

## Donna Veturia Kliche, Ph.D.

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South Dakota School of Mines and Technology  
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### EDUCATION

Bucharest, Romania	Physics	1980	BS/MS
SDSM&T, Rapid City, SD	Meteorology	1989	MS
Georgia TECH, Atlanta, GA	Earth&Atm.Sci.(Atm.Chem)	1991	MS
SDSM&T, Rapid City, SD	Atm., Env. and Water Resources	2007	PhD

### PROFESSIONAL EXPERIENCE

- 2010 – Present, Associate Professor, Institute of Atmospheric Sciences, and ATM Undergraduate Program Coordinator, South Dakota School of Mines and Technology
- 2000 – 2010, Research Scientist III and Instructor, Institute of Atmospheric Sciences, South Dakota School of Mines and Technology
- 2007 – Present, Physics Instructor, Physics Department, South Dakota School of Mines and Technology
- 2005 – 2008, Acting Associate Director of Institute of Atmospheric Sciences, South Dakota School of Mines and Technology
- 1998 – 2000, Personalized Resources for Individualized Mathematics Education Coordinator, (PRIME Program), Mathematics and Computer Science Department, South Dakota School of Mines and Technology
- 1994 – 1998, Research Scientist, Institute of Atmospheric Sciences, South Dakota School of Mines and Technology
- 1991 – 1994, Director of Air Quality, Pennington County, Rapid City, South Dakota
- 1990 – 1991, Graduate Research Assistant, Georgia TECH, Earth and Atmospheric Sciences, Georgia
- 1988 – 1989, Graduate Research Assistant, Meteorology Department, South Dakota School of Mines and Technology
- 1987 – 1988, Case Manager, Illinois Conference of Churches, Chicago, Illinois
- 1980 – 1986, Engineer Physicist, Factory of Industrial Fans, Bucharest, Romania

## RESEARCH GRANTS

- Comprehensive Statistical Analysis of Raindrop Size Distribution Data: 09/2009 – 08/2012, PI, \$533,555 Submitted to NSF.
- Preliminary work for the development of the Next Generation Storm Penetrating Aircraft, EAGER Proposal: 09/2009 – 08/2010, PI, \$82,409 – approved for funding.
- OEDG Planning Grant: 08/2009 – 08/2010, PI, \$39,989 – approved for funding.
- NASA EPSCoR RIG Project: 03/2009 – 04/2010, PI, \$25,000
- ARDEC Project: 03/2008 – 02/2010, \$112,649
- He Sapa Oyate Project: 09/2005 – 08/2009, PI, \$250,000
- Creation of an On-Line Archive of Airborne Storm Penetration Data Project: 07/2005-01/2009, PI, \$152,276
- Cottonwood Tower and Black Hills Tower EPSCoR Project: 07/2005 – 10/2006, Co-PI. \$71,401
- The Air We Breath Project: 09/2003 – 08/2004, CoPI, \$50,000

## PUBLICATIONS

- Johnson, R.W., **D.V. Kliche** and P.L. Smith, 2010: Comparison of Estimators for Parameters of Gamma Distributions with Left-truncated Samples, Accepted for publication in *J. Applied Meteorology and Climatology*, Fall 2010.
- Johnson, R.W., **D.V. Kliche** and P.L. Smith, 2010: Maximum Likelihood Estimation of Gamma Parameters For Coarsely Binned and Truncated Raindrop Size Data, *13<sup>th</sup> Conference of Cloud Physics*, 28 June - 2 July, 2010, Portland, OR, Amer. Meteor. Soc.
- Smith, P.L., **Kliche, D.V.**, and R.W. Johnson, 2009: The bias and error in moment estimators for parameters of drop-size distribution functions: sampling from gamma distributions. Revised for publication in *J. Applied Meteorology and Climatology*.
- Kliche, D.V.**, Smith, P.L., and R.W. Johnson, 2008: L-Moment Estimators as Applied to gamma drop size distributions. *J. Applied Meteorology and Climatology*, 47, 3117-3130.
- Kliche, D.V.**, 2007: Raindrop Size Distribution Functions: An Empirical Approach. PhD Dissertation, SDSM&T, 197p.
- Kliche, D.V.**, P.L. Smith, R.W. Johnson, 2007a: L-Moment estimators as applied to exponential, gamma, and lognormal drop size distributions. *33<sup>rd</sup> Conf. on Radar Meteorology*, Cairns, Australia, Amer. Meteor. Soc.
- Kliche, D.V.**, A.G. Detwiler, P.L. Smith, and R.W. Johnson, 2007b: L-Moment method applied to observed raindrop size distribution. *33<sup>rd</sup> Conf. on Radar Meteorology*, Cairns, Australia, Amer. Meteor. Soc.
- Kliche, D.V.**, Smith, P.L., and R.W. Johnson, 2006: Estimators for parameters of drop-size distribution functions: sampling from gamma distributions. *12<sup>th</sup> Conference of Cloud Physics*, 10-14 July, 2006, Madison, WI, Amer. Meteor. Soc.

- Beals, M., **D.V. Kliche**, A.G. Detwiler, S. Williams, 2006: On-line archive of storm penetrating data. *23rd Conf. on Severe Storms*, St. Louis, MO, Nov. 3-10, 2006, Amer. Meteor. Soc.
- Smith, P.L. and **D.V. Kliche**, D.V., and R.W. Johnson, 2005: The bias in moment estimators for parameters of drop-size distribution functions: sampling from exponential distributions. *J. Appl. Meteor.*, *44*, 1195-1205.
- Smith, P.L. and **D.V. Kliche**, 2004: Bias in moment estimators for parameters of drop-size distribution functions: Sampling from exponential distributions. *Preprints, 14th Int. Conf. on Clouds and Precip.*, Bologna, Italy, ICCP2004, 664-667.
- Smith, P.L. and **D.V. Kliche**, 2003: The bias in moment estimators for parameters of drop size distribution functions. *31<sup>st</sup> Conference on Radar Meteorology*, Seattle, WA., Amer. Meteor. Soc., 47-50.
- Detwiler, A.G., J.H. Helsdon, **D.V. Kliche**, Q. Mo, and T.A. Warner, 2002: Lightning characteristics of two storms observed during STEPS. *21<sup>st</sup> Severe Storms Conference*, San Antonio, TX, Amer. Meteor. Soc., 311-314.
- Smith, P.L. and **D.V. Kliche**, 2002: Evaluation of a radar hydrometeor classifier by comparison with *in situ* aircraft data. *11<sup>th</sup> Conf. On Cloud Physics*, Park City, UT, Amer. Meteor. Soc.
- Warner, T., J. Helsdon, A. Detwiler, Q. Mo and **D.V. Kliche**, 2002: Aircraft Observations of a Lightning channel in STEPS. Poster presented at the 21<sup>st</sup> Annual Conference on Severe Local Storms, August 12-16, 2002, San Antonio, TX, Amer. Meteor. Soc.
- Smith, P.L., D.S. Gonguez, and **D.V. Kliche**, 2000: Comparison of aircraft cloud microphysics observations with particle classifications from polarimetric radar. *30<sup>th</sup> Int. Conf. on Radar Metro.* Munich, Germany, AMS, 171-173.
- Manuel Penaloza, Paul Breeden and **D.V. Kliche**, 1999: A Data Mining Approach for Predicting the Likelihood of Disease Outbreaks. Presented at the ISCA 14<sup>th</sup> International Conference on Computers and Their Applications. April 7-9, 1999. Cancun, Mexico.
- Christopher, S.A., **D.V. Kliche**, V.S. Connors and R.M. Welch, 1998: Satellite investigations of fire, smoke and Carbon Monoxide during the April 1994 MAPS missions, *J. Geophys. Res.*, 103(D15), 19237-19336.
- Kliche, D.V.**, J. Chou, J.M. Weiss, S.A. Christopher, R.M. Welch, T.A. Berendes, K-S Kuo, 1997: Global survey of jet contrails using AVHRR data: Spatial distributions and optical property retrievals. *IGARSS '97*, 3-8 August 1997, Singapore, 32-34. [IEEE].

## PRESENTATIONS AND CONFERENCE PROCEEDINGS

- Johnson, R.W., **D.V. Kliche** and P.L. Smith, 2010: Maximum Likelihood Estimation of Gamma Parameters For Coarsely Binned and Truncated Raindrop Size Data, *13<sup>th</sup> Conference of Cloud Physics*, 28 June - 2 July, 2010, Portland, OR, Amer. Meteor. Soc.
- Johnson, R.W., **D.V. Kliche** and P.L. Smith, 2009: Maximum Likelihood estimation from a left-truncated distribution, *34<sup>th</sup> Conference on Radar Meteorology*, October 2009, Williamsburg, Virginia.
- Smith, P.L., **Kliche, D.V.**, and R.W. Johnson, 2008: Estimating Radar Reflectivity from Observations of Raindrop Size Distributions. *5th European Conf. on Radar in Meteorology and Hydrology (ERAD)*, Helsinki, Finland, June 2008.

- Kliche, D.V.**, J. Sanovia, R. Decker and J. Bolman, 2008: He Sapa Bloketu Waecun: 2008 Summer Science and Cultural Camps, *AGU Fall Meeting*, December 2008, San Francisco, California
- Kliche, D.V.**, P.L. Smith, R.W. Johnson, 2007a: L-Moment estimators as applied to exponential, gamma, and lognormal drop size distributions. *33<sup>rd</sup> Conf. on Radar Meteorology*, Cairns, Australia, Amer. Meteor. Soc.
- Kliche, D.V.**, A.G. Detwiler, P.L. Smith, and R.W. Johnson, 2007b: L-Moment method applied to observed raindrop size distribution. *33<sup>rd</sup> Conf. on Radar Meteorology*, Cairns, Australia, Amer. Meteor. Soc.
- Kliche, D.V.**, Smith, P.L., and R.W. Johnson, 2006: Estimators for parameters of drop-size distribution functions: sampling from gamma distributions. *12<sup>th</sup> Conference of Cloud Physics*, 10-14 July, 2006, Madison, WI, Amer. Meteor. Soc.
- Beals, M., **D.V. Kliche**, A.G. Detwiler, S. Williams, 2006: On-line archive of storm penetrating data. *23<sup>rd</sup> Conf. on Severe Storms*, St. Louis, MO, Nov. 3-10, 2006, Amer. Meteor. Soc.
- Smith, P.L., Jr., **D.V. Kliche**, and R.W. Johnson, 2005: The bias in moment estimators for parameters of drop-size distribution functions: Sampling from gamma distributions. *32<sup>nd</sup> Conf. on Radar Meteorology*, Albuquerque, NM, Oct. 24-29, 2005, Amer. Meteor. Soc.
- Smith, P.L. and **D.V. Kliche**, 2004: Bias in moment estimators for parameters of drop-size distribution functions: Sampling from exponential distributions. *Preprints, 14<sup>th</sup> Int. Conf. on Clouds and Precip.*, Bologna, Italy, ICCP2004, 664-667.
- Smith, P.L. and **D.V. Kliche**, 2003: The bias in moment estimators for parameters of drop size distribution functions. *31<sup>st</sup> Conference on Radar Meteorology*, Seattle, WA., Amer. Meteor. Soc., 47-50.
- Detwiler, A.G., J.H. Helsdon, **D.V. Kliche**, Q. Mo, and T.A. Warner, 2002: Lightning characteristics of two storms observed during STEPS. *21<sup>st</sup> Severe Storms Conference*, San Antonio, TX, Amer. Meteor. Soc., 311-314.
- Smith, P.L. and **D.V. Kliche**, 2002: Evaluation of a radar hydrometeor classifier by comparison with *in situ* aircraft data. *11<sup>th</sup> Conf. On Cloud Physics*, Park City, UT, Amer. Meteor. Soc.
- Warner, T., J. Helsdon, A. Detwiler, Q. Mo and **D.V. Kliche**, 2002: Aircraft Observations of a Lightning channel in STEPS. Poster presented at the 21<sup>st</sup> Annual Conference on Severe Local Storms, August 12-16, 2002, San Antonio, TX, Amer. Meteor. Soc.
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- Manuel Penalzoa, Paul Breeden and **D.V. Kliche**, 1999: A Data Mining Approach for Predicting the Likelihood of Disease Outbreaks. Presented at the ISCA 14<sup>th</sup> International Conference on Computers and Their Applications. April 7-9, 1999. Cancun, Mexico.
- Kliche, D.V.**, J. Chou, J.M. Weiss, S.A. Christopher, R.M. Welch, T.A. Berendes, K-S Kuo, 1997: Global survey of jet contrails using AVHRR data: Spatial distributions and optical property retrievals. *IGARSS '97*, 3-8 August 1997, Singapore, 32-34. [IEEE].

## **TEACHING EXPERIENCE**

- Introduction to Atmospheric Sciences class at South Dakota School of Mines and Technology (Fall 2009, Fall 2010)
- Thermodynamics class at South Dakota School of Mines and Technology (Spring 2009)
- Physics for Pre-Med Students class at South Dakota School of Mines and Technology (Spring 2009)
- Measurements and Instrumentation class at South Dakota School of Mines and Technology (team-taught Spring 2008)
- Physics for Pre-Med Students class at South Dakota School of Mines and Technology (Spring 2008)
- Physics for Pre-Med Students class at South Dakota School of Mines and Technology (Fall 2007)
- Atmospheric Pollution class at South Dakota School of Mines and Technology (team-taught Spring 2005)
- Introduction to Environmental Remote Sensing class at South Dakota School of Mines and Technology (team-taught Fall 2004)
- Algebra and Trigonometry classes at South Dakota School of Mines and Technology (Spring 1998)
- Satellite Remote Sensing class at South Dakota School of Mines and Technology (team-taught Fall 1997)
- Climatology and Climate Change class at South Dakota School of Mines and Technology (Spring 1993 and Spring 1994)

## **STUDENT ADVISING IN GRADUATE AND UNDERGRADUATE COMMITTEES**

1. Kurt Poeppel – MS Student – Computer Modeling of Lightning Project. Graduated 2006
2. Meagan Holm – MS Student – Computer Modeling of Lightning Project. Graduated 2006
3. Mathew Biels- MS student – T28 Archive Project. Graduated 2007
4. Kyle Brehe – MS student – Cottonwood Project. Graduated 2007
5. Darren Clabo – MS student – validation of hydrometeor classification algorithms for polarimetric radars. Graduated 2009
6. Cory Mohn – MS student – The Western Research Alliance Foundation Year Mark Project. Graduated 2008
7. Ryan Lynch – Undergraduate student – Air Quality History for Rapid City, SD. Graduated 2008
8. Lisa Phillips – MS student – ARDEC Project.
9. Lance Richard – Undergraduate student – Senior Design Project, Graduated 2007

**PROFESSIONAL AND SYNERGISTIC ACTIVITIES:**

Reviewer for Journals:

Journal of Applied Meteorology and Climatology  
Annales Geophysicae Journal

Agencies and Community Service:

Active Member of the High Plains Regional Science and Engineering Fair  
South Dakota School Of Mines and Technology – Engineers' Week  
South Dakota School Of Mines and Technology – Women in Science and Engineering Group

Member of Societies:

American Meteorological Society  
Black Hills Chapter of the American Meteorological Society  
American Geophysical Union  
Sigma Xi