JAMES O. PINTO

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Professional Interests

Weather hazard detection and prediction for small Unmanned Airborne Systems (UAS) and aviation planning. Meso-to-microscale modeling, UAS data assimilation. Mesoscale model assessment. Integration of weather hazards into decision support tools. Short term prediction of convective storms through the development of data fusion techniques that combine model predictions with observational datasets. Regional climate downscaling, hybrid statistical-dynamical climate downscaling technique development and analyses with foci on boundary layer evolution, low-level winds, precipitation and extreme events. Model calibration and ensemble post-processing techniques for improved analysis and prediction of aviation weather hazards.

Education

1997	Ph.D.	University of Colorado	Atmospheric and Oceanic Sciences
1993	M.S.	Pennsylvania State University	Atmospheric Science
1990	B.S.	Cornell University	Meteorology

Professional Experience

2017-present Science Deputy for Aviation Application Program

Develop proposals, manage projects and budgets, provide scientific leadership, help with program development, and aid in personnel decisions for the Aviation Applications Program.

2015-present *Project Scientist III NCAR/Research Applications Laboratory*

- **UAS Weather Program –** Coordinate efforts across NCAR toward building fine-scale forecast systems for the prediction of winds and turbulence to support small UAS operations.

- **CoSPA –** Lead the development and technology transfer of blending algorithm that seamlessly transitions from MIT-LL heuristic extrapolation forecast to NCEP HRRR forecasts of precipitation intensity and echo top heights (used to diagnose convective hazards) will run as part

of the NextGEN Weather Processor (NWP) and whose products will be used by Air Traffic Flow Managers (ATFM) in the strategic planning of the National Airspace (NAS).

- **EPOCH –** Developed adaptive regional calibration of global ensemble model predictions of convection and convective cloud top height that is required prior to combining forecasts from individual centers in support of ICAO harmonization activities that will ultimately improve strategic planning for transcontinental flights.

- **Unmanned Aerial System (UAS) Weather –** Lead development of a meso-to-microscale weather forecasting system tailored for supplying high resolution predictions of winds and turbulence to support UAS operations.

2008-2015 *Project Scientist II, NCAR/Research Applications Laboratory*

- Aided in redirecting FAA-funded program efforts which now focus on developing probabilistic products designed to aid both aviation weather forecasters and FAA planners, worked to re-establish collaborations with the Aviation Weather Center.
- Scientific lead on research and development efforts to generate probabilistic forecasts of convective storms exceeding 100 km in length for aviation forecasters and planners.
- Developed and applied technique for selecting representative days to reduce computational burden of dynamical climate downscaling and determine local impact of global warming, collaborated on application of analog techniques to downscale climate data.
- Scientific lead on the realtime production of convective weather forecasts that combine MIT/LL heuristic extrapolation forecast data with forecasts from NOAA/GSD's High Resolution Rapid Refresh for use by aviation meteorologists and planners.
- Scientific lead on research and development efforts that resulted in technology transfer of blending software to FAA and WSI.
- Performed scientific analyses to identify nocturnal low-level jets around the world and diagnose formation mechanisms. Project work included configuration and execution of a downscaling system that we used to generate a global 21 year, 40 km resolution reanalysis with hourly resolution in order to diagnose diurnal variability.

2004-2008 *Project Scientist I, NCAR/Research Applications Laboratory*

- Scientific lead of major FAA-funded project to develop techniques for blending extrapolation forecasts with output from a high-resolution numerical model to generate a smoothly varying 0-8 hour forecast of thunderstorm hazards for aviation. Lead the development of model post-processing techniques involving model calibration and phase error correction and blending heuristics for generating seamless transition from extrapolation to model forecast.
- Provided scientific and technical support for producing a global mesoscale reanalysis via dynamical downscaling for government sponsor and was major contributor on two seminal papers that furthered general scientific understanding of the global distribution of nocturnal low-level jets and their influence on regional climate.

- Performed scientific analyses to configure MM5 to generate a new 40 km-resolution global reanalysis in order to assess correlations between regional variations in low-level winds and precipitation.
- Lead the development of global distribution of precipitation intensity probability density functions using multiple satellite retrieval techniques, rain gauge-based scaling methods and dynamical downscaling (which allowed for a high resolution three-dimensional depiction of hydrometeor PDFs over the Florida Peninsula).

2000-2004 *Visiting Scientist, NCAR/ATD*

- Developed theory for the relationship between the nocturnal jet and mixing in the Great Salt Lake Basin using data from a suite of NCAR's surface-based observing facilities.
- Developed processing software for TAOS tethered balloon data.
- Revealed the biases in predicted nocturnal flow in complex terrain by comparing observational data with that obtained using a mesoscale model (MM5).
- Developed realtime mesoscale modeling system to support NCAR ISS deployments including IHOP and ISPA.

1997-2005 *Research Associate, Program in Atmospheric and Oceanic Sciences, University of Colorado*

- Collection, processing and analysis of NCAR C-130 data and surface data (e.g., flux-PAM) from SHEBA and synthesis of process modeling data sets (e.g., cloudy boundary layer, freezing leads) for improving their treatment in climate models.
- Directed graduate students in the development and application of a Single Column Model (SCM) and a mesoscale model (MM5) to study Arctic climate issues.
- Planned, directed and provided scientific support for Aerosonde operations out of Barrow, AK for remote sensing of sea ice and in situ sensing of the lower atmosphere over the Arctic Ocean.
- Assisted in the development and testing of widely used radiation codes (Streamer, RRTM) and implemented RRTM in a regional climate model (ARCSyM).

1997-2005 *Research Assistant, Program in Atmospheric and Oceanic Sciences, University of Colorado*

- Ph. D. research: Aided in the planning for the Beaufort and Arctic Storms Experiment (BASE). Directed the collection of and analyzed C-130 aircraft data during BASE. Analyzed surface data from LEADEX, and performed mesoscale modeling to study Arctic cloudy boundary layers with a focus on mixed-phase clouds. Coupled new radiative transfer code to MM5 for polar applications.

1991-1992 *Research Assistant, Department of Meteorology, Penn State University*

- M.S. research: Developed Single Column Model that included the coupling of microphysics, radiative transfer and turbulence to simulate cloud plumes that occur above and downwind of fissures in the sea ice to assess their importance in determining the climate of the Arctic.

1990-1991 *Teaching Assistant, Dept. of Meteorology, Penn State University*

- TA for lab on synoptic meteorology and weather forecasting.

Awards & Special Recognitions

2018	NWA Aviation Meteorology Award, *For dedication and professionalism in enhancing safety and improving efficiency of aviation operations by innovative research, development, and integration of weather products, services, processes and models.*
2014	RAL Nomination for NCAR's Outstanding Publication Award.
2010	RAL *Special Recognition Award for research, development, and demonstration of CoSPA* (a convective storm nowcasting system for aviation planning).
1994-1997	NASA Global Climate Change Fellowship

Synergistic Activities & Community Service

2021	ARAM Conference Session Convener, Best Student Paper Award Coordinator
2020-2021	WMO Joint Expert Team on Aircraft-Based Observations UAS Subgroup lead
2020	Co-Chair (with Mike Robinson) of 2020 AMS ARAM Conference
2019	Co-Chair (with Jason Kneivel) of 2019 AMS ARAM Conference
2019	Member WMO Working Group on UAS for Operational Meteorology
2019-2020	Chair, RAL Outstanding Publication Award Committee
2018-2020	RAL Outstanding Publication Award Committee
2017	RAL representative for NCAR Working Group on Observational Science, Facilities and Services
2017	Session Chair, Student Presenter Judge, ARAM
2017-present	RAL Visitor Fund Committee, RAL Outstanding Pub. Nomination Committee
2016-present	ARAM Committee Member
1996-present	Reviewed more than 50 journal articles and over 10 proposals (for NSF, DOE, NASA) over the years.

2013	Session chair, 16th Aviation, Range, and Aerospace Meteorology (ARAM) Conference, AMS, Austin, TX
2010	Advisor to DOE BER's (Biological and Environmental Research) Workshop on Developing a Climate Change Research Roadmap, Arlington, VA.
2006	Co-convener: *Special session on mixed-phase clouds*, Fall AGU, San Francisco
2005	Organized GCSS Working Group on Polar Clouds meeting in Athens Greece
2004-2007	Chair, GEWEX Cloud System Study (GCSS) Working Group on Polar Clouds
2004-2007	Member of Ross Island Meteorology Experiment (RIME) Science Steering Committee
2004	Session Chair, *Eighth Conference on Polar Meteorology and Oceanography*, San Diego
2003-2005	Post-doctoral advisor of Hugh Morrison
1996-1999	Member of Surface Heat Budget of the Arctic Ocean (SHEBA) Science Steering Committee

Field Work Experience

2018	LAPSE-RATE, ISARRA Flight Week, San Luis Valley, Colorado – Provide weather support for small UAS operations and evaluation of BL processes in complex terrain.
2012-2014	Aviation Weather Center Testbed Experiment – Participant, Kansas City, KS.
2010	CoSPA benefits assessment – Product usage observer, Houston, TX.
2006	Terrain-induced Rotor Experiment (T-REX) – Site Scientist ISS & Mobile Sounding System, Bishop, CA.
2005	Barrow Lead Experiment (BLEADEX) - Mission scientist for Aerosonde Operations, Barrow, AK.
2004	Fall Aerosonde IOP - Coordinated with Mixed-phase Arctic Cloud Experiment (MPACE) operations, Barrow, AK
2004	Sierra Rotors Project, Site Scientist NCAR ISS, Bishop, CA.
2004	Spring Aerosonde IOP, Mission Scientist, Barrow, AK.
2003	Hudson Valley Ambient Meteorology Study (HVAMS), Site scientist for ISS and Tethered Atmospheric Observing System (TAOS) operations, Kingston, NY.

2003	Summer Aerosonde IOP, Site Scientist for Aerosonde Ops, Barrow, AK.
2003	Spring Aerosonde IOP, Site Scientist for Aerosonde Ops, Barrow, AK.
2002	Fall Aerosonde IOP, Site Scientist for Aerosonde Ops, Barrow, AK.
2002	International H2O Project (IHOP), Site Scientist NCAR ISS, Liberal, KS.
2002	Spring Aerosonde IOP, Site Scientist for Aerosonde Ops, Barrow, AK.
2001	Third Convection and Moisture Experiment (CAMEX-3), Site Scientist for Aerosonde Ops, Jacksonville, FL.
2000	Vertical Transport and Mixing (VTMX), Site Scientist NCAR ISS, Salt Lake City, UT.
1998	Surface Heat Budget of the Arctic Ocean (SHEBA), Surface Scientist, Des Groseilliers, adrift on sea ice.
1998	FIRE Arctic Clouds Experiment, Lead Mission Scientist/ Mission Scientist, NCAR C-130, Fairbanks, AK.
1994	Beaufort and Arctic Storms Experiment (BASE), Mission Scientist for 18 missions over Arctic Ice Pack on the NCAR C-130, Fairbanks, AK.

Invited Talks

2020	Fine-scale weather hazard prediction guidance of tomorrow, *UAS Weather Forum*, virtual.
2019	Challenges of micro-weather forecasting for UAS Skyways, *UAS Weather Forum*, Chicago, IL.
2018	Ultra-high resolution weather support of small UAS operations, *UAS Weather Forum*, Denver, CO.
2017	Booz/Allen/Hamilton Workshop on UAS Airport Applications and Feasibility Assessment, *Weather Impacts on UAS*, Washington, DC.
2015	NCAR/RAL Perspective on aviation weather product requirements for the rapidly updating Analysis (RUA), *RUA Analysis Workshop*, NOAA/GSD, Boulder, CO.
2014	Assessment of HRRR skill at predicting MCSs using an object-based verification, *NCAR/EOL Seminar*, Boulder, CO
2013	NCAR research on thunderstorm analysis and nowcasting, *Friends and Partners of Aviation Weather (FPAW)*, Las Vegas, NV
2013	A new large-scale convective storm likelihood forecast capability, *AWC Testbed Seminar*, Kansas City, KS
2013	Aviation weather: A user and provider prospective, *AMS Short Course*, Austin, TX

2011	Uncertainty in storm forecasts, *Air Traffic Control Workshop*. Washington, DC
2010	Statistical analysis of HRRR skill at predicting MCS initiation, *Developmental Testbed Center (DTC) Workshop*, Boulder, CO
2004	On the longevity of mixed-phase clouds in the Arctic, *ARM Cloud Parameterization Modeling WG meeting*, Williamsburg, VA.
2004	Use of miniature robotic aircraft for polar environmental studies, University of Colorado, *UAV Workshop*, Boulder, CO
2003	Observations of vertical mixing in the nocturnal boundary layer caused by terrain-induced flow, *NCAR/ATD Seminar*, Boulder, CO
2003	Current understanding of the inseparable ice-albedo and cloud radiation feedbacks, *AMS Conference on Polar Meteorology and Oceanography*, Hyannis, MA.
2002	Climate feedback in the Arctic related to clouds and radiation, *NCAR CGD Seminar*, Boulder, CO

Refereed Publications *(54 total)*

Pinto, J.O., and Coauthors, 2021: The status and future of small Uncrewed Aircraft Systems (UAS) in Operational Meteorology, *Bull. Amer. Meteor. Soc*., revised and resubmitted.

Pinto, J.O., A. Jensen, P. Jimenez, T. Hertneky, D. Munoz-Esparza and M. Steiner, 2021: Realtime WRF-LES Simulations during 2018 LAPSE-RATE, Earth System Science Data, 13, 697-711, https://doi.org/10.5194/essd-13-697-2021.

Jensen, A. A., **J.O. Pinto** and **Coauthors**, 2021: Assimilation of a coordinated fleet of UAS observations in complex terrain: EnKF system design and preliminary assessment, *Mon. Wea. Rev*., in press.

Jensen, A. A., **J.O. Pinto** and Coauthors, 2021: Assimilation of a coordinated fleet of UAS observations in complex terrain: Observing System Experiments, *Mon. Wea. Rev*., submitted.

Munoz-Esparza, D., H. H., Shin, J.A. Sauer, M. Steiner, P. Hawbecker, J. Boehnert, **J.O. Pinto**, B. Kosovic, and R.D. Sharman, 2021: Efficient GPU modeling of street-scale weather effects in support of aerial operations in the urban environment. *AGU Advances*, submitted.

de Boer, G., and **co-authors**, 2020: Data generated during the 2018 LAPSE-RATE campaign: An introduction and overview. Earth System Science Data, 12, 3357-3366, https://doi.org/10.5194/essd-12-3357-2020.

Grim, J.A., **J.O. Pinto**, T. Blitz and GSL Coauthor, 2021: Assessing HRRR-E Biases in Predicting the Evolution of Convective Storm Characteristics. to be submitted to WAF/MWR by May 2021.

Wilson, J., D. Megenhardt and **J. Pinto**, 2020: NWP and radar extrapolation: Comparisons and explanation of errors. *Mon. Wea. Rev*., 148, 4783-4798, DOI: 10.1175/MWR-D-20-0221.1.

de Boer, G., and Coauthors: Development of community, capabilities and understanding through unmanned aircraft-based atmospheric research, 2020: The LAPSE-RATE campaign, *Bull. Amer. Meteor. Soc.*, 101, doi:10.1175/BAMS-D-19-0050.1.

Muñoz-Esparza, D., J.A. Sauer, H.H. Shin, R. Sharman, B. Kosovic, S. Meech, C. G.-Sanchez, M. Steiner, J. Knievel, **J.O. Pinto**, and S. Swerdlin, 2020: Inclusion of building-resolving capabilities into the FastEddy® GPU-LES model using an immersed body force method. *JAMES*, 12 (11), doi:10.1029/2020MS002141.

Grim, J.A., **J.O. Pinto**, A.A. Jensen, and A. Seimon, 2020: The East African Great Lake Environments (EAGLE) Climate Downscaling Dataset. NCAR Technical Note. https://doi.org/10.26024/mahn-2660.

Pinto, J.O., D.L. Megenhardt, T. Fowler, and J. Colavito, 2019: Biases in the mesoscale prediction of ceiling and visibility in Alaska and their reduction using quantile matching. *Wea. Forecasting*, 997-1015. DOI: 10.1175/WAF-D-19-0230.1.

Glasheen, K., **J. Pinto**, M. Steiner, and E. Frew, 2019: Assessment of finescale local wind forecasts using small unmanned aircraft systems, J. Aerospace Information Systems, 17, 11 pp. DOI: 10.2514/1.I010747.

Sauer, M., M. Steiner, R. D. Sharman, J. O. Pinto, and W.K. Deierling, 2018: Tradeoffs for flights in view of multiple weather hazards. *The Journal of Air Traffic Control*, 57(3), 36 – 45, 2015.

Nolan, P.J., **J.O. Pinto**, J. G.-Rocha, A. Jensen, C.A. Vezzi, S. C.C. Bailey, G. De Boer, C. Diehl, R. Laurence III, C.W. Powers, H. Foroutan, S.D. Ross, D.G. Schmale III, 2018: Coordinated Unmanned Aircraft System (UAS) and ground-based weather measurements to predict Lagrangian Coherent Structures (LCSs). *Sensors*, 18, 4448; doi:10.3390/s18124448.

Geerts, et al., 2017: PECAN field experiment. *Bull. Amer. Meteor. Soc.*, 98, 767-786, DOI: https://doi.org/10.1175/BAMS-D-15-00257.1

Sauer, M., M. Steiner, R.D. Sharman, **J.O. Pinto** and D. Adriaansen, 2016: Flight planning and execution with multiple weather hazards. *Air Traffic Control Quarterly*, 24, 16-23.

Ahijevych, D.A., **J.O. Pinto**, J.K. Williams, and M. Steiner, 2016: Probabilistic forecasts of Mesoscale Convective System Initiation using the random forest data mining technique. *Wea. and Forecasting*, 31, 581-599, DOI: http://dx.doi.org/10.1175/WAF-D-15-0113.1.

Kicinger, R., Chen, J.-T., M. Steiner, and **J.O. Pinto**, 2016: Airport capacity prediction with explicit consideration of weather forecast uncertainty. *Air Traffic Control Quarterly*, 24, 18-28.

Pinto, J.O., J. Grim, and M. Steiner, 2015: Object-based verification of the High Resolution Rapid Refresh: Evaluation of mesoscale convective storms prediction. *Weather and Forecasting*, **30**(4), 892 – 913, doi: http://dx.doi.org/10.1175/WAF-D-14-00118.1

Vanvyve, E., L.D. Monache, A.J. Monaghan, and **J. Pinto**, 2014: Wind resource estimates with an analog ensemble approach. *Renewable Energy*, **74**, 761–773.

Pinto, J.O., A.J. Monaghan, L.D. Monache, E. Vanvyve, and D.L. Rife, 2014: Regional assessment of sampling techniques for more efficient dynamical climate downscaling. *J. Climate*, **27**, 1524–1538. doi: http://dx.doi.org/10.1175/JCLI-D-13-00291.1

Sun, J., M. Xue, J. W. Wilson, I. Zawadzki, S. P. Ballard, J. Onvlee-Hooimeyer, P. Joe, D. M. Barker, P.-W. Li, B. Golding, M. Xu, and **J.O. Pinto**, 2014: Use of NWP for Nowcasting Convective Precipitation: Recent Progress and Challenges. *Bull. Amer. Meteor. Soc.*, **95**, 409–426. doi: http://dx.doi.org/10.1175/BAMS-D-11-00263.1

Rife, D.L., E. Vanvyve, **J.O. Pinto**, A.J. Monaghan, C.A. Davis and G.S. Poulos, 2013: Selecting representative days for more efficient dynamical climate downscaling: Application to wind energy. *J. Appl. Meteor. Clim*., **52**, 47–63.

Ikeda, K., M. Steiner, **J. Pinto**, and C. Alexander, 2013: Evaluation of cold-Season precipitation forecasts generated by the hourly updating High-Resolution Rapid Refresh Model. *Wea. Forecasting*, **28**, 921–939.

Caine, S., T.P. Lane, P. May, C. Jakob, S.T. Siems, M.J. Manton, and **J.O. Pinto**, 2013: Statistical assessment of tropical convection-permitting model simulations using a cell-tracking algorithm. *Mon. Wea. Rev*., **141**, 557–581.

Grim, J.A. and **J.O. Pinto**, 2011: Estimating continuous-coverage instantaneous precipitation rates using remotely-sensed and ground-based measurements. *J. Appl. Meteor. Clim*., **50**, 2073–2091.

Weckwerth, T.M., J.W. Wilson, M. Hagen, T.J. Emerson, **J.O. Pinto**, D.L. Rife, L. Grebe, 2011: Radar climatology of COPS region. *Q. J. R. Meteor. Soc.*, **137**, 31–41. DOI:10.1002/qj.747.

Rife, D.L., **J.O. Pinto**, A.J. Monaghan, C.A. Davis and J.R. Hannan, 2010: Global distribution and characteristics of diurnally-varying low-level jets. *J. Clim.*, **23**, 5041–5064.

Monaghan, A.J., D.L. Rife, **J.O. Pinto**, C.A. Davis and J.R. Hannan, 2010: Global precipitation extremes associated with diurnally-varying low-level jets. *J. Clim.*, **23**, 5065–5085.

Morrison, H., **J.O. Pinto**, J.A. Curry, G.M. McFarquhar, 2008: Sensitivity of modeled mixed-phase stratocumulus to cloud condensation and ice nuclei over regionally varying surface conditions. *J. Geophys. Res.,* **113**, D05203, doi:10.1029/2007JD008729.

Pinto, J.O., D.B. Parsons, W.O.J. Brown, S. Cohn, N. Chamberlain and B. Morley, 2006: Co-evolution of down-valley flow and the nocturnal boundary layer in complex terrain. *J. Appl. Meteor.*, **45**, 1429–1449.

Inoue, J., J. Liu, **J.O. Pinto**, and J.A. Curry, 2006: Intercomparison of Arctic regional climate models: Modeling clouds and radiation for SHEBA in May 1998. *J. Clim*. **19**, 4167–4178.

Morrison, H.C., and **J.O. Pinto**, 2006: Intercomparison of bulk microphysics schemes in mesoscale simulations of springtime Arctic mixed-phase stratus. *Mon. Wea. Rev.* **134**, 1880–1990, doi:10.1175/MWR3154.1.

Morrison, H., M.D. Shupe, **J.O. Pinto**, and J.A. Curry, 2005: Possible roles of ice nucleation mode and ice nuclei depletion in the extended lifetime of Arctic mixed-phase clouds. *Geophys. Res. Lett., **32***, L18801, doi:10.1029/2005GL023614.

Morrison, H.C., and **J.O. Pinto**, 2005: Mesoscale modeling of springtime Arctic mixed-phase stratiform clouds using a new two-moment bulk microphysics scheme. *J. Atmos. Sci.,* **62**, 3683–3704.

Curry, J.A., J. Maslanik, G. Holland and **J. Pinto**, 2004: Applications of Aerosondes in the Arctic. *Bull. Amer. Meteor. Soc*., **85**, 12, doi: 10.1175/BAMS-85-12-1855.

Banta, R.M., L.S. Darby, J.D. Fast, **J.O. Pinto**, W.J. Shaw, D.Whiteman, 2004: Nocturnal low-level jet in a mountain basin complex. I. Evolution and effects on local flows. *J. Appl. Meteor*., **43**, 1348–1365.

Morrison, H., and **J.O. Pinto**, 2004: A new approach for obtaining advection profiles for single column modeling: Application to SHEBA, *Mon. Wea. Rev.*, **132**, 687–702.

Pinto, J.O., A. Alam, J.A. Maslanik, J.A. Curry, and R.S. Stone, 2003: Surface characteristics and atmospheric footprint of springtime freezing leads in the Arctic. *J. Geophys. Res.*, **108**, 8051, doi:10.1029/2000JC000473.

Pinto, J.O., J.A. Curry and J.M. Intrieri, 2001: Cloud-aerosol interactions during autumn over Beaufort Sea. *J. Geophys. Res.*, **106**, 13077–15097.

Benner, T.C., J.A. Curry and **J.O. Pinto**, 2001: Radiative transfer in the summertime Arctic. *J. Geophys. Res.*, **106**, 15173–15183.

Khvorostyanov, V.I., J.A. Curry, **J.O. Pinto**, M.D. Shupe, R.P. Lawson and K. Sassen, 2001: Modeling with explicit water and ice microphysics of a two-layer cloud system of altostratus and cirrus observed during FIRE.ACE. *J. Geophys. Res.*, **106**, 15099–15112.

Curry, J.A., J.L. Schramm, D.K. Perovich, and **J.O. Pinto**, 2001: Applications of SHEBA/FIRE data to evaluation of snow/ice albedo parameterizations. *J. Geophys. Res.*, **106**, 15345–15355.

Curry, J.A., P.V. Hobbs, M.D. King, D.A. Randall, P. Minnis, G.A. Isaac, **J.O. Pinto**, T. Uttal, A. Bucholtz, D.G. Cripe, H. Gerber, C.W. Fairall, T.J. Garrett, J. Hudson, J.M. Intrieri, C. Jakob, T. Jensen, P. Lawson, D. Marcotte, L. Nguyen, P. Pilewskie, A. Rangno, D. Rodgers, K.B. Strawbridge, F.P.J. Valero, A.G. Williams, D. Wylie, 2000: FIRE Arctic Clouds Experiment. *Bull. Amer. Meteor. Soc.*, **81**, 5–29.

Pinto, J.O., J.A. Curry, A.H. Lynch, and P.O.G. Persson, 1999: Modeling clouds and radiation for the November 1997 period of SHEBA using a column climate model. *J. Geophys. Res.*, **104**, 6661–6678.

Jiang, H., W.R. Cotton, **J.O. Pinto**, J.A. Curry, and M.J. Weissbluth, 1999: Cloud resolving simulations of mixed-phase Arctic stratus observed during BASE: Sensitivity to concentration of ice crystals and large-scale heat and moisture advection. *J. Atmos. Sci.*, **57**, 2105–2117.

Pinto, J.O., 1998: Autumnal mixed-phase cloudy boundary layers in the arctic. *J. Atmos. Sci.*, **55**, 2016–2038.

Pinto, J.O., J.A. Curry and C.W. Fairall, 1997: Radiative and microphysical properties of low- level Arctic clouds inferred from ground-based measurements. *J. Geophys. Res.*, **102**, 6941–6952.

Curry, J.A., **J.O. Pinto**, T.C. Benner and M. Tschudi, 1997: Evolution of the cloudy boundary layer during the autumnal freezing of the Beaufort Sea. *J. Geophys. Res.*, **102**, 13851–13860.

Pinto, J.O., and J.A. Curry, 1997: Role of radiative transfer in the modeled mesoscale development of summertime arctic stratus. *J. Geophys. Res.*, **102**, 13861–13872.

Pinto, J.O., and J.A. Curry, 1995: Atmospheric convective plumes emanating from leads, 2. Microphysical and radiative processes. *J. Geophys. Res.*, **100**, 4633–4642.

Pinto, J.O., J.A. Curry, and K.L. McInnes, 1995: Atmospheric convective plumes emanating from leads, 1. Thermodynamic structure. *J. Geophys. Res.*, **100**, 4621–4631.