

CURRICULUM VITAE

Name: Hermann E. Gerber (Tel 703-742-9844; hgerber6@comcast.net)

Address: Gerber Scientific, Inc., 1643 Bentana Way, Reston, VA 20190

Professional Preparation: B.S. Physics, Drexel University, 1964
M.S. Meteorology, New York University, 1967
Ph.D. Meteorology, Colorado State University, 1973

Positions: 2010 - present: Dept. Atm. Sci., Adjunct Professor, University of Utah
1991 - present: President and Chief Scientist of Gerber Scientific, Inc.
1983 - 1991: Head, Aerosol Physics Section, Naval Research Laboratory (NRL)
1975 - 1983: Research Scientist, Atmospheric Sciences Branch, NRL
1964 - 1975: Research Scientist, Atmospheric Sciences Lab (ASL), U.S. Army
1959 - 1964: Cooperative student trainee, ASL, U.S. Army

RESEARCH EXPERIENCE

Dr. Gerber has conducted basic and applied research in atmospheric sciences while employed by the U.S. Army Atmospheric Sciences Laboratory, Ft. Monmouth, NJ, and by the Atmospheric Physics Branch of Naval Research Laboratory in Washington, D.C.. He headed the Aerosol Physics Section at NRL until leaving government service in 1990. He formed, and is presently with Gerber Scientific, Inc., which specializes in grant research and instrumentation development in the atmospheric sciences.

His wide-ranging scientific interests and contributions are primarily in the fields of aerosol and cloud physics, and atmospheric optics resulting to date in about 50 journal publications, books and patents. Contributions include the following: tested Fletcher's theories of ice nucleation with sized AgI nuclei as small as 20 nm, and found the theory inadequate with measured nucleation rates differing by factor of 10^{17} (Gerber, 1976); found good agreement with Koehler theory by measuring critical supersaturation and salt nucleus content (Gerber et al, 1977); devised a means of measuring the single-scattering albedo of aerosols using a scattering and transmission cell with measurements showing values as small as 0.6 in a polluted atmosphere (Gerber, 1979b); evaluated means for measuring directly for the first time water-vapor supersaturation in clouds and fogs (Gerber, 1980; 1982a); showed that it was possible to estimate liquid water content of clouds and infrared aerosol extinction from visible light scattering (Gerber, 1984, 1985); found an analytical solution to the droplet growth equation which is not implicit in droplet size but only a function of nuclei dry size and ambient RH to yield a practical haze equation (Gerber, 1985a); modeled and compared with measurements the evolution of a marine boundary layer jet (Gerber et al, 1989); calculated the aerosol backscatter in the marine boundary layer at different CO₂ wavelengths and for the North Atlantic Ocean area to evaluate proposed satellite sensors using those wavelengths (Gerber, 1991b); used the saturation hygrometer to measure supersaturations in radiation fogs and demonstrated with the measurements and modeling that large supersaturation gradients and fog activation were caused by mixing of different-temperature air near saturation, rather than being caused by radiative droplet cooling as had been thought earlier (Gerber, 1991c); showed that in Atlantic

stratocumulus clouds (ASTEX) a drizzle threshold existed dependent primarily on droplet concentration, and that homogenous mixing followed entrainment (Gerber, 1996a); calculated liquid water content (LWC) power spectra from high-rate LWC data collected in stratocumulus during SOCEX and found a “scale-break” in the spectra consistent with the scales of entrained parcels (Gerber et al, 2001); developed theory and a device for measuring for the first time in-situ the asymmetry parameter and extinction coefficient of cloud particles, and applied the device during SHEBA-FIRE finding parameters consistent with complex ice crystals (Gerber et al, 2000); quantified the size distributions of entrained parcels in stratocumulus and estimated entrainment rates using the conditional sampling technique (DYCOMS II; Gerber et al, 2005); and analyzed and modeled the evolution of trade-wind cumulus clouds (RICO) with respect to entrainment and drizzle formation (Gerber et al, 2008).

He is proficient in instrumentation design including in electronics, optics, and mechanics. He has applied this knowledge for originating a series of unique instrumentation useful in aerosol and cloud physics. This includes the design and construction of an aerosol concentrator for centrifugally concentrating the dispersed phase of the aerosol by as much as a factor of 80 without significant pressure and temperature changes (Stilling and Gerber, 1980). Equations were derived for the three versions of the Brewer and Beutell integrating aerosol nephelometers for measuring the aerosol scattering coefficient, and each version was designed and constructed (Gerber, 1982b, 1984c). A combination of such a nephelometer and a transmission measurement in a new portable aerosol cell resulted in direct measurements of the aerosol single scattering albedo (Gerber, 1979a, 1979b). He developed theory for manipulating the Mie scattered light phase function to establish desired aerosol and cloud droplet optical parameters which resulted in devices for estimating long-wave extinction using visible light scattering, and also resulted in a new cloud probe (PVM-100) for measuring cloud LWC and effective radius. The latter received a R&D 100 award from R&D Magazine as one of the 100 most significant technical products, and has been used widely by the cloud physics community. The PVM-100 has the unique capability of measuring LWC at rates as high as 1000 hz. This showed that small Cu entrain more than previously thought, and that the community’s consensus for the existence of large adiabatic cores measured at 1-hz data rate was erroneous (Gerber, 2000). He developed a probe for measuring directly supersaturation in a fog and cloud (Gerber, 1980); and he designed and built a cloud integrating nephelometer (Gerber, 1996c, 2000 et al) that provided the first in-situ measurements of the ice-crystal asymmetry parameter which helped resolve the issue of overly large asymmetry parameter values based on ideal ice-crystal calculations.

He participates in professional organizations (see list), has participated on research panels, and has organized several large collaborative research efforts. The former includes his 5-yr. membership in the International Radiation Commission (IRC) of the IUGG where he co-chaired with Dr. Joachim Joseph the Working Group on Optical Properties of Aerosol. In this capacity he consulted for the World Meteorological Society (WMO), edited WMO reports, organized the 1st International Workshop on Light Absorption by Aerosol Particles held at Colorado State University, and organized the International Experts Meeting on Aerosols and Their Climatic Effects, with both resulting in books. Another meeting he organized was the International Conf. On Global Aerosol Variability held in Hawaii in 1984. In 2007 he organized the NSF POST (Physics of Stratocumulus Top; <http://www.eol.ucar.edu/projects/post/>) research effort to deal with the inability to properly predict stratocumulus evolution, and in particular to establish the effects of the entrainment process.

WRITINGS

(* reviewed papers, and selected reports and book articles)

* Gerber, H., and P.J. DeMott, 2014: Response of FSSP-100 and PVM-100A to small ice crystals. *J. Atm. Oceanic Technol.*, *31*, 2145-2155. doi:10.1175/JTEC-D-13-00228.1.

Gerber, H., S. Malinowski, A. Bucholtz, and T. Thorsen, 2014: Radiative cooling of stratocumulus. Extended Abstract. *14th Atm. Rad. Conf.*, Amer. Meteor. Soc., Boston, MA, 7-11 July, 2014, paper 9.3, doi:10.13140/2.1.4016.2563.

* Malinowski, S.P., H. Gerber, I. Jen-La Plante, M.K. Kopec, W. Kumula, K. Nurowska, P.Y. Chuang, D. Khelif, and K.E. Haman, 2013: Physics of stratocumulus top (POST): turbulent mixing across capping inversion. *Atmos. Chem. Phys.*, *13*, 12171-12186, doi:10.5194/apc-13-12171-2013.

* Gerber, H., and G. Frick, 2012: Drizzle rates and large sea-salt nuclei in small cumulus. *J. Geophys. Res.*, *117*, D01205, doi:10.1029/2011JD016249, 2012.

* Gerber, H., G. Frick, J.B. Jensen, and J.G. Hudson, 2008: Entrainment, mixing, and microphysics in trade-wind cumulus. *J. Meteor. Soc. Japan*, *86A*, 87-106.

* Gerber, H., 2007: Comments on "Effective radius of ice cloud particle populations derived from aircraft probes." *J. Atm. Oceanic Technol.*, *24*, 1504-1510.

* Haman, K.E., S.P. Malinowski, M.J. Kurowski, H. Gerber, and J.-L. Brenguier, 2007: Small scale mixing processes at the top of a marine stratocumulus. *Quart. J. Roy. Meteor. Soc.*, *133*, 213-226.

* Gerber, H., G. Frick, S.P. Malinowski, J.-L. Brenguier, and F. Burnet, 2005: Holes and entrainment in stratocumulus. *J. Atmos. Sci.*, *62*, 443-459.

* Faloon, I., et al (H. Gerber), 2005: Observations of entrainment in Eastern Pacific marine stratocumulus using three conserved scalars. *J. Atmos. Sci.*, *62*, 3268-3285.

Gerber, H., 2004: Accuracy of the cloud integrating nephelometer. Final Rep. NASA Grant NNG04GN43G, National Aeronautics and Space Administration. pp. 18.

Gerber, H., 2003: Parameterization of the vertical variability of tropical cirrus cloud microphysical and optical properties. Final Rep. NASA Grant NAG5-11618. National Aeronautics and Space Administration. pp. 35.

* Garrett, T.J., H. Gerber, D.G. Baumgardner, C.H. Twohy, and E.M. Weinstock, 2003: Small, highly reflective ice crystals in low-latitude cirrus. *Geophys. Res. Lett.*, *30*, doi:10.1029/2003GL018153, 2003.

* Stevens, B., et al (H. Gerber), 2003: Dynamics and chemistry of marine stratocumulus - DYCOMS-II. *Bull. Amer. Meteor. Soc.*, *84*, 579-593.

- * Stevens, B., et al (H. Gerber), 2003: On entrainment rates in nocturnal marine stratocumulus. *Quart. J. Roy. Meteor. Soc.*, 129, 3469-3493.
- * Garrett, T.J., P.V. Hobbs, and H. Gerber, 2001: Shortwave, single-scattering properties of arctic ice clouds. *J. Geophys. Res.*, 106, 15155-15172.
- * Lin, B., P. Minnis, A. Fan, J.A. Curry, P.V. Hobbs, and H. Gerber, 2001: Comparison of cloud liquid water paths derived from in situ and microwave radiometer data during SHEBA/FIREACE. *Geophys. Res. Lett.*
- * Platnick, S., J.Y. Li, M.D. King, H. Gerber, and P.V. Hobbs, 2001: A solar reflectance method for retrieving the optical thickness and droplet size of liquid water clouds over snow and ice surfaces. *J. Geophys. Res.*, 106, 15185-15195.
- * Gerber, H., J.B. Jensen, A.B. Davis, A. Marshak, and W.J. Wiscombe, 2001: Spectral density of cloud liquid water content at high frequencies. *J. Atmos. Sci.*, 58, 497-503.
- Gerber, H., 2000: Structure of small cumulus clouds. *Proc. 13th Intern. Conf. Clouds Precip.*, Reno, NV, 14-18 Aug., 2000, 105-108.
- * Gerber, H., Y. Takano, T.J. Garrett, and P.V. Hobbs, 2000: Nephelometer measurements of the asymmetry parameter, volume extinction coefficient, and backscatter ratio in Arctic clouds. *J. Atmos. Sci.*, 57, 3021-3034.
- * Curry, J.A., et al (H. Gerber), 2000: FIRE Arctic clouds experiment. *Bull. Amer. Meteor. Soc.*, 80, 5-29.
- Gerber, H., 2000: Measurement of the asymmetry parameter and backscatter ratio in atmospheric clouds. Final Report NAS1-96020, NASA Langley Res. Cntr., Hampton, VA, pp. 81.
- * Gerber, H., 1999: Comments on 'A comparison of optical measurements of liquid water content and drop size distribution in adiabatic regions of Florida cumuli'. *Atm. Res.*, 50, 3-19.
- * Gerber, H., G. Frick, and A.R. Rodi, 1999: Ground-based FSSP and PVM measurements of liquid water content. *J. Atm. Oceanic Technol.*, 16, 1143-1149.
- * Davis, A.B., A. Marshak, H. Gerber, and W.J. Wiscombe, 1999: Horizontal structure of marine boundary layer clouds from centimeter to kilometer scales. *J. Geophys. Res.*, 104, 6123-6144.
- Gerber, H., 1998: Standards for measuring liquid water content. *Proc. 1st Intern. Conf. On Fog and Fog Collection*, July, 1998, Vancouver, Canada; Library Ref. QC929.F7157, 149-152.
- * Ackerman, S.A., C.C. Moeller, K.I. Strabala, H. Gerber, L.E. Gumley, and W.P. Menzel, 1998: Retrieval of effective microphysical properties of clouds: A wave cloud case study. *Geophys. Res. Lett.*, 25, 1121-1124.
- * Young, D.F., P. Minnis, D. Baumgardner, and H. Gerber, 1998: Comparison of in situ and

satellite-derived cloud properties during SUCCESS. *Geophys. Res. Lett.*, 25, 1125-1128.

* Gerber, H., C. H. Twohy, B. Gandrud, A.J. Heymsfield, G. M. McFarquhar, P.J. DeMott, and D.C. Rogers, 1998: Measurements of wave-cloud microphysical properties with two new aircraft probes. *Geophys. Res. Lett.*, 25, 1117-1120.

* Gerber, H., 1996a: Microphysics of marine stratocumulus clouds with two drizzle modes. *J. Atmos. Sci.*, 53, 1649-1662.

Gerber, H., 1996b: Microphysics and modeling of layer clouds. ETL/CSU Modeling and Measurement Workshop, NOAA, Oct. 1995, Boulder, CO, 175-187.

Gerber, H., 1996c: Measurement of the asymmetry parameter and optical extinction coefficient of ice crystals and water droplets. Final Report NAS1-20506, NASA Langley Res. Cntr., Hampton, VA pp.23.

Gerber, H., P. J. DeMott, and D.C. Rogers, 1996: Laboratory investigation of direct measurement of ice water content, ice surface area, and effective radius of ice crystals using a laser-diffraction instrument. Final Report NAS2-14261, NASA AMES Res. Cntr., CA, pp.121.

* Boers, R., J.B. Jensen, P.B. Krummel, and H. Gerber, 1996: Microphysical and short-wave radiative structure of wintertime stratocumulus clouds over the Southern Ocean. *Quart. J. Roy. Meteor. Soc.*, 122,

* Gerber, H., 1994: New microphysics sensor for aircraft use. *Atm. Res.*, 31, 235-252.

Gerber, H., 1993: Test of prototype liquid-water-content meter for aircraft use. Final Report NSF Grant ATM-9207345, NASA P.R. 913-44468, pp. 97.

* Gerber, H., 1991a: Direct measurement of suspended particulate volume concentration and far-infrared extinction coefficient with a laser-diffraction instrument. *Appl. Opt.*, 30, 4824-4831.

* Gerber, H., 1991b: Probability distribution of aerosol backscatter in the lower marine atmosphere at CO₂ wavelengths. *J. Geophys. Res.*, 96, 5307-5314.

* Gerber, H., 1991c: Supersaturation and droplet spectral evolution in fog. *J. Atmos. Sci.*, 24, 2569-2588.

*Gerber, H., S. Chang, and T. Holt, 1989: Evolution of a boundary-layer jet. *J. Atmos. Sci.*, 46, 1312-1326,

James, J.E., H. Gerber, and S.G. Gathman, 1989: Navy tethered balloon measurements made during the "FIRE" marine stratocu IFO, July 1987. Naval Research Laboratory, NRL Memo Report 6445, pp. 122.

* Hooper, W.P. and H. Gerber, 1988: Monte Carlo simulations of laser-generated sea surface aureole. *Appl. Opt.*, 27, 5111-5118.

* Gerber, H., 1987: Forward-scatter meter for estimating 10.6 um aerosol extinction. *Appl. Opt.*,

26, 539-544.

* Hooper, W., and H. Gerber, 1986: Down looking lidar inversion constrained by ocean reflection and forward scatter of laser light. *Appl. Opt.*, 25, 689-693.

Gerber, H., 1986: Tethered balloon measurements at San Nicolas Island (Oct., 1984): Instrumentation, data summary, preliminary data interpretation. NRL Memo Report 8972.

Hooper, W., and H. Gerber, 1986: Tethered balloon measurements made at Naval Air Development Center (Dec., 1985). Naval Research Laboratory, NRL Memo Report 8893.

Gerber, H., 1985a: Relative-humidity parameterization of the Navy aerosol model. Naval Research Laboratory, NRL Report 8956, pp.13.

* Gerber, H., 1985b: Infrared aerosol extinction from visible and near-infrared light scattering. *Appl. Opt.*, 24, 4155-4164.

Gerber, H., 1984a: Variability of some optical coefficients of North Atlantic maritime aerosols. *Aerosols and Their Climatic Effects*. H. Gerber and A. Deepak, Eds., Deepak Publishing, Hampton, VA, 63-81.

* Gerber, H., 1984b: Liquid water content of fogs and hazes from visible light scattering. *J. Climate Appl. Meteor.*, 23, 1247-1252.

Gerber, H., 1984c: Tethered balloon measurements at San Nicolas Island (Oct 1984): Instrumentation, data summary, preliminary data interpretation. Naval Research Laboratory, NRL Report 8972.

Deepak, A., and H. Gerber, Eds., 1983: Report of the experts meeting on aerosols and their climatic effects, Williamsburg, VA, 28-30 March, 1983. World Climate Research Programme, WMO Report WCP-55, pp. 107

* Gerber, H., 1982a: Nature of fog nuclei from measurements of relative humidity. *Idojaras*, 86, 175-178.

Gerber, H., 1982b: Simultaneous measurements of aerosol scattering and extinction coefficients in a multi-pass cell. *Light Absorption by Aerosol Particles*. H. Gerber and E. Hindman, Eds., Spectrum Press, Hampton, VA, 232-241.

Gerber, H., 1982c: Absorption of light by atmospheric aerosol particles: Review of instrumentation and measurements. *Light Absorption by Aerosol Particles*. H. Gerber and E. Hindman, Eds., Spectrum Press, Hampton, VA, 21-53.

* Gerber, H., 1981: Microstructure of a radiation fog. *J. Atmos. Sci.*, 38, 454-458.

* Gerber, H., 1981: First international workshop on light absorption by aerosol particles: Background, activities, and preliminary results, 28 July - 8 August 1980, Ft. Collins CO. *Bull. Amer. Meteor. Soc.*, 62, 1321-1327.

Gerber, H., Ed., 1981: Tropospheric aerosols: Review of current data on physical and optical properties, WCP-43, World Climate Programme, WMO.

Gerber, H., and E. Hindman, 1981: Report on the First International Workshop on Light Absorption by Aerosol Particles. Proc. SPIE Tech. Symp. East, Washington, D.C.

* Gerber, H., 1980: A saturation hygrometer for the measurement of relative humidity between 95% and 105%. *J. Appl. Meteor.*, 19, 1196-1208.

Gerber, H., 1980: Optical techniques for the measurement of light absorption by particulates. *Particulate Carbon: Atmospheric Life Cycle*, G.T. Wolff and R.L. Klimish Eds., Plenum Press, New York.

Stilling, R.K., and H. Gerber, 1980: Design and fabrication of an aerosol concentrator. NRL Memo Report 4208.

* Gerber, H., 1979a: Absorption of 632.8 nm radiation by maritime aerosols near Europe. *J. Atmos. Sci.*, 36, 2502-2512.

* Gerber, H., 1979b: Portable cell for simultaneously measuring the coefficients of light scattering and extinction for ambient aerosols. *Appl. Opt.*, 18, 1009-1014.

* Gerber, H., W.A. Hoppel, and T.A. Wojciechowski, 1977: Experimental verification of the theoretical relationship between size and critical supersaturation of salt nuclei. *J. Atmos. Sci.*, 34, 1836-1841.

* Gerber, H., 1976a: Relationship of size and activity for Agl smoke particles. *J. Atmos. Sci.*, 33, 667-675.

Gerber, H., 1976b: Centrifuge studies of ice nucleation. 1975 NRL Review, Washington, D.C.

Gerber, H., 1976c: The Goetz aerosol spectrometer. *Aerosol Measurement*, D.A. Lungren et al, Eds., University Presses of Florida, 36-55.

Gerber, H., 1976d: Activity and size of aggregate thermal Agl. Proc. 3d Int. Workshop on Ice Nucleus Meas., G. Vali, Ed., U. Of Wyoming.

Ruskin, R., R. Jeck, and H. Gerber, 1976: Progress report on sea salt measurement. NRL Memo. Report 3270, Washington, D.C.

Gerber, H., 1973: Freezing water with sized Agl particles. Ph.D. Thesis, Colorado State University.

* Gerber, H., 1973: Comment on "Developing flow and particle deposition in horizontal elutriators and semi-dispersive aerosol centrifuges." *Atm. Environ.*, 7, 1344-1345.

Gerber, H., 1973: Freezing water with sized Agl particles. Part I: A survey. ECOM Tech. Report 5477, Ft. Monmouth, NJ.

Gerber, H., 1973: Freezing water with sized Agl particles. Part II: Theoretical considerations. ECOM Tech. Report 5478, Ft. Monmouth, NJ.

Gerber, H., 1973: Freezing water with sized Agl particles. Part III: Experimental procedure, results, and conclusions. ECOM Tech. Report 5479, Ft. Monmouth, NJ.

* Gerber, H., 1972: Size and nucleating ability of Agl particles. *J. Atm. Sci.*, 29, 391-392.

* Gerber, H., 1971: On the performance of the Goetz aerosol spectrometer. *Atm. Environ.*, 5, 1009-1031.

Gerber, H., 1971: Description of the Goetz Aerosol Spectrometer. Proc. 2nd Int. Workshop on Condensation and Ice Nuclei. Ft. Collins, CO.

* Gerber, H., P.A. Allee, U. Katz, C.I. Davis, and L.O. Grant, 1970: Some size distribution measurements of Agl nuclei with an aerosol spectrometer. *J. Atm. Sci.*, 27, 1060-1067.

* Allee, P., and H. Gerber, 1970: Measurements of ice nuclei concentrations and size distributions with an aerosol spectrometer. *Idojaras*, 5-6, 18-21.

* Gerber, H., 1968: A new method of rapidly measuring the oil droplet size distribution of an oil fog. *Atmos. Environ.*, 2, 117-120.

* Allee, P., H. Gerber, and H. Weikmann, 1968: Determination of the sizes of nuclei with an aerosol spectrometer. *J. De Rech. Atmos.*, 1-2, 10-12.

Gerber, H., 1967: Automatic counting of atmospheric aerosols collected with the Goetz Aerosol Spectrometer. ECOM Tech. Report 2852, Ft. Monmouth, NJ.

Gerber, H., 1964: Pressure calibration of the Goetz Aerosol Spectrometer. USASRD Tech Report 2456, Ft. Monmouth, NJ.

* Fenn, R.W., H. Gerber, and D. Wasshausen, 1963: Measurements of the sulphur and ammonium component of the Arctic aerosol of the Greenland icecap. *J. Atm. Sci.*, 20, 466-468.

Fenn, R.W., and H. Gerber, 1962: Some investigations of the optical properties of the continental blue haze. USASRD Tech. Report 2243, Ft. Monmouth, NJ.

Gerber, H., 1961: Techniques and evaluation of aerosol measurements. USASRD Tech. Report 2238, Ft. Monmouth, NJ.

BOOKS

Gerber, H., and E. Hindman, Eds., 1982: *Light Absorption by Aerosol Particles*. Spectrum Press, Hampton, VA pp. 420.

Gerber, H., and A. Deepak, Eds., 1984: *Aerosol and Their Climatic Effects*, Spectrum Press,

VA, pp. 385.

PATENTS

Gerber, H., 1978: Hygrometer. United States Patent 4,083,249, April 11, 1978.

Gerber, H., 1983: Nephelometer. United States Patent 4,374,334, March 1, 1983.

Gerber, H., and B. Ulfers, 1985: Apparatus for determining the liquid water content of a gas. United States Patent 4,597,666, July 1, 1986.

PROFESSIONAL ORGANIZATIONS

American Meteorological Society (present member)
American Geophysical Union (present member)
American Association for Aerosol Research (4 yrs.)
European Association for Aerosol Research (2 yrs.)
Optical Society of America (8 yrs.)
American Institute of Aeronautics and Astronautics (4 yrs.)
International Society of Optical Engineering (2 yrs.)
International Radiation Commission, IUGG (5 yrs.)

RECOGNITION

Publication Commendations (2), U.S. Army Electronics Command.

Research Publication Awards (2), Naval Research Laboratory.

Letter of appreciation, Secretariat, World Meteorological Organization, for consultation.

Letter of appreciation, President, International Radiation Commission (IRC), IUGG, for organization of the Experts Meeting on Aerosol and Climate, preparation of WMO reports, and other functions completed as Co-Chair of the Working Group on Optical Properties of Aerosol of the IRC.

Letter of appreciation, American Institute of Aeronautics and Astronautics for service on technical committee.

Letter of appreciation from Ozone Commission, IUGG, for editing the book "Aerosol and Their Climatic Effects".