PM₁₀ emissions from unpaved Roads. Paper presented: *96th Annual Meeting, Air & Waste Management Association*, San Diego, CA, 22-26 June, 2003.
- Gillies, J.A., V. Etyemezian, H. Kuhns, D. Nikolic, and D.A. Gillette (2003). Effect of vehicle characteristics on unpaved road dust emissions. Paper presented: *96th Annual Meeting, Air & Waste Management Association*, San Diego, CA, 22-26 June, 2003.
- Gillies, J.A., V. Etyemezian, H. Kuhns, D. Nikolic, and D.A. Gillette (2003). Effect of vehicle characteristics on unpaved road dust emissions. Paper presented: *12th Symposium “Transport and Air Pollution”*, Avignon, France, 16-18 June, 2003.
- Gillies, J.A. and L.B. Berkofsky (2003). Aeolian suspension above the saltation layer: the concentration profile. Poster presented: *2nd Workshop on Mineral Dust*, Paris, France, 10–12 Sept., 2003.
- Nickling, W.G., J.A. King, and J.A. Gillies (2003). The role of shear stress partitioning on dust emissions. Paper presented: *2nd Workshop on Mineral Dust*, Paris, France, 10–12 Sept., 2003.
- Gillies, J.A., H. Kuhns, V. Etyemezian, D. Nikolic, H. Moosmüller, and W.P. Arnott (2003). Tower based real time monitoring system for quantifying fugitive emissions. Paper presented: *NARSTO Emission Inventory Workshop: Innovative Methods for Emission Inventory Development and Evaluation*, Austin, TX, 14-17 Oct., 2003.
- Etyemezian, V. S. Ahonen, J.A. Gillies, H. Kuhns, H. Moosmüller, D. Nikolic, and M. Pitchford (2003). PI-SWERL: a new technique for measuring wind blown dust emission potential. Paper presented: *NARSTO Emission Inventory Workshop: Innovative Methods for Emission Inventory Development and Evaluation*, Austin, TX, 14-17 Oct., 2003.
- Moosmüller, H., R. Varma, W. P. Arnott, J. Walker, H. D. Kuhns, V. Etyemezian, and J.A. Gillies (2003). Emission factors for visibility impairment from fugitive dust emissions. Paper presented: *NARSTO Emission Inventory Workshop: Innovative Methods for Emission Inventory Development and Evaluation*, Austin, TX, 14-17 Oct., 2003.
- Kuhns, H., V. Etyemezian, J.A. Gillies, D. Nikolic, S. Ahonen (2003). Spatially-resolved, direct measurement of road dust emissions from vehicles. Paper presented: *NARSTO Emission Inventory Workshop: Innovative Methods for Emission Inventory Development and Evaluation*, Austin, TX, 14-17 Oct., 2003.

- Gillies, J.A., W.P. Arnott, V. Etyemezian, D.A. Gillette, H. Kuhns, H. Moosmüller, W.G. Nickling (2003). Characterizing and quantifying local and regional particulate matter emissions from Department of Defense installations. Poster presented: *Partners in Environmental Technology Technical Symposium and Workshop*, Washington, D.C., 2-5 Dec., 2003.
- Gillies, J.A., N. Lancaster, and K. Cupp, W.G. Nickling, J.A. King, and J.M. Bryant (2004). Shear stress partitioning effects on aeolian sediment transport. Poster presented: *2004 Joint Assembly American Geophysical-Canadian Geophysical Union*, Montreal, PQ, 17-21 May, 2004.
- Lancaster, N., W.G. Nickling, J.A. Gillies, and K. Cupp (2004). Temporal variations in the flux of windblown sand: a comparison of the intermittency function in different environments. Poster presented: *2004 Joint Assembly American Geophysical-Canadian Geophysical Union*, Montreal, PQ, 17-21 May, 2004.
- Gertler, A.W., J.A. Gillies, M. Abu-Allaban (2004). Using roadside measurements to determine PM₁₀ and PM_{2.5} emission rates from in-use vehicles. Paper presented: *Israel Society for Ecology and Environmental Quality Sciences*, 9-10 June, 2004.
- Gillies, J.A., V. Etyemezian, H. Kuhns, G. Nikolich, and S. Ahonen (2004). Near-field transport and deposition of fugitive dust emissions from an unpaved Road. Paper presented: *Western Pacific Geophysical Meeting*, Honolulu, HI, 19-24 August, 2004.
- Gillies, J.A. (2004). Characterizing and quantifying fugitive dust emissions from Department of Defense sources including unique military activities. Invited Paper: *2nd Surficial Processes on Military Lands Workshop*, Zyzzx, CA, 18-22, Sept., 2004.
- Nikolic, D., H. D. Kuhns, H. Moosmüller, J. Xu, J. A. Gillies, S. Ahonen, V. Etyemezian, and M. Pitchford (2004). PI-SWERL: a novel method for quantifying windblown dust emissions. Paper presented: *23rd Annual Conference of the American Association for Aerosol Research*, Atlanta, GA, 4-8 October, 2004.
- Nickling, W.G. and J.A. Gillies (2004). Factors controlling the spatial and temporal variability of dust emissions: the need for suitable surrogate measures at large spatial scales. Invited paper: *USGS Workshop on Mineral Dust Emissions*, Boulder, CO, 22-23 October, 2004.
- Varma, R., H. Moosmüller, W. P. Arnott, J. Walker, H. D. Kuhns, V. Etyemezian, and J.A. Gillies (2004). Emission factors of scattering cross section for visibility impairment from fugitive dust sources. Paper presented: *Regional and Global Perspectives on Haze: Causes, Consequences, and Controversies (Visibility Specialty Conference)*, Asheville, NC, October 25-29, 2004.
- Gillies, J.A. (2004). Characterizing and quantifying fugitive dust emissions from Department of Defense sources including unique military activities. Invited paper: *Partners in Environmental Technology Technical Symposium and Workshop*, Washington, D.C., 29 Nov. - 2 Dec., 2004.

- Gillies, J.A., W.P. Arnott, E. Etyemezian, D.A. Gillette, H. Kuhns, H. Moosmüller, W.G. Nickling, J. Allwine, and R. Hashmonay (2004). Characterizing and quantifying fugitive dust emissions from Department of Defense sources including unique military activities. Poster presented: *Partners in Environmental Technology Technical Symposium and Workshop*, Washington, D.C., 29 Nov. - 2 Dec., 2004.
- Gillies, J.A., W.G. Nickling, and J. King (2004). Shear stress partitioning in airflow over rough surfaces: roughness form effects and influence on the distribution of shear stress. Poster presented: *American Geophysical Union Annual Fall Meeting*, San Francisco, CA, 13-17 December, 2004.
- King, J., W.G. Nickling, and J.A. Gillies (2004). Representation of vegetation and other non-erodible elements in aeolian sediment transport models. Poster presented: *American Geophysical Union Annual Fall Meeting*, San Francisco, CA, 13-17 December, 2004.
- Bryant, J., W.G. Nickling, and J.A. Gillies (2004). Wind flow characteristics over rough surfaces. Poster presented: *American Geophysical Union Annual Fall Meeting*, San Francisco, CA, 13-17 December, 2004.
- Lancaster, N., W.G. Nickling, J.A. Gillies, and K. Cupp (2004). Sand transport by wind on complex rough surfaces: field studies in the McMurdo Dry Valleys, Antarctica. Paper presented: *American Geophysical Union Annual Fall Meeting*, San Francisco, CA, 13-17 December, 2004.
- Abu-Allaban, M., J. Gillies, A. Gertler, R. Clayton, and D. Proffitt (2005). Motor vehicle contributions to ambient PM₁₀ and PM_{2.5} at selected urban areas in the U.S. Paper presented: *14th International Symposium Transport and Air Pollution*, Graz, Austria, 1-3 June, 2005.
- Gertler, A., J. Gillies, G. Parthasarathay, R. Clayton, and D. Proffitt (2005). The impact of road shoulder treatments on road dust resuspension. Poster presented: *14th International Symposium Transport and Air Pollution*, Graz, Austria, 1-3 June, 2005.
- Gillies, J.A., V. Etyemezian, H. Kuhns, H. Moosmüller, J. Engelbrecht, D. Gillette, J. Allwine, R. Hashmonay, and R. Varma (2005). Particulate matter emissions for dust from unique military activities: artillery backblast. Poster presented: *Partners in Environmental Technology Technical Symposium and Workshop*, Washington, D.C., 28 Nov. - 1 Dec., 2005.
- Sweeney, M., V. Etyemezian, J. Gillies, T. Macpherson, E. McDonald, G. Nicolich, W.G. Nickling (2005). Calibration of a new type of wind tunnel (PI-SWERL) with dust emission data from a conventional straight-line wind tunnel. Poster presented: *American Geophysical Union Annual Fall Meeting*, San Francisco, CA, 12-16 December, 2005.
- Sweeney, M., V. Etyemezian, T. Macpherson, W.G. Nickling, J. Gillies, and G. Nikolich (2006). Calibration of PI-SWERL measurements with dust emission data from a straight-line field wind tunnel. Poster presented: *Sixth International Conference on Aeolian Research*, Guelph, ON, Canada, 24-28 July, 2006.

- King, J., W.G. Nickling, and J.A. Gillies (2006). Aeolian shear stress ratio measurements within mesquite-dominated landscapes of the Chihuahuan Desert, New Mexico, U.S.A. Poster presented: *Sixth International Conference on Aeolian Research*, Guelph, ON, Canada, 24-28 July, 2006.
- Gillies, J.A., W.G. Nickling, J. King, V. Etyemezian, and M. Sweeney (2006). Factors controlling the spatial and temporal variability of dust emissions. Invited paper: *7th International Symposium on Environmental Geochemistry*, Beijing, P.R. China, 24-27 September, 2006.
- Gillies, J.A., V. Etyemezian, H. Kuhns, H. Moosmüller, J. Engelbrecht, D. Gillette, J. Allwine, R. Hashmonay, and R. Varma (2006). Particulate matter emissions for dust from unique military activities: artillery backblast & tracked vehicles. Poster presented: *Partners in Environmental Technology Technical Symposium and Workshop*, Washington, D.C., 28 Nov. – Nov. 30, 2006.
- Etyemezian, V., M. Sweeney, W. Nickling, J. Gillies, and E. McDonald (2006). Seasonal dust emissions measured from shorelines at the Salton Sea, Southern California. Poster presented: *American Geophysical Union Annual Fall Meeting*, San Francisco, CA, 11-14 December, 2006.
- Gillies, J.A., H. Kuhns, D. Zhu, and V. Etyemezian (2007). Measurement and modeling of fugitive dust emissions from paved road travel in the Lake Tahoe Basin. Invited paper: *Environmental Nuisances: Noise, Light, Odour, and Fugitive Dust*, Richmond, B.C., 7-9 May, 2007.
- Langston, R., R.S. Merle Jr., D. Hart, V. Etyemezian, H. Kuhns, J. Gillies, D. Fitz, K. Bumiller, and D. James, D (2007). The preferred alternative method for measuring paved road dust emissions for emissions inventories: “Mobile Technologies vs. The Traditional AP-42 Methodology”. *16th Annual International Emissions Inventory Conference*, May 15-17, Raleigh, NC.
- Engelbrecht, J., H. Moosmüller, W. Arnott, J.A. Gillies, and M. Skiba (2007). Mineralogy and optical properties of resuspended dusts. Paper presented: *International Union of Geodesy and Geophysics Conference XXIV*, Perugia, Italy, 2-13 July, 2007.
- Gillies, J.A. and W.G. Nickling (2007). Potential dust emissions from crusted soils. Paper presented: *International Union of Geodesy and Geophysics Conference XXIV*, Perugia, Italy, 2-13 July, 2007.
- Gertler, A., T. Cahill, J. Reuter, S. Cliff, J. Gillies, J. Koraćin, H. Kuhns (2007). Air quality in the Lake Tahoe Basin. Poster presented: *10th Anniversary Lake Tahoe Presidential Summit*, Incline Village, NV, 17 August, 2007.
- Gillies, J.A., V. Etyemezian, H. Kuhns, H. Moosmüller, J. Engelbrecht, J. King, J.D. McAlpine, D. Gillette, J. Allwine, and R. Hashmonay (2007). Particulate matter emissions for dust from unique military activities: rotary-winged aircraft. Poster presented: *Partners in Environmental Technology Technical Symposium and Workshop*, Washington, D.C., 4-6 December, 2007.

- Gertler, A., T. Cahill, J. Gillies, and H. Kuhns (2007). Sources of atmospheric pollutants impacting air and water quality in the Lake Tahoe basin. Paper presented: *American Geophysical Union Annual Fall Meeting*, San Francisco, CA, 10-14 December, 2007.
- Gillies, J.A., J. King, N. Lancaster, and W.G. Nickling (2007). Modeling aeolian sediment transport thresholds on Mars: a shear stress partitioning approach. Paper presented: *American Geophysical Union Annual Fall Meeting*, San Francisco, CA, 10-14 December, 2007.
- King, J., V. Etyemezian, J.A. Gillies, and G. Nikolich (2007). Influence of temporal scales and soil properties on dust emissions: a measurement and modeling effort. Paper presented: *American Geophysical Union Annual Fall Meeting*, San Francisco, CA, 10-14 December, 2007.
- Zhu, D., H. Kuhns, J. Gillies, V. Etyemezian, and A.W. Gertler, 2008. Long-term measurements of road dust in the Lake Tahoe region. Paper presented: *Environmental Nuisances: Noise, Light, Odour, & Fugitive Dust*, Toronto, ON, 11-13 February, 2008.
- Gillies, J.A., W.G. Nickling, J. King, and N. Lancaster (2008). Modeling aeolian sediment transport thresholds on Mars: a shear stress partitioning approach. Invited keynote paper: *Planetary Dunes Workshop: A Record of Climate Change*, Lunar and Planetary Institute, Alamogordo, NM, 29 April–2 May, 2008.
- Watson, J.G., J.C. Chow, J.A. Gillies, V. Etyemezian (2008). Advances in continuous monitors for Asian dust suspension properties, emission rates, and particle sizes. Paper presented: *Fifth International Workshop on Sand and Dust Storms*, Urumqi, Xinjiang, China, 23 May, 2008.
- Zhu, D., H. Kuhns, J. Gillies, V. Etyemezian, and A. Gertler (2008). Spatial and seasonal emissions of road dust in the Lake Tahoe Basin. Paper presented: *Air and Waste Management Association Annual Conference*, Portland, OR, 24-27 June, 2008.
- McAlpine, J.D., D. Koračin, D. Boyle, J.A. Gillies, and E. McDonald (2008). Rotorcraft wake induced dust entrainment and dispersion simulation: stage 1, wake simulation. Paper presented: *12th Annual George Mason University Conference on Atmospheric Transport and Dispersion Modeling*, Fairfax, VA, 8-10 July, 2008.
- Engelbrecht, J.P., E.V. McDonald, J.A. Gillies and A.W. Gertler (2008). Enhanced Particulate Matter Surveillance Program: a multidisciplinary approach to understanding mineral dusts from the Middle East. Paper presented: *2008 Goldschmidt Conference*, Vancouver, Canada, 13-18 July, 2008.
- Gillies, J.A., J.P. Engelbrecht, E.V. McDonald, and A. Gertler (2008). Chemistry and individual particle characteristics of aerosols from the Middle East. Paper presented: *11th Annual Force Health Protection Conference*, Albuquerque, NM, 12-15 August, 2008.
- Engelbrecht, J.P., E.V. McDonald, Gillies, J.A., and A. Gertler (2008). Chemistry and individual particle characteristics of aerosols from the Middle East. Paper presented: *33rd International Geological Congress*, Oslo Norway, 6-14 August, 2008.

- Gertler, A., T. Brown, T. Cahill, S. Cliff, J. Engelbrecht, J. Gillies, J. Koračin, H. Kuhns, J. Reuter, and T. VanCuren (2008). Air quality in the Lake Tahoe air basin. Paper presented: *The Lake Tahoe Environmental Summit*, August 16, 2008.
- Gertler, A., T. Cahill, J. Gillies, and H. Kuhns (2008). Sources of atmospheric pollutants impacting air and water quality in the Lake Tahoe Basin. Paper presented: *Fall Meeting of the American Geophysical Union*, San Francisco, CA, 15-19 December, 2008.
- Gillies, J.A., W.G. Nickling, and N. Lancaster (2008). Vegetative roughness controls on wind erosion: a shear stress partitioning approach. Paper presented: *Ninth International Conference on Dryland Development: Sustainable Development in the Drylands - Meeting the Challenge of Global Climate Change*, Alexandria, Egypt, 7-10 November, 2008.
- Gillies, J.A., V. Etyemezian, H. Kuhns, J. Engelbrecht, J. King, H. Moosmüller, G. Nikolich, D. Zhu, S. Uppapalli, W. Shaw, and R. Hashmonay (2008). Particulate matter emissions for dust from unique military activities: tracked vehicles. Poster presented: *Partners in Environmental Technology Technical Symposium and Workshop*, Washington, D.C., 2-4 December, 2008.
- Gillies, J.A., W.G. Nickling, and M. Tilson (2009). A preliminary evaluation of the movement of aeolian gravel ripples, Wright Valley, Antarctica. Paper presented: *Seventh International Conference on Geomorphology (ANZIAG), Ancient Landscapes – Modern Perspectives*, Melbourne, Australia, 6-11 July, 2009.
- Gillies, J.A., V. Etyemezian, and G. Nikolich (2009). Dust entrainment on Earth and Mars. Invited paper: *Mars Dust Cycle Workshop*, NASA Ames Research Center, Moffett Field, CA, 15-17 September, 2009.
- Moosmüller, H., J. Engelbrecht, W.P. Arnott, J.A. Gillies, and M. Skiba (2009). Single scattering albedo of fine mineral dust aerosols controlled by Iron concentration. Paper presented: *28th Annual Conference of the American Association for Aerosol Research*, Minneapolis, MN, 26-30 October, 2009.
- Gillies, J.A., W.G. Nickling, L. Brown, A. Berg, J. Trent, and A. Bonnycastle (2009). Measuring dust emission potential of exposed beaches which impact regional air quality, Williston Reservoir, British Columbia, Canada. Invited paper: *International Workshop on Environmental Nuisances*, Calgary, AB, Canada, 30 Nov. – 1 Dec., 2009.
- Gillies, J.A., A.W. Gertler, D. Zhou, and H. Kuhns (2009). Long term measurements of road dust in the Lake Tahoe region. Invited paper: *International Workshop on Environmental Nuisances*, Calgary, AB, Canada, 30 Nov. – 1 Dec., 2009.
- Gillies, J.A., V. Etyemezian, H. Kuhns, J. Engelbrecht, J. King, H. Moosmüller, G. Nikolich, D. Zhu, S. Uppapalli, W. Shaw, and R. Hashmonay (2008). Particulate matter emissions for dust from unique military activities. Poster presented: *Partners in Environmental Technology Technical Symposium and Workshop*, Washington, D.C., 1-3 Dec., 2009.
- Gillies, J.A. (2010). The role of vegetation in aeolian sediment transport and deposition processes. Invited paper: *International Symposium on Dust and Vegetation*, Arid Lands Research Center, Tottori University, Tottori, Japan, 27 February, 2010.

- Nickling, W.G., J.A. Gillies, and M. Tilson (2010). Aeolian gravel ripples: Wright Valley, Antarctica. Paper presented: *7th International Conference on Aeolian Research*, Santa Rosa, Argentina, 5-9 July, 2010.
- Gillies, J.A. W.G. Nickling, and M. Tilson (2010). Frequency, magnitude and seasonality of aeolian sediment transport: McMurdo Dry Valleys, Antarctica. Paper presented: *7th International Conference on Aeolian Research*, Santa Rosa, Argentina, 5-9 July, 2010.
- Gillies, J.A., V. Etyemezian, H. Kuhns, J. Engelbrecht, Moosmüller, D. Zhu, G. Nikolich, W. Shaw, L. Berg, M. Pekour, and E. Chapman (2010). Characterizing and quantifying emissions and transport of fugitive dust emissions due to Department of Defense Activities. Poster presented: *Partners in Environmental Technology Technical Symposium and Workshop*, Washington, D.C., 30 Nov. - 2 December, 2010.
- Gillies, J.A. and N. Lancaster (2011). Large roughness element effect on sand transport, Oceano Dunes, California. Paper presented: *17th Windy Day Meeting*, Sheffield, UK, 19 October, 2011.
- Gillies, J.A. (2011). Wind and landscape in the Earth's coldest, driest desert: McMurdo Dry Valleys, Antarctica. Public Lecture: University of Sheffield, Sheffield, UK, as part of the L.R. Moore Visiting Scholar Award, Dept. of Geography, Sheffield University, 20 October, 2011.
- Gillies, J.A., V. Etyemezian, H. Kuhns, J. Engelbrecht, Moosmüller, D. Zhu, G. Nikolich, W. Shaw, L. Berg, M. Pekour, S. Clapton, and E. Chapman (2011). Characterizing and quantifying emissions and transport of fugitive dust emissions due to Department of Defense Activities. Poster presented: *Partners in Environmental Technology Technical Symposium and Workshop*, Washington, D.C., 29 Nov. - 1 December, 2011.
- Nield, J.M., J.A. Gillies, and W.G. Nickling (2012). Quantifying roughness density of vegetation and nebkha dunes in the Chihuahuan Desert, New Mexico, USA using terrestrial laser scanning. Poster presented: *European Geosciences Union General Assembly 2012*, Vienna, Austria, 22-27 April, 2012.
- Gillies, J.A. (2012). Aeolian sediment transport research: Las Cruces NM, Oceano and Keeler Dunes, CA. Invited seminar presentation: Arid Lands Research Center, Tottori University, Tottori, Japan, 5 July, 2012.
- Gillies, J.A. (2012). The dust problem at the Williston Reservoir, British Columbia: Engineering solutions and assessing effectiveness. Invited seminar presentation: Environmental Engineering Graduate Seminar, University of Nevada, Reno, 11 Nov., 2012.
- Kok, J.F., N.M Mahowald, S. Alfaro, G. Fratini, J.A. Gillies, M. Ishizuka, J. Leys, B. Marticorena, M. Mikami, M.-S. Park, S.-U. Park, J.L. Rajot, M. Sow, R.S. Van Pelt, and T.M. Zobeck (2012). Improved parameterization for the vertical flux of dust aerosols emitted by an eroding soil. Invited paper presented: *American Geophysical Union Fall Meeting*, San Francisco, CA, 3-7 December, 2012.

- Engelbrecht, J.P., E.V. McDonald, J.A. Gillies, R.K.M. Jayanty, G. Casuccio, and A.W. Gertler (2012). Understanding mineral dusts from the Middle East. Paper presented: *American Geophysical Union Fall Meeting*, San Francisco, CA, 3-7 December, 2012.
- Gillies, J.A. and W.G. Nickling (2012). Vertical distribution of grain size and size-segregated saltation flux in a polar desert environment: McMurdo Dry Valleys, Antarctica. Paper presented: *American Geophysical Union Fall Meeting*, San Francisco, CA, 3-7 December, 2012.
- Kok, J.F., N.M. Mahowald, D.S. Ward, S.C. Alfaro, G. Fratini, J.A. Gillies, M. Ishizuka, J.F. Leys, B. Marticorena, M. Mikami, M.-S. Park, S.-U. Park, J.L. Rajot, M. Sow, R.S. Van Pelt, and T.M. Zobeck (2013). A dustier future? Insights from an improved dust emission model. Invited paper presented: *European Geophysical Union General Assembly*, Vienna, Austria, 7-12 April, 2013.
- Gillies, J.A., J. Nield, W.G. Nickling, and E. Furtak-Cole (2013). Testing shelter index and a simple wind speed parameter to characterize vegetation control of sand transport threshold and flux. Paper presented: *European Geophysical Union General Assembly*, Vienna, Austria, 7-12 April, 2013.
- Gillies, J.A., J. Nield, and W.G. Nickling (2013). Wind speed and sediment transport recovery in the lee of a vegetated and denuded nebkha within a nebkha dune field. Paper presented: *Windy Day Conference*, Southampton, UK, 23 Oct., 2013.
- Gillies, J.A. (2013). Wind-driven mineral dust emission research: Past accomplishments, recent advances, and future challenges. Invited paper presented: *Geological Society of America, Annual Meeting*, Denver CO., 27-30 Oct., 2013.
- Zhu, D., J.A. Gillies, and V. Etyemezian (2014). Evaluating dust emissions under different moisture conditions using a mobile monitoring system. *3rd Road Dust Best Management Practices Conference*, Minneapolis MN, 3-5 February 2014.
- Nield J.M., J.A. Gillies, and W.G. Nickling (2014). Quantifying vegetation and geomorphic patterns within nebkha dune fields using terrestrial laser scanning. Poster presented: *European Geophysical Union General Assembly*, Vienna, Austria, 28 April – 2 May, 2014.
- Gillies, J.A. and G. McCarley-Holder (2014). Using large-scale roughness elements to control sand and dust flux at the Keeler Dunes, Keeler, CA. Poster presented: *European Geophysical Union General Assembly*, Vienna, Austria, 28 April – 2 May, 2014.
- Gillies, J.A., G. McCarley-Holder, S. Grimm, N. Barbieri, C. Howard, D. Ono, and T. Schade (2014). Effectiveness of large-scale roughness elements to control sand and dust flux at the Keeler Dunes, Keeler, CA. Poster presented: *8th International Conference on Aeolian Research*, Lanzhou, China, 21-25 July, 2014.
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Gillies, J.A., V. Etyemezian, G. Nikolich (2018). *Trapping of Sand-Sized Particles Exterior and Interior to Large Porous Roughness Forms in the Atmospheric Surface Layer: Phase I*. Final report prepared for Great Basin Unified Air Pollution Control District, Bishop, CA, January 2018.

Etyemezian, V., J.A. Gillies, G. Nikolich, and R. Hasson (2018). Measurement of Resuspension of Volcanic Ash by Wind Erosion. Final report prepared for US Department of Energy, Office of River Protection, Hanford, WA, September 2018.

Funding History (Principal or Co-Principal Investigator)

California Air Resources Board, “Technical Support Study 5: Particle Resuspension (01-01-94 to 31-12-96, \$14,000, PI).

Air and Waste Technology Co., Ltd., Bangkok, Thailand, “Assessment of Chemical Suppressant Effectiveness to Reduce PM₁₀ Emissions from Unpaved Roads in Thailand” (15-11-98 to 01-01-01, \$4,786, PI).

International Arid Lands Consortium, Tucson AZ, “Dust Emissions from Drylands: Implication for Desertification” (15-05-99 to 14-05-02, \$61,461, PI).

National Science Foundation, Arlington VA, “Measurement and Modeling of Dust Emissions” (08-01-99 to 08-01-01, \$180,000, PI).

Great Basin Unified Air Pollution Control District, Bishop CA, “Field Evaluation of the Effectiveness of Saltgrass/Desert Shrub Complexes in Reducing Dust Emissions at Owens Lake, CA” (01-07-99 to 30-06-00, \$160,897, Co-PI).

Arcadis Geraghty & Miller, “Particulate Matter (PM₁₀ and PM_{2.5}) Apportionment from On-Road Mobile Sources” (30-01-1999 to 9-01-2003, \$445,530, Co-PI).

U.S. Dept. of Agriculture, Cooperative State Research, Education, and Extension Service, National Research Initiative Competitive Grants Program (NRICGP), “Relationships among Rangeland Vegetation Community Structure, Wind Erosion Processes, and Ecosystem Degradation” (09-01-00 to 09-01-02, \$177,000, PI)

Naval Research Laboratory, Washington, DC, “The Fate and Distribution of Radio-Frequency Chaff” (10-01-00 to 09-31-01, \$330,000, Co-PI).

Department of Defense, Strategic Environmental Research Development Program (SERDP), “Characterizing and Quantifying Local and Regional Particulate Matter Emissions from Department of Defense Installations” (01-03-01 to 28-02-04, \$981,721, PI).

Great Basin Unified Air Pollution Control District, Bishop CA, “Portable Field Wind Tunnel Measurements of Dust Emission Thresholds and Fluxes” (01-01-01 to 30-06-01, \$130,000, Co-PI).

Western Environmental Law Center / Sierra Club, Provide expert review of Draft Environmental Impact Statement SCH No. 99021039 “Cadiz Groundwater Storage Dry-Year Supply Program” (01-12-00 to 31-01-00, \$3,500, PI).

U.S. National Science Foundation, “Aeolian Processes in the McMurdo Dry Valleys, Antarctica” (01-06-01 to 31-05-03, \$232,471, Co-PI).

Environ International Corporation, “Determining Fugitive Dust Emissions from Wind Erosion” (14-10-2002 to 30-11-2003, \$13,560, PI).

U.S. Army, West Point, “Environmental Characterization of Desert Biomes for Military Testing” (7-7-2003 to 30-09-2003, \$47,418, Co-PI).

National Aeronautics and Space Administration, “Airflow and Sediment Transport in Complex Terrain on Mars: A Shear Stress Partitioning Approach” (15-01-2003 to 30-06-2007, \$330,000, PI).

Department of Defense, Strategic Environmental Research Development Program (SERDP), “Particulate Matter Emissions for Dust from Unique Department of Defense Sources” (15-02-04 to 31-12-2009, \$1,400,000, PI).

U.S. EPA, “Measurement and Modeling of fugitive dust emissions from paved road travel in the Lake Tahoe Basin” (1-10-05 to 15-10-07, \$ 174,886, Co-PI).

U.S. National Science Foundation, “Acquisition of an X-ray Diffractometer” (15-09-05 to 31-08-07, \$269,163, Co-PI).

Nevada National Aeronautics and Space Administration EPSCoR, “Aeolian Processes on the Surface of Mars – Proposal Development Award” (01-04-06 to 15-06-06, \$14,000, PI).

U.S. Department of Defense, “Department of Defense Advanced Particulate Matter Surveillance Program” (05-05-05 to 30-09-09, \$309,268, Co-PI).

U.S. EPA, “Source Characterization of Particulate Matter Depositing to Lake Tahoe” (15-01-07 to 31-03-08, \$199,949, Co-PI).

U.S Bureau of Land Management, “Sediment Transport to White-Margined Penstemon Habitat” (01-04-07 to 31-04-09, \$800,000, Co-PI)

U.S. National Science Foundation, “Dynamics of the Aeolian Sediment Transport System, McMurdo Dry Valleys, Antarctica” (01-06-07 to 31-05-11, \$244,413, PI).

Great Basin Unified Air Pollution Control District, “Consulting Services, Owens Lake Settlement Agreement” (01-07-07 to 30-06-10, \$80,000, PI).

U.S. Forest Service, “Assessing the Impact of Best Management Practices (BMPs) Designed to Reduce the Contribution from Resuspended Road Rust to Lake Tahoe” (01-10-07 to 31-10-09, \$462,141, PI).

NASA Office of Education “Exploring Planetary Surfaces: Earth, Moon and Mars” (01-12-07 to 31-12-10, \$450,000, Co-Investigator).

U.S. Army Corp of Engineers, Construction Engineering Research Laboratory, “Dust Emissions from Military Vehicles, Ft. Carson, CO” (09-01-08 to 31-12-08, \$32,000, PI).

Tottori University and Arid Lands Research Center, Tottori, Japan, “Global Center of Excellence for Dryland Science Collaborative Agreement” (01-01-08 to 31-06-11, \$360,000, Co-PI).

U.S. National Science Foundation, “Vegetative Roughness Controls on Aeolian Sediment Transport” (08-01-08 to 31-07-11, \$300,000, PI).

British Columbia Hydro, “A Feasibility Study for the Development of a RADARSAT-2 Dust Prediction System” (01-01-09 to 31-03-10, \$275,672, Co-PI).

Strategic Environmental Research and Development Program (SERDP), “Characterizing and Quantifying Emissions and Transport of Fugitive Dust Emissions from Department of Defense Activities” (05-01-10 to 31-12-13, \$2,381,398, PI).

Great Basin Unified Air Pollution Control District, “Keeler Dunes Dust Management Project” (01-07-09 to 31-12-12, \$165,000, PI).

British Columbia Hydro, “Direct Measurements of Potential Dust Emissions at the Williston Reservoir Using PI-SWERL” (01-03-10 to 31-01-12, \$200,000, Co-PI).

British Columbia Hydro, “Long-Term Air Quality Monitoring Plan for the Williston Reservoir, British Columbia” (01-03-10 to 07-02-11, \$50,000, Co-PI).

San Luis Obispo County Air Pollution Control District and California State Parks, “Pilot Dust Control Demonstration Projects, Oceano Dunes” (1-12-10 to 31-08-11, \$100,000, Co-PI).

British Columbia Hydro, “Long-Term Air Quality Monitoring for the Williston Reservoir, British Columbia” (01-04-11 to 01-05-13, \$1,000,000, Co-PI).

Air Resource Sciences, “Calibration of Particulate Matter Sensors” (01-06-11 to 31-10-11, \$24,120, Co-PI).

California State Parks, “Oceano Dunes Particulate Matter Projects I” (15-2-12 to 15-06-12, \$175,000, Co-PI).

California State Parks, “Using the Portable In-situ Wind Erosion Lab (PI-SWERL) to Characterize the Dust Emission Potential of the ODSVRA and Associated Dunes Natural Preserves” (15-04-13 to 15-05-14, \$150,000, Co-PI).

Great Basin Unified Air Pollution Control District, “Keeler Dunes Dust Management Project” (15-04-13 to 30-06-14, \$150,000, PI).

California State Parks, “Ocotillo Wells SVRA: Dust Control Pilot Study Development, Implementation and Monitoring” (01-07-13 to 30-06-16, \$522,624, Co-PI).

Great Basin Unified Air Pollution Control District, “Testing Engineered Roughness to Control Dust Emissions from Owens Lake” (01-07-13 to 31-12-16, \$423,249, PI).

California State Parks, “Oceano Dunes Particulate Matter Projects II” (01-06-12 to 31-05-16, \$549,000, Co-PI).

Great Basin Unified Air Pollution Control District, “Characterizing IPETs Flow Characteristics, Evaluating PM Sensor Applicability, and Comparison of IPETs Signal with PI-SWERL” (15-07-14 to 31-12-14, \$75,000, Co-PI).

U.S. Department of Energy, “Resuspension of Volcanic Ash” (15-09-2015 to 30-09-2018, \$728,000, Co-PI).

California State Parks, “Oceano Dunes Particulate Matter Projects III” (01-07-16 to 31-05-19, \$1,425,500, Co-PI).

US Geological Survey, “Economical Measurement System for Widespread Use in Wind Erosion and Air Quality Applications” (09-09-16 to 09-08-17, \$61,000, Co-PI).

Environmental Security Technology Certification Program (ESTCP), “Mapping, Optimization of Controls, and Reduction of Fenceline Impacts of Fugitive Dust Emissions from DoD Roads, Trails, and Training Areas: Demonstration of Tools in Practical Applications” (01-04-2017 to 31-03-2020, \$636,000, PI).

California Department of Water Resources, “Salton Sea Engineering Planning and Design Services” (01-01-2017 to 31-12-2020, Contract Partner with Tetra Tech, Inc., \$1,500,000).

Great Basin Unified Air Pollution Control District, “Full-Scale Testing Porous Engineered Roughness Elements: Sand Trapping Effectiveness” (01-02-17 to 31-12-17, \$100,000 PI).

U.S. Army Engineer Research and Development Center (ERDC), “Measuring Surface Shear Stress and Evaluating Its Relationship to Surface Albedo” (01-05-19 to 30-04-22, \$117,818 PI).

California State Parks, “Oceano Dunes Particulate Matter Projects IV” (01-07-19 to 30-06-24, \$2,066,423, Co-PI).