

PETER NORTH BLOSSEY

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Education:

| | | | |
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| Ph.D. | Mechanical Engineering | Cornell University | 1999 |
| | <i>Thesis:</i> Drag Reduction in Near-Wall Turbulent Flow | | |
| | <i>Advisor:</i> Professor John L. Lumley | | |
| C.P.G.S. | Engineering | Cambridge University, U.K. | 1993 |
| B.S. | Mechanical Engineering | Carnegie Mellon University | 1992 |

Professional & Research Experience:

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| | Research Scientist |
| 2003– | University of Washington, Dept. of Atmospheric Sciences |
| | Postdoctoral Researcher |
| 2000–2003 | University of Washington, Dept. of Applied Mathematics VIGRE (Vertical Integration of Research & Education) Postdoctoral Researcher |
| 1999–2000 | University of California San Diego, Dept. of Mechanical & Aerospace Engineering |
| 1999 (Jan.–Jul.) | Cornell University, Sibley School of Mechanical & Aerospace Engineering |
| | Research Assistant & Teaching Assistant |
| 1993–1998 | Cornell University, Sibley School of Mechanical & Aerospace Engineering |
| | Research Assistant |
| 1992 (Summer) | Carnegie Mellon University, Department of Mechanical Engineering |
| | Industrial Experience |
| 2000 | Consultant, United Technologies Research Center, East Hartford, CT |
| 1991 (Summer) | Summer Intern, Xerox Corporation, Rochester, NY |
| 1990 (Summer) | Summer Intern, LTV Steel Research Center, Cleveland, OH |

Research Interests:

Numerical modeling of clouds, convection and atmospheric circulations.

Geophysical fluid dynamics.

Turbulent shear flows: simulation, modeling, proper orthogonal decomposition & control.

Awards and Honors:

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| 1997 | Jayesh Prize for Outstanding Spring Semester Student Talk Stability, Transition and Turbulence Seminar, Cornell University |
| 1994–1997 | National Science Foundation Graduate Research Fellowship |
| 1993–1994 | Sage Graduate Fellowship, Cornell University |
| 1992–1993 | Churchill Scholarship, Churchill College, Cambridge University, UK |
| 1992 | Outstanding Senior in Mechanical Engineering, Carnegie Mellon University |

Journal Publications:

- P. N. Blossey, C. S. Bretherton, J. Cetrone & M. Khairoutdinov 2005. Cloud-resolving model simulations of KWAJEX: Model sensitivities and comparisons with satellite and radar observations. *Journal of the Atmospheric Sciences*, submitted.
- C. S. Bretherton, P. N. Blossey & M. E. Peters 2005. Comparison of simple and cloud-resolving models of moist convection-radiation interaction with a mock-Walker circulation. *Theoretical and Computational Fluid Dynamics*, submitted.
- C. S. Bretherton, P. N. Blossey & M. Khairoutdinov 2005. An energy-balance analysis of deep convective self-aggregation above uniform SST. *Journal of the Atmospheric Sciences*, vol. 62, pp. 4273–4292.
- R. Wood & P. N. Blossey 2005. Comments on: "On the parameterization of the autoconversion process. Part I: Analytical formulation of the Kessler-type parameterizations". *Journal of the Atmospheric Sciences*, vol. 62, pp. 3003–3006.
- Z. Kuang, P. N. Blossey & C. S. Bretherton 2005. A DARE approach for 3D cloud resolving simulations of large scale atmospheric circulation. *Geophysical Research Letters*, vol. 32, L02809.
- J. L. Lumley & P. N. Blossey 1998. Control of turbulence, *Annual Review of Fluid Mechanics*, vol. 30, pp. 311–327.
- J. B. Milford, D. Gao, S. Sillman, P. N. Blossey & A. G. Russell 1994. Total reactive nitrogen (NO_y) as an indicator of the sensitivity of ozone to reductions in hydrocarbons and NO_x , *Journal of Geophysical Research*, vol. 99, pp. 3533–3542.

Other Publications:

- P. N. Blossey, S. Narayanan & T. R. Bewley, 2002. Dynamics and control of jets in crossflow. In *IUTAM Symposium on Turbulent Mixing and Combustion*, Proceedings of the IUTAM Symposium held in Kingston, Ontario, Canada, June 3-6, 2001, ed. A. Pollard & S. Candel, Dordrecht, the Netherlands: Kluwer Academic Publishers, pp. 45–56.
- J. L. Lumley, D. Rempfer, P. Blossey & L. Parsons 2001. Low-dimensional dynamical model of a turbulent boundary layer over a compliant surface: preliminary results. In *Fluid Mechanics and the Environment: Dynamical Approaches*, ed. J. L. Lumley, New York: Springer-Verlag, Lecture Notes in Physics, no. 566, pp. 267–284.
- P. N. Blossey & J. L. Lumley 2000. A low-dimensional approach to turbulence control in the minimal flow unit. In *Intermittency in Turbulent Flows*, ed. J. C. Vassilicos, Cambridge, UK: Cambridge University Press, pp. 1–23.
- P. N. Blossey & J. L. Lumley 1999. Reduced-order modeling and control of near-wall turbulence. In *Proceedings 38th IEEE Conference on Decision and Control*, pp. 2851–2856, Phoenix, AZ, December 7–10, 1999.
- J. L. Lumley, P. N. Blossey & B. Podvin-Delarue 1999. Low dimensional models, the minimal flow unit and control. In *Fundamental Problematic Issues in Turbulence Research*, ed. A. Gyr, W. Kinzelbach & A. Tsinober, Basel: Birkhauser, pp. 57–66.
- J. L. Lumley & P. N. Blossey 1999. The low dimensional approach to turbulence. In *Modeling Complex Turbulent Flows*, ed. M. D. Salas, J. Hefner & L. Sakell, Dordrecht, the Netherlands: Kluwer Academic Publishers, pp. 89–106.

Recent Presentations:

- *Cloud Modeling Workshop*, Fort Collins, CO, July 2005.
- *AGU Spring Meeting*, New Orleans, LA, May 2005.
- *AMS-IMS-SIAM Summer Research Conference on Hydrodynamic Stability and Flow Control*, Snowbird, UT, July 2003.
- *2003 SIAM Annual Meeting*, Montreal, Quebec, Canada, June 2003.
- *SIAM Conference on Applications of Dynamical Systems*, Snowbird, UT, May 2003.

Software:

- CLAWPACK Version 4.2, Released December 2003. Contributed enhancements to the output and parallelization routines of CLAWPACK, a software package for solving systems of hyperbolic conservation laws developed by Randy Leveque at the University of Washington. Also implemented an extension of CLAWPACK that solves systems of hyperbolic equations on domains decomposed into multiple blocks.
- System for Atmospheric Modeling (SAM) Versions 6.0–6.2, 2004. Contributed bug fixes and enhancements to precipitation routines in SAM, a cloud resolving model developed by Marat Khairoutdinov at Colorado State University.

Teaching:**University of Washington, Department of Applied Mathematics**

- AMATH 352, Applied Linear Algebra & Numerical Analysis, Winter 2001, Spring 2001, Autumn 2001, Spring 2002, Spring 2003.
- AMATH 569, Methods of Applied Mathematics III (Partial Differential Equations), Spring 2003.

Book Reviews:

- P. J. Schmid & D. S. Henningson, *Stability and Transition in Shear Flows*, Springer-Verlag, New York, 2001. In *SIAM Review*, vol. 44, No. 1, 2002.

Referee:

Journal of Fluid Mechanics, Physics of Fluids, Journal of the Atmospheric Sciences, Journal of Scientific Computing, Springer-Verlag, IEEE Conference on Decision and Control.

Service:

- Organizing Committee Member, 57th Annual Meeting of the American Physical Society's Division of Fluid Dynamics, Seattle, WA, November 2004.
- Organizer: *VIGRE Workshop on Finding an Academic Job* and *VIGRE Workshop on Working in Industry* for graduate students in Mathematics, Applied Mathematics and Statistics at the University of Washington.
- ACMS Undergraduate Seminar, Winter 2002, Autumn 2002.