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PROFESSIONAL PREPARATION

University of Utah	Meteorology and Computer Science	B.S., 1984
University of California, Berkeley	Computer Science	M.S., 1986
Princeton University	Atmospheric and Ocean Sciences	Ph.D., 1990
Climate Prediction Center / National Meteorological Center	Postdoctoral Scientist, (AREA)	1990-1992.

APPOINTMENTS

2007- Senior Scientist Section Head, Data Assimilation Research Section, National Center for Atmospheric Research
2001 - Lead Scientist, NCAR Data Assimilation Initiative
1998-2001 Head of Model Infrastructure Team, Geophysical Fluid Dynamics Laboratory
1995-2001 Head of Experimental Prediction Group, Geophysical Fluid Dynamics Laboratory
1992-1995 Meteorologist, Geophysical fluid Dynamics Laboratory
1981-1987 Meteorologist, National Weather Service Western Region Scientific Services Division, summers/part-time

PUBLICATION SINCE 2008

- 1) Liu H., Anderson, J.L., Kuo, Y.-H., Snyder, C., and Caya, A., "Evaluation of a non-local observation operator in assimilation of CHAMP radio occultation refractivity with WRF," *Monthly Weather Review*, **136**, No.1, 242-256. doi:10.1175/2007MWR2042.1, 2008.
- 2) Khare, S.P., Anderson, J.L., Hoar, T.J., Nychka, D.W., "An investigation into the application of an ensemble Kalman smoother to high-dimensional geophysical systems," *Tellus Series A-dynamic Meteorology and Oceanography*, **60**, 97-112, ,doi:10.1111/j.1600-0870.2007.00281.x, 2008.
- 3) Snyder, C., Bengtsson, T., Bickel, P., and Anderson, J., "Obstacles to high-dimensional particle filtering," *Mon. Wea. Rev.*, **136**, 4629-4640, 2008.
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- 5) Anderson, J., T. Hoar, K. Raeder, H. Liu, N. Collins, R. Torn, and A. Arellano, "The Data Assimilation Research Testbed: A community facility," *Bulletin American Met. Soc.*, **90**, 1283-1296, 2009.
- 6) Anderson, J. L., "Ensemble Kalman filters for large geophysical applications," *IEEE Control Systems Magazine*, **29**, 66-82, doi:10.1109/MCS.2009.932222, 2009.
- 7) Hamill, T.M., Whitaker, J.S., Anderson, J.L., Snyder, C.M., "Comments on "Sigma-Point Kalman filter data assimilation methods for strongly nonlinear systems," *Journal of the Atmospheric Sciences*, **66**, 3498-3500, doi:10.1175/2009JAS3245.1, 2009.
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filter,” *Quarterly Journal of the Royal Meteorological Society*, **135**, 507-521, doi:10.1002/qj.372, 2009.

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- 10) Zagar, N., Tribbia, J., Anderson, J.L., Raeder, K., “Uncertainties of estimates of inertia-gravity energy in the atmosphere. Part II: Large-scale equatorial waves,” *Monthly Weather Review*, **137**, 3858-3873, doi:10.1175/2009MWR2816.1, 2009.
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- 12) Lee, C., Richardson, M. I., Lawson, W. G., Anderson, J. L., “Ensemble Data Assimilation of the Martian Atmosphere Using Temperature and Radiance Data from the Thermal Emission Spectrometer,” *Bulletin of the American Astronomical Society*, **42**, 1029, 2010.
- 13) Pincus, R., Hofmann, R. J., Anderson, J. L., Raeder, K. D., Collins, N. S., and Whitaker, J. S., “Can fully accounting for clouds in data assimilation improve short-term forecasts by global models?” *Mon. Wea. Rev.*, 10.1175/2010MWR3412.1, 2010.
- 14) Dikpati, J., de Toma, G., Gilman, P. A., Anderson, J. L., Ulrich, R. K., and Boyden, J. E., “Sequential Data-assimilation in a Flux-transport Dynamo Model,” American Astronomical Society, SPE meeting #40, #11.14, *Bulletin of the American Astronomical Society*, **41**, 827, 2010.
- 15) Anderson, J. L., “A non-gaussian ensemble filter update for data assimilation,” *Monthly Weather Review*, **138**, 4186-4198, doi:10.1175/2010MWR3253.1, 2010.
- 16) Kay, J. E., Raeder, K., Gettelman, A., and Anderson, J., “The boundary layer response to recent arctic sea ice loss and implications for high-latitude climate feedbacks,” *J. Climate*, **24**, 428-447. doi: 10.1175/2010JCLI3651.1, 2011.
- 17) Raeder, K., Anderson, J. L., Collins, N., Hoar, T. J., Kay, J. E., Lauritzen, P. H., and Pincus, R., “DART/CAM: An Ensemble Data Assimilation System for CESM,” submitted to *J. Climate* special issue on CESM, 2011.
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- 19) Lee, C., Lawson, W. G., Richardson, M. I., Anderson, J. L., Collins, N., Hoar, T., and Mischna, M., “Ensemble Data Assimilation with MarsWRF and DART,” *J. Geo. Res. Planets*, submitted, 2011.
- 20) Lauritzen, P. H., Mirin, A., Truesdale, J., Raeder, K., Anderson, J., Bacmeister, J., and Neale, R. B., “Implementation of new diffusion/filtering operators in the CAM-FV dynamical core,” *Intl. J. of High Perf. Computing Applications*, to appear, 2011.
- 21) Liu, H., Anderson, J. L., and Kuo, Y.-H., “Improved Analyses and Forecasts of Hurricane Ernesto’s Genesis (2006) using Radio Occultation Data in an Ensemble Filter Assimilation System,” to appear in *Mon. Wea. Rev.*, 2011.
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- 26) Matsuo, T., I.-T. Lee, and J. L. Anderson (2013), Thermospheric mass density specification using an ensemble Kalman filter, *J. Geophys. Res. Space Physics*, **118**, 1339–1350
doi:[10.1002/jgra.50162](https://doi.org/10.1002/jgra.50162).
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- 29) Elias D. Niño, Adrian Sandu, Jeffrey L. Anderson, An Efficient Implementation of the Ensemble Kalman Filter Based on Iterative Sherman Morrison Formula, *Procedia Computer Science*, Volume 9, 2012, Pages 1064-1072, ISSN 1877-0509, [10.1016/j.procs.2012.04.115](https://doi.org/10.1016/j.procs.2012.04.115).
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- 33) Anderson, J., H. Kerhsaw, and N. Collins, 2013: Parallel implementations of ensemble data assimilation for atmospheric prediction. Proceedings of the 3rd Workshop on Irregular Applications: Architectures and Algorithms. DOI=[10.1145/2535753.2535760](https://doi.org/10.1145/2535753.2535760).
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- 36) [An ensemble adjustment Kalman filter for the CCSM4 ocean component](#)
Karspeck, A., S. Yeager, G. Danabasoglu, T.J. Hoar, N.S. Collins, K.D. Raeder, J.L. Anderson, and J. Tribbia, 2013: An ensemble adjustment Kalman filter for the CCSM4 ocean component. *Journal of Climate*, **26**, 7392-7413, DOI: [10.1175/JCLI-D-12-00402.1](https://doi.org/10.1175/JCLI-D-12-00402.1).
- 37) Nino Ruiz, Elias D., Adrian Sandu, and Jeffrey Anderson, 2014: An efficient implementation of the ensemble Kalman filter based on an iterative Sherman-Morrison formula. *Statistics and*

Computing. DOI 10.1007/s11222-014-9454-4.

- 38) Wu, T.-C., H. Liu, S.J. Majumdar, C.S. Velden, and J.L. Anderson, 2014: Influence of assimilating satellite-derived atmospheric motion vector observations on numerical analyses and forecasts of tropical cyclone track and intensity. *Monthly Weather Review*, 142, 49-71, DOI: [10.1175/MWR-D-13-00023.1](https://doi.org/10.1175/MWR-D-13-00023.1).
- 39) Lei, L., and J.L. Anderson, 2014: Comparisons of empirical localization techniques for serial ensemble Kalman filters in a simple atmospheric general circulation mode. *Monthly Weather Review*, 142, 739-754, DOI: [10.1175/MWR-D-13-00152.1](https://doi.org/10.1175/MWR-D-13-00152.1).
- 40) Rosolem, R., Hoar, T., Arellano, A., Anderson, J. L., Shuttleworth, W. J., Zeng, X., and Franz, T. E.: Assimilation of near-surface cosmic-ray neutrons improves summertime soil moisture profile estimates at three distinct biomes in the USA, *Hydrol. Earth Syst. Sci. Discuss.*, 11, 5515-5558, doi:10.5194/hessd-11-5515-2014, 2014.
- 41) Lei, Lili, Jeffrey L. Anderson, 2014: Empirical Localization of Observations for Serial Ensemble Kalman Filter Data Assimilation in an Atmospheric General Circulation Model. *Mon. Wea. Rev.*, **142**, 1835–1851. doi: <http://dx.doi.org/10.1175/MWR-D-13-00288.1>
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- 45) Wu, Ting-Chi, M. S. Velden, S. Majumdar, Hui Liu and Jeffrey Anderson: Understanding the Influence of Assimilating Subsets of Enhanced Atmospheric Motion Vectors on Numerical Analyses and Forecasts of Tropical Cyclone Track and Intensity with an Ensemble Kalman Filter. Accepted in *MWR*, 2015.

SYNERGISTIC ACTIVITIES

1995-2001	Principal developer of GFDL B-grid AGCM (now known as GFDL AM model)
1997-2001	Principal architect of GFDL's Flexible Modeling System (FMS) Infrastructure
1998-1999	Designer of GFDL 'exchange grid' parallel climate model coupling system
2001-	Architect of Data Assimilation Research Testbed (DART) infrastructure
2003, 05, 07	Organizer and lecturer, Data Assimilation Graduate Student Summer Workshop

COLLABORATORS AND CO-EDITORS (last 48 months):

A. Aksoy (NCAR), A. Arellano (NCAR), V. Balaji (GFDL), T. Bengtsson (Bell Labs), P. Bickel (Berkeley), T. Campos (NCAR), A. Caya (U. Quebec Montreal), Y. Chen (NCAR), N. Collins (NCAR), E. DeWeaver (U. Wisconsin), D. Dowell (NCAR), L. Emmons (NCAR), J. Hacker (NCAR), T. M. Hamill (NOAA/CDC), J. Hansen (NRL/Monterey), P. Hess (Cornell), T. Hoar (NCAR), A. Karspeck (NCAR), S. Khare (Risk Management Solutions), S. A. Klein (LLNL), Y. H. Kuo (COSMIC), G. Lawson (CalTech), H. Liu (NCAR), T. Matsuo (NOAA/SEC), D. Nychka (NCAR), M. Pagowski (NOAA/CDC), G. Pfister (NCAR), R. Pincus (NOAA/CDC), K.

Raeder (NCAR), M. Richardson (CalTech), A. Rosati (GFDL), G. Sasche (NASA/Langley), C. Snyder (NCAR), D. Stensrud (NSSL), R. Torn (NCAR), X. Wang(NOAA/CDC), J.S. Whitaker (NOAA/ CDC), N. Zagar(NCAR), S. Zhang (GFDL).

STUDENTS AND POSTDOCS:

Advisor, Frederic Vitart Ph.D., Princeton University, 1998, now at ECMWF.

Advisor, Andrew Wittenberg M.S., Princeton University, 1998, now at NOAA/GFDL.

Advisor, Nadeja Grianik M.S., Princeton University, 2001, now at Princeton U.

Advisor, Shree Khare Ph.D., Princeton University, 2004, now at Risk Management Solutions.

Supervisor, Xiu-Qun Yang Postdoc, Princeton University, 1995-97, now at Nanjing University.

Supervisor, Shaoqing Zhang Postdoc, Princeton University, 2000, now at NOAA/GFDL.

Thesis Advisor: Isaac Held (NOAA/GFDL).

Postdoc Supervisor: Huug Van den Dool (NOAA/NCEP).