

Bibliography

- C. Adams and G. Kattawar. Radiative transfer in spherical shell atmospheres. I — Rayleigh Scattering. *Icarus*, 35:139–151, 1978.
- G. Anderson, F. Kneizys, J. Chetwynd, J. Wang, M. Hoke, L. Rothman, L. Kimball, R. McClatchey, E. Shettle, S. Clough, W. Gallery, L. Abreu, and J. Selby. Fascode/MODTRAN/LOWTRAN: Past/present/future. In *18. Annual Review Conference on Atmospheric Transmission Models*, June 1995.
- D. Bates. Rayleigh scattering by air. *Planet. Space Sci.*, 32(6):785–790, 1984.
- R. Beer, T. Glavich, and D. Rider. Tropospheric emission spectrometer for the Earth Observing System’s Aura satellite. *Appl. Opt.*, 40:2536–2367, 2001.
- R. Bennartz and J. Fischer. A modified k-distribution approach applied to narrow band water vapor and oxygen absorption estimates in the near infrared. *J. Quant. Spectrosc. & Radiat. Transfer*, 66(6): 539–553, 2000.
- A. Berk, L. Bernstein, and D. Robertson. MODTRAN: A Moderate Resolution Model for LOWTRAN 7. Tech. Rep. GL-TR-89-0122, Air Force Geophys. Lab., Hanscom Air Force Base, MA, 1989.
- P. Bernath and E. Kyrölä. Existing instruments and data quality. In *Atmospheric Science Conference*. ESA — European Space Agency, May 2006.
- R. Boisvert, R. Cools, and B. Einarsson. *Assessment of Accuracy and Reliability*, chapter 2, pages 13–32. Software-Environments-Tools. SIAM, Philadelphia, PA, 2005.
- U. Böttger, R. Preusker, and J. Nieke. Radiative transfer model STORM for full Stokes vector calculations for a plane parallel atmosphere-surface-system. In K. Schaefer, editor, *Remote Sensing of Clouds and the Atmosphere X*, volume 5979 of *Proc. SPIE*. SPIE, 2005.
- A. Bourassa, D. Degenstein, and E. Llewellyn. Climatology of the subvisual cirrus clouds as seen by OSIRIS on Odin. *Adv. Space Res.*, 36(5):807–812, 2005.
- H. Bovensmann, J. Burrows, M. Buchwitz, J. Frerick, S. Noël, V. Rozanov, K. Chance, and A. Goede. SCIAMACHY: Mission objectives and measurement mode. *J. Atmos. Sci.*, 56:127–150, 1999.
- I. Bronstein, K. Semendjajew, G. Musiol, and H. Mühlig. *Taschenbuch der Mathematik*. Verlag Harri Deutsch, 2001.
- S. Buehler, P. Eriksson, T. Kuhn, A. von Engel, and C. Verdes. ARTS, the Atmospheric Radiative Transfer Simulator. *J. Quant. Spectrosc. & Radiat. Transfer*, 91(1):65–93, 2005.
- J. Burrows, A. Richter, A. Dehn, B. Deters, S. Himmelmann, S. Voigt, and J. Orphal. Atmospheric remote-sensing-reference data from GOME: 2. Temperature-dependent absorption cross sections of O₃ in the 231–794 nm range. *J. Quant. Spectrosc. & Radiat. Transfer*, 61(4):509–517, 1999.
- A. Calder, J. Dursi, B. Fryxell, T. Plewa, G. Weirs, T. Dupont, H. Robey, J. Kane, B. Remington, F. Timmes, G. Dimonte, J. Hayes, M. Zingale, P. Drake, P. Ricker, J. Stone, and K. Olson. Validating astrophysical simulation codes. *Computing in Science & Engineering*, 6(5):10–20, 2004.
- B. Carli, D. Alpaslan, M. Carlotti, E. Castelli, S. Ceccherini, B. Dinelli, A. Dudhia, J. Flaud, M. Hoepfner,

- V. Jay, L. Magnani, H. Oelhaf, V. Payne, C. Piccolo, M. Prosperi, P. Raspollini, J. Remedios, M. Ridol, and R. Spang. First results of mipas/envisat with operational level 2 code. *Adv. Space Res.*, 33:1012–1019, 2004.
- K. Chance, J. Wijnbergen, W. Schneider, and J. Burrows. The OHIO concept: A baseline design for satellite-based measurements of stratospheric OH. *Proc. SPIE*, 2159:21–33, 1994.
- S. Clough, F. Kneizys, and R. Davies. Line shape and the water vapor continuum. *Atmos. Res.*, 23:229–241, 1989.
- C. Cox and W. Munk. Measurements of the Roughness of the Sea Surface from Photographs of the Sun's Glitter. *J. Opt. Soc. Am.*, 44(11):838–850, 1954.
- S. Cox, D. McDougal, D. Randall, and R. Schiffer. FIRE – the first ISCCP regional experiment. *Bull. Am. Met. Soc.*, 68(2):114–118, 1987.
- A. Dahlback and K. Stamnes. A new spherical model for computing the radiation field available for photolysis and heating at twilight. *Planet. Space Sci.*, 39(5):671–683, 1991.
- G. d'Almeida, P. Koepke, and E. Shettle. *Atmospheric Aerosols*. A. Deepak Publishing, Hampton, VA, 1991.
- C. Davis, C. Emde, and R. Harwood. A 3D Polarized Reversed Monte Carlo Radiative Transfer Model for mm and sub-mm Passive Remote Sensing in Cloudy Atmospheres. *IEEE T. Geosci. Remote*, 43(6):1096–1101, 2005.
- A. Del Genio, A. Wolf, G. Mace, and L. Miloshevich. Observed regimes of Mid-latitude and Tropical Cirrus Microphysical Behavior. In *Twelfth ARM Science Team Meeting Proceedings*. St. Petersburg, Florida, 2002.
- W. M. Elsasser and M. F. Culbertson. Atmospheric Radiation Tables. *Meteorological Monographs*, 4(23):1–43, 1960.
- C. Emde. *A polarized discrete ordinate scattering model for radiative transfer simulations in spherical atmospheres with thermal source*. PhD thesis, Universität Bremen, 2005.
- K. Evans. Two-dimensional radiative transfer in cloudy atmospheres: The spherical harmonic spatial grid method. *J. Atmos. Sci.*, 50:3111–3124, 1993.
- G. Ewen, R. Grainger, A. Lambert, and A. Baran. Infrared radiative transfer modelling in a 3D scattering cloudy atmosphere: Application to limb sounding measurements of cirrus. *J. Quant. Spectrosc. & Radiat. Transfer*, 96(1):45–74, 2005.
- F. Fell. *Validierung eines Modells zur Simulation des Strahlungstransportes in Atmosphäre und Ozean*. PhD thesis, Freie Universität Berlin, 1997.
- F. Fell and J. Fischer. Numerical simulation of the light field in the atmosphere-ocean system using the matrix-operator method. *J. Quant. Spectrosc. & Radiat. Transfer*, 69(3):351–388, 2001.
- H. Fischer and H. Oelhaf. Remote sensing of vertical profiles of atmospheric trace constituents with MIPAS limb-emission spectrometers. *Appl. Opt.*, 35:2787–2796, 1996.
- N. Glatthor, M. Höpfner, G. Stiller, T. von Clarmann, A. Dudhia, G. Echle, B. Funke, and F. Hase. Intercomparison of the KOPRA and the RFM radiative transfer codes. In J. Russell, editor, *Satellite Remote Sensing of Clouds and the Atmosphere IV*, volume 3867 of *Proceedings of SPIE*, pages 348–364, 1999.
- E. Griffioen and L. Oikarinen. LIMBTRAN: a pseudo three-dimensional radiative transfer model for the limb-viewing imager OSIRIS on the ODIN satellite. *J. Geophys. Res.*, 105:29717–29730, 2000.
- G. Guo, Q. Ji, P. Yang, and S.-C. Tsay. Remote Sensing of Cirrus Optical and Microphysical Properties From Ground-Based Infrared Radiometric Measurements – Part II: Retrievals From CRYSTAL-FACE Measurements. *IEEE Geoscience and Remote Sensing Letters*, 2(2):132–135, 2005.

- J. Hallett, W. Arnott, M. Bailey, and J. Hallett. *Mid-latitude and Tropical Cirrus: Microphysical Properties*, chapter 3, pages 41–77. In , Lynch et al. (2002), 2002.
- M. Hess, P. Koepke, and I. Schult. Optical properties of aerosols and clouds: The software package OPAC. *Bull. Am. Met. Soc.*, 79:831–844, 1998.
- A. Heymsfield, A. Bansemer, P. Field, S. Durden, J. Stith, J. Dye, W. Hall, and T. Grainger. Observations and Parameterizations of Particle Size Distributions in Deep Tropical Cirrus and Stratiform Precipitating Clouds: Results from In Situ Observations in TRMM Field Campaigns. *J. Atmos. Sci.*, 59(24):3457–3491, 2002.
- A. Heymsfield and G. McFarquhar. *Mid-latitude and Tropical Cirrus: Microphysical Properties*, chapter 4, pages 78–101. In , Lynch et al. (2002), 2002.
- A. Heymsfield, G. McFarquhar, W. Collins, J. Goldstein, F. Valero, J. Spinhirne, W. Hart, and P. Pilewskie. Cloud properties leading to highly reflective tropical cirrus: Interpretations from CEPEX, TOGA COARE, and Kwajalein, Marshall Islands. *J. Geophys. Res.*, 103(D8):8805–8812, 1998.
- A. Heymsfield and C. Platt. A Parameterization of the Particle Size Spectrum of Ice Clouds in Terms of the Ambient Temperature and the Ice Water Content. *J. Atmos. Sci.*, 41(5):846–855, 1984.
- S. Hook. ASTER Spectral Library. <http://speclib.jpl.nasa.gov/>, 2005.
- M. Höpfner. Study on the impact of polar stratospheric clouds on high resolution mid-IR limb emission spectra. *J. Quant. Spectrosc. & Radiat. Transfer*, 83(1):93–107, 2004.
- M. Höpfner, 2005. private communication.
- M. Höpfner and C. Emde. Comparison of single and multiple scattering approaches for the simulation of limb-emission observations in the mid-IR. *J. Quant. Spectrosc. & Radiat. Transfer*, 91(3):275–285, 2005.
- M. Höpfner, H. Oelhaf, G. Wetzal, F. Friedl-Vallon, A. Kleinert, A. Lengel, G. Maucher, H. Nordmeyer, N. Glatthor, G. Stiller, T. von Clarmann, H. Fischer, C. Kroeger, and T. Deshler. Evidence of scattering of tropospheric radiation by PSCs in mid-IR limb emission spectra: MIPAS-B observations and KOPRA simulations. *Geophys. Res. Letters*, 29(8), 2002.
- A. Hui, B. Armstrong, and A. Wray. Rapid computation of the Voigt and complex error functions. *J. Quant. Spectrosc. & Radiat. Transfer*, 19:509–516, 1978.
- J. Humlicek. Optimized computation of the Voigt and complex probability function. *J. Quant. Spectrosc. & Radiat. Transfer*, 27:437–444, 1982.
- IEEE. IEEE Standard Glossary of Software Engineering Terminology. report Std 610.121990, IEEE, 1990.
- N. Jacquinet-Husson, E. Arié, J. Ballard, A. Barbe, G. Bjoraker, B. Bonnet, L. Brown, C. Camy-Peyret, J. Champion, A. Chédin, A. Chursin, C. Clerbaux, G. Duxbury, J.-M. Flaud, N. Fourrié, A. Fayt, G. Graner, R. Gamache, A. Goldman, V. Golovko, G. Guelachvili, J. Hartmann, J. Hilico, J. Hillman, G. Lefèvre, E. Lellouch, S. Mikhailenko, O. Naumenko, V. Nemtchinov, D. Newnham, A. Nikitin, J. Orphal, A. Perrin, D. Reuter, C. Rinsland, L. Rosenmann, L. Rothman, N. Scott, J. Selby, L. Sinitza, J. Sirota, A. Smith, K. Smith, V. G. Tyuterev, R. Tipping, S. Urban, P. Varanasi, and M. Weber. The 1997 spectroscopic GEISA databank. *J. Quant. Spectrosc. & Radiat. Transfer*, 62:205–254, 1999.
- B. Kahn, A. Eldering, S. Clough, E. Fetzer, E. Fishbein, M. Gunson, S.-Y. Lee, P. Lester, and V. Realmuto. Near micron-sized cirrus cloud particles in high-resolution infrared spectra: An orographic case study. *Geophys. Res. Letters*, 30(8), 2003.
- J. Kaiser, A. Rozanov, V. Rozanov, and J. Burrows. Evaluation of approximate radiative transfer models intended for retrievals from limb measurements. In W. Smith and Y. Timofeyev, editors, *IRS 2000: Current Problems in Atmospheric Radiation*, pages 417–420. A. Deepak Publishing, 2001.
- G. Kattawar and C. Adams. Radiative transfer in spherical shell atmospheres. II — Asymmetric phase

- functions. *Icarus*, 35:436–449, 1978.
- B. Kerridge, V. Jay, J. Reburn, R. Siddans, B. Latter, F. Lama, A. Dudhia, D. Grainger, A. Burgess, M. Höpfner, T. Steck, G. Stiller, S. Buehler, C. Emde, P. Eriksson, M. Ekström, A. Baran, and M. Wickert. Consideration of mission studying chemistry of the UTLS. Final Report ESTEC Contract No 15457/01/NL/MM, ESTEC, 2004.
- M. King, Y. Kaufman, W. Menzel, and D. Tanre. Remote sensing of cloud, aerosol, and water vapor properties from the Moderate Resolution Imaging Spectrometer (MODIS). *IEEE Transactions on Geoscience and Remote Sensing*, 30(1):2–27, 1992.
- M. Kuntz. A new implementation of the Humlicek algorithm for the calculation of the Voigt profile function. *J. Quant. Spectrosc. & Radiat. Transfer*, 57:819–824, 1997.
- A. Kylling, K. Stamnes, and S.-C. Tsay. A reliable and efficient two-stream algorithm for spherical radiative transfer: Documentation of accuracy in realistic layered media. *J. Atmos. Chem.*, 21:115–150, 1995.
- A. Lacis and V. Oinas. A description of the correlated k distribution method for modeling nongray gaseous absorption, thermal emission, and multiple scattering in vertically inhomogeneous atmospheres. *J. Geophys. Res.*, 96:9027–9063, 1991.
- H. Liebe. MPM — an atmospheric millimeter-wave propagation model. *Int. J. IR MM Waves*, 10:631, 1989.
- K.-N. Liou. *Radiation and Cloud Processes in the Atmosphere*. Oxford University Press, 1992.
- K.-N. Liou. *An Introduction to Atmospheric Radiation*. Academic Press, second edition, 2002.
- E. Llewellyn, N. Lloyd, D. Degenstein, R. Gattinger, S. Petelina, A. Bourassa, J. Wiensz, E. Ivanov, I. McDade, B. Solheim, J. McConnell, C. Haley, C. von Savigny, C. Sioris, C. McLinden, E. Griffioen, J. Kaminski, W. Evans, E. Puckrin, K. Strong, V. Wehrle, R. Hum, D. Kendall, J. Matsushita, D. Murtagh, S. Brohede, J. Stegman, G. Witt, G. Barnes, W. Payne, L. Pich, K. Smith, G. Warshaw, D.-L. Deslauniers, P. Marchand, E. Richardson, R. King, I. Wevers, W. McCreath, E. Kyrl, L. Oikarinen, G. Leppelmeier, H. Auvinen, G. Mgie, A. Hauchecorne, F. Lefvre, J. de La Ne, P. Ricaud, U. Frisk, F. Sjoberg, F. von Schele, , and L. Nordh. The OSIRIS instrument on the Odin spacecraft. *Can. J. Phys.*, 82(6):411–422, 2004.
- R. Loughman, E. Griffioen, L. Oikarinen, O. Postlyakov, A. Rozanov, D. Flittner, and D. F. Rault. Comparison of radiative transfer models for limb-viewing scattered sunlight measurements. *J. Geophys. Res.*, 109(D6), 2004.
- D. Lynch, K. Sassen, D. Starr, and G. Stephens, editors. *Cirrus*. Oxford University Press, 2002.
- W. Malkmus. Random Lorentz band model with exponential-tailed s^{-1} line-intensity distribution function. *J. Opt. Soc. Am.*, 57:323–329, 1967.
- G. McFarquhar and A. Heymsfield. Parameterization of tropical cirrus ice crystal size distributions and implications for radiative transfer: results from CEPEX. *J. Atmos. Sci.*, 54(17):2187–2200, 1997.
- C. McLinden, J. McConnell, E. Griffioen, and C. McElroy. A vector radiative-transfer model for the Odin/OSIRIS project. *Can. J. Phys.*, 80:375–393, 2002. DOI: 10.1139/P01-156.
- R. McPeters, S. Janz, E. Hilsenrath, T. Brown, D. Flittner, and D. Heath. The retrieval of ozone profiles from limb scatter measurements: Results from the Shuttle Ozone Limb Sounding Experiment. *Geophys. Res. Letters*, 27(17):2597–2600, 2000.
- C. Melsheimer, C. Verdes, S. Bühler, C. Emde, P. Eriksson, D. Feist, S. Ichizawa, V. John, Y. Kasai, G. Kopp, N. Koulev, T. Kuhn, O. Lemke, S. Ochiai, F. Schreier, T. Sreerekha, M. Suzuki, C. Takahashi, S. Tsujimaru, and J. Urban. Intercomparison of general purpose clear sky atmospheric radiative transfer models for the millimeter/submillimeter spectral range. *Radio Science*, 40:RS1007, doi:10.1029/2004RS003110, 2005.

- R. Meyers. *Encyclopedia of Physical Science and Technology*. Academic Press, San Diego, CA, 1992.
- M. Mishchenko, L. Travis, and A. Lacis. *Scattering, Absorption, and Emission of Light by Small Particles*. Cambridge University Press, 2002.
- H. Nett. MIPAS in-flight LOS calibration and FOV alignment verification. ESA Rep. PO-RP-ESA-GS-1369, Eur. Space Agency, Paris, 2003.
- R. Norton and R. Beer. New apodizing functions in Fourier spectrometry. *J. Opt. Soc. Am.*, 66:259, 1976.
- R. Norton and C. Rinsland. ATMOS data processing and science analysis methods. *Appl. Opt.*, 30:389–400, 1991.
- H. Pickett, R. Poynter, E. Cohen, M. Delitsky, J. Pearson, and H. Müller. Submillimeter, millimeter, and microwave spectral line catalog. *J. Quant. Spectrosc. & Radiat. Transfer*, 60:883–890, 1998.
- C. Platt. The effect of cirrus of varying optical depth on the extraterrestrial net radiative flux. *Quart. J. R. Met. Soc.*, 107(453):671–678, 1981.
- O. Posttyakov. Linearized vector radiative transfer model MCC++ for a spherical atmosphere. *J. Quant. Spectrosc. & Radiat. Transfer*, 88:297–317, 2004.
- R. Preusker, A. Hünerbein, and J. Fischer. Cloud Detection. ATBD, ESA, 2005. submitted.
- C. Raman. A new radiation. *Indian J. Phys.*, 2:387–398, 1928.
- H. Raschke, J. Schmetz, J. Heintzenberg, R. Kandel, and R. Saunders. The International Cirrus Experiment (ICE)– A joint European effort. *ESA Journal*, 14:193–199, 1990.
- M. Rast and J. Bezy. The ESA Medium Resolution Imaging Spectrometer MERIS a review of the instrument and its mission. *Int. J. Remote Sensing*, 20(9):1681–1702, 1999.
- J. Remedios, J. Gille, and J. Barnett. An investigation of the potential of the high-resolution dynamics limb sounder for upper tropospheric and lower stratospheric ozone and water vapour measurements: a minimum performance scenario. *Adv. Space Res.*, 27(8):1479–1482, 2001.
- L. Rothman, D. Jacquemart, A. Barbe, D. C. Benner, M. Birk, L. Brown, M. Carleer, C. C. Jr., K. Chance, L. Coudert, V. Dana, V. Devi, J.-M. Flaud, R. Gamache, A. Goldman, J.-M. Hartmann, K. Jucks, A. Maki, J.-Y. Mandin, S. Massie, J. Orphal, A. Perrin, C. Rinsland, M. Smith, J. Tennyson, R. Tolchenov, R. Toth, J. V. Auwera, P. Varanasi, and G. Wagner. The HITRAN 2004 molecular spectroscopic database. *J. Quant. Spectrosc. & Radiat. Transfer*, 96:139–204, 2005.
- L. Rothman, R. Wattson, R. Gamache, J. Schroeder, and A. McCann. HITRAN HAWKS and HITEMP high temperature molecular database. *Proc. SPIE*, 2471:105–111, 1995.
- V. Rozanov, M. Buchwitz, K.-U. Eichmann, R. de Beek, and J. Burrows. Sciatran — a new radiative transfer model for geophysical applications in the 240 – 2400 nm spectral region: the pseudo-spherical version. *Adv. Space Res.*, 29(11):1831–1836, 2003.
- K. Sassen and S. Benson. A Midlatitude Cirrus Cloud Climatology from the Facility for Atmospheric Remote Sensing. Part II: Microphysical Properties Derived from Lidar Depolarization. *J. Atmos. Sci.*, 58(15):2103–2112, 2001.
- K. Sassen and B. Cho. Subvisual–Thin Cirrus Lidar Dataset for Satellite Verification and Climatological Research. *J. Applied Meteorol.*, 31(11):1275–1285, 1992.
- R. Schiffer and W. Rossow. The International Satellite Cloud Climatology Project (ISCCP): The First Project of the World Climate Research Programme. *Bull. Am. Met. Soc.*, 64(7):779–784, 1983.
- F. Schreier. The Voigt and complex error function: A comparison of computational methods. *J. Quant. Spectrosc. & Radiat. Transfer*, 48:743–762, 1992.
- F. Schreier and U. Böttger. MIRART, a line-by-line code for infrared atmospheric radiation computations incl. derivatives. *Atmos. & Oceanic Optics*, 16:262–268, 2003.

- F. Schreier and B. Schimpf. A new efficient line-by-line code for high resolution atmospheric radiation computations incl. derivatives. In W. Smith and Y. Timofeyev, editors, *IRS 2000: Current Problems in Atmospheric Radiation*, pages 381–384. A. Deepak Publishing, 2001.
- E. Shettle. Models of aerosols, clouds and precipitation for atmospheric propagation studies. In *Atmospheric Propagation in the UV, Visible, IR and MM-Wave Region and related Systems Aspects*. AGARD Conference Proceedings CP-454, 1990.
- F. Spada, M. Krol, and P. Stammes. McSCIA: application of the Equivalence Theorem in a Monte Carlo radiative transfer model for spherical shell atmospheres. *Atmos. Chem. Phys. Discuss.*, 6, 2006.
- R. Spang, G. Eidmann, M. Riese, D. Offermann, P. Preusse, L. Pfister, and P.-H. Wang. CRISTA observations of cirrus clouds around the tropopause. *J. Geophys. Res.*, 107(D23), 2002a.
- R. Spang, J. Remedios, and M. Barkley. Colour indices for the detection and differentiation of cloud types in infra-red limb emission spectra. *Adv. Space Res.*, 33(7):1041–1047, 2004.
- R. Spang, M. Riese, G. Eidmann, D. Offermann, and P.-H. Wang. A detection method for cirrus clouds using CRISTA 1 and 2 measurements. *Adv. Space Res.*, 27(10):1629–1634, 2002b.
- K. Stamnes and R. Swanson. A New Look at the Discrete Ordinate Method for Radiative Transfer Calculations in Anisotropically Scattering Atmospheres. *J. Atmos. Sci.*, 38(2):387–399, 1981.
- K. Stamnes, S.-C. Tsay, W. Wiscombe, and K. Jayaweera. Numerically stable algorithm for discrete-ordinate-method radiative transfer in multiple scattering and emitting layered media. *Appl. Opt.*, 27: 2502–2509, 1988.
- T. Steck. *Bestimmung der Vertikalprofile von Spurengasen aus MIPAS-Messungen unter Hinzunahme von a priori Wissen*. PhD thesis, Universität Karlsruhe, 2000.
- G. Stephens and P. Webster. Clouds and climate: Sensitivity of simple systems. *J. Atmos. Sci.*, 38(2): 235–247, 1981.
- G. Stiller. The Karlsruhe Optimized and Precise Radiative transfer Algorithm. Wissenschaftliche Berichte Bericht Nr. 64870, Forschungszentrum Karlsruhe, 2000.
- G. Stiller, T. von Clarmann, B. Funke, N. Glatthor, F. Hase, M. Höpfner, and A. Linden. Sensitivity of trace gas abundances retrievals from infrared limb emission spectra to simplifying approximations in radiative transfer modelling. *J. Quant. Spectrosc. & Radiat. Transfer*, 72:249–280, 2002.
- C. Teichmann, S. Bühler, and C. Emde. Understanding the polarization signal of spherical particles for microwave limb radiances. *J. Quant. Spectrosc. & Radiat. Transfer*, 101(1):179–190, 2006.
- G. Thomas and K. Stamnes. *Radiative Transfer in the Atmosphere and Ocean*. Cambridge University Press, 1999.
- O. Toon, M. Tolbert, B. Koehler, A. Middlebrook, and J. Jordan. Infrared optical constants of H₂O ice, amorphous nitric acid solutions, and nitric acid hydrates. *J. Geophys. Res.*, 99(D12):25631–25654, 1994.
- J. van Vleck and D. Huber. Absorption, emission, and linebreadths: A semihistorical perspective. *Rev. Mod. Phys.*, 49(4):939–959, 1977.
- T. von Clarmann, N. Glatthor, U. Grabowski, M. Höpfner, S. Kellmann, M. Kiefer, A. Linden, G. M. Tsidu, M. Milz, T. Steck, G. Stiller, D. Y. Wang, H. Fischer, B. Funke, S. Gil-López, and M. López-Puertas. Retrieval of temperature and tangent altitude pointing from limb emission spectra recorded from space by the Michelson Interferometer for Passive Atmospheric Sounding (MIPAS). *J. Geophys. Res.*, 108(D23):4736, 2003.
- T. von Clarmann, M. Höpfner, B. Funke, M. López-Puertas, A. Dudhia, V. Jay, F. Schreier, M. Ridolfi, S. Ceccherini, B. Kerridge, J. Reburn, and R. Siddans. Modeling of atmospheric mid-infrared radiative transfer: The AMIL2DA algorithm intercomparison experiment. *J. Quant. Spectrosc. & Radiat. Transfer*, 78:381–407, 2002.

- H. Walter and J. Landgraf. Towards linearization of atmospheric radiative transfer in spherical geometry. *J. Quant. Spectrosc. & Radiat. Transfer*, 95(2):175–200, 2005.
- J. Waters, W. Read, L. Froidevaux, R. Jarnot, R. Cofield, D. Flower, G. Lau, H. Pickett, M. Santee, D. Wu, M. Boyles, J. Burke, R. Lay, M. Loo, N. Livesey, T. Lungu, G. Manney, L. Nakamura, V. Perun, B. Ridenoure, Z. Shippony, P. Siegel, R. Thurstans, R. Harwood, H. Pumphrey, and M. Filipiak. The UARS and EOS Microwave Limb Sounder (MLS) Experiments. *J. Atmos. Sci.*, 56(2):194–218, 1999.
- W. Wiscombe and J. Evans. Exponential-sum fitting of radiative transmission functions. *Journal of Computational Physics*, 24:416–444, 1977.
- World Climate Research Program. A preliminary cloudless standard atmosphere for radiation computation. Technical Report WCP-112, WMO/TD-N 24, Int. Ass. Meteorol. Atm. Phys., Radiation Commission, 1986.
- D. Wylie, W. Menzel, H. Woolf, and K. Strabala. Four years of global cirrus cloud statistics using HIRS. *J. Climate*, 9:1972–1986, 1994.
- P. Yang, H. Wei, H.-L. Huang, B. Baum, Y. Hu, G. Kattawar, M. Mishchenko, and Q. Fu. Scattering and absorption property database for nonspherical ice particles in the near-through far-infrared spectral region. *Appl. Opt.*, 44(26):5512–5523, 2005.
- P. Yang, H.-L. Wei, B. Baum, H.-L. Huang, A. Heymsfield, Y. Hu, B.-C. Gao, and D. Turner. The spectral signature of mixed-phase clouds composed of non-spherical ice crystals and spherical liquid droplets in the terrestrial window region. *J. Quant. Spectrosc. & Radiat. Transfer*, 79–80:1171–1188, 2003.

