

Curriculum Vita for Robert E. Robins

Mr. Robins received a B.S. (summa cum laude) in Applied Mathematics from Polytechnic University in 1964, and an M.S. in Applied Mathematics from the Courant Institute of New York University in 1966. During 1964-1967, he was a National Science Foundation Graduate Fellow at the Courant Institute. Between 1967 and 1972, Mr. Robins took courses in applied mathematics and atmospheric sciences at the University of Washington and held positions with the Boeing Aerospace Company and local government. In 1972, he joined Flow Research Company and became involved in the numerical modeling of internal waves. In 1980, he joined Boeing Computer Services, where he was a graphics product manager. In 1981, Mr. Robins joined Physical Dynamics, where he worked on the development and utilization of numerical internal wave and vortex evolution codes. In 1986, Mr. Robins joined NorthWest Research Associates, where he continued to work on the numerical modeling of internal waves and vortex evolution, and also worked on ionospheric data analysis and arctic ice studies.. The vortex modeling led to the development of several fast-time vortex evolution codes and a 3-D Navier-Stokes code that has been used to model vortex evolution and vortex linking. Most recently, Mr. Robins has developed a parallel version of the 3-D Navier-Stokes code.

PUBLICATION LIST FOR ROBERT E. ROBINS

- Secan, J.A., E.J. Fremouw, and R.E. Robins, 1987: A review of recent improvements to the WBMOD ionospheric scintillation model. *Proc IES87*, J.M. Goodman (editor), pp. 607-616.
- Delisi, D.P., R.E. Robins, and R.D. Lucas, 1990: The evolution of a vortex pair in stratified shear flows. *Stratified Flows* (E.J. List and G.H. Jirka, ed.), ASCE, 1111 p.
- Robins, R.E. and D.P. Delisi, 1990: Numerical study of vertical shear and stratification effects on the evolution of a vortex pair. *AIAA J.*, 28, 661-669.
- Delisi, D.P., R.E. Robins, and D.B. Altman, 1991: Laboratory and numerical studies of vortex evolution in ideal and realistic environments. In *Proceedings of the Aircraft Wake Vortices Conference. Volume 2*, edited by J.N. Hallock, Department of Transportation, Federal Aviation Administration Report DOT-FAA-5D-92-1.2, 30-1 to 30-28.
- Delisi, D.P., R.E. Robins, and R.D. Lucas, 1991: Initial laboratory observations of the evolution of a vortex pair in a stratified shear flow. *Physics of Fluids, A*, 3, 2489-2491.
- Dunkerton, T. J., and R. E. Robins, 1992: Radiating and nonradiating modes of secondary instability in a gravity wave critical layer. *J. Atmos. Sci.*, 49, 2546-2559.
- Dunkerton, T. J., and R. E. Robins, 1992: Evidence of saturation in a gravity wave critical layer," *J. Atmos. Sci.*, 49, 2560-2563.

- Robins, R.E. and D.P. Delisi, 1993: Potential hazard of aircraft wake vortices in ground effect with crosswind. *J. Aircraft*, 30, 201-206.
- Robins, R.E. and D.P. Delisi, 1996: 3-D calculations showing the effects of stratification on the evolution of trailing vortices. *Computation of Three-Dimensional Complex Flows* (M. Deville, S. Gavrilakis, and I.L. Ryming, ed.), *Notes on Numerical Fluid Mechanics*, 53, 264-270.
- Delisi, D.P., G.C. Greene, R.E. Robins, and R. Singh, 1996: Recent laboratory and numerical trailing vortex studies. *AGARD Conference Proceedings 584, The Characterization & Modification of Wakes From Lifting Vehicles in Fluids*, 34-1 to 34-10.
- Delisi, D.P. and R.E. Robins, 1997: Small-scale instabilities in trailing wake vortices in a stratified fluid. *AIAA Paper 97-1784*, 28th Fluid Dynamics Conference, Snowmass, CO.
- Robins, R.E. and D.P. Delisi, 1997: Numerical simulations of three-dimensional trailing vortex evolution. *AIAA J.*, 35, 1552-1555.
- Robins, R.E., D.P. Delisi, and G.C. Greene, 1998: Development and validation of a wake vortex predictor algorithm. *AIAA Paper 98-0665*, 36th Aerospace Sciences Meeting, Reno, NV.
- Robins, R.E. and D.P. Delisi, 1998: Numerical simulation of three-dimensional trailing vortex evolution in stratified fluid. *AIAA J.*, 36, 981-985.
- Robins, R.E. and D.P. Delisi, 1999: Further development and validation of a wake vortex predictor algorithm and comparisons to data. *AIAA Paper 99-0757*, 37th Aerospace Sciences Meeting, Reno, NV.
- Delisi, D.P. and R.E. Robins, 2000: Short-scale instabilities in trailing wake vortices in a stratified fluid. *AIAA J.*, 38, 1916-1923.
- Sarpkaya, T., R.E. Robins, and D.P. Delisi, 2000: Wake-vortex eddy-dissipation model predictions compared with observations. *AIAA Paper 2000-0625*, 38th Aerospace Sciences Meeting, Reno, NV.
- Robins, R.E. and D.P. Delisi, 2000: Modeling of atmospheric effects on wake vortices. *Paper 7.11, Proceedings of the Ninth AMS Conference on Aviation, Range, and Aerospace Meteorology*, Orlando.
- Sarpkaya, T., R.E. Robins, and D.P. Delisi, 2001: Wake-vortex eddy-dissipation model predictions compared with observations. *J. Aircraft*, 38, 687-692.
- Robins, R.E., D.P. Delisi, and G.C. Greene, 2001: Algorithm for prediction of trailing vortex evolution. *J. Aircraft*, 38, 911-917.
- Delisi, D.P., R.E. Robins, G.F. Switzer, D.Y. Lai, and F.Y. Wang, 2003: Comparison of numerical model simulations and SFO wake vortex windline measurements. *Paper AIAA-2003-3810*, *21st Applied Aerodynamics Conference, Orlando, Florida, June 2003*.

- Delisi, D. P., G. C. Greene, R. E. Robins, D. C. Vicroy, and F. Y. Wang, 2003: Aircraft wake vortex core size measurements. Paper AIAA-2003-3811, *21st Applied Aerodynamics Conference, Orlando, Florida, June 2003*.
- Holzaepfel, F. and R.E. Robins, 2004: Probabilistic two-phase aircraft wake-vortex model: application and assessment. *J. Aircraft*, 41, 1117-1126.
- McPhee, M.G., R. Kwok, R. Robins, and M. Coon, 2005: Upwelling of Arctic pycnocline associated with shear motion of sea ice. *Geophysical Research Letters*, 32, L10616.
- Delisi, D.P. and Robins, R.E., 2006: Effects of crosswind shear on trailing vortex evolution. AIAA Paper 2006-1075, 44th Aerospace Sciences Meeting, Reno NV, January 9-12.
- Robins, R.E. and Delisi, D.P., 2006: Modeling crosswind shear effects in NASA's AVOSS prediction. algorithm. AIAA Paper 2006-1076, 44th Aerospace Sciences Meeting, Reno NV, January 9-12.
- Robins, R.E. and Delisi, D.P., 2006: 3-D numerical simulations of trailing vortex evolution. AIAA Paper 2006-1079, 44th Aerospace Sciences Meeting, Reno NV, January 9-12.
- Robins, R.E. and G. Jost, 2010: Parallelization of a Vector-Optimized 3-D Flow Solver for Multi-Core Node Clusters. 2010 Users Group Conference of the DoD High Performance Computing Modernization Program, June 17th, Schaumburg, IL.
- Jost, G. and R.E. Robins, 2010: Experiences using hybrid MPI/OpenMP in the real world: Parallelization of a 3D CFD solver for multi-core node clusters. *Scientific Programming*, Vol. 18. No. 3-4, pp. 127-138, August.