

Refereed Publications

38. Yu, T.-Y., Y. Wang, **A. Shapiro**, M. Yeary, D. Zrnic, and R. J. Doviak, 2007: Characterization of tornado spectral signatures using higher order spectra. *J. Atmos. and Oceanic Technol.* (in review)
37. White, L., **A. Shapiro**, and F. White, 2007: Radar placement based on a geometric uncertainty multiplier reduction criterion. *Computational Optimization and Applications* (accepted)
36. **Shapiro, A.**, and E. Fedorovich, 2007: Katabatic flow along a differentially-cooled sloping surface. *J. Fluid Mech.*, **571**, 149-175.
35. Martin, W. J., and **A. Shapiro**, 2007: Discrimination of bird and insect radar echoes in clear-air using high-resolution radars. *J. Atmos. and Oceanic Technol.*, (accepted)
34. M. Yeary, Y. Zhai, T.-Y. Yu, S. Nematifar, and **A. Shapiro**, 2006: Spectral calculations and target tracking for remote sensing, *IEEE Transactions on Instrumentation and Measurement*, **55**, (4), 1430-1442.
33. Gao, J., M. Xue, S.-Y. Lee, **A. Shapiro**, Q. Xu, and K. K. Droegemeier, 2006: A three-dimensional variational single-Doppler velocity retrieval method with simple conservation equation constraint. *Meteorology and Atmos. Physics*, **94**, 11-26.
32. **Shapiro, A.**, 2006: An analytical solution of the Navier-Stokes equations for unsteady backward stagnation-point flow with injection or suction. *J. Appl. Math. Mech. (ZAMM)* **86**, 281-290.
31. **Shapiro, A.**, and E. Fedorovich, 2006: Natural convection in a stably stratified fluid along vertical plates and cylinders with temporally-periodic surface temperature variations. *J. Fluid Mech.*, **546**, 295-311.
30. White, L., and **A. Shapiro**, 2005: Optimization of wind field retrieval procedures. *Applied Mathematics and Computation*, **171**, 25-52.
29. **Shapiro, A.**, 2005: Drag-induced transfer of horizontal momentum between air and raindrops. *J. Atmos. Sci.*, **62**, 2205-2219.
28. Martin, W. J., and **A. Shapiro**, 2005: Impact of radar tilt and ground clutter on wind measurements in clear air. *J. Atmos. and Oceanic Technol.*, **22**, 649-663.
27. **Shapiro, A.**, and E. Fedorovich, 2005: Analytical and numerical study of natural convection in a stably stratified fluid along vertical plates and cylinders with temporally-periodic surface temperature variations. *Progress in Computational Heat and Mass Transfers*, Vol. 1, R. Bennacer, A. A. Mohamad, M. El Ganaoui, J. Sicard, Eds., Lavoisier, 77-82.
26. **Shapiro, A.**, and E. Fedorovich, 2004: Prandtl number dependence of unsteady natural convection along a vertical plate in a stably stratified fluid. *Intl. J. Heat Mass Transfer*, **47**, 4911-4927.
25. **Shapiro, A.**, and E. Fedorovich, 2004: Unsteady convectively driven flow along a vertical plate immersed in a stably stratified fluid. *J. Fluid Mech.*, **498**, 333-352.

24. **Shapiro, A.**, P. Robinson, J. Wurman, and J. Gao, 2003: Single-Doppler velocity retrieval with rapid scan radar data. *J. Atmos. and Oceanic Technol.*, **20**, 1758-1775.
23. Dowell, D. C., and **A. Shapiro**, 2003: Stability of an iterative dual-Doppler wind synthesis in Cartesian coordinates. *J. Atmos. and Oceanic Technol.*, **20**, 1552-1559.
22. **Shapiro, A.**, and K. M. Kanak, 2002: Vortex formation in ellipsoidal thermal bubbles. *J. Atmos. Sci.*, **59**, 2253-2269.
21. Mewes, J. J., and **A. Shapiro**, 2002: On use of the vorticity equation in dual-Doppler analysis of the vertical velocity field. *J. Atmos. and Oceanic Technol.*, **19**, 543-567.
20. Weygandt, S. S., **A. Shapiro** and K. K. Droegemeier, 2002: Retrieval of initial forecast fields from single-Doppler observations of a supercell thunderstorm. Part I: Single-Doppler velocity retrieval. *Mon. Wea. Rev.*, **130**, 433-453.
19. Weygandt, S. S., **A. Shapiro** and K. K. Droegemeier, 2002: Retrieval of initial forecast fields from single-Doppler observations of a supercell thunderstorm. Part II: Thermodynamic retrieval and model prediction. *Mon. Wea. Rev.*, **130**, 454-476.
18. **Shapiro, A.**, 2001: Solid-body-type vortex solutions of the Euler equations. *J. Fluid Mech.*, **444**, 99-115.
17. **Shapiro, A.**, 2001: A centrifugal wave solution of the Euler and Navier-Stokes equations. *J. Appl. Math. Phys. (ZAMP)*, **52**, 913-923.
16. **Shapiro, A.**, 2001: Flow of an inviscid rotating liquid into an elevated sink. *Quart. J. Mech. Appl. Math.*, **54**, 243-256.
15. Lazarus, S., **A. Shapiro**, and K. Droegemeier, 2001: An application of the Gal-Chen/Zhang single-Doppler velocity retrieval to a deep convective storm. *J. Atmos. Sci.*, **58**, 998-1016.
14. Xue, M., K. K. Droegemeier, V. Wong, **A. Shapiro**, K. Brewster, F. Carr, D. Weber, Y. Liu, and D. Wang, 2001: The Advanced Regional Prediction System (ARPS) - A multi-scale nonhydrostatic atmospheric simulation and prediction tool. Part II: Model physics and applications. *Meteor. Atmos. Phys.*, **76**, 143-165.
13. Gao, J., M. Xue, **A. Shapiro**, Q. Xu, and K. K. Droegemeier, 2001: Three-dimensional simple adjoint velocity retrievals from single Doppler radar, *J. Atmos. and Oceanic Technol.*, **18**, 26-38.
12. **Shapiro, A.**, and J. Mewes, 1999: New formulations of dual-Doppler wind analysis. *J. Atmos. and Oceanic Technol.*, **16**, 782-792.
11. **Shapiro, A.**, and P. Markowski, 1999: Dynamics of elevated vortices. *J. Atmos. Sci.*, **56**, 1101-1122.
10. Gao, J., M. Xue, **A. Shapiro**, and K. K. Droegemeier, 1999: A variational method for the analysis of three-dimensional wind fields from two Doppler radars. *Mon. Wea. Rev.*, **127**, 2128-2142.
9. Lazarus, S., **A. Shapiro**, and K. K. Droegemeier, 1999: Analysis of the Gal-Chen/Zhang

single-Doppler velocity retrieval. *J. Atmos. and Oceanic Technol.*, **16**, 5-18.

8. **Shapiro, A.**, 1996: Nonlinear shallow-water oscillations in a parabolic channel: exact solutions and trajectory analyses. *J. Fluid Mech.*, **318**, 49-76.
7. Kogan, Y. L., and **A. Shapiro**, 1996: The simulation of a convective cloud in a 3-D model with explicit microphysics. Part II: Dynamical and microphysical aspects of cloud merger. *J. Atmos. Sci.*, **53**, 2525-2545.
6. **Shapiro, A.**, S. Ellis, and J. Shaw, 1995: Single-Doppler velocity retrievals with Phoenix II data: clear air and microburst wind retrievals in the planetary boundary layer. *J. Atmos. Sci.*, **52**, 1265-1287.
5. **Shapiro, A.**, and Y. L. Kogan, 1994: On vortex formation in multicell convective clouds in a shear-free environment. *Atmos. Research*, **33**, 125-136.
4. **Shapiro, A.**, 1993: The use of an exact solution of the Navier-Stokes equations in a validation test of a three-dimensional non-hydrostatic numerical model. *Mon. Wea. Rev.*, **121**, 2420-2425.
3. **Shapiro, A.**, 1992: A hydrodynamical model of shear flow over semi-infinite barriers with application to density currents. *J. Atmos. Sci.*, **49**, 2293-2305.
2. Steppeler, J., and **A. Shapiro**, 1990: Parameterization of physical processes in a three component model. *Meteorol. Rdsch.*, **43**, 17-22.
1. **Shapiro, A. M.**, and G. S. Benton, 1990: A similarity model of axisymmetric convection. *Physics of Fluids A* **2** (6), 928-936.