

Dr. David D. Turner

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Physical Meteorologist
Atmospheric Science for Renewable Energy Program Manager
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(a) Professional Preparation

University of Wisconsin, Madison, WI	Atmospheric Sciences, Ph.D., 2003
Eastern Washington University, Cheney, WA	Mathematics, M.S., 1994
Eastern Washington University, Cheney, WA	Mathematics, B.A., 1992

(b) Appointments

May 2018 – current	Program Manager, Atmospheric Science for Renewable Energy Program, Global Systems Laboratory, NOAA
Oct 2016 - current	Head, Verification and Assessment Branch, Assimilation and Verification Innovation Division, Global Systems Laboratory, NOAA
Feb 2013 – current	Fellow, Cooperative Institute for Mesoscale Meteorological Studies (CIMMS), University of Oklahoma
Aug 2010 – Sep 2016	Physical Meteorologist, Forecast Research and Development Division, NOAA National Severe Storms Laboratory
Aug 2011 – Aug 2016	Adjunct Professor, School of Meteorology, University of Oklahoma
Aug 2009 – Aug 2012	Assistant Professor, Atmospheric and Oceanic Sciences Department, University of Wisconsin – Madison
Aug 2005 – Jul 2009	Research Scientist, Space Science and Engineering Center, University of Wisconsin – Madison
Jun 2007 – Jul 2007	Guest Professor, Institute for Geophysics and Meteorology, University of Cologne
Jul 2003 – Aug 2005	Senior Research Scientist II, Climate Physics Group, Pacific Northwest National Laboratory
Sep 2000 – Jun 2003	Research Assistant, Atmospheric and Oceanic Sciences Department, University of Wisconsin – Madison
Sep 1998 – Aug 2000	Senior Research Scientist I, Climate Physics Group, Pacific Northwest National Laboratory
Jul 1994 – Aug 1998	Research Scientist, Information Sciences and Engineering Group, Pacific Northwest National Laboratory
Sep 1992 – Jun 1994	Instructor, Mathematics Department, Eastern Washington University

(c) Research Interests

- Boundary layer thermodynamic and dynamic structure, diurnal evolution, convection and convection initiation, and other processes
- Characterizing land-atmosphere interactions, including turbulent interactions and the how the land surface affects cloud properties and vice versa, and improving the representation of these processes in models
- Utilizing advanced thermodynamic and kinematic boundary layer profiling observations to evaluate and improve numerical weather prediction models
- Passive and active remote sensing of boundary layer thermodynamic and dynamic structure
- Life cycle of clouds with low liquid water path ($< 100 \text{ g/m}^2$) and their impact on the radiative energy budget of the surface and atmosphere, especially when influenced by aerosols
- Evolution of microphysical cloud properties, including the remote sensing of these properties, and understanding microphysical processes at work in mixed-phase clouds

- Longwave (infrared and microwave) radiative transfer model improvements: gas spectroscopy and cloud absorption/scattering properties
- Machine learning (ML) applications, including using physics-based constraints in training, parameterization replacement in numerical weather prediction, and model verification using ML

(d) Specialized Skills

- Extensive experience with the ground-based Atmospheric Emitted Radiance Interferometer AERI (as former ARM AERI instrument mentor): calibration, basic repairs, deployment for field experiments, quality control, analysis
- Extensive experience with Raman lidar (as former ARM Raman lidar instrument mentor): calibration, alignment of detection optics, quality control, analysis
- Observing facility development and deployment: design, fabrication, deployment, software development (processing and display system) of the Collaborative Lower Atmospheric Mobile Profiling System (CLAMPS). CLAMPS includes three remote sensors (AERI, microwave radiometer, and Doppler lidar) in a 16' mobile trailer
- Retrieval algorithm development: (1) mixed-phase cloud property retrieval algorithm (MIXCRA; Turner JAM 2005), which provided liquid and ice cloud properties from AERI radiances; (2) precipitable water vapor and liquid water path from microwave radiometer observations (MWRRET; Turner et al. TGRS 2007); (3) thermodynamic profiles and cloud properties retrieved from AERI radiance simultaneously (AERIOe; Turner and Löhnert 2014); and (4) thermodynamic profiles and liquid water path retrieved from microwave radiometer observations (MWRoe; Blumberg et al. 2015). Note that MWRRET is currently running operationally in the ARM Program's Data Management Facility, and the AERIOe is currently being implemented there
- Radiative transfer model development: infrared absorption and scattering model LBLDIS (Turner et al. JAM 2003); water vapor spectroscopy (Turner et al. TGRS 2009; Turner et al. JAS 2004); cloud absorption and scattering properties (Turner et al. JTECH 2016; Yang et al. 2003)
- Experience in using artificial neural networks for a range of applications
- Programming languages: IDL (expert), C (expert), unix/linux programming environments (expert), fortran (proficient), c-shell (proficient), matlab (familiar), python (familiar), html (familiar), bash (familiar)

(e) Professional Activities

- NOAA / ESRL / GSL Manager, Atmospheric Science for Renewable Energy Program, 2018 – present
- NOAA / ESRL Renewable Energy Science Council member, 2018 – present
- NOAA / ESRL / GSL / AVID / Verification Branch leader, 2017 – present
- Member, Advisory Committee for ARM Mobile Facility 3 Southeast US field campaign
- Lead Editor, AMS Monograph "*The Atmospheric Radiation Measurement Program: The First 20 Years*"
- Principal Investigator, DOE Atmospheric Radiation Measurement (ARM) Program and Atmospheric System Research (ASR) program, 2005 – present
- Member, WMO Nowcasting and Mesoscale Research Working Group, 2017 – present
- Member, DOE ARM Atmospheric Modeling Advisory Group, 2016 – present
- Member, American Meteorological Society (AMS), 1998 – present
- Member, American Geophysical Union, 2003 – present
- Member, ACTRIS Data Center External Panel, 2015 – present
- Member, Jülich Observatory for Cloud Evolution (JOYCE) advisory board, 2016 – present
- NSSL / FRDD / CRAFT Team leader, 2013 – 2016
- Chair, DOE Atmospheric Radiation Measurement (ARM) User Executive Committee, 2014 – 2016
- Executive Board Member, University of Oklahoma Cooperative Institute for Meteorological Mesoscale Studies, 2012 – 2016
- Member, ARM Science and Infrastructure Steering Committee (SISC), 2007 – 2016
- Organizer and instructor, ARM Summer Training and Science Applications Workshop, 2015
- Instructor, Initial Training for Atmospheric Remote Sensing (ITaRS), 2014
- Co-chair, DOE Office of Biological and Environmental Science (BER) Climate Research Roadmap Committee, 2010
- Chair, DOE Atmospheric Systems Research (ASR) Program Science Plan Committee, 2009

- Chair, ASR Cloud-Aerosol-Precipitation Interactions Working Group, 2010 – 2013
- Chair, ARM Climate Research Facility Science Board, 2009 – 2011
- Associate Editor, AMS Journal of Atmospheric and Oceanic Technology, 2006 – 2011
- Chair, ARM Radiative Processes Working Group, 2007 – 2009
- Member, US Global Change Research Program (USGCRP) Water Cycle Science Steering Group, 2006 – 2009
- Member, NSF Committee for the NCAR Facilities Assessment of Solar Measurements, 2006 – 2007
- Member, International Scientific Steering Committee for the Convective and Orographic Precipitation Study (COPS), 2006 – 2009
- Member, AMS Committee on Laser Atmospheric Studies (CLAS), 2003 – 2006
- Developed a high-spectral-resolution radiative transfer model that includes scattering (LBLDIS), used by at least 25 users in 17 different institutions
- Lecturer, COPS Summer School, Black Forest, Germany, 2007
- Lecturer, International Summer School on Atmospheric and Oceanic Sciences, L'Aquila, Italy, 2007
- ARM Raman Lidar Instrument Mentor, 2003 – 2008
- ARM Atmospheric Emitted Radiance Interferometer (AERI) Instrument Mentor, 2006 – 2010
- Field Campaign Leadership
 - Co-PI, NOAA component of the CHEESEHEAD field campaign, Jul – Oct 2019
 - PI, Land Atmosphere Feedback Experiment (LAFE), August 2017
 - Co-I and Steering Committee Member, Plains Elevated Convection at Night (PECAN), June-July 2015
 - PI, Lower Atmospheric Boundary Layer Experiments, Sep-Nov 2012 and May-Jun 2013
 - Co-PI, National Science Foundation (NSF) Integrated Characterization of Energy, Clouds, Atmospheric State, and Precipitation at Summit (ICECAPS), May 2010-Aug 2018
 - PI, ARM Radiative Heating in Underexplored Bands Campaign (RHUBC-II), Aug-Oct 2009
 - Co-I, ARM Routine AVP CLOUD Optical Radiative Observations (RACORO), Jan-Jun 2009
 - Co-I, ARM Indirect and Semi-Direct Aerosol Campaign (ISDAC), Apr 2008
 - Co-I, ARM Convective and Orographic Precipitation Study (COPS), Apr-Dec 2007
 - PI, ARM Radiative Heating in Underexplored Bands Campaign (RHUBC-I), Feb-Mar 2007
 - PI, PNNL Lexington-A Campaign to Investigate Solar Scattering and Emission in 3-5 μm band, 2005
 - Co-I, ARM Aerosol Lidar Validation Experiment (ALIVE), 2005
 - Co-I, ARM Mixed-Phase Arctic Cloud Experiment (M-PACE), 2004
 - Co-I, ARM Water Vapor Experiments (WVIOPs) in 1997, 1999, 2000
- Scientific Meeting Organization and Leadership
 - Co-chair, NOAA Bedrock-to-Boundary Layer Workshop, 2019
 - Chair, Gordon Research Conference on Radiation and Climate, 2017
 - Program co-chair, International Symposium on Tropospheric Profiling (ISTP), 2017
 - Member of the ARM / ASR Science and Infrastructure Steering Committee; as such, I have helped organize the annual ARM Science Team meeting in 2007 – 2009 and the annual ASR Science Team meeting in 2010 – 2016
 - Chair, Workshop on Far-Infrared Remote Sensing, 2011
 - Session chair, 8th International Symposium on Tropospheric Profiling, 2009
 - Session chair, AMS 3rd Symposium on Lidar Atmospheric Applications, 2007
 - Session chair, 7th International Symposium on Tropospheric Profiling, 2006
 - Session organizer, AMS 2nd Symposium on Lidar Atmospheric Applications, 2005
 - General Chair, Optical Society of America (OSA) Hyperspectral Imaging and Sounding of the Environment Topical Meeting, 2005
- Awards
 - 2017 AGU Editor's Citation for Excellence in Refereeing JGR-Atmospheres
 - 1st awardee of the Hans Liebe Lectureship, 2014 URSI National Radio Science Meeting

(f) Former Graduate Students and Post-doctoral Students

Dr. Mohammed Osman, University of Oklahoma, Post-doc 2016-2018

Using lidar observations to evaluate similarity relationships in convective boundary layers

Sarah Borg, University of Oklahoma, MS 2018
Characteristics of Tropopause Polar Vortices based on observations from Summit Station, Greenland

Dr. W. Greg Blumberg, University of Oklahoma, PhD 2018
Moisture jumps during the evening transition: Observations and simulations from the Southern Great Plains site

Dr. Kobra Khosravian, University of Cologne, PhD 2017
CO₂ profiling in the lower troposphere using a high-spectral-resolution infrared radiometer

Jonathan Edwards-Opperman, University of Oklahoma, MS 2016
Large-scale and local influences on the occurrence and maintenance of liquid-bearing clouds over the Greenland Ice Sheet

Mallory Row, University of Oklahoma, MS 2016
Synoptic and local influences on a summertime, long-lived, mixed-phase cloud event over Summit, Greenland

Andrew Dzambo, University of Oklahoma, MS 2015
Climatology of RH_{ice} distributions in cirrus clouds by synoptic regime

Nils K  chler, University of Cologne, MS 2015
Characterization and improvement of absolute calibration techniques for microwave radiometers

Dr. Veronique Meunier, McGill University, PhD 2013
Performance and information content in tomographic retrievals of water vapor from MWRs

Nathan Anderson, University of Oklahoma, MS 2014
Vertical velocity turbulence profiles measured by two horizontally separated Doppler lidars

Stephen Castleberry, University of Oklahoma, MS 2014
Evaluation of a microwave radiometer thermodynamic retrieval algorithm

Dr. Subhashree Mishra, University of Oklahoma, Post-doc 2011-2013
Aerosol and water vapor analysis at the ARM Darwin Site using Raman lidar

Dr. Dhashani Bopege, University of Oklahoma, Post-doc 2012-2013
Characterizing the Absolute Solar Transmission Interferometer during RHUBC-II

W. Greg Blumberg, University of Oklahoma, MS 2013
Developing a Statistical Thermodynamic Retrieval for Ground-based Infrared Spectrometers

Alexander Zwink, University of Oklahoma, MS 2013
Radiative flux divergence of different Arctic cloud types

Jordan Guernsey, University of Oklahoma, MS 2012
An examination of the vertical structure of cold fronts and associated prefrontal features

Dr. Sean Crowell, University of Oklahoma, Post-doc 2011-2012
Using OSSEs to evaluate the utility of ground-based profilers on NWP simulations

Dr. Aronne Merrelli, University of Wisconsin – Madison; Ph.D. 2012
The atmospheric information content of the Earth's far infrared spectrum

Nate Miller, University of Wisconsin – Madison, M.S. 2012
Microwave radiometer observations of surface-based inversions above the Greenland ice sheet

Dr. Tim Wagner, University of Wisconsin – Madison; Ph.D. 2011
A method for retrieving cumulus entrainment rate from ground-based remote sensors

Erik Janzon, University of Wisconsin – Madison, M.S. 2011
Data assimilation study for a national network of boundary layer thermodynamic profilers

Dr. Subsashree Misha, University of Nevada Reno, Ph.D. 2011 (external committee member)
Importance of ice cloud particle size distribution on climate model simulations

Dr. Payal Mehta, Imperial College, London; Ph.D. graduated 2010 (external committee member)
Radiative properties of dust in the thermal infrared

(g) Peer-Reviewed Publications

37 of the 183 below are as first author

h-index from scholar.google.com is 51

183. Banta, R.M., Y.L. Pichugina, W.A. Brewer, A. Choukulkar, K.O. Lantz, J.B. Olson, J. Kenyon, H.J.S. Fernando, R. Krishnamurthy, M.J. Stoelinga, J. Sharp, L.S. Darby, **D.D. Turner**, S. Baidar, and S.P. Sandberg, 2020: Characterizing NWP model errors using Doppler-lidar measurements of recurrent regional diurnal flows: Marine-air intrusions into the Columbia River Basin. *Month. Wea. Rev.*, 148, 927-953, doi:10.1175/MWR-D-19-0188.1.

182. **Turner, D.D.**, J. Hamilton, W. Moninger, M. Smith, B. Strong, R. Pierce, V. Hagerty, K. Holub, and S.G. Benjamin, 2020: A verification approach used in developing the Rapid Refresh and other numerical weather prediction models. *J. Oper. Meteor.*, 8, 39-53, doi:10.15191/nwajom.2020.0803.
181. Newsom, R.K., **D.D. Turner**, R. Lehtinen, C. Muenkel, J. Kallio, and R. Roininen, 2020: Evaluation of a compact broadband differential absorption lidar for routine water vapor profiling in the atmospheric boundary layer. *J. Atmos. Oceanic Technol.*, 37, 47-65, doi:10.1175/JTECH-D-18-0102.1.
180. Olson, J.B., J.S. Kenyon, I. Djalalova, L. Bianco, **D.D. Turner**, Y. Pichugina, A. Chokulkar, M.D. Toy, J.M. Brown, W. Angevine, E. Akish, J.-W. Bao, P. Jimenez, B. Kosovic, K.A. Lundquist, C. Draxl, J.K. Lundquist, J. McCaa, K. McCaffrey, K. Lantz, C. Long, J. Wilczak, R. Banta, M. Marquis, S. Redfern, L.K. Berg, W. Shaw, and J. Cline, 2019: Improving wind energy forecasting through numerical weather prediction model development. *Bull. Amer. Meteor. Soc.*, 100, 2201-2220, doi:10.1175/BAMS-D-18-0040.1.
179. Bianco, L., I.V. Djalalova, J.M. Wilczak, J.B. Olson, J.S. Kenyon, A. Choukulkar, L.K. Berg, H.J.S. Fernando, E.P. Gritmit, R. Krishnamurthy, L.K. Lindquist, P. Muradyan, M. Pekour, Y. Pichugina, M.T. Stoelinga, and **D.D. Turner**, 2019: Impact of model improvements on 80 m wind speeds during the second Wind Forecast Improvement Project (WFIP2). *Geophys. Model Dev.*, 12, 4803-4821, doi:10.5194/gmd-12-4803-2019.
178. Tanamachi, R.L., S.J. Frasier, J. Waldinger, A. LaFleur, **D.D. Turner**, and F. Rocadenbosch, 2019: Progress towards characterization of the atmospheric boundary layer over Northern Alabama using observations by a vertically pointing, S-band profiling radar during VORTEX-Southeast. *J. Atmos. Oceanic Technol.*, 36, 2221-2246, doi:10.1175/JTECH-D-18-0224.1.
177. Osman, M.K., **D.D. Turner**, T. Heus, and V. Wulfmeyer, 2019: Validating the water vapor variance similarity relationship in the interfacial layer using observations and large-eddy simulations. *J. Geophys. Res.*, 124, 10662-10675, doi:10.1029/2019JD030653.
176. Markowski, P.M., N.T. Lis, **D.D. Turner**, T.R. Lee, and M.S. Buban, 2019: Observations of near-surface vertical wind profiles and vertical momentum fluxes from VORTEX-SE 2017: Comparisons to Monin-Obukhov similarity theory. *Month. Wea. Rev.*, 147, 3811-3824, doi:10.1175/MWR-D-19-0091.1.
175. Blumberg, W.G., **D.D. Turner**, S.M. Cavallo, J. Gao, J. Basara, and A. Shapiro, 2019: An analysis of the processes affecting rapid near-surface water vapor increases during the afternoon to evening transition in Oklahoma. *J. Appl. Meteor. Clim.*, 58, 2217-2234, doi:10.1175/JAMC-D-19-0062.1.
174. Hu, J., N. Yussouf, **D.D. Turner**, T.A. Jones, and X. Wang, 2019: Impact of ground-based remote sensing boundary layer observations on short-term probabilistic forecasts of a tornadic supercell event. *Wea. Forecasting*, 34, 1453-1476, doi:10.1175/WAF-D-18-0200.1.
173. Mlawer, E.J., **D.D. Turner**, S.N. Paine, L. Palchetti, G. Bianchini, V.H. Payne, K.E. Cady-Pereira, R.L. Pernak, M.A. Alvarado, D. Gombos, J.S. Delamere, M.G. Mlynchak, and J.C. Mast, 2019: Analysis of water vapor absorption in the far-infrared and sub-millimeter regions using surface radiometric measurements from extremely dry locations. *J. Geophys. Res.*, 124, doi:10.1029/2018JD029508.
172. Haghi, K.R., B. Geerts, H.G. Chipilski, A. Johnson, S. Degelia, D. Imy, D.B. Parsons, R.D. Adams-Selin, **D.D. Turner**, and X. Wang, 2019: Bore-ing into nocturnal convection. *Bull. Amer. Meteor. Soc.*, 100, 1103-1121, doi:10.1175/BAMS-D-17-0250.1.
171. Fernando, H.J., and 48 coauthors (including **D.D. Turner**), 2019: The Perdigao: Peering into microscale details of mountain winds. *Bull. Amer. Meteor. Soc.*, 100, 799-819, doi:10.1175/BAMS-D-17-0227.1.
170. **Turner, D.D.**, and W.G. Blumberg, 2019: Improvements to the AERIoe thermodynamic profile retrieval algorithm. *IEEE J. Selected Topics Appl. Earth Obs. Remote Sens.*, 12, 1339-1354, doi:10.1109/JSTARS.2018.2874968.
169. Lee, T.R., M. Buban, **D.D. Turner**, T.P. Meyers, and C.B. Baker, 2019: Evaluation of the High-Resolution Rapid Refresh (HRRR) model using near-surface meteorological and flux observations from northern Alabama. *Wea. Forecasting*, 34, 635-663, doi:10.1175/WAF-D-18-0184.1.
168. Loveless, D.M., T.J. Wagner, **D.D. Turner**, S.A. Ackerman, and W.F. Feltz, 2019: A composite perspective on bore passages during the PECAN campaign. *Month. Wea. Rev.*, 147, 1395-1413, doi:10.1175/MWR-D-18-0291.1.
167. Coniglio, M.C., G.S. Romine, **D.D. Turner**, and R.D. Torn, 2019: Impacts of targeted AERI and Doppler lidar wind retrievals on short-term forecasts of the initiation and early evolution of thunderstorms. *Month. Wea. Rev.*, 147, 1149-1170, doi:10.1175/MWR-D-0351.1.

166. Wagner, T.J., P.M. Klein, and **D.D. Turner**, 2019: A new generation of ground-based mobile platforms for active and passive profiling of the boundary layer. *Bull. Amer. Meteor. Soc.*, 100, 137-153, doi:10.1175/BAMS-D-17-0165.1.
165. Angevine, W.M., J.B. Olson, J. Kenyon, W.I. Gustafson Jr., S. Endo, K. Suselj, and **D.D. Turner**, 2018: Shallow cumulus in WRF parameterizations evaluated against LASSO large-eddy simulation. *Month. Wea. Rev.*, 146, 4303-4322, doi:10.1175/MWR-D-18-0115.1.
164. Grasmick, C., B. Geerts, **D.D. Turner**, Z. Wang, and T.M. Weckwerth, 2018: The relation between nocturnal MCS evolution and its outflow boundaries in the stable boundary layer: An observational study of the 15 July 2015 MCS in PECAN. *Month. Wea. Review*, 146, 3203-3226, doi:10.1175/MWR-D-18-0169.1.
163. Wulfmeyer, V., **D.D. Turner**, B. Baker, R. Banta, A. Behrendt, T. Bonin, W.A. Brewer, M. Buban, A. Choukulkar, E. Dumas, R.M. Hardesty, T. Heus, J. Ingwersen, D. Lange, T.R. Lee, S. Metzendorf, S.K. Muppa, T. Meyers, R. Newsom, M. Osman, S. Raasch, J. Santanello, C. Senff, F. Spaeth, T. Wagner and T. Weckwerth, 2018: A new research approach for observing and characterizing land-atmosphere feedback. *Bull. Amer. Meteor. Soc.*, 99, 1639-1667, doi:10.1175/BAMS-D-17-0009.1.
162. Zhang, J., P. Zuidema, **D.D. Turner**, and M.P. Cadetdu, 2018: Surface-based microwave humidity retrievals over the equatorial Indian Ocean: Applications and challenges. *J. Appl. Meteor. Clim.*, 57, 1765-1782, doi:10.1175/JAMC-D-0301.1.
161. Matrosov, S.Y., and **D.D. Turner**, 2018: Retrieving mean temperature of atmospheric liquid water layers using microwave radiometer measurements. *J. Atmos. Oceanic Technol.*, 35, 1091-1102, doi:10.1175/JTECH-D-17-0179.1.
160. de Boer, G., M. Ivey, B. Schmid, D. Lawrence, D. Dexheimer, F. Mei, J. Hubbe, A. Bendure, J. Hardesty, M.D. Shupe, A. McComiskey, H. Telg, C. Schmitt, S.Y. Matrosov, I. Brooks, J. Creaman, A. Solomon, **D.D. Turner**, C. Williams, M. Maahn, B. Argrow, S. Palo, C.N. Long, R.-S. Gao, and J. Mather, 2018: A bird's eye view: Development of an operational ARM unmanned aerial capability for atmospheric research in Arctic Alaska. *Bull. Amer. Meteor. Soc.*, 99, 1197-1212, doi:10.1175/BAMS-D-17-0156.1.
159. Osman, M.K., **D.D. Turner**, T. Heus, and R.K. Newsom, 2018: Characteristics of water vapor turbulence profiles in convective boundary layers during the dry and wet seasons over Darwin. *J. Geophys. Res.*, 123, 4818-4836, doi:10.1029/2017JD028060.
158. **Turner, D.D.**, M.D. Shupe, and A.B. Zwink, 2018: Characteristic atmospheric radiative heating rate profiles in Arctic clouds as observed at Barrow, Alaska. *J. Appl. Meteor. Clim.*, 57, 953-968, doi:10.1175/JAMC-D-17-0252.1.
157. Edwards-Opperman, J., S. Cavallo, and **D.D. Turner**, 2018: The occurrence and properties of long-lived liquid-bearing clouds over the Greenland Ice Sheet and their relationship to the North Atlantic Oscillation. *J. Appl. Meteor. Clim.*, 57, 921-935, doi:10.1175/JAMC-D-17-0230.1.
156. Pettersen, C., R. Bennartz, A.J. Merrelli, M.D. Shupe, **D.D. Turner**, and V.P. Walden, 2018: Precipitation regimes over central Greenland inferred from 5 years of ICECAPS observations. *Appl. Chem. Phys.*, 18, 4715-4735, doi:10.5194/aacp-18-4715-2018.
155. Feldman, D.R., W.D. Collins, S.C. Biraud, M.D. Risser, **D.D. Turner**, P.J. Gero, J. Tadic, D. Helmig, S. Xie, E.J. Mlawer, T.R. Shippert, and M.S. Torn, 2018: Observationally derived rise in methane surface forcing mediated by water vapour trends. *Nature Geosci.*, 11, 238-243, doi:10.1038/s41561-018-0085-9.
154. **Turner, D.D.**, V. Wulfmeyer, A. Behrendt, T.A. Bonin, A. Choukulkar, R.K. Newsom, W.A. Brewer, and D.R. Cook, 2018: Response of the land-atmosphere system over north-central Oklahoma during the 2017 eclipse. *Geophys. Res. Lett.*, 45, 1668-1675, doi:10.1002/2017GL076908.
153. Stillwell, R.A., R.R. Neely III, J.P. Thayer, M.D. Shupe, and **D.D. Turner**, 2018: Improved cloud-phase determination of low-level liquid and mixed-phase clouds by enhanced polarimetric lidar. *Atmos. Meas. Technol.*, 11, 835-859, doi:10.5194/amt-11-835-2018.
152. Cadetdu, M.P., R. Marchand, E. Orlandi, **D.D. Turner**, and M. Mech, 2017: Microwave passive ground-based retrievals of cloud and rain liquid water path in drizzling clouds: Challenges and possibilities. *IEEE Trans. Geosci. Remote Sens.*, 55, 6468-6481, doi:10.1109/TGRS.2017.2728699.
151. Blumberg, W.G., T.J. Wagner, **D.D. Turner**, and J. Correia Jr., 2017: Quantifying the accuracy and uncertainty of diurnal thermodynamic profiles and convection indices derived from the Atmospheric Emitted Radiance Interferometer. *J. Appl. Meteor. Clim.*, 56, 2747-2766, doi:10.1175/JAMC-D-17-0036.1.

150. Berg, L.K., R.K. Newsom, and **D.D. Turner**, 2017: Year-long vertical velocity statistics derived from Doppler lidar in the continental convective boundary layer. *J. Appl. Meteor. Clim.*, **56**, 2441-2454, doi:10.1175/JAMC-D-16-0359.1.
149. Bluestein, H.B., Z.B. Wienhoff, **D.D. Turner**, D.W. Reif, J.C. Snyder, K.J. Thiem, and J.B. Houser, 2017: A comparison of the fine-scale structures of a prefrontal wind-shift line and a strong cold front in the Southern Plains of the U.S.. *Mon. Wea. Rev.*, **145**, 3307-3330, doi:10.1175/MWR-D-16-0403.1.
148. Lacour, A., H. Chepfer, M.D. Shupe, N. Miller, V. Noel, J. Kay, **D.D. Turner**, and R. Guzman, 2017: Greenland clouds observed in CALIPSO-GOCCP: Comparison with ground-based Summit observations. *J. Climate*, **30**, 6065-6083, doi:10.1175/JCLI-D-16-0552.1.
147. Holloway, C.E., A.A. Wing, S. Bony, C. Muller, H. Masunaga, T.S. L'Ecuyer, **D.D. Turner**, and P. Zuidema, 2017: Observing convective aggregation. *Survey Geophys.*, doi:10.1007/s10712-017-9419-1.
146. Toms, B.A., J.M. Tomaszewski, **D.D. Turner**, and S.E. Koch, 2017: Analysis of a lower-tropospheric gravity wave train using direct and remote sensing measurement systems. *Mon. Wea. Rev.*, **145**, 2791-2812, doi:10.1175/MWR-D-0216.1.
145. Blanchard, Y., A. Royer, N. O'Neill, **D.D. Turner**, and E. Eloranta, 2017: Thin ice clouds in the Arctic: Cloud optical depth and particle size retrieved from ground-based thermal infrared radiometry. *Atmos. Meas. Techniq.*, **10**, 2129-2147, doi:10.5194/amt-10-2129-2017.
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