Jason Clark Knievel

Curriculum Vitae
24 January 2024

NSF National Center for Atmospheric Research
PO Box 3000, Boulder, CO, USA 80307-3000

knievel@ucar.edu
303-497-8995 (voice) 303-497-8401 (facsimile)

Citizenship: USA

Abbreviations are defined at the end of the CV

Education

2001	PhD	Department of Atmospheric Science, Colorado State University, Fort Collins, CO
1996	MS	Department of Atmospheric Science, Colorado State University, Fort Collins, CO
1992	BS	Department of Meteorology, The Pennsylvania State University, University Park, PA
1992	minor	Department of Geography, The Pennsylvania State University, University Park, PA

Current position

NSF National Center for Atmospheric Research, Boulder, CO

2018– Deputy Director, National Security Applications Program, Research Applications Laboratory

Interests Mesoscale and microscale meteorology over complex terrain and land surfaces; urban meteorology; moist convection and its effects, including convective vortices, density currents, and gravity waves; tropical cyclones; wildfires; ensembles and probabilistic prediction; weather and decision-making; model verification; Weather Research and Forecasting (WRF) Model; Cloud Model 1 (CM1); technology transfer; scientific communication; field campaigns; management

Past research positions

NSF National Center for Atmospheric Research, Boulder, CO

2018–2022	Project Scientist III, Research Applications Laboratory
2009–2018	Project Scientist II, Research Applications Laboratory
2006–2009	Project Scientist I, Research Applications Laboratory
2004–2006	Associate Scientist III, Research Applications Laboratory
2002–2004	Postdoctoral fellow, Mesoscale and Microscale Meteorology Division

University of Colorado, Boulder, CO

2008–2011 Research associate, Department of Atmospheric and Oceanic Sciences

National Severe Storms Laboratory, National Oceanic and Atmospheric Administration, Boulder, CO

2001–2002 National Research Council postdoctoral research associate, Mesoscale Research Division

Colorado State University, Fort Collins, CO

2001	Postdoctoral research associate, Department of Atmospheric Science
1993–2001	Graduate research assistant, Department of Atmospheric Science
1993	Staff research assistant, Department of Atmospheric Science

Past teaching positions

University Corporation for Atmospheric Research, Boulder, CO
2014–2021 Guest instructor, COMET Program

University of Colorado, Boulder, CO
2002 Co-instructor, Program in Atmospheric and Oceanic Sciences

Colorado State University, Fort Collins, CO
1997 Laboratory instructor, Department of Atmospheric Science
1997 Graduate teaching assistant, Department of Atmospheric Science

Other past positions

The Pennsylvania State University, University Park, PA
1993 Assistant technician, Department of Meteorology
1991–1992 Weather forecaster and columnist, Weather Communications Group and *The New York Times*
1988–1992 Assistant caretaker of the University Weather Observatory, Department of Meteorology

Accu-Weather, Inc., State College, PA
1990–1992 Weather forecaster and radio broadcaster

WWZW 95.3 FM, State College, PA
1989–1990 Weather forecaster and consultant

Awarded funding

Proposals

Total **$64,592,948** total awarded funding

2023–2024 Principal investigator, *High-resolution estimates of fuel moisture content over Hawai'i for improved awareness of wildfire risk and better understanding of the 2023 fire in Lahaina, Maui*. National Science Foundation. **$99,966** over one year.

2023–2024 Principal investigator, *Assimilation of rawinsonde data for improved weather forecasting in support of sound modeling*. Jacobs Engineering. **$64,241** over ten months.

2023–2024 Principal investigator, *Characterization of turbulence and other weather conditions for the descent and recovery of the Mars Sample Return (MSR) Earth Entry System (ESS) FY2023.* Jet Propulsion Laboratory. **$105,000** over seven months.

2021–2024 Co-principal investigator, *Real-time fuel moisture content estimations at high spatio-temporal resolution based on reflectances from VIIRS and GOES-R ABI*. Joint Polar Satellite System, National Oceanic and Atmospheric Administration. **$547,842** over three years.

2006–2024 Principal investigator (since 2011) and co-investigator (before 2011), *Development of a Four-Dimensional Weather System (4DWX).* Army Test and Evaluation Command. **$2,000,000–$5,789,189** per year; new proposals submitted annually.

2022–2023 Principal investigator, *Toward probabilistic, high-resolution weather prediction for modeling sound propagation from detonation exercises.* Jacobs Engineering. **$149,440** over one year.

2022–2023 Principal investigator, *Weather and climate data for JPL Mars Sample Return Mission FY2022.* Jet Propulsion Laboratory. $68,000 over six months.

2020–2022 Co-investigator, *Development of a WRF based weather modeling system using four-dimensional data assimilation and ensemble variational methods for the National Center for Meteorology (NCM) in the United Arab Emirates (UAE)*. National Center of Meteorology, United Arab Emirates. $1,990,000 over two years.

2020–2021 Principal investigator, *Probabilistic approaches to modeling sound propagation for Hill Air Force Base and the Utah Test and Training Range. CH2M Hill (Jacobs Engineering)*. $50,000 over fourteen months.

2020–2021 Co-principal investigator, *Accelerating expansion of wildfire-behavior prediction beyond Colorado.* Science Technology Opportunity and Risk Management (STORM) funds, RAL, NSF NCAR. $50,000 over eight months.

2018–2020 Principal investigator, *Colorado decision support system for prediction of wildland fire weather, fire behavior, and aircraft hazards (periods 4 and 5).* Colorado Division of Fire Prevention and Control. $1,110,000 over two years.

2018–2020 Principal investigator, *Improving numerical simulations for modeling sound propagation for Hill Air Force Base and the Utah Test and Training Range (2018).* CH2M Hill. $46,463 over sixteen months.

2017–2020 Principal investigator, *More resilient coastal cities and better hurricane forecasts through multi-scale modeling of extreme winds in the urban canopy.* Prediction of and Resilience against Extreme Events (PREEVENTS). National Science Foundation. $1,565,777 over three years.

2019 Principal investigator, *Weather analysis and prediction in support of the DOD's Dropsonde Targeted Observation Software Solution (SondeTOSS).* US Army Combat Capabilities Development Command. $65,000 over nine months.

2017–2018 Principal investigator, *WRF Model simulations for predicting sound propagation for Hill Air Force Base and the Utah Test and Training Range (2017).* CH2M Hill. $18,304 over five months.

2016–2017 Co-principal investigator, *Applying observations from airborne lidar and other unconventional platforms for improving DOD airdrops.* Air Force Research Laboratory (AFRL). $275,333 over fourteen months.

2016 Principal investigator, *WRF Model simulations for predicting sound propagation for Hill Air Force Base and the Utah Test and Training Range (2016).* CH2M Hill. $18,489 over four months.

2015–2016 Co-principal investigator, *Improving how weather information is used for DOD airdrops (2016).* Air Force Life Cycle Management Center (AFLCMC) Airspace Mission Planning Office. $288,187 over one year.

2015–2016 Principal investigator, *Improvement of microscale numerical weather prediction for application in the Department of Defense.* Army Research Laboratory. $122,850 over one year.

2015 Principal investigator, *WRF Model simulations for predicting sound propagation for Hill Air Force Base and the Utah Test and Training Range (2015).* CH2M Hill. $17,025 over five months.

2014–2015 Co-principal investigator, *Development of the Joint Precision Airdrop System (JPADS) with the Weather Research and Forecasting (WRF) Model.* Air Force Electronics Systems Center (ESC). $503,312 over eighteen months.

2014–2015 Principal investigator, *Further evaluation, enhancement, and documentation of Four- Dimensional Data Assimilation (FDDA) with emphasis on microscale NWP in complex terrain.* Army Research Laboratory. $213,795 over one year.

2006 Co-investigator, *Weather-encounter-software modeling environment using climatological and high-resolution weather data.* SBIR Program, US Department of Defense. $20,000 over one year.

2001 Recipient, research associateship, National Research Council. $36,000 over one year.

Awards for travel and hosting visitors

2023 Awardee, visitor travel grant, RAL, NSF NCAR. $3,651 sponsorship for Michael Wasserstein, University of Utah.

2019 Awardee, visitor travel grant, RAL, NSF NCAR. $3,175 sponsorship for Ryogo Sato, University of Tsukuba, Japan.

2012 Awardee, Graduate Visitor Program, Advanced Study Program, NSF NCAR. $7,170 sponsorship for Jeffrey Massey and James Steenburgh, University of Utah.

2012 Co-awardee, Graduate Visitor Program, Advanced Study Program, NSF NCAR. $8,360 sponsorship for Patrick Hawbecker and Song-Lak Kang, Texas Tech University.

2011 Co-awardee, visitor travel grant, Early Career Scientists' Assembly, NSF NCAR. $7,341 sponsorship for Song-Lak Kang, Texas Tech University.

1999 Recipient, student travel grant, American Meteorological Society.

Field projects

2019 Dropsonde Targeted Observation Software Solution (SondeTOSS) Idaho field tests
Coordinator of WRF Model ensemble simulations

2011–2016 Mountain Terrain Atmospheric Modeling and Observations Program (MATERHORN)
Collaborator and informal consultant

2007 Fusing Sensor Information from Observing Networks (FUSION) Field Trial 2007 (FFT07)
Coordinator of WRF Model ensemble simulations

2006–2007 Canadian CloudSat/CALIPSO Validation Project (C3VP)
Coordinator of WRF Model simulations

2005 Pentagon Shield II
Principal coordinator of outdoor tests

2004 Pentagon Shield I
Assistant coordinator, acting coordinator, and data analyst

2003 Bow Echo and MCV Experiment (BAMEX)
Dropsonde coordinator

2002 Pacific Landfalling Jets Experiment 2002 (PACJET-2002)
Airborne Doppler radar scientist

1999 Complex Layered Cloud Experiment 5 (CLEX-5)
Mission forecaster

1998 South China Sea Monsoon Experiment (SCSMEX)
Quality controller of soundings

1996 Complex Layered Cloud Experiment 1 (CLEX-1)
Mission forecaster

1992–1993 Tropical Ocean Global Atmosphere Coupled Ocean–Atmosphere Response Experiment (TOGA COARE)
Quality controller of soundings

Professional and academic service

Editorial positions

2018– Guest editor, *Atmosphere*

2020–2023 Editorial board, meteorology section, *Atmosphere*

2007–2008 Associate editor, *Monthly Weather Review*

Committees, councils, boards, panels, and related volunteerism

2023– CONVECT Science Steering Committee (member)

2023– Wildfire Committee, Sustainability Nexus Analytics, Informatics, and Data (AID) Programme, United Nations University Institute for Integrated Management of Material Fluxes and Resources (member)

2023– Committee on improving the performance-evaluation process, RAL, NSF NCAR (member)

2023– Minority Serving Institution (MSI) Ambassador Program Committee, RAL, NSF NCAR (member)

2022– Wildfire Working Group, FFRDC Chief Technology Officer Roundtable

2021– Communication Committee, RAL, NSF NCAR (member)

2020– FastEddy steering committee, RAL, NSF NCAR (head)

2020– Committee on Diversity, Equity, and Inclusion, RAL, NSF NCAR (member)

2019– Publication Award Committee, RAL, NSF NCAR (member and sometimes head)

2019– Strategic Development Committee, RAL, NSF NCAR (member)

2018– Meteorology Group, DOD Range Commanders Council (associate member)

2022–2023 TEAMx-US Steering Committee (member)

2020–2023 TEAMx Numerical Modeling Committee, Universität Innsbruck (member)

2018–2021 Workload Management Committee, RAL, NSF NCAR (member)

2019–2020 Mentoring pilot program, RAL, NSF NCAR (member)

2015–2020 Committee on Aviation, Range, and Aerospace Meteorology, AMS (member)

2019 First TEAMx Workshop, Rovereto, Italy (co-leader of breakout sessions on the convective boundary layer and on numerical modeling experiments)

2017–2019 Proposal review committee, internal opportunity funds, RAL, NSF NCAR (member)

1996–2019 Hiring committees, CSU and NSF NCAR (member and sometimes head, twenty total)

2018 Breakout session on workload management, annual retreat, RAL, NSF NCAR (co-leader)

2018 Leadership retreat, RAL, NSF NCAR (co-leader for discussion topic)

2016–2017 Meteorology Group, DOD Range Commanders Council (guest participant)

2016 Panel on ensemble prediction, annual retreat, RAL, NSF NCAR (member)

2014–2015 Change Management Advisory Group, Operational Excellence, UCAR (member)

2012–2013 Warner Internship for Scientific Enrichment (WISE) selection committee, RAL, NSF NCAR (member)

2011–2013 Publication Award Committee, RAL, NSF NCAR (member and sometimes head)

2010–2012 Search committee for postdoctoral fellows, Advanced Study Program, NSF NCAR (member)

2009–2011 Model Verification Advisory Group, RAL, NSF NCAR (member)

2010 Panel on careers in atmospheric science, Undergraduate Leadership Workshop, UCAR (member)

2010 NSF NCAR Scientists' Assembly (panel moderator)

2007 Planning committee for laboratory retreat, RAL, NSF NCAR (member)

2004 Communicating Science Initiative steering committee, UCAR (member)

1999–2000 Representative of the Department of Atmospheric Science, Graduate Student Council, CSU

1997–1998 PhD student representative to departmental faculty, Department of Atmospheric Science, CSU

1996–1997 MS student representative to departmental faculty, Department of Atmospheric Science, CSU

1990–1992 Shift manager, Campus Weather Service, PSU

1991 Acting president, Campus Weather Service, PSU

1990–1991 Treasurer, Campus Weather Service, PSU

Conferences, workshops, and symposia chaired and organized

2020–2022 *Richard H. Johnson Symposium, 102nd Annual Meeting,* AMS (organizing committee)

2018–2019 *19th Conference on Aviation, Range, and Aerospace Meteorology,* AMS (co-chairperson)

2005–2011 ATEC Forecaster Training, Boulder, CO, NSF NCAR and Army Test and Evaluation Command (chairperson)

Sessions and panels chaired

2022 Mesoscale Convective Systems, *Richard H. Johnson Symposium, 102nd Annual Meeting,* AMS

2021 Hurricane hazards at landfall, *34th Conference on Hurricanes and Tropical Meteorology,* AMS

2020 Boundary layers and turbulence (networking session), *19th Conference on Mountain Meteorology,* AMS

2020 New or emerging topics in mountain meteorology, *19th Conference on Mountain Meteorology,* AMS

2020 Boundary layers and turbulence in complex terrain, *19th Conference on Mountain Meteorology,* AMS

2020 Developing weather technologies to support range operations through R2O and O2R pathways (John T. Madura named session), *20th Conference on Aviation, Range, and Aerospace Meteorology,* AMS

2019 What role can HPC play in urgent decision making? (panel member), *International Conference for High Performance Computing, Networking, Storage, and Analysis,* IEEE Computer Society

2019 Latest advances in research on icing and other winter weather that affects aviation, range, and aerospace operations, *19th Conference on Aviation, Range, and Aerospace Meteorology,* AMS

2018 Numerical techniques and parameterizations over complex terrain, *17th Conference Mesoscale Processes,* AMS

2017 Severe weather and its environments, *17th Conference Mesoscale Processes,* AMS

2017 Advances in the use of artificial intelligence techniques in support of aviation, range, and aerospace operations, *18th Conference on Aviation, Range, and Aerospace Meteorology,* AMS

2017 Understanding and mitigating the impact of gravity waves, wake vortices, and wind on aviation operations, *18th Conference on Aviation, Range, and Aerospace Meteorology,* AMS

2016 Translation of forecast uncertainty into capacity impact uncertainty, *5th Symposium on Aviation, Range, and Aerospace Meteorology,* AMS

2010 Verification through time, *Workshop on Verification,* Developmental Testbed Center, NSF NCAR

2008 Air quality, photochemical processes, and complex meteorology (IV), *Fall Meeting,* American Geophysical Union

2006 Importance of land-surface heterogeneity to weather and weather prediction (II), *Fall Meeting,* American Geophysical Union

2003 Organized convective systems, *10th Conference on Mesoscale Processes,* AMS

Peer review

2005– Grant proposals (external): National Oceanic and Atmospheric Administration (NOAA); National Science Foundation (NSF)

2005– Grant proposals (internal): RAL, NSF NCAR

1997– Scientific journals (22): *Atmosphere; Atmospheric Science Letters; Energies; Environmental Modelling and Software; Geophysical Research Letters; International Journal of Climatology; Journal of Applied Meteorology; Journal of Atmospheric and Oceanic Technology; Journal of the Atmospheric Sciences; Journal of Climate; Journal of Geophysical Research; Journal of Marine Science and Engineering; Meteorology and Atmospheric Physics; Monthly Weather Review; Quarterly Journal of the Royal Meteorological Society; SAGE Open; SpringerPlus; Tellus; Urban Climate; Weather and Forecasting; Wind Energy; Wind Energy Science*

Supervision and mentorship

2023– Mentor, Kimberly Fewless, NSF NCAR

2020– Supervisor, Scott Ellis, NSF NCAR

2019– Supervisor, Thomas Hopson, NSF NCAR

2018– Supervisor, Eric Hendricks, NSF NCAR

2017– Supervisor, Christopher Rozoff, NSF NCAR

2011– Supervisor, Justin Shaw, NSF NCAR

2019–2023 Supervisor, William Cheng, NSF NCAR

2019–2023 Supervisor, Patrick Hawbecker, NSF NCAR

2009–2023 Supervisor, Yuewei Liu, NSF NCAR

2020–2021 Supervisor, Gregory Roux, NSF NCAR

2019–2021 Supervisor, Maria Frediani, NSF NCAR

2019–2021 Host, Yi (Emily) Wang, Advanced Study Program, NSF NCAR

2019–2020 Mentor, Arezoo Rafieei Nasab, NSF NCAR

2019 Supervisor, Olga Wilhelmi, NSF NCAR

2019 Supervisor, Daniel Steinhoff, NSF NCAR

2009–2018 Mentor, Linlin Pan, NSF NCAR

2009–2011 Coordinator at NSF NCAR, Forecaster Internship Program, Army Test and Evaluation Command

2009–2011 Mentor, Forecaster Internship Program, Army Test and Evaluation Command

2007–2011 Supervisor, Ming Ge, NSF NCAR

2009–2010 Mentor, Ka Yee Wong, NSF NCAR

2006–2007 Supervisor, Paul Bieringer, NSF NCAR

2006 Supervisor, Julie Schramm, NSF NCAR

2004–2005 Mentor, Forecaster Internship Program, Army Test and Evaluation Command

2004 Research co-mentor, Significant Opportunities in Atmospheric Research and Science, UCAR

2003 Writing mentor, Significant Opportunities in Atmospheric Research and Science, UCAR

Graduate committees

2022– MS, PhD, Michael Wasserstein, University of Utah

2016–2021 PhD, Yuewei Liu, Chinese Academy of Sciences (not completed)

2012–2015 PhD, Jeffrey Massey, University of Utah

2012–2013 MS, Paul Hayes, US Naval Postgraduate School

2010–2011 PhD, Claire Vincent, Technical University of Denmark

2008–2011 PhD, Ming Ge, University of Colorado (not completed)

K–12 education

2023 Judging panelist for problem-based learning projects, STEM Launch School, Thornton, CO

2018 Science mentor, St. John the Baptist School, Longmont, CO

2017–2018 Judge at science fairs, St. John the Baptist School, Longmont, CO

2010–2017 Judge at science fairs, Boulder Valley School District, Boulder, CO

2007 Member of judging panel, GLOBE Project Learning Expedition

2003–2007 Judge at science fairs, Boulder Valley School District, Boulder, CO

1995 Co-instructor, elementary school workshop on weather, Poudre School District, Fort Collins, CO

Seminar series

2016– Coordinator of scientific seminar series, National Security Applications Program, RAL, NSF NCAR

2009–2014 Coordinator of seminar series, RAL, NSF NCAR

2005–2006 Co-coordinator of seminar series, RAL, NSF NCAR

2003–2004 Co-coordinator of seminar series, Mesoscale and Microscale Meteorology Division, NSF NCAR

Awards and honors

2023 RAL Staff Retention and Appreciation (REAP) Award, RAL, NSF NCAR

2022 Annual Laboratory Culture Award, RAL, NSF NCAR

2022	High Performance Computing User Forum Innovation Excellence Award (for Colorado Fire Prediction System)
2020	Honorable mention, Annual Triumph Award, RAL, NSF NCAR
2012	Nomination, Outstanding Administrative Achievement of the Year, UCAR (for successful Commodity Jurisdiction Request to US Department of State for RTFDDA and CFDDA)
2012	Selected for UCAR Leadership Academy 2012–2013 (one of two in RAL)
2011	*You're a Star* award, UCAR Finance and Administration (for contributions above and beyond normal job function)
2006	Nomination, Outstanding Technical Achievement of the Year, UCAR (for Pentagon Shield project)
2002	Highlight conference presentation, AMS ("A comparison of convectively generated mesoscale vortices in the United States and in China")
2002	Paper of Note, AMS ("The kinematics of a midlatitude, continental mesoscale convective system and its mesoscale vortex")
2001	Membership, Phi Kappa Phi National Honor Society
2000	Honorable mention, Best Student Oral Presentation, *20th Conference on Severe Local Storms,* AMS
1998	Graduate Research Award of Excellence, College of Engineering, CSU (awarded annually to the single outstanding graduate research assistant in the college)
1994, 1997	Top forecaster, mesoscale weather forecasting contest, CSU
1996	Invited forecaster, 30th Annual Rocky Mountain Soaring Contest
1992	Student marshal, fall graduation, College of Earth and Mineral Sciences, PSU (awarded to the student ranked first in college's graduating class)
1988–1992	Dean's list, PSU, five semesters
1991	Membership, Chi Epsilon Pi Meteorology Honor Society
1991	Membership, Golden Key National Honor Society
1991	Edwin L. Drake Memorial Scholarship, College of Earth and Mineral Sciences, PSU
1991	College Scholarship, College of Earth and Mineral Sciences, PSU
1990	First place, National Collegiate Forecasting Contest (forecasts for Missoula, MT)
1989	John and Elizabeth Holmes Teas Scholarships, PSU
1988	Knights of Columbus Scholarship, State College, PA
1988	Dean's Freshman Scholarship, PSU

Professional development and training

2018	*Interrupting and dismantling racism,* workshop, UCAR
2017	*Diversity summit,* workshop, UCAR
2016	*Regional climate,* tutorial, NSF NCAR
2014	*Introduction to geographic information systems (GIS),* tutorial, UCAR
2012–2013	*Leadership Academy,* UCAR

2012 *Introduction to export controls,* training, UCAR

2011 *Science: Becoming the Messenger,* workshop, UCAR and NSF

2011 *R statistics language,* tutorial, Centre for Australian Weather and Climate Research, Australia

2011 *Using a fire extinguisher,* training, UCAR

2009 *Export compliance,* training, UCAR

2009 *NCAR Command Language (NCL),* tutorial, NSF NCAR

2008 *Hiring for supervisors,* training, UCAR

2007 *Supervisory skills: beyond the basics and situational,* training, UCAR

2007 *Performance appraisal skills and processes,* training, UCAR

2006 *Supervisory skills: the basics,* training, UCAR

2006 *Art and practice of project leadership,* training, UCAR

2003 *Workplace harassment,* seminar, UCAR

2002 *WRF Model,* tutorial, NSF NCAR

Professional and scholarly affiliations

2021– National Geographic Society

2018– International Association of Wildland Fire

2012– Royal Meteorological Society

2005– International Test and Evaluation Association

2002– National Weather Association

2001– American Association for the Advancement of Science

1997– American Geophysical Union

1996– American Meteorological Society

Computer literacy

Operating systems

UNIX, Linux, Macintosh OS, Windows

Numerical weather prediction

WRF Model, Cloud Model 1 (CM1)

Programming, scripting, and markup

FORTRAN 77/90, Python, several shells, HTML, CSS

Data analysis and display

GrADS, NCL, R, RIP, ncview

Project management, tracking, and collaboration

MS Project, Omniplan, Confluence

Word processing and typesetting

MS Word, Zotero, LaTeX, TeX, Overleaf

Other software and applications

Adobe Acrobat Pro, Adobe Dreamweaver, Adobe Illustrator, Adobe Lightroom, Adobe Photoshop, DxO Nik Collection, MS Excel, MS PowerPoint, Silverfast Ai Studio, Silverfast HDR Studio

Publications

Books and chapters (peer reviewed)

3. Kosović, B., T. Juliano, A. DeCastro, M. Frediani, A. Siems-Anderson, P. Jimenez, D. Muñoz-Esparza, J. C. Knievel, and M. Eghdami, 2023: Forecasting extreme weather events and associated impacts: wildfires. In *Extreme Weather Forecasting: State of the Science, Uncertainty, and Impacts.* M. Astitha and E. Nikolopoulos, Editors. Elsevier, 358 pages. DOI: 10.1016/B978-0-12-820124-4.00009-8.

2. Knievel, J. C., L. Delle Monache, M. Bocquet, S. Galmarini, and Y. Zhang, 2020: Uncertainty quantification and probabilistic forecasting. *Training Materials and Best Practices for Chemical Weather / Air Quality Forecasting,* Y. Zhang and A. Baklanov, Editors. World Meteorological Organization, 562 pages.

1. Haupt, S. E., R. M. Rauber, B. Carmichael, J. C. Knievel, and J. L. Cogan, 2018: 100 years of Progress in Applied Meteorology Part 1: Basic Applications. *A Century of Progress in Atmospheric and Related Sciences: Celebrating the American Meteorological Society Centennial,* G. McFarquhar, Editor. American Meteorological Society. DOI: 10.1175/AMSMONOGRAPHS-D-18-0004.1.

Journal articles and notes (peer reviewed)

41. Duine, G.-J., S. F. J. De Wekker, and J. C. Knievel, 2024: The influence of terrain smoothing on simulated convective boundary-layer depths in mountainous terrain. *Atmosphere,* 15(2), 145. DOI: 10.3390/atmos15020145.

40. Rozoff, C., D. S. Nolan; G. H. Bryan, E. A. Hendricks, and J. C. Knievel, 2023: Large-eddy simulations of the tropical cyclone boundary layer at landfall in an idealized urban environment. *J. Appl. Meteor. Climatol.* DOI: 10.1175/JAMC-D-23-0024.1.

39. Schreck, J. S., W. Petzke, P, A. Jiménez, T. Brummet, J. C. Knievel, E. James, and B. Kosović, 2023: Machine learning and VIIRS satellite retrievals for skillful fuel moisture content monitoring in wildfire management. *Remote Sens.*, 2023, 15, 13, 3372. DOI: 10.3390/rs15133372.

38. Hawbecker, P., and J. C. Knievel, 2022: Simulating the Chesapeake Bay breeze: sensitivities to water surface temperature. *J. Appl. Meteor. Climatol.,* 61, 1589–1605, DOI: 10.1175/JAMC-D-22-0002.1.

37. Hendricks, E. A., and J. C. Knievel, 2022: Evaluation of urban canopy models against near-surface measurements in Houston during a strong frontal passage. *Atmosphere,* 2022, 13, 10. DOI: 10.3390/atmos13101548.

36. DeCastro, A. L., A. Siems-Anderson, E. Smith, J. C. Knievel, B. Kosović, B. Brown, and J. K. Balch, 2022: WRF-Fire simulated burned area and propagation direction sensitivity to initiation point location and time. *Fire,* 2022, 5, 58. DOI: 10.3390/fire5030058.

35. Hawbecker, P., and J. C. Knievel, 2022: An algorithm for detecting the Chesapeake Bay breeze from mesoscale NWP model output. *J. Appl. Meteor. Climatol.,* 61, 61–75. DOI: 10.1175/JAMC-D-21-0097.1.

34. Hendricks, E. A., J. C. Knievel, and D. S. Nolan: 2021: Evaluation of boundary-layer and urban-canopy parameterizations for simulating wind in Miami during Hurricane Irma (2017). *Mon. Wea. Rev.,* 149, 7, 2321–2349. DOI: 10.1175/MWR-D-20-0278.1.

33. Stellingwerf, S., T. Hopson, E. Riddle, J. C. Knievel, B. Brown, and M. Gebremichael, 2021: Optimizing precipitation forecasts for hydrological catchments in Ethiopia using statistical bias correction and multi-modeling. *Earth Space Sci.,* 8, e2019EA000933. DOI: 10.1029/2019EA000933.

32. Huang, K., X. Lee, B. Stone Jr., J. C. Knievel, M. L. Bell, and K. C. Seto, 2021: Persistent increases in nighttime heat stress from urban expansion despite heat island mitigation. *J. Geophys. Res.-Atmos.,* 126, e2020JD033831. DOI: 10.1029/2020JD033831.

31. Muñoz-Esparza, D., J. A. Sauer, H. H. Shin, R. Sharman, B. Kosović, S. Meech, C. García-Sánchez, M. Steiner, J. C. Knievel, J. Pinto, and S. Swerdlin, 2020: Inclusion of building-resolving capabilities into the FastEddy® GPU-LES model using an immersed body force method. *J. Adv. in Modeling Earth Systems,* 12, 11. DOI: 10.1029/2020MS002141.

30. Hendricks, E. A., J. C. Knievel, and Y. Wang, 2020: Addition of multiple-layer urban canopy models to a nonlocal planetary boundary layer parameterization and evaluation in ideal and real scenarios. *J. Appl. Meteor. Climatol.,* 59, 8. DOI: 10.1175/JAMC-D-19-0142.1.

29. Delle Monache, L., S. Alessandrini, I. Djalalova, J. Wilczak, J. C. Knievel, and R. Kumar, 2020: Improving air quality predictions over the United States with an analog ensemble. *Wea. Forecasting.* DOI: 10.1175/WAF-D-19-0148.1.

28. Huang, Y., Y. Liu, Y. Liu, and J. C. Knievel, 2019: Budget analyses of a record-breaking rainfall in the coastal metropolitan city of Guangzhou, China. *J. Geophys. Res.-Atmos.,* 124, 9391–9406. DOI: 10.1029/2018JD030229.

27. Huang, Y., Y. Liu, Y. Liu, H. Li, and J. C. Knievel, 2018: Mechanisms for a record-breaking rainfall in the coastal metropolitan city of Guangzhou, China: observation analysis and nested very-large-eddy simulation with the WRF Model. *J. Geophys. Res.-Atmos.,* 124, 1370–1391. DOI: 10.1029/2018JD029668.

26. De Wekker, S. F. J., M. Kossmann, J. C. Knievel, L. Giovannini, E. D. Gutmann, and D. Zardi, 2018: Meteorological applications benefiting from an improved understanding of atmospheric exchange processes over mountains. *Atmosphere,* 9, 371, 23 pp. DOI: 10.3390/atmos9100371.

25. Pan, L., Y. Liu, J. C. Knievel, L. Delle Monache, G. Roux, 2018: Sensitivity of predictions of near-surface variables to physical parameterization schemes in the WRF Model. *Atmosphere,* 9, 106, 16 pp. DOI: 10.3390/atmos9030106.

24. Knievel, J. C., Y. Liu, T. M. Hopson, J. S. Shaw, S. F. Halvorson, H. H. Fisher, G. Roux, R.-S. Sheu, L. Pan, W. Wu, J. P. Hacker, E. Vernon, F. Gallagher III, and J. C. Pace, 2017: Mesoscale ensemble weather prediction at U.S. Army Dugway Proving Ground. *Wea. Forecasting,* 32, 2195–2216. DOI: 10.1175/WAF-D-17-0049.1.

23. Serafin, S., S. F. J. de Wekker, and J. C. Knievel, 2016: A mesoscale model-based climatography of nocturnal boundary-layer processes over the complex terrain of northwestern Utah. *Bound.-Layer Meteor.,* 2015, 1–25. DOI: 10.1007/s10546-015-0044-6.

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Journal articles and notes (not peer reviewed)

1. Knievel, J. C., 2020: Operational weather forecasting system for U.S. Army testing. *High-Performance Computing Review 2018–2019,* U.S. Army Research Laboratory, 28–29.

Technical reports

2. Knievel, J. C., 2003: The kinematics and thermodynamics of a midlatitude, continental mesoscale convective system and its mesoscale vortex. Atmospheric Science Paper No. 730, CSU, 99 pp.

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Encyclopedia articles

6. Knievel, J. C., 1997: Wind. *Encyclopedia of Earth and Physical Sciences,* Vol. 10, Marshal Cavendish, New York, NY.

5. Knievel, J. C., 1997: Stratosphere. *Encyclopedia of Earth and Physical Sciences,* Vol. 9, Marshal Cavendish, New York, NY.

4. Knievel, J. C., 1997: Rain, snow, and sleet. *Encyclopedia of Earth and Physical Sciences,* Vol. 8, Marshal Cavendish, New York, NY.

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1. Knievel, J. C., 1997: Air pressure. *Encyclopedia of Earth and Physical Sciences,* Vol. 1, Marshal Cavendish, New York, NY.

Media reviews

1. McCarty, J. E., and J. C. Knievel, 2002: Review of "World Almanac Video's Guide to Extreme Weather," Choices, Inc. *Library J.,* 127, 149–50.

Invited presentations

Technical audiences

24. Knievel, J. C., 2023/08/02: Multi-disciplinary advancements necessary for better wildfire prediction and response. Seminar, NOAA National Centers for Environmental Prediction Environmental Modeling Center, virtual.

23. Knievel, J. C., J. Boehnert, B. G. Brown, D. Brucker, N. Chartier, J. Cowie, A. DeCastro, M. Eghdami, M. E. B. Frediani, D. Hahn, S. E. Haupt, P. A. Jimenez, T. W. Juliano, B. Kosović, R. Kumar, W. P. Mahoney, D. Muñoz-Esparza, W. Petzke, K. M. Sampson, and A. Siems-Anderson, 2022/06/02: Current and future coupled fire-atmosphere modeling at NCAR's Research Applications Laboratory. *ICAMS wildfire workshop,* virtual, Interagency Council for Advancing Meteorological Services.

22. Knievel, J. C., B. Kosović, J. Cowie, A. R. Siems-Anderson, J. Boehnert, B. G. Brown, D. Brucker, N. Chartier, A. DeCastro, M. E. B. Frediani, D. Hahn, S. E. Haupt, P. A. Jimenez, T. W. Juliano, W. P. Mahoney, D. Muñoz-Esparza, W. Petzke, and K. M. Sampson, 2022/04/11: Coupled fire-atmosphere modeling at NCAR's Research Applications Laboratory. Seminar, NOAA Global Systems Laboratory, virtual.

21. Knievel, J. C., D. Muñoz-Esparza, B. Kosović, P. Hawbecker, and J. A. Sauer, 2022/01/26: The enduring importance of the mesoscale as operational microscale forecasting grows more practical. *Richard H. Johnson Symposium,* Houston, TX, virtual. AMS.

20. Knievel, J. C., C. L. Bruyère, G. H. Bryan, K. R. Fossell, E. A. Hendricks, C. M. Rozoff, J. L. Vigh, Y. Wang, and O. V. Wilhelmi, 2021/12/16: The challenge of making actionable forecasts of hurricane landfalls. *Fall Meeting of the AGU,* New Orleans, LA, virtual. AGU.

19. Knievel, J. C., and E. Hendricks, 2021/06/30: Sample of coastal meteorology R&D in RAL. *Session on Current Research and Gaps in Coastal Meteorology, Joint MMM/RAL Workshop*, Boulder, CO, virtual. NSF NCAR.

18. Knievel, J. C., 2021/02/11: A numerical modeling system for predicting the behavior of wildfires in the Rocky Mountains of Colorado, USA. *Meteorological Colloquium,* Institute for Atmospheric and Environmental Sciences, Goethe University, Frankfurt, Germany, virtual.

17. Knievel, J. C., S. E. Haupt, and J. Cogan, 2020/01/16: A century of symbiosis between applied meteorology and national security. *20th Conference on Aviation, Range, and Aerospace Meteorology,* Boston, MA. AMS.

16. Knievel, J. C., A. Siems-Anderson, J. Boehnert, J. Cowie, A. DeCastro, D. J. Gagne, S. E. Haupt, P. Jiménez, B. Kosović, W. Mahoney, S. Massie, T. McCandless, D. Muñoz-Esparza, W. Petzke, and K. Sampson, 2019/07/11: Progress on developing a system for predicting the behavior of wildfires in Colorado. Center for Western Weather and Water Extremes, Scripps Institution of Oceanography, CA.

15. Knievel, J. C., 2018/10/16: Downslope winds and sudden warming in idealized large-eddy simulations (LES) on a supercomputer. *10th Symposium on Discovery, Fusion, and Creation of New Knowledge by Multidisciplinary Computational Sciences,* Center for Computational Sciences, University of Tsukuba, Japan.

14. Knievel, J. C., 2018/06/05: The case for NCAR as an associate member of the RCC-MG. *Range Commanders Council Meteorology Group Meeting,* Pacific Missile Range Facility, Kaua'i, HI.

13. Knievel, J. C., 2015/09/28: Downslope winds, from gentle to violent. *Tsukuba Global Science Week 2015,* University of Tsukuba, Japan.

12. Knievel, J. C., 2011/12/08: Ten steps to better technical talks. University of Melbourne, Australia.

11. Knievel, J. C., 2011/03/07: Ten steps to better technical talks. Risø National Laboratory for Sustainable Energy, Technical University of Denmark, Roskilde, Denmark.

10. Knievel, J. C., D. L. Rife, J. A. Grim, A. N. Hahmann, J. P. Hacker, M. Ge, and H. H. Fisher, 2011/03/03: Composite sea-surface temperatures from NASA's MODIS instruments for improved mesoscale weather prediction. Risø National Laboratory for Sustainable Energy, Technical University of Denmark, Roskilde, Denmark.

9. Knievel, J. C., 2010/06/30: Ten steps to better technical talks. SOARS, Boulder, CO. UCAR.

8. Knievel, J. C., and A. N. Hahmann, 2007/12/12: Atmospheric environmental support for the warfighter. *13th Annual ITEA Conference,* Las Cruces, NM. ITEA.

7. Knievel, J. C., T. T. Warner, and S. P. Swerdlin, 2007/12/12: Mesoscale climate reanalysis as a tool for planning outdoor tests. *13th Annual ITEA Conference,* Las Cruces, NM. ITEA.

6. Knievel, J. C., 2007/03/19: Beyond "sunny and 75": tailored forecasts and NCAR's 4DWX system. North Carolina State University, Raleigh, NC.

5. Knievel, J. C., 2003/12/09: Diurnal rainfall in the WRF Model. Seoul National University, Seoul, South Korea.

4. Knievel, J. C., 2002/11/01: Examples of the resolution sensitivity of MCS forecasts by the WRF Model. *Mini-forum on Prediction and Observation of Mesoscale Meteorological Phenomena,* Tokyo, Japan. Japanese Meteorological Agency.

3. Knievel, J. C., 2001/10/05: Vorticity and gradient balance in a mesoscale convective vortex. National Severe Storms Laboratory, Norman, OK.

2. Knievel, J. C., 2001/03/21: Vorticity and gradient balance in a mesoscale convective vortex. Department of Physics, Astronomy, and Meteorology, Western Connecticut State University, Danbury, CT.

1. Knievel, J. C., 2001/01/24: Why it is wrong to say that warm air holds more water vapor than cold air holds. Department of Earth Science, California University of Pennsylvania, California, PA.

Lay audiences

8. Knievel, J. C., 2023/08/29: Reviving the Colorado Fire Prediction System (CO-FPS). *Wildfire Matters Review Committee meeting,* Colorado State Legislature, Denver, CO.

7. Knievel, J. C., 2021/03/18: If you think predicting the weather is hard, try predicting wildfires! *Meet the Experts*, Boulder, CO, virtual. UCAR Center for Science Education.

6. Knievel, J. C., 2016/02/10: A weather game. St. John the Baptist School, Longmont, CO.

5. Knievel, J. C., 2013/11/06: How clouds form. St. John the Baptist School, Longmont, CO.

4. Knievel, J. C., 2010/10/08: Knievel, J. C., 2010: Weather, storms, and safety. St. John the Baptist School, Longmont, CO.

3. Knievel, J. C., 2010/06/05: Something in the air: weather, climate, and national security. *Celebration of the 50th Anniversary of UCAR,* Boulder, CO. UCAR.

2. Knievel, J. C., 2006/01/26: Hurricanes. Redstone Elementary School, Highlands Ranch, CO.

1. Knievel, J. C., 1998/02/17: El Niño. The Kiwanis Club, Fort Collins, CO.

Other presentations

103. Knievel, J. C., 2023/06/27: Wildfire research at NCAR. *Western Governors Association tour,* Boulder, CO.

102. Hawbecker, P., and J. C. Knievel, 2023/01/09: A model-based detection algorithm for the Chesapeake Bay breeze. *21st Symposium on the Coastal Environment,* Denver, CO. AMS.

101. Hawbecker, P., J. C. Knievel, P. Jimenez, B. Kosović, and T. W. Juliano, 2023/01/09: Bay breeze sensitivity to water surface temperature. *24th Symposium on Boundary Layers and Turbulence,* Denver, CO. AMS.

100. Hendricks, E. A., J. A. Sauer, D. Muñoz-Esparza, and J. C. Knievel, 2022/06/30: A hybrid terrain-following/immersed-body-force method for representing steep, complex terrain in large-eddy simulations. *20th Conference on Mountain Meteorology,* Park City, UT. AMS.

99. Knievel, J. C., B. Kosović, J. Cowie, A. R. Siems-Anderson, J. Boehnert, B. G. Brown, D. Brucker, N. Chartier, A. DeCastro, M. E. B. Frediani, D. Hahn, S. E. Haupt, P. A. Jimenez, T. W. Juliano, W. P. Mahoney, D. Muñoz-Esparza, W. Petzke, K. M. Sampson, 2021/01/14: A modeling system for tactically and strategically managing wildfires. *16th Symposium on Societal Applications: Policy, Research and Practice, Ninth Symposium on the Weather, Water, and Climate Enterprise,* virtual. AMS.

98. Knievel, J. C., B. Kosović, J. Cowie, A. R. Siems-Anderson, J. Boehnert, B. G. Brown, D. Brucker, N. Chartier, A. DeCastro, M. E. B. Frediani, D. Hahn, S. E. Haupt, P. A. Jimenez, T. W. Juliano, W. P. Mahoney, D. Muñoz-Esparza, W. Petzke, K. M. Sampson, 2020/12/14: A modeling system for predicting the behavior of wildland fires by simulating their two-way interaction with the atmosphere. *AGU Fall Meeting*, virtual. AGU.

97. Knievel, J. C., 2020/12/15: Ten surprising historical connections between applied meteorology and national security. *Annual laboratory retreat*, RAL, NSF NCAR, virtual.

96. Knievel, J. C., E. A. Hendricks, J. A. Sauer, H. Shin, and D. Muñoz-Esparza, 2020/07/15: Large-eddy simulations of the dividing streamline in stably stratified flow over and around a mountain. *19th Conference on Mountain Meteorology,* virtual. AMS.

95. Knievel, J. C., B. Kosović, J. Boehnert, B. Brown, D. Brucker, N. Chartier, J. Cowie, A. DeCastro, M. Frediani, P. Jimenez, T. Juliano, W. Mahoney, D. Muñoz-Esparza, W. Petzke, K. Sampson, and Amanda Siems-Anderson, 2020/05/12: Colorado Fire Prediction System (CO-FPS). *USFS/NOAA Fire Weather Research Meeting,* virtual.

94. Knievel, J. C., C. M. Rozoff, and R. Rotunno, 2019/09/02: Idealized and realistic numerical simulations of sudden warming from chinooks in the lee of the Alaska Range. *35th Conference on Alpine Meteorology,* Riva del Garda, Italy. Italian Association of Atmospheric Sciences and Meteorology, and the University of Trento.

93. Knievel, J. C., B. Kosović, P. A. Jimenez, D. Muñoz-Esparza, J. Cowie, A. R. Siems-Anderson, W. R. Petzke, 2019/04/30: The Colorado Fire Prediction System (CO-FPS) and how it incorporates fuel moisture in simulations. *6th International Fire Behavior and Fuels Conference*, Albuquerque, NM. International Association of Wildland Fire.

92. Knievel, J. C., G. Roux, Y. Liu, and B. C. Thomas, 2019/01/09: Forecasting extreme wet bulb globe temperature (WBGT) with a mesoscale numerical weather prediction system. *19th Conference on Aviation, Range, and Aerospace Meteorology,* Phoenix, AZ. AMS.

91. Knievel, J. C, and D. S. Nolan, 2018/09/20: Toward more resilient coastal cities and better hurricane forecasts through multi-scale modeling of how buildings affect extreme winds in the urban canopy. *NSF PREEVENTS Principal Investigators' Meeting,* Alexandria, VA. NSF.

90. Knievel, J. C, C. M. Rozoff, and R. Rotunno, 2018/06/25: Preliminary numerical simulations of sudden warming from chinooks in the lee of the Alaska Range. *18th Conference on Mountain Meteorology,* Santa Fe, NM. AMS.

89. Hopson, T. M., Y. Liu, J. C. Knievel, J. P. Hacker, G. Roux, H. H. Fisher, J. S. Shaw, R.-S. Sheu, L. Pan, and W. Wu, 2017/07/24: Quantile regression and logistic regression combined for calibration of a mesoscale ensemble prediction system (EPS). *17th Conference on Mesoscale Processes,* San Diego, CA. AMS.

88. Knievel, J. C., T. M. Hopson, Y. Liu, J. P. Hacker, G. Roux, H. H. Fisher, J. S. Shaw, R.-S. Sheu, and L. Pan, 2017/04/26: Calibration of Ensemble-4DWX at four ATEC ranges. *Annual meeting, Range Commanders Council Meteorology Group,* Ashburn, VA. DOD.

87. Grim, J. A., A. P. Mizzi, J. C. Knievel, F. Vandenberghe, and J. P. Hacker, 2016/06/27: Temporal and spatial coherence of wind profiles over terrain of diverse complexity. *17th Conference on Mountain Meteorology,* Burlington, VT. AMS.

86. Knievel, J. C., R. D. Sharman, M. Steiner, 2016/05/04: Challenges and opportunities in weather support for unmanned aircraft systems (UASes). *Annual meeting, Range Commanders Council Meteorology Group,* White Sands Missile Range, NM. DOD.

85. Knievel, J. C., Y. Liu, H. H. Fisher, and J. Pace, 2015/01/07: Ensemble weather prediction at the Navy DSRC in support of Army testing operations. *1st Symposium on High Performance Computing for Weather, Water, and Climate,* Phoenix, AZ. AMS.

84. Knievel, J. C., and R. D. Sharman, 2015/01/07: Extending NCAR's Graphical Turbulence Guidance (GTG) to unmanned aircraft systems (UASes) at Army test ranges. *17th Conference on Aviation, Range, and Aerospace Meteorology,* Phoenix, AZ. AMS.

83. Knievel, J. C., Y. Liu, S. F. J. De Wekker, W. Y. Y. Cheng, Y. Liu, and J. C. Pace, 2014/08/21: Simulations of meso-gamma-scale circulations near Granite Peak, Utah with NCAR's WRF-based 4DWX system and assimilated airborne lidar data from the MATERHORN 2012 field campaign. *16th Conference on Mountain Meteorology,* San Diego, CA. AMS.

82. Liu, Y., G. Roux, Y. Liu, L. Pan, W. Y. Y. Cheng, W. Wu, J. C. Knievel, and J. Pace, 2014/06/25: Implementing a WRF-based RTFDDA VLES/LES NWP system for supporting test and evaluation at U. S. Army test ranges. *15th Annual WRF Users' Workshop,* Boulder, CO. NSF NCAR.

81. De Wekker, S. F., Y. Liu, J. C. Knievel, S. Pal, and G. D. Emmitt, 2013/12/09: Observations and simulations of the wind structure in the boundary layer around an isolated mountain during the MATERHORN field experiment. *Fall Meeting of the AGU,* San Francisco, CA. AGU.

80. Knievel, J. C., Y. Liu, S. F. De Wekker, J. Pace, W. Y. Y. Cheng, and Y. Liu, 2013/12/09: Simulation of meso-gamma-scale morning-transition flows at Granite Peak, Utah with NCAR's WRF-based 4DWX and observations from the MATERHORN 2012 field campaign. *Fall Meeting of the AGU,* San Francisco, CA. AGU.

79. Knievel, J. C., J. A. Grim, P. Jimenez, C. M. Witt-Schulte, and D. P. Wozniczka, 2013/01/10: Toward better forecasts of chinooks at Cold Regions Test Center, Alaska. *16th Conference on Aviation, Range, and Aerospace Meteorology,* Austin, TX. AMS.

78. Knievel, J. C., Y. Liu, G. Roux, W. Wu, T. M. Hopson, S. F. Halvorson, F. W. Gallagher III, J. C. Pace, and S. P. Swerdlin, 2013/01/10: Probabilistic forecasting from a mesoscale ensemble at Dugway

Proving Ground. *16th Conference on Aviation, Range, and Aerospace Meteorology,* Austin, TX. AMS.

77. Pan, L., Y. Liu, J. C. Knievel, G. Roux, W. Wu, Y. Wu, J. Pace, S. F. Halvorson, and F. W. Gallagher III, 2013/01/10: New developments of the real-time operational NCAR-ATEC ensemble-RTFDDA (E-4DWX) forecasting system. *Symposium on the Role of Statistical Methods in Weather and Climate Prediction, AMS Annual Meeting,* Austin, TX. AMS.

76. Knievel, J. C., J. A. Grim, C. M. Witt-Schulte, and D. P. Wozniczka, 2012/06/27: Effects of model configuration on a simulated chinook in the lee of the Alaska Range. *13th Annual WRF Users' Workshop,* Boulder, CO. NSF NCAR.

75. Knievel, J. C., 2012/05/08: The importance of the land surface in atmospheric simulations. *2012 Army Test and Evaluation Command Forecaster Training, Part 2,* Boulder, CO. NSF NCAR.

74. Knievel, J. C., 2012/02/28: The importance of the land surface in atmospheric simulations. *2012 Army Test and Evaluation Command Forecaster Training, Part 2,* Boulder, CO. NSF NCAR.

73. Knievel, J. C., J. A. Grim, C. M. Witt-Schulte, and D. P. Wozniczka, 2012/01/25: Simulated chinooks' sensitivity to resolution and model configuration at Cold Regions Test Center, Alaska. *3rd Aviation, Range, and Aerospace Meteorology Special Symposium on Weather-Air Traffic Management Integration,* New Orleans, LA. AMS.

72. Grim, J. A., J. C. Knievel, H. H. Fisher, and D. L. Rife, 2012/01/24: Sensitivity of mesoscale weather in northern Utah to MODIS-derived surface temperature, size, and salinity of the Great Salt Lake. *18th Conference on Satellite Meteorology, Oceanography and Climatology, and the 1st Joint AMS-Asia Satellite Meteorology Conference,* New Orleans, LA. AMS.

71. Al Sheikili, M., A. Hirsch, J. C. Knievel, and Y. Park, 2011/12/07: Verification of seasonal 2-m temperature forecasts from three ensembles. Report from *R* project group no. 8. *5th International Verification Methods Workshop,* Melbourne, Australia, Centre for Australian Weather and Climate Research.

70. Knievel, J. C., 2011/06/17: Some advice for undergraduates. *Undergraduate Leadership Workshop,* Boulder, CO. NSF NCAR.

69. Knievel, J. C., 2011/06/14: NCAR's Research Applications Laboratory. *Undergraduate Leadership Workshop,* Boulder, CO. NSF NCAR.

68. Knievel, J. C., 2011/05/10: Best practices in weather forecasting. *2011 Army Test and Evaluation Command Forecaster Training, Part 2,* Boulder, CO. NSF NCAR.

67. Knievel, J. C., 2011/05/10: Know thy model: forecasting mesoscale weather with high-resolution 4DWX. *2011 Army Test and Evaluation Command Forecaster Training, Part 2,* Boulder, CO. NSF NCAR.

66. Knievel, J. C., 2011/03/29: Best practices in weather forecasting. *2011 Army Test and Evaluation Command Forecaster Training, Part 1,* Boulder, CO. NSF NCAR.

65. Knievel, J. C., J. C. Pace, Y. Liu, T. M. Hopson, F. Vandenberghe, T. T. Warner, and S. P. Swerdlin, 2010/11/16: Toward high-fidelity, probabilistic, virtual atmospheres for defense modeling and simulation. *Chemical and Biological Defense Science and Technology (CBD S&T) Conference,* Orlando, FL. Defense Threat Reduction Agency.

64. Knievel, J. C., 2010/06/16: NCAR's Research Applications Laboratory. *Undergraduate Leadership Workshop,* Boulder, CO. NSF NCAR.

63. Knievel, J. C., and R. Wagoner, 2010/05/27: RAL overview: science in service to society. *Meeting of the Chevron Group,* Boulder, CO. NSF NCAR.

62. Knievel, J. C., 2010/05/04: 4DWX: lessons in anatomy, etymology, and archaeology. *2010 Army Test and Evaluation Command Forecaster Training, Part 2,* Boulder, CO. NSF NCAR.

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60. Liu, Y., T. T. Warner, S. P. Swerdlin, T. Betancourt, A. Bourgeois, G. Roux, W. Wu, Y. Liu, J. P. Hacker, D. Rife, T. M. Hopson, J. C. Knievel, L. Carson, J. Copeland, P. Bieringer, J. Pace, S. F. Halvorson, S. Krippner, F. Gallagher III, and J. A. Reynolds, 2010/04/14: The NCAR-ATEC 4-Dimensional Weather (4DWX) Modeling System: a tool for airborne hazard prediction. *BACIMO Conference,* Omaha, NE. US Director of Defense Research and Engineering, and Creighton University.

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56. Knievel, J. C., D. L. Rife, J. A. Grim, and M. Ge, 2009/06/01: Real-time forecasting for New York City and its surroundings, with emphasis on sea breezes and other coastal circulations. *23rd Conference on Weather Analysis and Forecasting, and 19th Conference on Numerical Weather Prediction,* Omaha, NE. AMS.

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51. Knievel, J. C., 2008/06/18: NCAR's Research Applications Laboratory. *Undergraduate Leadership Workshop,* Boulder, CO. NSF NCAR.

50. Knievel, J. C., 2008/02/26: Physical parameterizations in the WRF Model. *2007/2008 Army Test and Evaluation Command Forecaster Conference, Part 2,* Boulder, CO. NSF NCAR.

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48. Knievel, J. C., 2007/11/08: Climate FDDA. Annual RAL retreat, Estes Park, CO, Research. RAL, NSF NCAR.

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Other conference papers, abstracts, and miscellaneous contributions

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102. Kumar, R., J. Knievel, I. Simpson, O. Wilhelmi, A. Newman, and D. Lawrence, 2023: Drought, wildfires, water, and extreme heat. *White House Office of Science and Technology Policy meeting,* Boulder, CO.

101. Schreck, J., P. A. Jimenez, T. Brummet, W. Petzke, E. P. James, J. C. Knievel, and B. Kosović, 2023: Machine learning to monitor the fuel moisture content over CONUS and Alaska based on VIIRS. *11th Symposium on Building a Weather-Ready Nation: Enhancing Our Nation's Readiness, Responsiveness, and Resilience to High Impact Weather Events,* Denver, CO. AMS.

100. Frediani, M. E., T. W. Juliano, J. C. Knievel, B. Kosović., and S. A. Tessendorf, 2023: The role of fire spotting in fire-weather prediction. *2nd Symposium on Community Modeling and Innovation,* Denver, CO. AMS.

99. Kosović, B., W. Mahoney, B. Brown, J. Knievel, J. Boehnert , T. Brummet , J. Cowie, A. DeCastro, M. Frediani, P. Jimenez, T. W. Juliano, D. Muñoz -Esparza, W. Petzke, K. Sampson, A. Siems-Anderson, 2022: Toward actionable wildland fire prediction enabled by high performance computing. *High Performance Computing User Forum,* virtual.

98. Serke, D. J., S. M. Ellis, D. Megenhardt, J. C. Knievel, 2022/01/27: Wildfire pyrometeor classifications using dual-polarization S-band radar. *31st Conference on Weather Analysis and Forecasting and 27th Conference on Numerical Weather Prediction,* Houston, TX, virtual. AMS.

97. Cheng, W. Y., G. Roux, and J. C. Knievel, 2022/01/26: Diagnosing the wet-bulb globe temperature from the output of the Weather and Research and Forecasting Model with machine learning and other methods. *13th Conference on Environment and Health,* Houston, TX, virtual. AMS.

96. Kosović , B., A. Anderson, A. DeCastro, M. Frediani, M. Eghdami, P. A. Jimenez, T. W. Juliano, J. C. Knievel, and D. Muñoz-Esparza, 2021/12/17: Advances, challenges, and opportunities, in coupled wildland fire simulations. *Fall Meeting of the AGU,* New Orleans, LA, virtual. AGU.

95. Hendricks, E. A., J. C Knievel, and D. S. Nolan, 2021/05/14: Evaluation of boundary-layer and urban-canopy parameterizations for simulating wind in Miami's urban canopy during Hurricane Irma (2017). *34th Conference on Hurricanes and Tropical Meteorology,* virtual. AMS.

94. Wang, Y., G. H. Bryan, E. A. Hendricks, J. C Knievel, D. S. Nolan, F. J. Masters, and R. A. Caterelli, 2021/05/14: Toward large-eddy simulations (LES) of hurricane winds in the urban canopy with Cloud Model 1 (CM1). *34th Conference on Hurricanes and Tropical Meteorology,* virtual. AMS.

93. Kosović , B., T. W. Juliano, A. DeCastro, M. Frediani, and J. C. Knievel, 2021/04/09: Recent developments in wildland fire modeling with WRF-Fire including firebrand transport. *2nd SJSU Fire Weather Research Workshop*, virtual. San Jose State University.

92. Ellis, S., C. Kessinger, D. Serke, C. Kalb, D. Megenhardt, S Dettling, and J. C. Knievel, 2021/01/13: Convection nowcasting products available at the Army Test and Evaluation Command Ranges. *21st Conference on Range, Aviation, and Aerospace Meteorology,* virtual. AMS.

91. Serke, D., S. Ellis, C. Kessinger, J. C. Knievel, 2021/01/13: Application of chaff detection to operational dual-polarization weather radar near ranges. *21st Conference on Range, Aviation, and Aerospace Meteorology,* virtual. AMS.

90. Frediani, M, T. W. Juliano, A. DeCastro, B. Kosović, and J. C. Knievel, 2020/12/14: A fire-spotting parameterization coupled with the WRF-Fire Model. *AGU Fall Meeting,* virtual. AGU.

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88. Cowie, J., W. Petzke, J. Boehnert, D. Brucker, N. Chartier, and J. Knievel, 2020/01/15: Improving the performance and scalability of the Colorado Fire Prediction System (CO-FPS) using dynamic cloud resources. *6th Symposium on High Performance Computing for Weather, Water, and Climate,* Boston, MA. AMS.

87. Haupt, S. E., R. M. Rauber, B. Carmichael, J. C. Knievel, J. Cogan, S. Hanna, M. Askelson, J. M. Shepherd, M. Alfonso Fragomeni, N. Debbage, B. Johnson, B. Kosović, S. McIntosh, F. Chen, K. Miller, M. Williams, and S. Drobot, 2020: 100 years of progress in applied meteorology. *18th History Symposium,* Boston, MA. AMS.

86. Hendricks, E. A., J. C. Knievel, D. S. Nolan, and Y. Wang, 2020: Evaluation of multiple planetary boundary layer parameterizations and urban canopy models for simulation of near-surface meteorological conditions in Miami during the landfall of Hurricane Irma (2017). *15th Symposium on the Urban Environment,* Boston, MA. AMS.

85. Hopson, T., J. C. Knievel and M. Frediani, 2020: Exploring the predictability of synoptically induced cold-air damming in the eastern United States. *30th Conference on Weather Analysis and Forecasting, and 26th Conference on Numerical Weather Prediction,* Boston, MA. AMS.

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83. Riddle, E., S. Stellingwerf, T. M. Hopson, J. Knievel, B. Brown, and M. Gebremichael, 2020: Evaluation TIGGE rainfall forecasts for tropical eastern Africa. *30th Conference on Weather Analysis and Forecasting, and 26th Conference on Numerical Weather Prediction,* Boston, MA. AMS.

82. Serke, D. J., C. Kessinger, S. A. Tessendorf, A. Korolev, I. Heckman, J. French, J. Knievel, J. A. Haggerty, and D. Albo, 2020: Dual-Polarization Radar Icing Algorithm (RadIA): verification/validation with research flights and application at military test ranges. *20th Conference on Range, Aviation, and Aerospace Meteorology,* Boston, MA. AMS.

81. Siems-Anderson, A. R., A. DeCastro, B. Kosović, P. Jimenez, D. Muñoz-Esparza, and J. Knievel, 2020: Verifying the performance of the Colorado Fire Prediction System. *26th Conference on Probability and Statistics,* Boston, MA. AMS.

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78. Hendricks, E. A., J. C. Knievel, and Y. Wang, 2019: Addition of multiple-layer urban canopy models to the YSU PBL parameterization. *Joint WRF and MPAS Users' Workshop,* Boulder, CO. NSF NCAR.

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73. Roux, G., Y. Liu, J. Knievel, L. Delle Monache, T. Hopson, S. Halvorson, 2017: A combined bias-correction and probability calibration ensemble post-processing scheme for the Army WRF Ensemble-RTFDDA system. *18th Annual WRF Users' Workshop,* Boulder, CO. NSF NCAR.

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Key to abbreviations (alphabetical)

4DWX	Four-Dimensional Weather System
AF	US Air Force
AGU	American Geophysical Union
AMS	American Meteorological Society
ATEC	US Army Test and Evaluation Command
BACIMO	Battlespace Atmospheric and Cloud Impacts on Military Operations
CAMS	Chinese Academy of Meteorological Sciences
CFDDA	Climate four-dimensional data assimilation
CONVECT	Convective Organization and Venting Experiment in Complex Terrain
CSU	Colorado State University
DART	Data Assimilation Research Testbed
DOD	US Department of Defense
EGU	European Geophysical Union
FFRDC	Federally Funded Research and Development Center
GLOBE	Global Learning and Observations to Benefit the Environment
HPAC	Hazard Prediction and Assessment Capability
ITEA	International Test and Evaluation Association
IUGG	International Union of Geodesy and Geophysics
JMA	Japanese Meteorological Agency
LES	large-eddy simulation
MATERHORN	Mountain Terrain Atmospheric Modeling and Observations Program
MCS	mesoscale convective system
MCV	mesoscale convective vortex
MM5	Fifth Generation PSU/NCAR Mesoscale Model
MODIS	Moderate Resolution Imaging Spectroradiometer
NARAC	National Atmospheric Release Advisory Center
NASA	National Aeronautics and Space Administration
NCAR	National Center for Atmospheric Research
NOAA	National Oceanic and Atmospheric Administration
NSF	National Science Foundation
NWP	numerical weather prediction
O2R	operations to research
PSU	The Pennsylvania State University
R2O	research to operations
RAL	Research Applications Laboratory (of NSF NCAR)
REKF	relaxation ensemble Kalman filter
RKW	Rotunno, Klemp, and Weisman
RTFDDA	Real-time four-dimensional data assimilation
SBIR	Small Business Innovation Research
SOARS	Significant Opportunities in Atmospheric Research and Science
TEAMx	Multi-Scale Transport and Exchange Processes in the Atmosphere over Mountains – Programme and Experiment
TIGGE	The International Grand Global Ensemble
UAS	Unmanned aircraft system
UCAR	University Corporation for Atmospheric Research
WRF Model	Weather Research and Forecasting Model