

Mineral Dust and Climate Bibliography
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- Abraham, F. F. (1970), Functional dependence of drag coefficient of a sphere on Reynolds number, *Phys. Fluids*, *13*, 2194–2195.
- Alfaro, S. C., and L. Gomes (1995), Improving the large-scale modeling of the saltation flux of soil particles in presence of nonerodible elements, *J. Geophys. Res.*, *100*(D8), 16,357–16,366.
- Alfaro, S. C., and L. Gomes (2001), Modeling mineral aerosol production by wind erosion: Emission intensities and aerosol size distributions in source areas, *J. Geophys. Res.*, *106*(D16), 18,075–18,084.
- Alfaro, S. C., A. Gaudichet, L. Gomes, and M. Maillé (1997), Modeling the size distribution of a soil aerosol produced by sandblasting, *J. Geophys. Res.*, *102*(D10), 11,239–11,249.
- Alfaro, S. C., A. Gaudichet, L. Gomes, and M. Maillé (1998), Mineral aerosol production by wind erosion: Aerosol particle sizes and binding energies, *Geophys. Res. Lett.*, *25*(7), 991–994.
- Alpert, P., Y. J. Kaufman, Y. Shay-El, D. Tanré, A. da Silva, S. Schubert, and J. H. Joseph (1998), Quantification of dust-forced heating of the lower troposphere, *Nature*, *395*, 367–370.
- Ammerman, J. W., R. R. Hood, D. A. Case, and J. B. Cotner (2003), Phosphorus deficiency in the Atlantic: An emerging paradigm in oceanography, *Eos Trans. AGU*, *84*(18), 165–170.
- An, Z. S., J. J. Cao, K. K. Anderson, H. Kawahata, and R. Arimoto (2005), Biogeochemical records of past global iron connections, *Submitted to Global Biogeochem. Cycles*.
- Andersen, K. K., A. Armengaud, and C. Genthon (1998), Atmospheric dust under glacial and interglacial conditions, *Geophys. Res. Lett.*, *25*(13), 2281–2284.
- Andreae, M. O. (1996), Climatic effects of changing atmospheric aerosol levels, in *Future Climates of the World: A Modelling Perspective, World Survey of Climatology*, vol. 16, edited by A. Henderson-Sellers, pp. 347–398, Elsevier, Amsterdam.
- Andreas, E. L. (1998), A new sea spray generation function for wind speeds up to 32 m s^{-1} , *J. Phys. Oceanogr.*, *28*, 2175–2184.
- Aoki, T., T. Y. Tanaka, A. Uchiyama, M. Chiba, M. Mikami, S. Yabuki, and J. R. Key (2005a), Sensitivity experiments of direct radiative forcing caused by mineral dust simulated with a chemical transport model, *J. Meteorol. Soc. Japan*, *83A*, 315–331.
- Aoki, T., et al. (2005b), Spectral albedo of desert surfaces measured in western and central China, *J. Meteorol. Soc. Japan*, *83A*, 279–290.
- Archer, D., A. Winguth, D. Lea, and N. Mahowald (2000), What caused the glacial/interglacial atmospheric $p\text{CO}_2$ cycles?, *Rev. Geophys.*, *38*(2), 159–189.
- Arimoto, R. (2001), Eolian dust and climate: relationships to sources, tropospheric chemistry, transport and deposition, *Earth Sci. Revs.*, *54*(1–3), 29–42.

- Arimoto, R., et al. (2006), Characterization of Asian dust during ACE-Asia, *In Press in Global and Planetary Changes*.
- Baas, A. C. W. (2005), Dust emission models and the propagation of a topographical error, unpublished manuscript.
- Bach, A. J., A. J. Brazel, and N. Lancaster (1996), Temporal and spatial aspects of blowing dust in the Mojave and Colorado deserts of southern California, 1993–1994, *Phys. Geography*, 17(4), 329–353.
- Balkanski, Y., M. Schulz, B. Marticorena, G. Bergametti, W. Guelle, F. Dulac, C. Moulin, and C. E. Lambert (1996), Importance of the source term and of the size distribution to model the mineral dust cycle, in *The Impact of Desert Dust Across the Mediterranean*, edited by S. Guerzoni and R. Chester, pp. 69–76, Kluwer Academic Pub., Boston, MA.
- Ballantine, J.-A. C., G. S. Okin, D. E. Prentiss, and D. A. Roberts (2005), Mapping North African landforms using continental scale unmixing of MODIS imagery, *Rem. Sens. Environ.*, 97, 470–483, doi:10.1016/j.rse.2005.04.023.
- Barkan, J., H. Kutiel, and P. Alpert (2004), Climatology of dust sources in North Africa and the Arabian Peninsula, based on TOMS data, *Indoor and Built Environment*, 13(6), 407–419, doi:10.1177/1420,326X04046,935.
- Basu, S., M. I. Richardson, and R. J. Wilson (2004), Simulation of the Martian dust cycle with the GFDL Mars GCM, *J. Geophys. Res.*, 109(E11), E11,006, doi:10.1029/2004JE002,243.
- Batt, R. G., and S. A. Peabody II (1999), Threshold friction velocities for large pebble gravel beds, *J. Geophys. Res.*, 104(D20), 24,273–24,279.
- Bauer, S. E., Y. Balkanski, M. Schulz, D. Hauglustaine, and F. Dentener (2004), Global modelling of heterogeneous chemistry on mineral aerosol surfaces: The influence on tropospheric ozone chemistry and comparison to observations, *Submitted to J. Geophys. Res.*
- Betzler, P. R., et al. (1988), Long-range transport of giant mineral aerosol particles, *Nature*, 336(6199), doi:10.1038/336,568a0, 568–571.
- Bian, H., and C. S. Zender (2003), Mineral dust and global tropospheric chemistry: Relative roles of photolysis and heterogeneous uptake, *J. Geophys. Res.*, 108(D21), 4672, doi:10.1029/2002JD003,143.
- Bigler, M., R. Röthlisberger, F. Lambert, T. F. Stocker, and D. Wagenbach (2006), Aerosol deposited in East Antarctica over the last glacial cycle: Detailed apportionment of continental and sea-salt contributions, *J. Geophys. Res.*, 111(D08205), doi:10.1029/2005JD006,469.
- Bishop, J. K. B., R. E. Davis, and J. T. Sherman (2002), Robotic observations of dust storm enhancement of carbon biomass in the North Pacific, *Science*, 298(5594), 817–821.
- Boothroyd, R. G. (1971), *Flow Gas-solids suspensions*, 289 pp., Chapman & Hall, London.
- Bopp, L., K. E. Kohfeld, C. L. Quéré, and O. Aumont (2003), Dust impact on marine biota and atmospheric CO₂ during glacial periods, *Paleoceanography*, 18(2), 1046, doi:10.1029/2002PA000,810.
- Buat-Ménard, P., and R. A. Duce (1986), Precipitation scavenging of aerosol particles over remote marine regions, *Nature*, 321, 508–510.
- Cakmur, R. V., R. Miller, and I. Tegen (2001), A comparison of seasonal and interannual variability of soil dust aerosols over the Atlantic Ocean as inferred by the TOMS AI and AVHRR AOT retrievals, *J. Geophys. Res.*, 106(D16), 18,287–18,303.
- Cakmur, R. V., R. L. Miller, and O. Torres (2004), Incorporating the effect of small-scale circulations upon dust emission in an atmospheric general circulation model, *J. Geophys. Res.*, 109(D18), D07,201, doi:10.1029/2003JD004,067.
- Cakmur, R. V., R. L. Miller, J. Perlwitz, D. Koch, I. V. Geogdzhayev, P. Ginoux, I. Tegen, and C. S. Zender (2006), Constraining the magnitude of the global dust cycle by minimizing the difference between a model and observations, *J. Geophys. Res.*, 111(D6), D06,207, doi:10.1029/2005JD005,791.

- Cess, R. D. (1985), Nuclear war: Illustrative effects of atmospheric smoke and dust upon solar radiation, *Clim. Change*, 7(2), 237–251, doi:10.1007/BF00140,508.
- Chamberlain, A. C. (1983), Roughness length of sea, sand, and snow, *Bound.-Lay. Meteorol.*, 6(2), 405–409.
- Chandler, D. G., K. E. Saxton, J. Kjelgaard, and A. J. Busacca (2002), A technique to measure fine-dust emission potentials during wind erosion, *Soil Sci. Soc. Am. J.*, 66, 1127–1133.
- Chase, Z., A. Paytan, K. S. Johnson, J. Street, and Y. Chen (2006), Input and cycling of iron in the Gulf of Aqaba, Red Sea, *Submitted to Global Biogeochem. Cycles*.
- Chatenet, B., M. Marticorena, L. Gomes, and G. Bergametti (1996), Assessing the microped size distributions of desert soils erodible by wind, *Sedimentology*, 43(5), 901–911.
- Chiapello, I., J. M. Prospero, J. R. Herman, and N. C. Hsu (1999), Detection of mineral dust over the North Atlantic Ocean and Africa with the Nimbus 7 TOMS, *J. Geophys. Res.*, 104(D8), 9277–9291.
- Christopher, S. A., J. Wang, Q. Ji, and S.-C. Tsay (2003), Estimation of diurnal shortwave dust aerosol radiative forcing during PRIDE, *J. Geophys. Res.*, 108(D19), 8596, doi:10.1029/2002JD002,787.
- Claiborn, C., B. Lamb, A. Miller, J. Beseda, B. Clode, J. Vaughan, L. Kang, and C. Newvine (1998), Regional measurements and modeling of windblown agricultural dust: The Columbia Plateau PM₁₀ Program, *J. Geophys. Res.*, 103(D16), 19,753–19,767.
- Claquin, T., M. Schulz, Y. Balkanski, and O. Boucher (1998), Uncertainties in assessing radiative forcing by mineral dust, *Tellus*, 50B(5), 491–505.
- Claquin, T., M. Schulz, and Y. J. Balkanski (1999), Modeling the mineralogy of atmospheric dust sources, *J. Geophys. Res.*, 104(D18), 22,243–22,256.
- Claquin, T., et al. (2003), Radiative forcing of climate by ice-age atmospheric dust, *Climate Dynamics*, 20, 193–202, doi:10.1007/s00,382–002–0269–1.
- Clarke, A. D., et al. (2004), Size distributions and mixtures of dust and black carbon aerosol in Asian outflow: Physiochemistry and optical properties, *J. Geophys. Res.*, 109(D15S09), doi:10.1029/2003JD004,378.
- Clow, G. D. (1987), Generation of liquid water on mars through the melting of a dusty snowpack, *Icarus*, 72, 95–127.
- Colarco, P. R., O. B. Toon, O. Torres, and P. J. Rasch (2002), Determining the UV imaginary index of refraction of Saharan dust particles from Total Ozone Mapping Spectrometer data using a three-dimensional model of dust transport, *J. Geophys. Res.*, 107(D16), doi:10.1029/2001JD000,903.
- DeMott, P. J., K. Sassen, M. R. Poellot, D. Baumgardner, D. C. Rogers, S. D. Brooks, A. J. Prenni, and S. M. Kreidenweis (2003), African dust aerosols as atmospheric ice nuclei, *Geophys. Res. Lett.*, 30(14), 1732, doi:10.1029/2003GL017,410.
- Dentener, F. J., and P. J. Crutzen (1993), Reactions of N₂O₅ on tropospheric aerosols: Impact on the global distributions of NO_x, O₃, and OH, *J. Geophys. Res.*, 98(D4), 7149–7163.
- Dickerson, R. R., S. Kondragunta, G. Stenchikov, K. L. Civerolo, B. G. Doddridge, and B. N. Holben (1997), The impact of aerosols on solar ultraviolet radiation and photochemical smog, *Science*, 278, 827–830.
- Dubovik, O., and M. D. King (2000), A flexible inversion algorithm for retrieval of aerosol optical properties from Sun and sky radiance measurements, *J. Geophys. Res.*, 105(D16), 20,673–20,696.
- Dubovik, O., A. Smirnov, B. N. Holben, M. D. King, Y. J. Kaufman, T. F. Eck, and I. Slutsker (2000), Accuracy assessments of aerosol optical properties retrieved from aeronet sun and sky-radiance measurements, *J. Geophys. Res.*, 105(D8), 9791–9806.

- Dubovik, O., B. N. Holben, T. Lapyonok, A. Sinyuk, M. I. Mishchenko, P. Yang, and I. Slutsker (2002), Non-spherical aerosol retrieval method employing light scattering by spheroids, *Geophys. Res. Lett.*, 29(10), doi:10.1029/2001GL014,506.
- Duce, R. A., et al. (1991), The atmospheric input of trace species to the world ocean, *Global Biogeochem. Cycles*, 5(3), 193–259.
- Dunion, J. P., and C. S. Velden (2004), The impact of the Saharan Air Layer on Atlantic tropical cyclone activity, *Bull. Am. Meteorol. Soc.*, 85(3), 353–365.
- Dymond, J., R. Collier, J. McManus, S. Honjo, and S. Manganini (1997), Can the aluminum and titanium contents of ocean sediments be used to determine the paleoproductivity of the oceans?, *Paleoceanography*, 12(4), 586–593.
- Egan, W. G., and T. W. Hilgeman (1979), *Optical Properties of Inhomogeneous Materials: Applications to Geology, Astronomy, Chemistry, and Engineering*, 235 pp., Academic Press, San Diego, CA.
- Elghobashi, S. (1994), On predicting particle-laden turbulent flows, *Applied Scientific Research*, 52, 309–329.
- Engelstaedter, S., and R. Washington (2007), Temporal controls on global dust emissions: The role of surface gustiness, *Geophys. Res. Lett.*, 34(15), L15,805, doi:10.1029/2007GL029,971.
- Erickson, D. J., III, J. L. Hernandez, P. Ginoux, W. W. Gregg, C. McClain, and J. Christian (2003), Atmospheric iron delivery and surface ocean biological activity in the Southern Ocean and Patagonia region, *Geophys. Res. Lett.*, 30(12), 1609, doi:10.1029/2003GL017,241.
- Evans, R. D., I. F. Jefferson, R. Kumar, K. O’Hara-Dhand, and I. J. Smalley (2004), The nature and early history of airborne dust from North Africa; in particular the Lake Chad basin, *J. African Earth Sciences*, 39, 81–87.
- Fairlie, T. D., D. J. Jacob, and R. J. Park (2007), The impact of transpacific transport of mineral dust in the United States, *Atmos. Environ.*, 41(6), 1251–1266, doi:10.1016/j.atmosenv.2006.09.048.
- Fécan, F., B. Marticorena, and G. Bergametti (1999), Parametrization of the increase of the aeolian erosion threshold wind friction velocity due to soil moisture for arid and semi-arid areas, *Annales Geophysicae*, 17, 149–157.
- Ferrante, A., and S. Elghobashi (2003), On the physical mechanisms of two-way coupling in particle-laden isotropic turbulence, *Phys. Fluids*, 15(2), 315–329.
- Forêt, G., G. Bergametti, F. Dulac, and L. Menut (2006), An optimized particle size bin scheme for modeling mineral dust aerosol, *J. Geophys. Res.*, 111(D17310), doi:10.1029/2005JD006,797.
- Fuhrer, K., E. W. Wolff, and S. J. Johnsen (1999), Timescales for dust variability in the Greenland Ice Core Project (GRIP) ice core in the last 100,000 years, *J. Geophys. Res.*, 104(D4), 31,043–31,052.
- Gabric, A. J., R. Cropp, G. P. Ayers, G. McTainsh, and R. Braddock (2002), Coupling between cycles of phytoplankton biomass and aerosol optical depth as derived from SeaWiFS time series in the Subantarctic Southern Ocean, *Geophys. Res. Lett.*, 29(7), doi:10.1029/2001GL013,545.
- Gao, Y., S.-M. Fan, and J. L. Sarmiento (2003), Aeolian iron input to the ocean through precipitation scavenging: A modeling perspective and its implication for natural iron fertilization in the ocean, *J. Geophys. Res.*, 108, 4221, doi:10.1029/2002JD002,420.
- Gehlen, M., C. Heinze, E. Maier-Reimer, and C. I. Measures (2003), Coupled Al-Si geochemistry in an ocean general circulation model: A tool for the validation of oceanic dust deposition fields?, *Global Biogeochem. Cycles*, 17(1), 1028, doi:10.1029/2001GB001,549.
- Genthon, C. (1992a), Simulations of desert dust and sea-salt aerosols in Antarctica with a general circulation model of the atmosphere, *Tellus*, 44B(4), 371–389.
- Genthon, C. (1992b), Simulations of the long range transport of desert dust and sea-salt in a general circulation model, in *Precipitation Scavenging and Atmosphere-Surface Exchange*, vol. 3, edited by S. E. Schwartz and W. G. N. Slinn, pp. 1783–1794, Hemisphere Pub. Corp., Washington, DC.

- George, J. P. (2001), Shortwave radiative forcing by mineral dust aerosols over Arabian Sea: A model study, *Current Science*, 80, 97–99.
- Giles, J. (2005), The dustiest place on earth, *Nature*, 434, 816–819.
- Gill, T. E. (1996), Eolian sediments generated by anthropogenic disturbance of playas: human impacts on the geomorphic system and geomorphic impacts on the human system, *Geomorphology*, 17(1–3), 207–228.
- Gillette, D. A. (1979), Environmental factors affecting dust emission by wind erosion, in *Saharan Dust*, edited by C. Morales, SCOPE 14, pp. 71–91, ICSU, John Wiley & Sons, New York, NY, April 25–28, 1979, Gothenburg, Sweden.
- Gillette, D. A. (1981), Production of dust that may be carried great distances, in *Desert Dust: Origin, Characteristics, and Effect on Man*, edited by T. L. Péwé, Special Paper 186, pp. 11–26, Geological Society of America, GSA, Boulder, CO.
- Gillette, D. A. (1988), Threshold friction velocities for dust production for agricultural soils, *J. Geophys. Res.*, 93(D10), 12,645–12,662.
- Gillette, D. A. (1999), A qualitative geophysical explanation for “hot spot” dust emitting source regions, *Contr. Atmos. Phys.*, 72(1), 67–77.
- Gillette, D. A., and R. Passi (1988), Modeling dust emission caused by wind erosion, *J. Geophys. Res.*, 93(D11), 14,233–14,242.
- Gillette, D. A., and P. C. Sinclair (1990), Estimation of suspension of alkaline material by dust devils in the United States, *Atmospheric Environment*, 24A(5), 1135–1142.
- Gillette, D. A., D. W. Fryrear, T. E. Gill, T. Ley, T. A. Cahill, and E. A. Gearhart (1997a), Relation of vertical flux of particles smaller than 10 μm to total aeolian horizontal mass flux at Owens Lake, *J. Geophys. Res.*, 102(D22), 26,009–26,015.
- Gillette, D. A., D. W. Fryrear, J. B. Xiao, P. Stockton, D. Ono, P. J. Helm, T. E. Gill, and T. Ley (1997b), Large-scale variability of wind erosion mass flux rates at Owens Lake 1. Vertical profiles of horizontal mass fluxes of wind-eroded particles with diameter greater than 50 μm , *J. Geophys. Res.*, 102(D22), 25,977–25,987.
- Gillette, D. A., E. Hardebeck, and J. Parker (1997c), Large-scale variability of wind erosion mass flux rates at Owens Lake 2. Role of roughness change, particle limitation, change of threshold friction velocity, and the Owen effect, *J. Geophys. Res.*, 102(D22), 25,989–25,998.
- Gillette, D. A., B. Marticorena, and G. Bergametti (1998), Change in the aerodynamic roughness height by saltating grains: Experimental assessment, test of theory, and operational parameterization, *J. Geophys. Res.*, 103(D6), 6203–6209.
- Gillette, D. A., T. C. Niemeier, and P. J. Helm (2001), Supply-limited horizontal sand drift at an ephemerally crusted, unvegetated saline playa, *J. Geophys. Res.*, 106(D16), 10.1029/2000JD900,324, 18,085–18,098.
- Golitsyn, G. S., I. G. Granberg, A. V. Andronova, V. M. Ponomarev, S. S. Zilitinkevich, V. V. Smirnov, and M. Y. Yablokov (2003), Investigation of boundary layer fine structure in arid regions: Injection of fine dust into the atmosphere, *Water, Air and Soil Pollution: Focus*, 3(2), 245–257.
- Gomes, L., G. Bergametti, G. Coudé-Gaussen, and P. Rognon (1990), Submicron desert dusts: A sandblasting process, *J. Geophys. Res.*, 95(D9), 13,927–13,935.
- Gong, S. L., X. Y. Zhang, T. L. Zhao, I. G. McKendry, D. A. Jaffe, and N. M. Lu (2003), Characterization of soil dust aerosol in China and its transport and distribution during 2001 ACE-Asia: 2. Model simulation and validation, *J. Geophys. Res.*, 108(D9), 4262 doi:10.1029/2002JD002,633.
- Goudie, A. S. (2008), The history and nature of wind erosion in deserts, *Annu. Rev. Earth Planet. Sci.*, 36, 97–119, doi:10.1146/annurev.earth.36.031,207.124,353.

- Goudie, A. S., I. Livingstone, and S. Stokes (Eds.) (1999), *Aeolian Environments, Sediments and Landforms*, British Geomorphological Research Group Symposia Series, John Wiley & Sons, Chichester, UK.
- Grassian, V. H. (2002), Chemical reactions of nitrogen oxides on the surface of oxide, carbonate, soot, and mineral dust particles: Implications for the chemical balance of the troposphere, *J. Phys. Chem. A*, *106*(6), doi:10.1021/jp012,139h, 860–877.
- Greeley, R., and J. D. Iversen (1985), *Wind as a geological process*, no. 4 in Cambridge Planetary Science Series, Cambridge Univ. Press, New York, NY.
- Greeley, R., D. G. Blumberg, and S. H. Williams (1996), Field measurements of the flux and speed of wind-blown sand, *Sedimentology*, *43*(1), 41–52, doi:10.1111/j.1365–3091.1996.tb01,458.x.
- Grenfell, T. C., and S. G. Warren (1999), Representation of a nonspherical ice particle by a collection of independent spheres for scattering and absorption of radiation, *J. Geophys. Res.*, *104*(D24), 31,697–31,709.
- Grimi, A., C. S. Zender, and P. Colarco (2002), Saltation sandblasting behavior during mineral dust aerosol production, *Geophys. Res. Lett.*, *29*(18), 1868, doi:10.1029/2002GL015,248.
- Grimi, A., G. Myhre, C. S. Zender, and I. S. A. Isaksen (2005), Model simulations of dust sources and transport in the global troposphere, *J. Geophys. Res.*, *110*(D02205), doi:10.1029/2004JD005,037.
- Guelle, W., Y. J. Balkanski, M. Schulz, F. Dulac, and P. Monfray (1998), Wet deposition in a global size-dependent aerosol transport model 1. Comparison of a 1 year ^{210}Pb simulation with ground measurements, *J. Geophys. Res.*, *103*(D10), 11,429–11,445.
- Guelle, W., Y. J. Balkanski, M. Schulz, B. Marticorena, G. Bergametti, C. Moulin, R. Arimoto, and K. D. Perry (2000), Modeling the atmospheric distribution of mineral aerosol: Comparison with ground measurements and satellite observations for yearly and synoptic timescales over the North Atlantic, *J. Geophys. Res.*, *105*(D2), 1997–2012.
- Guieu, C., R. Duce, and R. Arimoto (1994), Dissolved input of manganese to the ocean: Aerosol source, *J. Geophys. Res.*, *99*(D9), 18,789–18,800.
- Gyan, K., W. Henry, S. Lacaille, A. Laloo, C. Lamsee-Ebanks, S. McKay, R. M. Antoine, and M. A. Monteil (2005), African dust clouds are associated with increased paediatric asthma accident and emergency admissions on the Caribbean island of Trinidad, *Int. J. Biometeorol.*, *49*(6), doi:10.1007/s00,484–005–0257–3, 371–376.
- Hamonou, E., P. Chazette, D. Balis, F. Dulac, X. Schneider, E. Galani, G. Ancellet, and A. Papayannis (1999), Characterization of the vertical structure of Saharan dust export to the Mediterranean basin, *J. Geophys. Res.*, *104*(D18), 22,257–22,270.
- Hand, J. L., N. Mahowald, Y. Chen, R. Siefert, C. Luo, and I. Fung (2004), Estimates of soluble iron from observations and a global mineral aerosol model: Biogeochemical implications, *Submitted to J. Geophys. Res.*
- Hänel, G. (1976), The properties of atmospheric aerosol particles as functions of the relative humidity at thermodynamic equilibrium with the surrounding moist air, *Adv. Geophys.*, *19*, 73–188.
- Harrison, S. P., K. E. Kohfeld, C. Roelandt, and T. Claquin (2001), The role of dust in climate changes today, at the last glacial maximum and in the future, *Earth Sci. Revs.*, *54*(1–3), 43–80.
- Haywood, J., et al. (2003), Radiative properties and direct radiative effect of saharan dust measured by the C-130 aircraft during Saharan Dust Experiment (SHADE): 1. Solar spectrum, *J. Geophys. Res.*, *108*(D18), 8577, doi:10.1029/2002JD002,687.
- He, S., and G. R. Carmichael (1999), Sensitivity of photolysis rates and ozone production in the troposphere to aerosol properties, *J. Geophys. Res.*, *104*(7), 26,307–26,324.
- Heintzenberg, J. (1989), Fine particles in the global troposphere: A review, *Tellus*, *41B*, 149–160.
- Herman, J. R., P. K. Bhartia, O. Torres, C. Hsu, C. Seftor, and E. Celarier (1997), Global distribution of UV-absorbing aerosols from Nimbus 7/TOMS data, *J. Geophys. Res.*, *102*(D14), 16,911–16,922.

- Hess, M., P. Koepke, and I. Schult (1998), Optical properties of aerosols and clouds: The software package OPAC, *Bull. Am. Meteorol. Soc.*, 79(5), 831–844.
- Highwood, E. J., J. M. Haywood, M. D. Silverstone, S. M. Newman, and J. P. Taylor (2003), Radiative properties and direct effect of saharan dust measured by the C-130 aircraft during Saharan Dust Experiment (SHADE): 2. Terrestrial spectrum, *J. Geophys. Res.*, 108(D18), 8578, doi:10.1029/2002JD002,552.
- Hillel, D. (1982), *Introduction to Soil Physics*, Academic Press, San Diego CA.
- Hinkley, T., F. Pertsiger, and L. Zavjalova (1997), The modern atmospheric background dust load: recognition in Central Asian snowpack, and compositional constraints, *Geophys. Res. Lett.*, 24(13), 1607–1610.
- Hinkley, T. K. (1992), Variation of rock-forming metals in sub-annual increments of modern Greenland snow, *Atmos. Env.*, 26A(13), 2283–2293.
- Hiscox, A. L., D. R. Miller, B. A. Holmen, W. Yang, and J. Wang (2007), Near field dust exposure from cotton field tilling and harvesting, *Submitted to J. Environ. Qual.*
- Huebert, B. J., T. Bates, P. B. Russell, G. Shi, Y. J. K. adn K. Kawamura, G. Carmichael, and T. Nakajima (2003), An overview of ACE-Asia: strategies for quantifying the relationships between Asian aerosols and their climatic impacts, *Submitted to J. Geophys. Res.*
- Huebert, B. J., et al. (2004), PELTI: Measuring the passing efficiency of an airborne low turbulence aerosol inlet, *In Press in Aerosol Sci. Technol.*
- Husar, R. B., J. M. Prospero, and L. L. Stowe (1997), Characterization of tropospheric aerosols over the oceans with the NOAA advanced very high resolution radiometer optical thickness operational product, *J. Geophys. Res.*, 102(D14), 16,889–16,909.
- Ichoku, C., et al. (1999), Interrelationships between aerosol characteristics and light scattering during late winter in an Eastern Mediterranean arid environment, *J. Geophys. Res.*, 104(D20), 24,371–24,393.
- in Semiarid Soils Using Airborne Hyperspectral Technology, M. I. R. (2004), E. ben-dor and n. goldshalager and o. braun and b. kindel and a. f. h. goetz and d. bonfil and m. agassi and n. margalait and y. binayminy and a. karnieli, *Int. J. Remote Sensing*, 25(13), 2607–2624, doi:10.1080/01431160310001642,322.
- Ivanova, D., D. L. Mitchell, W. P. Arnott, and M. Poellot (2001), A GCM parameterization for bimodal size spectra and ice mass removal rates in mid-latitude cirrus clouds, *Atmospheric Research*, 59–60, 89–113.
- Iversen, J. D., and B. R. White (1982), Saltation threshold on Earth, Mars, and Venus, *Sedimentology*, 29, 111–119.
- Jickells, T. D., et al. (2005), Global iron connections between desert dust, ocean biogeochemistry, and climate, *Science*, 308(5718), 67–71, doi:10.1126/science.1105,959.
- Johnson, K. S. (2001), Iron supply and demand in the upper ocean: Is extraterrestrial dust a significant source of bioavailable iron?, *Global Biogeochem. Cycles*, 15(1), 61–63, doi:10.1029/2000GB001,295.
- Johnson, K. S., J. K. Moore, and W. O. Smith (2002), Workshop highlights iron dynamics in ocean carbon cycle, *Eos Trans. AGU*, 83(43), 482–484.
- Joussame, S. (1990), Three-dimensional simulations of the atmospheric cycle of desert dust particles using a general circulation model, *J. Geophys. Res.*, 95(D2), 1909–1941.
- Justus, C. G., W. R. Hargraves, A. Mikhail, and D. Graber (1978), Methods for estimating wind speed frequency distributions, *J. Appl. Meteorol.*, 17(3), 350–353.
- Kahn, R. A., B. J. Gaitley, J. V. Martonchik, D. J. Diner, K. A. Crean, and B. Holben (2004), MISR global aerosol optical depth validation based on two years of coincident AERONET observations, *In Press in J. Geophys. Res.*
- Kalashnikova, O. V., and I. N. Sokolik (2004), Modeling the radiative properties of nonspherical soil-derived mineral aerosols, *J. Quant. Spectrosc. Radiat. Transfer*, 87(2), 137–166.

- Kalashnikova, O. V., D. J. Diner, R. Kahn, and B. Gaitley (2005a), Dust aerosol retrieval results from misr, *SPIE*.
- Kalashnikova, O. V., R. Kahn, I. N. Sokolik, and W.-H. Li (2005b), The ability of multi-angle remote sensing observations to identify and distinguish mineral dust types: Part 1. Optical models and retrievals of optically thick plumes, *Submitted to J. Geophys. Res.*
- Karyampudi, V. M., et al. (1999), Validation of the Saharan dust plume conceptual model using lidar, Meteosat, and ECMWF data, *Bull. Am. Meteorol. Soc.*, 80(6), 1045–1075.
- Kaufman, Y. J., D. Tanré, O. Dubovik, A. Karnieli, and L. A. Remer (2001), Absorption of sunlight by dust as inferred from satellite and ground-based remote sensing, *Geophys. Res. Lett.*, 28, 1479–1482.
- King, M. D., Y. J. Kaufman, D. Tanré, and T. Nakajima (1999), Remote sensing of tropospheric aerosols from space: Past, present, and future, *Bull. Am. Meteorol. Soc.*, 80(11), 2229–2259.
- Koch, J., and N. O. Renno (2005), The role of convective plumes and vortices on the global aerosol budget, *Geophys. Res. Lett.*, 32, L18,806, doi:10.1029/2005GL023,420.
- Kohfeld, K. E., and S. P. Harrison (2001), DIRTMAP: The geologic record of dust, *Earth Sci. Revs.*, 54(1–3), 81–114.
- Kohfeld, K. E., R. L. Reynolds, J. D. Pelletier, and B. Nickling (2005), Linking the scales of observation, process, and modeling of dust emissions, *Eos Trans. AGU*, 86(11), 113–114.
- Kokhanovsky, A. A., T. Aoki, A. Hachikubo, M. Hori, and E. P. Zege (2005), Reflective properties of natural snow: Approximate asymptotic theory versus *In Situ* measurements, *IEEE Trans. Geosci. Rem. Sens.*, 43(7), 1529–1535.
- Komatsu, K., et al. (2003), Increase in coccidioidomycosis — Arizona, 1998–2001, *Morbidity and Mortality Weekly Report*, 52(6), 109–112.
- Koren, I., and Y. J. Kaufman (2004), Direct wind measurements of Saharan dust events from Terra and Aqua satellites, *Geophys. Res. Lett.*, 31, L06,122, doi:10.1029/2003GL019,338.
- Koven, C. D., and I. Fung (2008), Identifying global dust source areas using high resolution land surface form, *Submitted to J. Geophys. Res.*
- Krinner, G., O. Boucher, and Y. Balkanski (2006), Ice-free glacial northern Asia due to dust deposition on snow, *Clim. Dyn.*, 27, 613–625, doi:10.1007/s00,382–006–0159–z.
- Krueger, B. J., V. H. Grassian, A. Laskin, and J. P. Cowin (2003), The transformation of solid atmospheric particles into liquid droplets through heterogeneous chemistry: Laboratory insights into the processing of calcium containing mineral dust aerosol in the troposphere, *Geophys. Res. Lett.*, 30(3), 1148, doi:10.1029/2002GL016,563.
- Kurosaki, Y., and M. Mikami (2003), Recent frequent dust events and their relation to surface wind in East Asia, *Geophys. Res. Lett.*, 30(14), 1736, doi:10.1029/2003GL017,261.
- Kurosaki, Y., and M. Mikami (2004), Effect of snow cover on threshold wind velocity of dust outbreaks, *Geophys. Res. Lett.*, 31, L03,106, doi:10.1029/2003GL018,632.
- Lacaze, R., J.-L. Roujean, and J.-P. Goutorbe (1999), Spatial distribution of Sahelian land surface properties from airborne POLDER multiangular observations, *J. Geophys. Res.*, 104(D10), 12,131–12,146.
- Lacis, A. A., and M. I. Mishchenko (1995), Climate forcing, climate sensitivity, and climate response: A radiative modeling perspective on atmospheric aerosols, in *Aerosol Forcing of Climate*, edited by R. J. Charlson and J. Heintzenberg, pp. 11–42, Dahlem Workshop, John Wiley & Sons, New York, NY.
- Landing, W. M., J. J. Perry, Jr., J. L. Guentzel, G. A. Gill, and C. D. Pollman (1995), Relationships between the atmospheric deposition of trace elements, major ions, and mercury in Florida: the FAMS project (1992–1994), *Water Air Soil Pollut.*, 80, 343–352.
- Lasserre, F., et al. (2005), Build-up and validation of a simple mineral dust source inventory suitable for modelling in North Central China, *Submitted to Atmos. Env.*

- Léon, J.-F., and M. Legrand (2003), Mineral dust sources in the surroundings of the north Indian Ocean, *Geophys. Res. Lett.*, *30*(6), 1309, doi:10.1029/2002GL016,690.
- Levin, Z., and E. Ganor (1996), The effects of desert particles on cloud and rain formation in the Eastern Mediterranean, in *The Impact of Desert Dust Across the Mediterranean*, edited by S. Guerzoni and R. Chester, pp. 77–86, Kluwer Academic Pub., Boston, MA.
- Leys, J. F., and M. R. Raupach (1991), Soil flux measurements using a portable wind erosion tunnel, *Aust. J. Soil Res.*, *29*, 533–552.
- Li, F., P. Ginoux, and V. Ramaswamy (2008), The distribution, transport, and deposition of mineral dust in the Southern Ocean and Antarctica: Contribution of major sources, *Submitted to J. Geophys. Res.*
- Li, X., H. Maring, D. Savoie, K. Voss, and J. M. Prospero (1996), Dominance of mineral dust in aerosol light-scattering in the north Atlantic trade winds, *Nature*, *380*, 416–419.
- Li, Z.-L., F. Becker, M. P. Stoll, Z. Wan, and Y. Zhang (1999), Channel selection for soil spectrum reconstruction in 8–13 μm region, *J. Geophys. Res.*, *104*(D18), 22,271–22,285.
- Liao, H., and J. H. Seinfeld (1998), Radiative forcing by mineral dust aerosols: sensitivity to key variables, *J. Geophys. Res.*, *103*(D24), 31,637–31,645.
- Lin, Z., H. Lei, J. K. Levy, J. Sun, and M. L. Bell (2007), The impact of land surface processes on dust storm simulations in Northern China, *Submitted to Geophys. Res. Lett.*
- Lohmann, U., J. Feichter, C. C. Chuang, and J. E. Penner (1999), Prediction of the number of cloud droplets in the ECHAM GCM, *J. Geophys. Res.*, *104*(D8), 9169–9198.
- Long, L. L., M. R. Querry, R. J. Bell, and R. W. Alexander (1993), Optical properties of calcite and gypsum in crystalline and powdered form in the infrared and far-infrared, *Infrared Physics*, *34*(2), 191–201.
- Lu, H., and Y. Shao (1999), A new model for dust emission by saltation bombardment, *J. Geophys. Res.*, *104*(D14), 16,827–16,842.
- Lubin, D., J.-P. Chen, P. Pilewskie, V. Ramanathan, and F. P. J. Valero (1996), Microphysical examination of excess cloud absorption in the tropical atmosphere, *J. Geophys. Res.*, *101*(D12), 16,961–16,972.
- Lunt, D. J., and P. J. Valdes (2002), The modern dust cycle: Comparison of model results with observation and study of sensitivities, *J. Geophys. Res.*, *107*(D23), 4669, doi:10.1029/2002JD002,316.
- Luo, C., N. M. Mahowald, and J. del Corral (2003), Sensitivity study of meteorological parameters on mineral aerosol mobilization, transport, and distribution, *J. Geophys. Res.*, *108*(D15), 4447, doi:10.1029/2003JD003,483.
- Luo, C., N. M. Mahowald, N. Meskhidze, Y. Chen, R. L. Siefert, A. R. Baker, and A. M. Johansen (2005), Estimation of iron solubility from observations and a global aerosol model, *J. Geophys. Res.*, *110*, D23,307, doi:10.1029/2005JD0060,059.
- Mahowald, N., K. Kohfeld, M. Hansson, Y. Balkanski, S. P. Harrison, I. C. Prentice, M. Schulz, and H. Rodhe (1999), Dust sources and deposition during the last glacial maximum and current climate: A comparison of model results with paleodata from ice cores and marine sediments, *J. Geophys. Res.*, *104*(D3), 15,895–15,916.
- Mahowald, N. M., and J.-L. Dufresne (2004), Sensitivity of TOMS aerosol index to boundary layer height: Implications for detection of mineral aerosol sources, *Geophys. Res. Lett.*, *31*(3), L03,103, doi:10.1029/2003GL018,865.
- Mahowald, N. M., and C. Luo (2003), A less dusty future?, *Geophys. Res. Lett.*, *30*, 1903, doi:10.1029/2003GL017,880.
- Mahowald, N. M., A. R. Baker, G. Bergametti, N. Brooks, R. A. Duce, T. D. Jickells, N. Kubilay, J. M. Prospero, and I. Tegen (2005), Atmospheric global dust cycle and iron inputs to the ocean, *Global Biogeochem. Cycles*, *19*(GB4025), doi:10.1029/2004GB002,402.

- Marticorena, B., G. Bergametti, B. Aumont, Y. Callot, C. N'Doumé, and M. Legrand (1997), Modeling the atmospheric dust cycle: 2. Simulation of Saharan dust sources, *J. Geophys. Res.*, *102*(D4), doi:10.1029/96JD02,964, 4387–4404.
- Marticorena, B., G. Bergametti, and M. Legrand (1999), Comparison of emission models used for large scale simulation of the mineral dust cycle, *Contr. Atmos. Phys.*, *72*(2), 151–160.
- Martin, J. H. (1990), Glacial-interglacial CO₂ change: The iron hypothesis, *Paleoceanography*, *5*, 1–13.
- Martin, J. H., and S. E. Fitzwater (1988), Iron-deficiency limits phytoplankton growth in the northeast Pacific subarctic, *Nature*, *331*(6154), 341–343.
- Mbourou, G. N., J. J. Bertrand, and S. E. Nicholson (1997), The diurnal and seasonal cycles of wind-borne dust over Africa north of the equator, *J. Appl. Meteorol.*, *36*, 868–882.
- McConnell, J. R., A. J. Aristarain, J. R. Banta, P. R. Edwards, and J. C. S. oes (2006), 20th century doubling in dust archived in an Antarctic Peninsula ice core parallels climate change and desertification in South America, *Proc. Natl. Acad. Sci.*, *104*(14), 5743–5748, doi:10.1073/pnas.0607657,104.
- McKenna-Neuman, C. (2003), Effects of temperature and humidity upon the entrainment of sedimentary particles by wind, *Bound.-Lay. Meteorol.*, *108*(1), 61–89.
- McTainsh, G. H., B. M. Love, J. F. Leys, and C. Strong (2002), Wind erodibility of arid lands in the Channel Country of western Queensland, Australia: A sequel (1994–2000), *Proceedings of ICAR5/GCTE-SEN Joint Conference*, pp. 179–183.
- Menut, L., C. Schmechtig, and B. Marticorena (2005), Sensitivity of the sandblasting fluxes calculations to the soil size distribution accuracy: An operational numerical method, *J. Atmos. Ocean. Tech.*, *22*(12), 1875–1884.
- Menut, L., G. Forêt, and G. Bergametti (2007), Sensitivity of mineral dust concentrations to the model size distribution accuracy, *J. Geophys. Res.*, *112*(D10210), doi:10.1029/2006JD007,766.
- Michel, A. E., C. R. Usher, and V. H. Grassian (2002), Heterogeneous and catalytic uptake of ozone on mineral oxides and dust: A Knudsen cell investigation, *Geophys. Res. Lett.*, *29*(14), doi:10.1029/2002GL014,896.
- Michel, A. E., C. R. Usher, and V. H. Grassian (2003), Reactive uptake of ozone on mineral oxides and mineral dusts, *Atmos. Env.*, *37*, doi:10.1016/S1352–2310(03)00,319–4, 3201–3211.
- Miller, R. L., and I. Tegen (1998a), Climate response to soil dust aerosols, *J. Clim.*, *11*(12), 3247–3267.
- Miller, R. L., and I. Tegen (1998b), Radiative forcing of a tropical direct circulation by soil dust aerosols, *Submitted to J. Atmos. Sci.*
- Miller, R. L., I. Tegen, and J. Perlwitz (2003), Surface radiative forcing by soil dust aerosols and the hydrologic cycle, *Submitted to J. Geophys. Res.*
- Miller, R. L., et al. (2006), Mineral dust aerosols in the NASA Goddard Institute for Space Studies ModelE atmospheric general circulation model, *J. Geophys. Res.*, *111*(D6), D06,208, doi:2005JD005,796.
- Mishchenko, M. I., L. D. Travis, R. A. Kahn, and R. A. West (1997), Modeling phase functions for dustlike tropospheric aerosols using a shape mixture of randomly oriented polydisperse spheroids, *J. Geophys. Res.*, *102*(D14), 16,831–16,847.
- Mitchell, D. L. (1996), Use of mass- and area-dimensional power laws for determining precipitation particle terminal velocities, *J. Atmos. Sci.*, *53*(12), 1710–1723.
- Molotch, N. P., T. H. Painter, R. C. Bales, and J. Dozier (2004), Incorporating remotely-sensed snow albedo into a spatially-distributed snowmelt model, *Geophys. Res. Lett.*, *31*, L03,501, doi:10.1029/2003GL019,063.
- Moore, J. K., M. R. Abbott, J. G. Richman, and D. M. Nelson (2000), The Southern Ocean at the last glacial maximum: A strong sink for atmospheric carbon dioxide, *Global Biogeochem. Cycles*, *14*(1), 455–475.

- Moore, J. K., S. C. Doney, K. Lindsay, and N. Mahowald (2005), Mineral dust deposition, ocean biogeochemistry, and air-sea CO₂ exchange: Quantifying climate feedbacks at decadal timescales, *Submitted to Science*.
- Morcrette, J.-J., A. Beljaars, A. Benedetti, L. Jones, and O. Boucher (2008), Sea-salt and dust aerosols in the ECMWF IFS model, *Geophys. Res. Lett.*, *35*(L24813), doi:10.1029/2008GL036,041.
- Motoyoshi, H., T. Aoki, M. Hori, O. Abe, and S. Mochizuki (2005), Possible effect of anthropogenic aerosol deposition on snow albedo reduction at Shinjo, Japan, *J. Meteorol. Soc. Japan*, *83A*, 137–148.
- Moulin, C., C. E. Lambert, J. Poitou, and F. Dulac (1996), Long term (1983–1994) calibration of the Meteosat solar (VIS) channel using desert and ocean targets, *Int. J. Remote Sensing*, *17*(6), 1183–1200.
- Moulin, C., F. Dulac, C. E. Lambert, P. Chazette, I. Jankowiak, B. Chatenet, and F. Lavenu (1997a), Long-term daily monitoring of Saharan dust load over ocean using Meteosat ISCCP-B2 data 2. Accuracy of the method and validation using Sun photometer measurements, *J. Geophys. Res.*, *102*(D4), 16,959–16,969.
- Moulin, C., F. Guillard, F. Dulac, and C. E. Lambert (1997b), Long-term daily monitoring of Saharan dust load over ocean using Meteosat ISCCP-B2 data 1. Methodology and preliminary results for 1983–1994 in the Mediterranean, *J. Geophys. Res.*, *102*(D4), 16,947–16,958.
- Moulin, C., C. E. Lambert, F. Dulac, and U. Dayan (1997c), Control of atmospheric export of dust from North Africa by the North Atlantic Oscillation, *Nature*, *387*, 691–694.
- Muhs, D. R. (1983), Airborne dust fall on the California Channel Islands, U.S.A., *J. Arid Environ.*, *6*, 233–238.
- Myhre, G., and F. Stordal (2001), Global sensitivity experiments of the radiative forcing due to mineral aerosols, *J. Geophys. Res.*, *106*(D16), 18,193–18,204.
- Myhre, G., A. Grini, J. M. Haywood, F. Stordal, B. Chatenet, D. Tanré, J. K. Sundet, and I. S. A. Isaksen (2003), Modeling the radiative impact of mineral dust during the Saharan Dust Experiment (SHADE) campaign, *J. Geophys. Res.*, *108*(D18), 8579, doi:10.1029/2002JD002,566.
- Myhre, G. A., et al. (2004), Intercomparison of satellite retrieved aerosol optical depth over ocean, *J. Atmos. Sci.*, *61*, 499–513.
- Namikas, S. L. (2003), Field measurement and numerical modelling of aeolian mass flux distributions on a sandy beach, *Sedimentology*, *50*(2), 303–326, doi:10.1046/j.1365–3091.2003.00,556.x.
- Namikas, S. L., and D. J. Sherman (1997), Predicting aeolian sand transport: revisiting the White model, *Earth Surf. Process. Landf.*, *22*(6), 601–604.
- Newman, C. E., S. R. Lewis, P. L. Read, and F. Forget (2002), Modeling the Martian dust cycle. 1. Representations of dust transport processes, *J. Geophys. Res.*, *107*(E12), 5123, doi:10.1029/2002JE001,910.
- Nicholson, S. E., C. J. Tucker, and M. B. Ba (1998), Desertification, drought, and surface vegetation: An example from the West African Sahel, *Bull. Am. Meteorol. Soc.*, *79*(5), 815–829.
- Nickovic, S., G. Kallos, A. Papadopoulos, and O. Kakaliagou (2001), A model for prediction of desert dust cycle in the atmosphere, *J. Geophys. Res.*, *106*(D16), 18,113–18,129.
- Ničković, S., and S. Dobričić (1996), A model for long-rang transport of desert dust, *Mon. Weather Rev.*, *124*(11), 2537–2544.
- NRC (1996), *Aerosol Radiative Forcing and Climate Change*, National Academy Press, Washington, DC.
- of Multi-Angle Remote Sensing Observations to Identify, T. A., and D. M. D. T. P. data analysis (2005), Olga v. kalashnikova and ralph kahn and wen-hao li, *Submitted to J. Geophys. Res.*
- Okin, G. S. (2008), A new model of wind erosion in the presence of vegetation, *J. Geophys. Res.*, *113*(F02S10), doi:10.1029/2007JF000,758.

- Okin, G. S., and T. H. Painter (2004), Effect of grain size on spectral reflectance of sandy desert surfaces, *Rem. Sens. Environ.*, 89(3), 272–280.
- Okin, G. S., N. Mahowald, O. A. Chadwick, and P. Artaxo (2003), The impact of desert dust on the biogeochemistry of phosphorus in terrestrial ecosystems, *Submitted to J. Geophys. Res.*
- Overpeck, J., D. Rind, A. Lacis, and R. Healy (1996), Possible role of dust-induced regional warming in abrupt climate change during the last glacial period, *Nature*, 384, 447–449, doi:10.1038/384,447a0.
- Owen, P. R. (1964), Saltation of uniform grains in air, *J. Fluid. Mech.*, 20(2), 225–242.
- Painter, T. H., B. Duval, W. H. Thomas, M. Mendez, S. Heintzelman, and J. Dozier (2001), Detection and quantification of snow algae with an airborne imaging spectrometer, *Appl. Environ. Microbiol.*, 67(11), 5267–5272, doi:10.1128/AEM.67.11.5267.
- Pandis, S. N., A. S. Wexler, and J. H. Seinfeld (1995), Dynamics of tropospheric aerosols, *J. Phys. Chem.*, 99(24), 9646–9659.
- Pankine, A. A., and A. P. Ingersoll (2002), Interannual variability of Martian global dust storms: Simulations with a low-order model of the general circulation, *Icarus*, 155(2), 299–323.
- Patterson, E. M. (1981), Optical properties of the crustal aerosol: Relation to chemical and physical characteristics, *J. Geophys. Res.*, 86(C4), 3236–3246.
- Patterson, E. M., and D. A. Gillette (1977), Commonalities in measured size distributions for aerosols having a soil-derived component, *J. Geophys. Res.*, 82(15), 2074–2082.
- Patterson, E. M., D. A. Gillette, and B. H. Stockton (1977), Complex index of refraction between 300 and 700 nm for Saharan aerosols, *J. Geophys. Res.*, 82(21), 3153–3160.
- Peltier, W. R., and S. Marshall (1995), Coupled energy-balance/ice-sheet model simulations of the glacial cycle: A possible connection between terminations and terrigenous dust, *J. Geophys. Res.*, 100(D7), 14,269–14,289.
- Perlwitz, J., I. Tegen, and R. L. Miller (2001), Interactive soil dust aerosol model in the GISS GCM. Part I: Sensitivity of the soil dust cycle to radiative properties of soil dust aerosols, *J. Geophys. Res.*, 106(D16), 18,167–18,192.
- Perry, K. D., and T. A. Cahill (1999), Long-range transport of anthropogenic aerosols to the National Oceanic and Atmospheric Administration baseline station at Mauna Loa Observatory, Hawaii, *J. Geophys. Res.*, 104, 18,521–18,533.
- Perry, K. D., T. A. Cahill, R. A. Eldred, and D. D. Dutcher (1997), Long-range transport of North African dust to the eastern United States, *J. Geophys. Res.*, 102, 11,225–11,238.
- Péwé, T. L. (Ed.) (1981), *Desert Dust: Origin, Characteristics, and Effect on Man*, Geological Society of America, Boulder, CO, special Paper 186.
- Piketh, S. J., H. J. Annegarn, and P. D. Tyson (1999), Lower tropospheric aerosol loading over South Africa: The relative contribution of aeolian dust, industrial emissions, and biomass burning, *J. Geophys. Res.*, 104(D1), 1597–1607.
- Pilinis, C., and X. Li (1998), Particle shape and internal inhomogeneity effects on the optical properties of tropospheric aerosols of relevance to climate forcing, *J. Geophys. Res.*, 103(D4), 3789–3800.
- Pollack, J. B., O. B. Toon, T. P. Ackerman, C. P. McKay, and R. P. Turco (1983), Environmental effects of an impact-generated dust cloud: Implications for the Cretaceous-Tertiary extinctions, *Science*, 219, 287–289.
- Prigent, C., W. B. Rossow, E. Matthews, and B. Marticorena (1999), Microwave radiometric signatures of different surface types in deserts, *J. Geophys. Res.*, 104(D10), 12,147–12,158.

- Prospero, J. M. (1996a), Saharan dust transport over the North Atlantic Ocean and Mediterranean: An overview, in *The Impact of Desert Dust Across the Mediterranean*, edited by S. Guerzoni and R. Chester, pp. 133–151, Kluwer AcadPub., Boston, MA.
- Prospero, J. M. (1996b), The atmospheric transport of particles to the ocean, in *Particle Flux in the Ocean, SCOPE*, vol. 57, edited by V. Ittekkot, P. Schäfer, S. Honjo, and P. J. Depetris, pp. 19–52, John Wiley & Sons Ltd., New York.
- Prospero, J. M. (1999), Long-term measurements of the transport of African mineral dust to the southeastern United States: Implications for regional air quality, *J. Geophys. Res.*, *104*(D13), 15,917–15,928.
- Prospero, J. M., and R. T. Nees (1977), Dust concentration in the atmosphere of the Equatorial North Atlantic: Possible relationship to the sahelian drought, *Science*, *196*(4295), 1196–1198.
- Prospero, J. M., and R. T. Nees (1986), Impact of the North African drought and El Niño on mineral dust in the Barbados trade winds, *Nature*, *320*, 735–738, doi:10.1038/320,735a0.
- Prospero, J. M., D. L. Savoie, T. N. Carlson, and R. T. Nees (1979), Monitoring Saharan aerosol transport by means of atmospheric turbidity measurements, in *Saharan Dust*, edited by C. Morales, SCOPE 14, pp. 71–91, ICSU, John Wiley & Sons, New York, NY, April 25–28, 1997, Gothenburg, Sweden.
- Prospero, J. M., E. Blades, G. Mathison, and R. Naidu (2005), Interhemispheric transport of viable fungi and bacteria from Africa to the Caribbean with soil dust, *In Press in Aerobiologia*.
- Pye, K. (1987), *Aeolian Dust and Dust Deposits*, Academic Press, New York, NY.
- Querry, M. R., G. C. Osbourn, K. Lies, R. Jordon, and R. M. Coveney, Jr. (1978), Complex refractive index of limestone in the visible and infrared, *Appl. Opt.*, *17*(3), 353–356.
- Quijano, A. L., I. N. Sokolik, and O. B. Toon (2000), Radiative heating rates and direct radiative forcing by mineral dust in cloudy atmospheric conditions, *J. Geophys. Res.*, *105*, 12,207–12,219.
- Ram, M., and G. Koenig (1997), Continuous dust concentration profile of pre-Holocene ice from the Greenland Ice Sheet Project 2 ice core: Dust stadials, interstadials, and the Eemian, *J. Geophys. Res.*, *102*(C12), 26,641–26,648.
- Ramaswamy, V., and J. T. Kiehl (1985), Sensitivities of the radiative forcing due to large loadings of smoke and dust aerosols, *J. Geophys. Res.*, *90*(D3), 5597–5613.
- Raphael, M. N. (2003), The Santa Ana winds of California, *Earth Interactions*, *7*(8), 15.
- Raupach, M. R. (1991), Saltation layers, vegetation canopies and roughness lengths, *Acta Mechanica*, *1*, 83–96.
- Raupach, M. R. (1992), Drag and drag partition on rough surfaces, *Bound.-Lay. Meteorol.*, *60*, 375–395.
- Raupach, M. R. (1994), Simplified expressions for vegetation roughness length and zero-plane displacement as functions of canopy height and area index, *Bound.-Lay. Meteorol.*, *71*, 211–216.
- Raupach, M. R., and H. Lu (2004), Representation of land-surface processes in aeolian transport models, *Environmental Modelling and Software*, *19*(2), 93–112.
- Raupach, M. R., D. A. Gillette, and J. F. Leys (1993), The effect of roughness elements on wind erosion threshold, *J. Geophys. Res.*, *98*(D2), 3023–3029.
- Raupach, M. R., P. R. Briggs, N. Ahmad, and V. E. Edge (2001a), Endosulfan transport II. Modeling airborne dispersal and deposition by spray and vapor, *J. Environ. Qual.*, *30*(3), 729–740.
- Raupach, M. R., P. R. Briggs, P. W. Ford, J. F. Leys, M. Muschal, B. Cooper, and V. Edge (2001b), Endosulfan transport I. Integrative assessment of airborne and waterborne pathways, *J. Environ. Qual.*, *30*(3), 714–728.
- Reader, M. C., I. Fung, and N. McFarlane (1999a), The mineral dust aerosol cycle during the Last Glacial Maximum, *J. Geophys. Res.*, *104*(D8), 9381–9398.

- Reader, M. C., I. Fung, and N. McFarlane (1999b), Correction to “the mineral dust aerosol cycle during the Last Glacial Maximum”, *J. Geophys. Res.*, *104*(D18), 22,319–22,320.
- Reddy, M. S., O. Boucher, N. Bellouin, M. Schulz, Y. Balkanski, J.-L. Dufresne, and M. Pham (2005), Estimates of global multicomponent aerosol optical depth and direct radiative perturbation in the Laboratoire de Météorologie Dynamique general circulation model, *J. Geophys. Res.*, *110*(D10S16), doi:10.1029/2004JD004757).
- Reheis, M. C. (1997), Dust deposition downwind of Owens (dry) Lake, 1991–1994: Preliminary findings, *J. Geophys. Res.*, *102*(D22), 25,999–26,008.
- Reid, E. A., J. S. Reid, M. M. Meier, M. R. Dunlap, S. S. Cliff, A. Broumas, K. Perry, and H. Maring (2003a), Characterization of African dust transported to Puerto Rico by individual particle and size segregated bulk analysis, *J. Geophys. Res.*, *108*(D19), 8591, doi:10.1029/2002JD002,935.
- Reid, J. S., et al. (2003b), Comparison of size and morphological measurements of coarse mode dust particles from Africa, *J. Geophys. Res.*, *108*(D19), 8593, doi:10.1029/2002JD002,485.
- Roberts, H. M., D. R. Muhs, A. G. Wintle, G. A. T. Duller, and E. A. Bettis, III (2003), Unprecedented last-glacial mass accumulation rates determined by luminescence dating of loess from western Nebraska, *Quaternary Research*, *59*, 411–419.
- Robertson, A., et al. (2001), Hypothesized climate forcing time series for the last 500 years, *J. Geophys. Res.*, *106*(D14), 14,783–14,803.
- Rosenfeld, D., Y. Rudich, and R. Lahav (2001), Desert dust suppressing precipitation: A possible desertification feedback loop, *Proc. Natl. Acad. Sci.*, *98*, 5975–5980.
- Roush, T., J. Pollack, and J. Orenberg (1991), Derivation of midinfrared (5–25 μm) optical constants of some silicates and palagonite, *Icarus*, *94*, 191–208.
- Roush, T. L. (2005), Near-infrared (0.67–4.7 μm) optical constants estimated for montmorillonite, *Icarus*, *179*, 259–264, doi:10.1016/j.icarus.2005.06.004.
- Ruddiman, W. F. (1997), Tropical Atlantic terrigenous fluxes since 25,000 yrs B.P., *Marine Geology*, *136*, 189–207.
- Ruhnke, L. H., and A. Deepak (Eds.) (1984), *Hygroscopic Aerosols*, Workshop on Hygroscopic Aerosols in the Boundary Layer, A. Deepak Publishing, Hampton, VA.
- S., L., I. N. Sokolik, J. L. Rajot, S. Caquineau, and A. Gaudichet (2006), Characterization of iron oxides: implications to light absorption by mineral dust aerosols, *In Press in J. Geophys. Res.*
- Sassen, K., P. J. DeMott, J. M. Prospero, and M. R. Poellot (2003), Saharan dust storms and indirect aerosol effects on clouds: CRYSTAL-FACE results, *Geophys. Res. Lett.*, *30*(12), 1633, doi:10.1029/2003GL017,371.
- Saxton, K., D. Chandler, L. Stetler, B. Lamb, C. Claiborn, and B.-H. Lee (2000), Wind erosion and fugitive dust fluxes on agricultural lands in the Pacific Northwest, *Trans. of the ASAE*, *43*(3), 623–630.
- Schaaf, C. B., et al. (2002), First operational BRDF, albedo nadir reflectance products from MODIS, *Remote Sensing of Environment*, *83*, 135–148.
- Schepanski, K., I. Tegen, M. C. Todd, B. Heinold, G. Bönisch, B. Laurent, and A. Macke (2009), Meteorological processes forcing Saharan dust emission inferred from MSG-SEVIRI observations of subdaily dust source activation and numerical models, *J. Geophys. Res.*, *114*(D10201), doi:10.1029/2008JD010,325.
- Schmidt, D. S., R. A. Schmidt, and J. D. Dent (1998), Electrostatic force on saltating sand, *J. Geophys. Res.*, *103*(D8), 8997–9001.
- Schulz, M., Y. Balkanski, W. Guelle, F. Dulac, C. Moulin, and C. E. Lambert (1996), Model components necessary to capture a dust plume pattern over the Mediterranean Sea, in *The Impact of Desert Dust Across the Mediterranean*, edited by S. Guerzoni and R. Chester, pp. 51–58, Kluwer AcadPub., Boston, MA.

- Schulz, M., Y. J. Balkanski, W. Guelle, and F. Dulac (1998), Role of aerosol size distribution and source location in a three-dimensional simulation of a Saharan dust episode tested against satellite-derived optical thickness, *J. Geophys. Res.*, *103*(D9), 10,579–10,592.
- Schüßler, U., W. Balzer, and A. Deeken (2005), Dissolved Al distribution, particulate Al fluxes and coupling to atmospheric Al and dust deposition in the Arabian Sea, *Deep-Sea Res. II*, *52*(14–15), 1862–1878, doi:10.1016/j.dsr2.2005.06.005.
- Schwartz, S. E., and M. O. Andreae (1996), Uncertainty in climate change caused by aerosols, *Science*, *272*, 1121–1122.
- Sehmel, G. A. (1984), Deposition and resuspension, in *Atmospheric Science and Power Production*, edited by D. Randerson, no. DOE/TIC-27601 (DE84005177) in series, chap. 12, pp. 533–583, Office of Health and Environmental Research, U.S. Department of Energy, Washington, DC.
- Sehmel, G. A., and W. J. Hodgson (1978), A model for predicting dry deposition of particles and gases to environmental surfaces, *Tech. Rep. PNL-SA-6721*, Battelle, Pacific Northwest Laboratory, Richland, WA.
- Selah, A., and D. W. Fryrear (1995), Threshold wind velocities of wet soils as affected by wind blown sand, *Soil Science*, *160*(4), 304–309.
- Shao, Y. (2001), A model for mineral dust emission, *J. Geophys. Res.*, *106*(D17), 20,239–20,254.
- Shao, Y., and L. M. Leslie (1997), Wind erosion prediction over the Australian continent, *J. Geophys. Res.*, *102*(D25), 30,091–30,105.
- Shao, Y., and A. Li (1999), Numerical modelling of saltation in the atmospheric surface layer, *Bound.-Lay. Meteorol.*, *91*(2), 199–225, doi:10.1023/A:1001816013,475.
- Shao, Y., and H. Lu (2000), A simple expression for wind erosion threshold friction velocity, *J. Geophys. Res.*, *105*(D17), 22,437–22,443.
- Shao, Y., M. R. Raupach, and P. A. Findlater (1993), Effect of saltation bombardment on the entrainment of dust by wind, *J. Geophys. Res.*, *98*(D7), 12,719–12,726.
- Shao, Y., M. R. Raupach, and J. F. Leys (1996), A model for predicting aeolian sand drift and dust entrainment on scales from paddock to region, *Aust. J. Soil Res.*, *34*(D25), 309–342.
- Shao, Y., L. M. Leslie, R. K. Munro, P. Irannejad, W. F. Lyons, R. Morison, D. Short, and M. S. Wood (1997), Soil moisture prediction over the Australian continent, *Meteorol. Atmos. Phys.*, *63*, 195–217.
- Shao, Y., et al. (2003), Northeast Asian dust storms: Real-time numerical prediction and validation, *J. Geophys. Res.*, *108*(D22), 4691, doi:10.1029/JD003,667.
- Shay-El, Y., P. Alpert, Y. J. Kaufman, D. Tanré, A. da Silva, S. Schubert, and J. H. Joseph (1998), Lower-tropospheric response to dust as inferred from correlations between dust frequencies and analysis increments from GEOS-1 multiyear assimilation, *Submitted to Tellus*.
- Shettle, E. P. (1984), Optical and radiative properties of a desert aerosol model, in *IRS '84: Current Problems in Atmospheric Radiation*, edited by G. Fiocco, August 21–28, Perugia, Italy, pp. 74–77, Proceedings of the International Radiation Symposium, A. Deepak, Hampton VA.
- Shinn, E. A., G. W. Smith, J. M. Prospero, P. Betzer, M. L. Hayes, V. Garrison, and R. T. Barber (2000), African dust and the demise of Caribbean coral reefs, *Geophys. Res. Lett.*, *27*(19), 3029–3032.
- Slinn, S. A., and W. G. N. Slinn (1980), Predictions for particle deposition on natural waters, *Atmos. Environ.*, *14*, 1013–1016.
- Sokolik, I., and G. Golitsyn (1993), Investigation of optical and radiative properties of atmospheric dust aerosols, *Atmos. Environ.*, *27A*(16), 2509–2517.

- Sokolik, I. N. (1999), Nuts and bolts of radiative forcing by mineral dust, *IGACTivities Newsletter*, (17), 12–14.
- Sokolik, I. N. (2002), The spectral radiative signature of wind-blown mineral dust: Implications for remote sensing in the thermal IR region, *Geophys. Res. Lett.*, 29, 10.1029/2002GL015,910.
- Sokolik, I. N., and O. B. Toon (1996), Direct radiative forcing by anthropogenic airborne mineral aerosols, *Nature*, 381, 681–683.
- Sokolik, I. N., and O. B. Toon (1999), Incorporation of mineralogical composition into models of the radiative properties of mineral aerosol from UV to IR wavelengths, *J. Geophys. Res.*, 104(D8), 9423–9444.
- Sokolik, I. N., O. B. Toon, and R. W. Bergstrom (1998), Modeling the radiative characteristics of airborne mineral aerosols at infrared wavelengths, *J. Geophys. Res.*, 103(D8), 8813–8826.
- Stowe, L. L., A. M. Ignatov, and R. R. Singh (1997), Development, validation, and potential enhancements to the second-generation operational aerosol product at the National Environmental Satellite, Data, and Information Service of the National Oceanic and Atmospheric Administration, *J. Geophys. Res.*, 102(D14), 16,923–16,934.
- Sullivan, R. (2002), Threshold-of-motion wind friction speeds at the Mars Pathfinder landing site, *Proc. XXXIII Lunar and Planetary Science Conference*.
- Sun, J., M. Zhang, and T. Liu (2001), Spatial and temporal characteristics of dust storms in China and its surrounding regions, 1960–1999: Relations to source area and climate, *J. Geophys. Res.*, 106(D10), 10,325–10,333.
- Swap, R., M. Garstang, S. Greco, R. Talbot, and P. Kållberg (1992), Saharan dust in the Amazon Basin, *Tellus*, 44B, 133–149.
- Swap, R., M. Garstang, S. A. Macko, P. D. Tyson, W. Maenhaut, P. Artaxo, P. Kållberg, and R. Talbot (1996), The long-range transport of southern African aerosols to the tropical South Atlantic, *J. Geophys. Res.*, 101(D19), 23,777–23,791.
- Sweeney, M. R., A. J. Busacca, D. R. Gaylord, and C. Zender (2002), Provenance of Palouse loess related to late quaternary glacial outburst flooding in the Pacific Northwest, *Eos Trans. AGU*, 83(47), H22B–0899.
- Sweeney, M. R., A. J. Busacca, and D. Gaylord (2003a), High accumulations rates and the generations of thick Palouse loess via topographic traps, Juniper Canyon, *Proc. Geol. Soc. Amer. 2003 Meeting*.
- Sweeney, M. R., A. J. Busacca, C. A. Richardson, M. Blinnikov, and E. McDonald (2003b), The Columbia Plateau dust engine during the last glacial maximum: Trouble with cold starts, *Proc. XVI International Quaternary Association (INQUA) Congress*.
- Sweeney, M. R., D. R. Gaylord, and A. J. Busacca (2005), Evolution of Eureka Flat: A dust-producing engine of the Palouse loess, U.S.A., in *In Press in The Soil Record of Quaternary Climate Change*, edited by C. Olson and B. Harrison, Geological Society of America Special Paper, Boulder, CO.
- Tanré, D., C. Devaux, M. Herman, R. Santer, and J. Y. Gac (1988), Radiative properties of desert aerosols by optical ground-based measurements at solar wavelengths, *J. Geophys. Res.*, 93(D11), 14,223–14,231.
- Tanré, D., et al. (2003), Measurement and modeling of the Saharan dust radiative impact: Overview of the Saharan Dust Experiment (SHADE), *J. Geophys. Res.*, 108(D18), 8574, doi:10.1029/2002JD003,273.
- Tegen, I., and I. Fung (1995), Contribution to the atmospheric mineral aerosol load from land surface modification, *J. Geophys. Res.*, 100(D9), 18,707–18,726.
- Tegen, I., and A. A. Lacis (1996), Modeling of particle size distribution and its influence on the radiative properties of mineral dust aerosol, *J. Geophys. Res.*, 101(D14), 19,237–19,244.
- Tegen, I., A. A. Lacis, and I. Fung (1996), The influence on climate forcing of mineral aerosols from disturbed soils, *Nature*, 380, 419–422.

- Tegen, I., P. Hollrig, M. Chin, I. Fung, D. Jacob, and J. Penner (1997), Contribution of different aerosol species to the global aerosol extinction optical thickness: Estimates from model results, *J. Geophys. Res.*, *101*(D20), 23,895–23,915.
- Tegen, I., S. P. Harrison, and K. E. Kohfeld (2002), Modeling the role of mineral aerosols in global climate cycles, *Eos Trans. AGU*, *83*(36), 395–400.
- Tegen, I., M. Werner, S. Harrison, and K. Kohfeld (2004), Relative importance of climate and land use in determining present and future global soil dust emission, *Geophys. Res. Lett.*, *31*(5), L05,105, doi:10.1029/2003GL019,216.
- Thomas, D. S. G. (Ed.) (1997), *Arid Zone Geomorphology*, second ed., John Wiley & Sons, Chichester, UK.
- Timmreck, C., and M. Schulz (2004), Significant dust simulation differences in nudged and climatological operation mode of the AGCM ECHAM, *Submitted to J. Geophys. Res.*
- Tsvetsinskaya, E. A., C. B. Schaaf, F. Gao, A. H. Strahler, R. E. Dickinson, X. Zeng, and W. Lucht (2002), Relating MODIS-derived surface albedo to soils and rock types over Northern Africa and the Arabian peninsula, *Geophys. Res. Lett.*, *29*(9), doi:10.1029/2001GL014,096.
- Tucker, C. J., H. E. Dregne, and W. W. Newcomb (1991), Expansion and contraction of the Sahara desert from 1980 to 1990, *Science*, *253*, 299–301.
- Tyson, P. D., M. Garstang, and R. Swap (1996), Large-scale recirculation of air over Southern Africa, *J. Appl. Meteorol.*, *35*(12), 2218–2236.
- Underwood, G. M., P. Li, H. Al-Abadleh, and V. H. Grassian (2001), A Knudsen cell study of the heterogeneous reactivity of nitric acid on oxide and mineral dust particles, *J. Phys. Chem. A*, *105*(27), doi:10.1021/jp002,223h, 6609–6620.
- Usher, C. R., H. Al-Hosney, S. Carlos-Cuellar, and V. H. Grassian (2002), A laboratory study of the heterogeneous uptake and oxidation of sulfur dioxide on mineral dust particles, *J. Geophys. Res.*, *107*(D23), 4713, doi:10.1029/2002JD002,051.
- van Donk, S. J., X. Huang, E. L. Skidmore, A. B. Anderson, D. L. Gebhart, V. E. Prehoda, and E. M. Kellogg (2003), Wind erosion from military training lands in the Mojave Desert, California, U.S.A., *J. Arid Environ.*, *54*, 687–703.
- VanCuren, R. A. (2003), Asian aerosols in North America: Extracting the chemical composition and mass concentration of the Asian continental aerosol plume from long-term aerosol records in the western United States, *J. Geophys. Res.*, *108*(D20), 4623, doi:10.1029/2003JD003,459.
- VanCuren, R. A., and T. A. Cahill (2002), Asian aerosols in North America: Frequency and concentration of fine dust, *J. Geophys. Res.*, *107*(D24), 4804, doi:10.1029/2002JD002,204.
- Volz, F. E. (1972), Infrared refractive index of atmospheric aerosol substances, *Appl. Opt.*, *11*(4), 755–759.
- Wagener, T., C. Guieu, R. Losno, S. Bonnet, and N. Mahowald (2008), Revisiting atmospheric dust export to the Southern Hemisphere ocean: Biogeochemical implications, *Global Biogeochem. Cycles*, *22*(4), GB2006, doi:10.1029/2007GB002,984.
- Wald, A. E., Y. J. Kaufman, D. Tanré, and B.-C. Gao (1998), Daytime and nighttime detection of mineral dust over desert using infrared spectral contrast, *J. Geophys. Res.*, *103*(D24), 32,307–32,313.
- Wang, Z., H. Ueda, and M. Huang (2000), A deflation module for use in modeling long-range transport of yellow sand over East Asia, *J. Geophys. Res.*, *105*(D22), 26,947–26,959.
- Washington, R., M. Todd, N. J. Middleton, and A. S. Goudie (2003), Dust-storm source areas determined by the Total Ozone Monitoring Spectrometer and surface observations, *Annals Association American Geographers*, *93*(2), 297–313.
- Washington, R., et al. (2006), Links between topography, wind, deflation, lakes and dust: The case of the Bodélé Depression, Chad, *Geophys. Res. Lett.*, *33*(L09401), doi:10.1029/2006GL025,827.

- Werner, M., I. Tegen, S. P. Harrison, K. E. Kohfeld, I. C. Prentice, Y. Balkanski, H. Rodhe, and C. Roelandt (2002), Seasonal and interannual variability of the mineral dust cycle under present and glacial climate conditions, *In Press in J. Geophys. Res.*, 107(D24), 4744, doi:10.1029/2002JD002,365.
- White, B. R. (1979), Soil transport by winds on Mars, *J. Geophys. Res.*, 84(B9), 4643–4651.
- Woodward, S. (2001), Modeling the atmospheric lifecycle and radiative impact of mineral dust in the Hadley Centre climate model, *J. Geophys. Res.*, 106(D16), 18,155–18,166.
- Wurzler, S., T. G. Reisin, and Z. Levin (2000), Modification of mineral dust particles by cloud processing and subsequent effects on drop size distributions, *J. Geophys. Res.*, 105(D5), 4501–4512.
- Yablokov, M. Y., and A. V. Andronova (2004), A model of take-off processes of desert sand aerosols in windless conditions, unpublished manuscript.
- Yamagata, S., et al. (2004), Mineral particles in cloud droplets produced in an Artificial Cloud Experimental System (ACES), *Aerosol Sci. Technol.*, 38(4), 293–299, doi:10.1080/02786820490422,871.
- Yang, H., Y. Gao, and L. Horowitz (2006), Effects of particle-size distributions of entrained dust on its emission, loading, and oceanic deposition, *Submitted to Geophys. Res. Lett.*
- Yin, Y., S. Wurzler, Z. Levin, and T. G. Reisin (2002), Interactions of mineral dust particles and clouds: Effects on precipitation and cloud optical properties, *J. Geophys. Res.*, 107(D23), 4724, doi:10.1029/2001JD001,544.
- Yung, Y. L., T. Lee, C.-H. Wang, and Y.-T. Shieh (1996), Dust: A diagnostic of the hydrologic cycle during the last glacial maximum, *Science*, 271, 962–963.
- Zender, C. S., and E. Y. Kwon (2005), Regional contrasts in dust emission responses to climate, *J. Geophys. Res.*, 110, D13,201, doi:10.1029/2004JD005,501.
- Zender, C. S., and J. Talamantes (2006), Solar absorption by Mie resonances in cloud droplets, *J. Quant. Spectrosc. Radiat. Transfer*, 98(1), 122–129, doi:10.1016/j.jqsrt.2005.05.084.
- Zender, C. S., B. Bush, S. K. Pope, A. Bucholtz, W. D. Collins, J. T. Kiehl, F. P. J. Valero, and J. Vitko, Jr. (1997), Atmospheric absorption during the Atmospheric Radiation Measurement (ARM) Enhanced Shortwave Experiment (ARESE), *J. Geophys. Res.*, 102(D25), 29,901–29,915.
- Zender, C. S., H. Bian, and D. Newman (2003a), Mineral Dust Entrainment And Deposition (DEAD) model: Description and 1990s dust climatology, *J. Geophys. Res.*, 108(D14), 4416, doi:10.1029/2002JD002,775.
- Zender, C. S., M. Flanner, and J. Adams (2003b), LGM dust distribution and radiative forcing: Sensitivity to vegetation reconstruction, *Proc. XVI International Quaternary Association (INQUA) Congress*.
- Zender, C. S., D. J. Newman, and O. Torres (2003c), Spatial heterogeneity in aeolian erodibility: Uniform, topographic, geomorphic, and hydrologic hypotheses, *J. Geophys. Res.*, 108(D17), 4543, doi:10.1029/2002JD003,039.
- Zender, C. S., R. Miller, and I. Tegen (2004), Quantifying mineral dust mass budgets: Terminology, constraints, and current estimates, *Eos Trans. AGU*, 85(48), 509–512, doi:doi:10.1029/2004EO480002.
- Zhang, X. Y., R. Arimoto, G. H. Zhu, T. Chen, and G. Y. Zhang (1998), Concentration, size-distribution and deposition of mineral aerosol over Chinese desert regions, *Tellus*, 50B(4), 317–330.
- Zhang, X. Y., et al. (2003), Characterization of soil dust aerosol in China and its transport and distribution during 2001 ACE-Asia: 1. Network observations, *J. Geophys. Res.*, 108(D9), 4261, doi:10.1029/2002JD002,632.
- Zhang, Y., and G. R. Carmichael (1999), The role of mineral aerosol in tropospheric chemistry in East Asia—a model study, *J. Appl. Meteorol.*, 38(3), 353–366.
- Zhang, Y., Y. Sunwoo, V. Kotamarthi, and G. R. Carmichael (1994), Photochemical oxidant processes in the presence of dust: An evaluation of the impact of dust on particulate nitrate and ozone formation, *J. Appl. Meteorol.*, 33, 813–824.