Brian Hannon Kahn

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Education

Ph.D, 2004	Atmospheric Sciences, University of California at Los Angeles (UCLA) Department of Atmospheric and Oceanic Sciences
M.S., 2001	Atmospheric Sciences, UCLA
B.S., 1995	Meteorology (with honors), San Jose State University (SJSU)

Experience

2011–	Research Scientist, JPL
2009–2011	Scientist, JPL
2009–	Visiting Researcher, UCLA, Joint Institute for Regional Earth System Science and Engineering (JIFRESSE)
2008	Assistant Researcher IV, UCLA/JIFRESSE
2005–2008	NASA Postdoctoral Program (NPP) Fellow
2003–2005	Academic Part-Time Researcher, JPL
2000–2004	Graduate Research Assistant, UCLA
1999–2002	Teaching Fellow, UCLA
1998–2004	On-Air Personality for *Pulse of This Planet*, KKUP, 91.5 FM, Cupertino, CA
1997–1999	Physics Lab Instructor, SJSU
1997–1999	Lecturer on Weather and Climate, SJSU
1996–1997	Exchange Student, Urals State University, Ekaterinburg, Russia
1994–1995	Summer Intern, National Weather Service Forecast Office, Anchorage, AK

Honors and Awards

NASA Postdoctoral Program (NPP) Fellowship Award (2005–2008)
NASA Earth Systems Science (ESS) Fellowship (2001–2004)
Brian Bosart Award, UCLA (2001)
Neiburger Teaching Award, UCLA (2000)
Scholarship to attend Urals State University, Ekaterinburg, Russia (1996–1997)

Professional Activities

Associate Editor, Atmospheric Measurement Techniques (2013–)
Member, Atmospheric Infrared Sounder (AIRS) Science Team (2014–)
Member, Moderate Resolution Imaging Spectroradiometer (MODIS) Science Team (2014–)
Member, CALIPSO/CloudSat Science Team (2008–)
Member, American Geophysical Union (AGU) and American Meteorological Society (AMS)
Member, AMS Committee on Satellite Meteorology, Oceanography, and Climatology (2015–)
Member, Atmospheric Sciences Data Center (ASDC) User's Working Group (UWG) for the Distributed Active Archive Center (DAAC) at the Langley Research Center (2010–)
Lead cloud scientist for the NASA/JPL Atmospheric Infrared Sounder (AIRS) project (2005–)

Reviewer for *Atmosphere-Ocean*; *Atmospheric Chemistry and Physics*; *Atmospheric Measurement Techniques*; *Climate Dynamics*; *Dynamics of Atmospheres and Oceans*; *Geophysical Research Let*ters; *Icarus*; *IEEE Geoscience Remote Sensing Letters*; *IEEE Transactions Geoscience Remote Sensing*;

Journal of Applied Meteorology; *Journal of Applied Meteorology and Climatology*; *Journal of Atmospheric and Oceanic Technology*; *the Journal of the Atmospheric Sciences*; *Journal of Climate*; *Journal of Geophysical Research–Atmospheres*; *Journal of Geophysical Research–Oceans*; *Journal of Quantitative Spectroscopy and Radiative Transfer*; *Quarterly Journal of the Royal Meteorological Society*; *Remote Sensing*; *Remote Sensing of the Environment*; *Science*; *Weather and Forecasting*

Refereed Publications (H = 16)

[1] **Kahn, B. H**., X. Huang, G. L. Stephens, W. D. Collins, D. R. Feldman, H. Su, S. Wong, and Q. Yue (2016), ENSO regulation of far- and mid-infrared contributions to clear-sky OLR, *Geophys. Res. Lett*., doi:10.1002/2016GL070263 (in press).

[2] Wong, S., A. D. Del Genio, T. Wang, **B. H. Kahn**, E. J. Fetzer, and T. S. L'Ecuyer (2016), Responses of tropical ocean clouds and precipitation to the large-scale circulation: Atmospheric water budget-related phase space and dynamical regimes, *J. Climate*, doi:10.1175/JCLI-D-15-0712.1 (in press)

[3] Devasthale, A., J. Sedlar, **B. H. Kahn**, M. Tjernström, E. J. Fetzer, B. Tian, J. Teixeira, and T. S. Pagano (2016), A decade-long mapping of the Arctic atmosphere: novel insights from NASA's Atmospheric Infrared Sounder (AIRS) instrument, *Bull. Amer. Met. Soc*., doi:10.1175/BAMS-D-14-00202.1 (in press)

[4] Staten, P. W., **B. H. Kahn**, M. M. Schreier, and A. K. Heidinger (2016), Sub-pixel characterization of HIRS spectral radiances using cloud properties from AVHRR, *J. Atmos. Ocean Tech*., **33**, 1519–1538, doi:10.1175/JTECH-D-15-0187.1.

[5] Stephens, G. L., **B. H. Kahn**, and M. Richardson (2016), The super greenhouse effect in a changing climate, *J. Climate*, **29**, 5469–5482, doi:10.1175/JCLI-D-15-0234.1.

[6] Sengupta, A., N. Cressie, **B. H. Kahn**, and R. Frey (2016), Predictive inference for big, spatial, non-Gaussian data: MODIS cloud data and its change-of-support, *Aust. N. Z. J. Stat*., **58**(1), 15–45, doi:10.1111/anzs.12148.

[7] Yue, Q., **B. H. Kahn**, E. J. Fetzer, M. Schreier, S. Wong, X. Chen, and X. Huang (2016), Observation-based longwave cloud radiative kernels derived from the A-train, *J. Climate*, **29**, 2023–2040, doi:10.1175/JCLI-D-15-0257.1

[8] Anderson, D. C., J. M. Nicely, R. J. Salawitch, and Coauthors (2016), A pervasive role for biomass burning in tropical high ozone/low water structures, *Nat. Comm*., **7**, doi:10.1038/ncomms10267.

[9] Wu, L., H. Su, R. G. Fovell, T. J. Dunkerton, Z. Wang, and **B. H. Kahn** (2015), Impact of environmental moisture on tropical cyclone intensification, *Atmos. Chem. Phys.,* **15**, 14031–14053.

[10] **Kahn, B. H**., M. M. Schreier, Q. Yue, E. J. Fetzer, F. W. Irion, S. Platnick, C. Wang, S. L. Nasiri, and T. S. L'Ecuyer (2015), Pixel-scale assessment and uncertainty analysis of AIRS and MODIS ice cloud optical thickness and effective radius, *J. Geophys. Res*., **120**, doi:10.1002/2015JD023950.

[11] Naud, C. M., and **B. H. Kahn** (2015), Thermodynamic phase and ice cloud properties in northern hemisphere winter extratropical cyclones observed by Aqua AIRS, *J. Appl. Meteor. Climatol*., **54**, 2283–2303, doi:10.1175/JAMC-D-15-0045.1.

[12] Lubin, D., **B. H. Kahn**, M. A. Lazzara, P. Rowe, and V. P. Walden (2015), Variability in AIRS-retrieved cloud amount and thermodynamic phase over west versus east Antarctica influenced by the SAM, *Geophys. Res. Lett*., **42**, doi:10.1002/2014GL062285.

[13] Wong, S., E. J. Fetzer, M. Schreier, G. Manipon, E. F. Fishbein, **B. H. Kahn**, Q. Yue, and F. W. Irion (2015), Cloud-induced uncertainties in AIRS and ECMWF temperature and specific humidity, *J. Geophys. Res. Atmos.*, **120**, doi:10.1002/2014JD022440.

[14] Schreier, M. M., **B. H. Kahn**, K. Sušelj, J. Karlsson, S. C. Ou, Q. Yue, K.-F. Li, and S. L. Nasiri (2014), Atmospheric parameters in a subtropical cloud regime transition derived by AIRS and MODIS: observed statistical variability compared to ERA-Interim, *Atmos. Chem. Phys.*, **14**, 3573–3587.

[15] **Kahn**, **B. H.**, F. W. Irion, V. T. Dang, E. M. Manning, S. L. Nasiri, C. M. Naud, J. Blaisdell, M. M. Schreier, Q. Yue, K. W. Bowman, E. J. Fetzer, G. C. Hulley, K. N. Liou, D. Lubin, S. C. Ou, J. Susskind, Y. Takano, B. Tian, and J. Worden (2014), The Atmospheric Infrared Sounder Version 6 cloud products, *Atmos. Chem. Phys.*, **14**, 399–426.

[16] Yue, Q., E. J. Fetzer, **B. H. Kahn**, S. Wong, G. Manipon, A. Guillaume, and B. Wilson (2013), Cloud-state dependent sampling in AIRS observations based on CloudSat cloud classification, *J. Climate*, **26**, 8357–8377.

[17] Yue, Q., **B. H. Kahn**, H. Xiao, M. M. Schreier, E. J. Fetzer, J. Teixeira, and K. Suselj (2013), Transitions of cloud-topped marine boundary layers characterized by AIRS, MODIS, and a large eddy simulation model, *J. Geophys. Res. Atmos.*, **118**, 8598–8611, doi:10.1002/jgrd.50676.

[18] Ou, S.-C., **B. H. Kahn**, K. N. Liou, Y. Takano, M. M. Schreier, and Q. Yue (2013), Retrieval of cirrus cloud properties from the Atmospheric Infrared Sounder: The k-coefficient approach combined with SARTA plus delta-four stream approximation, *IEEE Trans. Geosci. Remote Sens.*, **51**, 1010–1024.

[19] Tian, B., E. J. Fetzer, **B. H. Kahn**, J. Teixeira, E. Manning, and T. Hearty (2013), Evaluating CMIP5 Models using AIRS Tropospheric Air Temperature and Specific Humidity Climatology, *J. Geophys. Res. Atmos.*, **118**, 114–134, doi:10.1029/2012JD018607.

[20] Devasthale, A., M. Tjenström, M. Caian, M. A. Thomas, **B. H. Kahn**, and E. J. Fetzer (2012), Influence of the Arctic Oscillation on the vertical distribution of clouds as observed by the A-train constellation of satellites, *Atmos. Chem. Phys.*, **12**, 10535–10544, doi:10.5194/acp-12-10535-2012.

[21] Wu, L., H. Su, R. G. Fovell, B. Wang, J. T. Shen, **B. H. Kahn**, S. M. Hristova-Veleva, B. H. Lambrigtsen, E. J. Fetzer, and J. H. Jiang (2012), Relationship of environmental relative humidity with North Atlantic tropical cyclone intensity and intensification rate, *Geophys. Res. Lett.*, **39**, L20809, doi:10.1029/2012GL053546.

[22] Braverman, A. J., E. J. Fetzer, **B. H. Kahn**, E. M. Manning, R. B. Oliphant, and J. P. Teixeira (2012), Massive data set analysis for NASA's Atmospheric Infrared Sounder, *Technometrics*, **54**, 1–15, doi:10.1080.00401706.2012.650504.

[23] Casey, S. P., E. J. Fetzer, and **B. H. Kahn** (2012), Revised identification of tropical oceanic cumulus congestus as viewed by CloudSat, *Atmos. Chem. Phys.*, **12**, 1587–1595.

[24] Wong, S., E. J. Fetzer, **B. H. Kahn**, B. Tian, B. Lambrigtsen, and H. Ye (2011), Closing the global water vapor budget with AIRS water vapor, MERRA reanalysis, TRMM and GPCP precipitation, and GSSTF surface evaporation, *J. Climate*, 24, 6307–6321.

[25] **Kahn, B. H**., S. L. Nasiri, M. M. Schreier, and B. A. Baum (2011), Impacts of sub-pixel cloud heterogeneity on infrared thermodynamic phase assessment, *J. Geophys. Res.*, **116**, D20201, doi:10.1029/2011JD015774.

[26] Yue, Q., **B. H. Kahn**, E. J. Fetzer, and J. Teixeira (2011), Relationship between oceanic boundary layer clouds and lower tropospheric stability observed by AIRS, CloudSat, and CALIOP, *J. Geophys. Res.*, **116**, D18212, doi:10.1029/2011JD016136.

[27] **Kahn, B. H.**, J. Teixeira, E. J. Fetzer, A. Gettelman, S. M. Hristova-Veleva, X. Huang, A. K. Kochanski, M. Köhler, S. K. Krueger, R. Wood, and M. Zhao (2011), Temperature and water vapor variance scaling in global models: Comparisons to satellite and aircraft data, *J. Atmos. Sci.*, **68**, 2156–2168, doi:10.1175/2011JAS3737.1

[28] Nasiri, S. L., V. T. Dang, **B. H. Kahn**, E. J. Fetzer, E. M. Manning, M. M. Schreier, and R. A. Frey (2011), Comparing MODIS and AIRS infrared-based cloud retrievals, *J. Appl. Meteor. Clim.*, **50**, 1057–1072, doi:10.1175/2010JAMC2603.1.

[29] Martins, J. P. A., J. Teixeira, P. M. M. Soares, P. M. A. Miranda, **B. H. Kahn**, V. Dang, F. W. Irion, E. Fetzer and E. F. Fishbein (2010), Infrared sounding of the trade-wind boundary layer: AIRS and the RICO experiment, *Geophys. Res. Lett.* **37**, L24806, doi:10.1029/2010GL045902.

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[32] Su, H., J. H. Jiang, J. D. Neelin, **B. H. Kahn**, J. W. Waters, N. J. Livesey, and Y. Gu (2010), Reply to comment by R. Rondanelli and R. S. Lindzen on ''Variations in convective precipitation fraction and stratiform area with sea surface temperature,'' *J. Geophys. Res.*, **115**, D06203, doi:10.1029/2009JD012872.

[33] **Kahn, B. H.**, and J. Teixeira (2009), A global climatology of temperature and water vapor variance scaling from the Atmospheric Infrared Sounder, *J. Climate*, **22**, 5558–5576, doi: 10.1175/2009JCLI2934.1.

[34] **Kahn, B. H.**, A. Gettelman, A. Eldering, E. J. Fetzer, and C. K. Liang (2009), Cloudy and clear sky relative humidity distributions in the upper troposphere observed by the A-train, doi:10.1029/2009JD011738, *J. Geophys. Res.*, **114**, D00H02, doi:10.1029/2009JD011738.

[35] Wu, D. L., S. A. Ackerman, R. Davies, D. J. Diner, M. J. Garay, **B. H. Kahn**, B. C. Maddux, C. M. Moroney, G. L. Stephens, J. P. Veefkind, and M. A. Vaughan (2009), Vertical distributions and relationships of cloud occurrence frequency as observed by MISR, AIRS, MODIS, OMI, CALIPSO, and CloudSat, *Geophys. Res. Lett.*, **36**, L09821, doi:10.1029/2009GL037464.

[36] Davis, S. M., L. M. Avallone, **B. H. Kahn**, K. G. Meyer, and D. Baumgardner (2009), Comparison of airborne in situ measurements and MODIS retrievals of cirrus cloud optical and microphysical properties during the Midlatitude Cirrus Experiment (MidCiX), *J. Geophys. Res.*, **114**, D02203, doi:10.1029/2008JD010284.

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[38] Nasiri, S. L., and **B. H. Kahn** (2008), Limitations of bispectral infrared cloud phase determination and potential for improvement, *J. Appl. Meteor. Climatol.*, **47**, 2895–2910.

[39] **Kahn, B. H.**, and D. M. Sinton (2008), A preferred scale for warm core instability in a non-convective moist basic state, *J. Atmos. Sci.*, **65**, 2907–2921.

[40] Su, H., J. H. Jiang, Y. Gu, J. D. Neelin, **B. H. Kahn,** D. Feldman, Y. L. Yung, J. W. Waters, N. J. Livesey, M. L. Santee, and W. G. Read (2008), Variations of tropical upper tropospheric clouds with sea surface temperature and implications for radiative effects, *J. Geophys. Res.*, **113**, D10211, doi:10.1029/2007JD009624.

[41] **Kahn, B. H.,** C. K. Liang, A. Eldering, A. Gettelman, Q. Yue, and K. N. Liou (2008), Tropical thin cirrus and relative humidity observed by the Atmospheric Infrared Sounder, *Atmos. Chem. Phys.*, **8**, 1501–1518.

[42] **Kahn, B. H**., M. T. Chahine, G. L. Stephens, G. G. Mace, R. Marchand, Z. Wang, C. D. Barnet, A. Eldering, R. E. Holz, R. E. Kuehn, and D. G. Vane (2008), Cloud-type comparisons of AIRS, CloudSat, and CALIPSO cloud height and amount, *Atmos. Chem. Phys.*, **8**, 1231–1248.

[43] Yue, Q., K. N. Liou, S. C. Ou, **B. H. Kahn**, P. Yang, and G. G. Mace (2007), Interpretation of AIRS data in thin cirrus atmospheres based on a fast radiative transfer model, *J. Atmos. Sci.* **64**, 3827–3842.

[44] Weisz, E., J. Li, W. P. Menzel, A. K. Heidinger, **B. H. Kahn**, and C.-Y. Liu (2007), Comparison of AIRS, MODIS, CloudSat and CALIPSO cloud top height retrievals, *Geophys. Res. Lett.*, **34**, L17811, doi:10.1029/2007GL030676.

[45] **Kahn, B. H**., E. Fishbein, S. L. Nasiri, A. Eldering, E. J. Fetzer, M. J. Garay, and S.-Y. Lee (2007), The radiative consistency of Atmospheric Infrared Sounder and Moderate Resolution Imaging Spectroradiometer cloud retrievals, *J. Geophys. Res.*, **112**, D09201, doi:10.1029/2006JD007486.

[46] **Kahn, B. H.**, A. Eldering, A. J. Braverman, E. J. Fetzer, J. H. Jiang, E. Fishbein, and D. L. Wu (2007), Toward the characterization of upper tropospheric clouds using Atmospheric Infrared Sounder and Microwave Limb Sounder observations, *J. Geophys. Res.*, **112**, D05202, doi:10.1029/2006JD007336.

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[48] **Kahn, B. H.**, K. N. Liou, S. -Y. Lee, E. F. Fishbein, S. DeSouza-Machado, A. Eldering, E. J. Fetzer, S. E. Hannon, and L. L. Strow (2005), Nighttime cirrus detection using Atmospheric Infrared Sounder channels and total column water vapor, *J. Geophys. Res.*, **110**, doi:10.1029/2004JD005430.

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[51] **Kahn, B. H**., A. Eldering, M. Ghil, S. Bordoni, and S. A. Clough (2004), Sensitivity analysis of cirrus cloud properties from high-resolution infrared spectra. Part I: Methodology and synthetic cirrus, *J. Climate*, **17**, 4856–4870.

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[53] **Kahn, B. H**., A. Eldering, S. A. Clough, E. J. Fetzer, E. F. Fishbein, M. R. Gunson, S. -Y. Lee, P. F. Lester, and V. J. Realmuto (2003), Near micron-sized cirrus cloud particles in high-resolution infrared spectra: An orographic case study, *Geophys. Res. Lett.*, **30**(8), 1441, doi:10.1029/2003GL016909.

[54] **Kahn, B. H**., A. Eldering, F. W. Irion, F. P. Mills, B. Sen, and M. R. Gunson (2002), Cloud identification in Atmospheric Trace Molecule Spectroscopy infrared occultation measurements, *Appl. Opt*., **41**, 2368–2380.

Invited Presentations and Lectures

[1] **Kahn, B. H.** (2016), On the characterization of ice clouds from hyper-spectral infrared satellite observations, International Radiation Symposium, April 2016, Auckland, New Zealand.

[2] **Kahn, B. H.** (2015), Subtropical humidity and cloud organization across thermodynamic and dynamic states using NASA Aqua and MERRA observations, Department of Physics, University of Maryland– Baltimore County, October 2015, Baltimore, MD.

[3] **Kahn, B. H.** (2015), Subtropical humidity and cloud organization by thermodynamic and dynamic states using A-train and reanalysis data, International Union on Geodesy and Geophysics, June 2015, Prague, Czech Republic.

[4] **Kahn, B. H.** (2014), A survey of tropospheric cloud observations from the Atmospheric Infrared Sounder, Caltech Yuk Yung Lunch Seminar, June 2014, Pasadena, CA.

[5] **Kahn, B. H.** (2011), Practical examples of AIRS, MODIS, and CloudSat-centric synergy of temperature, water vapor, and clouds, ESA-NASA Workshop on A-train Constellation Management, May 2011, Montreal, Quebec, Canada.

[6] **Kahn, B. H.** (2011), A few ideas on using A-train observations of temperature, water vapor, and clouds to evaluate and "improve" the realism of climate models, Department of Atmospheric Sciences seminar series, University of Utah, March 2011, Salt Lake City, UT.

[7] **Kahn, B. H**. **and Coauthors** (2010), Temperature and water vapor variance scaling from the Atmospheric Infrared Sounder, climate models, and aircraft data, December 2010, Fall Meeting, American Geophysical Union, San Francisco, CA.

[8] **Kahn, B. H.** (2009), A-train studies of temperature and water vapor variance scaling and upper tropospheric relative humidity distributions, Department of Atmospheric Science seminar series, April 2009, Colorado State University.

[9] **Kahn, B. H.** (2008), An observational view of clouds, temperature, humidity, and small-scale variability from the A-train, Yuk Yung lunch seminar, California Institute of Technology, Pasadena, CA, November 2008.

[10] **Kahn, B. H.** (2008), Relationships between clouds, temperature, and humidity: A perspective from AIRS, CloudSat, and CALIPSO, AeroCenter at the Goddard Space Flight Center, Greenbelt, MD, September 2008.

[11] **Kahn, B. H.** (2008), Ice cloud and humidity distributions viewed by the A-train, Department of Atmospheric and Oceanic Sciences, University of Colorado, Boulder, Colorado, March 2008.

[12] **Kahn, B. H**. (2007), The retrieval of cirrus quantities from AIRS observations: Some challenges and opportunities, Hyperspectral Imaging and Sounding of the Environment topical meeting, Optical Society of America, Santa Fe, New Mexico, February 2007.

[13] **Kahn, B. H**., M. T. Chahine, G. G. Mace, R. Marchand, and G. L. Stephens (2006), A combined view of CloudSat and AIRS cloud fields, December 2006, Fall Meeting, American Geophysical Union, San Francisco, CA.

[14] **Kahn, B. H**. (2006), An AIRS-centric view of global cloudiness from the A-train, Department of Atmospheric Sciences, Texas A&M University, College Station, TX, October 2006.

[15] **Kahn, B. H**. (2005), Towards characterizing cirrus clouds with the Atmospheric Infrared Sounder, Yuk Yung lunch seminar, California Institute of Technology, Pasadena, CA, August 2005.

[16] **Kahn, B. H.** (2005), On the detection and retrieval of cirrus cloud properties using AIRS data, Department of Meteorology, Penn State University, State College, PA, April 2005.

[17] **Kahn, B. H.** (2004), On cirrus (and aerosol) properties from high-resolution infrared spectra, Yuk Yung lunch seminar, California Institute of Technology, Pasadena, CA, January 2004.