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HIGHER EDUCATION

Freie Universität Berlin, M.S. (Meteorology), 1964
Pennsylvania State University, Ph.D. (Meteorology), 1968

EXPERIENCE:

Academic:

(Permanent positions)

Nat'l Center for Atmosph. Research	Research Scientist	7/67-8/75
University of Miami	Associate Professor	8/75-6/79
University of Miami	Professor	7/79-12/98
University of Miami	Division Chairman	1/90-2/95
Los Alamos National Lab.	Technical Staff Member	1/99-6/05
NASA Goddard Inst. For Space Studies/ Columbia Univ.	Sr. Research Assoc.	6/05-6/18
NOAA Earth System Research Lab/ Univ. of Colorado	Res.Scientist (part-time)	6/05-present

(Temporary Appointments)

Oregon State University	Visiting Professor	Spring Term, 1973
University of Bonn (Germany)	Visiting Professor	Summer Session, 1977
University of Bonn (Germany)	Visiting Professor	Summer Session, 1978

University of Colorado (CIRES)	Research Associate	Summer 1983
Institut für Meereskunde, Kiel	Visiting Professor	Summer 1986
NOAA/Forecast Systems Lab.	Visiting Scientist	Summer 1989
University of Cologne (Germany)	Visiting Professor	Summer 1990
NOAA/Forecast Systems Lab.	Sr. Research Associate	Summer 1991/92/93/94/95

PUBLICATIONS

Juried and refereed journal articles:

Rosinski, J., G. Langer, and R. Bleck: Removal of aerosol particles and fractional separation of HDO-H20 during snowstorms. J. Atmos. Sci., 26, 289-301, 1969.

Cadle, R.D., R. Bleck, J.P. Shedlovsky, I.H. Blifford, Jr., J. Rosinski, and A.L. Lazrus: Trace constituents in the vicinity of jet streams. J. Appl. Meteor., 8, 348-356, 1969.

Danielsen, E., R. Bleck, J. Shedlovsky, A. Wartburg, P. Haagenson, and W. Pollock: Observed distribution of radioactivity, ozone, and potential vorticity associated with tropopause folding. J. Geophys. Res., 75, 2353-2361, 1970.

Danielsen, E.F., and R. Bleck: Troposheric and Stratospheric Ducting of Stationary Mountain Lee Waves. J. Atmos. Sci., 5, 758-772, 1970.

Bleck, R.: A Fast, Approximative Method for Integrating the Stochastic Coalescence Equation. J. Geophys. Res., 75, 5165-5171, 1970.

Danielsen, E.F., R. Bleck, and D.A. Morris: Hail Growth by Stochastic Collection in a Cumulus Cloud. J. Atmos. Sci., 29, 135-155, 1972.

Bleck, R.: Numerical Forecasting Experiments Based on the Conservation of Potential Vorticity on Isentropic Surfaces. J. Appl. Meteor., 12, 737-752, 1973.

Bleck, R.: Short-range Prediction in Isentropic Coordinates with Filtered and Unfiltered Numerical Models. Mon. Wea. Rev., 102, 813-829, 1974.

Bleck, R.: An Economical Approach to the use of Wind Data in the Optimum Interpolation of Geo- and Montgomery Potential Fields. Mon. Wea. Rev., 103, 807-816, 1975.

Bleck, R.: Numerical Simulation of Lee Cyclogenesis in the Gulf of Genoa. Mon. Wea. Rev., 105, 428-445, 1977.

Otto-Bliesner, B., D.P. Baumhefner, T.W. Schlatter, and R. Bleck: A Comparison of Several Meteorological Analysis Schemes Over a Data-rich Region. Mon. Wea. Rev., 105, 1083-1091, 1977.

Bleck, R.: On the use of Hybrid Coordinates in Numerical Weather Prediction Models. Mon. Wea. Rev., 106, 1233-1244, 1978.

Bleck, R.: Simulation of Coastal Upwelling Frontogenesis with an Isopycnic Coordinate Model. J. Geophys. Res., 83, 6163-6172, 1978.

Bleck, R.: Finite-difference Equations in Generalized Vertical Coordinates. Part I: Total Energy Conservation. Beitr. Phys. Atmos., 51, 360-372, 1978.

Bleck, R.: Finite-difference Equations in Generalized Vertical Coordinates. Part II: Potential Vorticity Conservation. Beitr. Phys. Atmosph., 52, 95-105, 1979.

Bleck, R., and D. Boudra: Initial testing of a Numerical Ocean Circulation Model Using a Hybrid (Quasi-isopycnic) Vertical Coordinate. J. Phys. Oceanogr., 11, 755-770, 1981.

Bleck, R.: An Isentropic Coordinate Model Suitable for Lee Cyclogenesis Simulation. Rivista Meteorol. Aeronaut., 43, 189-194, 1984.

Bleck, R., and C. Mattocks: A Preliminary Analysis of the Role of Potential Vorticity in Alpine Lee Cyclogenesis. Contrib. Atmosph. Phys., 57, 357-368, 1984.

Bleck, R.: Vertical Coordinate Transformation of Vertically Discretized Atmospheric Fields. Mon. Wea. Rev., 112, 2537-2541, 1984.

Bleck, R., R. Brummer, and M.A. Shapiro: Enhancement of Remotely Sensed Temperature Fields by Wind Observations from a VHF Radar Network. Mon. Wea. Rev., 112, 1795-1803, 1984.

Bleck, R.: On the Conversion Between Mean and Eddy Components of Potential and Kinetic Energy in Isentropic and Isopycnic Coordinates. Dyn. Atmos. Oceans, 9, 17-37, 1985.

Merrill, J.T., R. Bleck, and L. Avila: Modeling Atmospheric Transport to the Marshall Islands. J. Geophys. Res., 90, 12927-12936, 1985.

Merrill, J.T., R. Bleck, and D. Boudra: Techniques of Lagrangian Trajectory Analysis in Isentropic Coordinates. Mon. Wea. Rev., 114, 571-581, 1986.

Merrill, J.T., and R. Bleck: Isentropic trajectory analysis of long range transport over the Pacific. Atm. Env., 20, 2072-2073, 1986.

Bleck, R., and D. Boudra: Wind-driven Spinup in Eddy-resolving Ocean Models Formulated in Isopycnic and Isobaric Coordinates. J. Geophys. Res., 91, 7611-7621, 1986.

Mattocks, C., and R. Bleck: Jet Streak Dynamics and Geostrophic Adjustment Processes During the Initial Stages of Lee Ccyclogensis. Mon. Wea. Rev., 114, 2033-2056, 1986.

Boudra, D., R. Bleck, and F. Schott: Study of Transport Fluctuations and Meandering of the Florida Current Using an Isopycnic Coordinate Numerical Model. In: Three-dimensional Models of Marine and Estuarine Dynamics. J.C.J. Nihoul and B.M. Jamart, Ed., Elsevier, Amsterdam, 149-168, 1987.

Bleck, R., R. Onken, and J.D. Woods: A Two-dimensional Model of Mesoscale Frontogenesis in the Ocean. Quart. J. Roy. Met. Soc., 114, 347-371, 1988.

Boudra, D.B., R. Bleck, and F. Schott: A Numerical Model of Instabilities in the Florida Current. J. Mar. Res., 46, 715-751, 1988.

Bleck, R., H. Hanson, D. Hu, and E. Kraus: Mixed-Layer/Thermocline Interaction in a Three-Dimensional Isopycnic Coordinate Model. J. Phys. Oceanogr., 19(10), 1417-1439, 1989.

Merrill, J.T., M. Uematsu, and R. Bleck: Meteorological Analysis of Long-range Transport of Mineral Aerosols Over the North Pacific. J. Geoph. Res., 95, 8584-8598, 1989.

Bleck, R., and L. Smith: A Wind-driven Isopycnic Coordinate Model of the North and Equatorial Atlantic Ocean. Part I: Model Development and Supporting Experiments. J. Geophys. Res., 95, 3273-3286, 1990.

Smith, L.T., D.B. Boudra, and R. Bleck: A Wind-driven Isopycnic Coordinate Model of the North and Equatorial Atlantic Ocean. II: The Atlantic Basin Experiments. J. Geophys. Res., 95(8), 13105-13128, 1990.

Bleck, R.: Depiction of Upper/Lower Vortex Interaction Associated with Extra-tropical Cyclogenesis. Mon. Wea. Rev., 118(3), 573-585, 1990.

Bleck, R.: Tendency Equations for Shear and Curvature Vorticity in Coordinate-Independent Vector Notation. J. Atmos. Sci., 48(8), 1123-1126, 1991.

Bleck, R.: Synoptic Meteorology. In: Encyc. Earth System Sci., R. Nierenberg (ed.), Vol. 3, 185-196, Academic Press, 1991.

Hartjenstein, G., and R. Bleck: Factors Affecting Cold Air Outbreaks East of the Rocky Mountains. Mon. Wea. Rev., 119, 2280-2292, 1991.

Bleck, R., C. Rooth, D. Hu, and L.T. Smith: Salinity-driven Thermocline Transients in a Wind- and Thermohaline-driven Isopycnic Coordinate Model of the North Atlantic. J. Phys. Oceanogr. 22, 1486-1505, 1992.

Bleck, R., H. Bluestein, L. Bosart, W. E. Bracken, T. Carlson, J. Chapman, M. Dickinson, J. R. Gyakum, G. Hakim, E. Hoffman, H. lskenderian, D. Keyser, G. Lackmann, W. Nuss, P. Roebber, F. Sanders, D. Schultz, K. Tyle, and P. Zwack: Eighth Cyclone Workshop Scientific Summary, Val Morin, Quebec, Canada, 12-16 October 1992. Bull. Amer. Meteor. Soc., 74, 1361-1373, 1993.

Chassignet, E.P., and R. Bleck: The Influence of Layer Outcropping on the Separation of Boundary Currents, Part I: The Wind-driven Experiments. J. Phys. Oceanogr. 23, 1485-1507, 1993.

Bleck, R., and S. Benjamin: Regional Weather Prediction with a Model Combining Terrain-Following and Isentropic Coordinates. Part I: Model Description. Mon. Wea. Rev. ,121, 1770-1785, 1993.

Sun, S., R. Bleck, and E. Chassignet: Layer Outcropping in Numerical Models of Stratified Flows. J. Phys. Oceanogr. 23, 1877-1884, 1993.

Chassignet, E.P., R. Bleck, and C.G.H. Rooth: The Influence of Layer Outcropping on the Separation of Boundary Currents. Part II: The Wind- and Buoyancy-driven Experiments. J. Phys. Oceanogr., 25, 2404-2422, 1995.

New, A.L., R.Bleck, Y.Jia, R.Marsh, M.Huddleston, and S. Barnard: An Isopycnic Model Study of the North Atlantic. Part 1: Model Experiment. J. Phys. Oceanogr., 25, 2667-2699, 1995.

New, A.L., and R. Bleck: An Isopycnic Model Study of the North Atlantic. Part 2: Interdecadal Variability of the Subtropical Gyre. J. Phys. Oceanogr. , 25, 2700-2714, 1995.

Bleck, R., S. Dean, M. O'Keefe, and A. Sawdey: A Comparison of Data-parallel and Message-passing Versions of the Miami Isopycnic Coordinate Ocean Model (MICOM). Parallel Computing, 21, 1695-1720, 1995.

Chassignet, E.P., L.T. Smith, R. Bleck, and F.O. Bryan: A Model Intercomparison: Numerical Simulations of the North and Equatorial Atlantic Ocean Circulation in Depth and Isopycnic Coordinates. J. Phys. Oceanogr., 26(9), 1849-1867, 1996.

Drange, H., and R. Bleck: Multidimensional forward-in-time upstream-in-space-based differencing for fluids. Mon Wea. Rev., 125, 616-630, 1997.

Sun, S., R. Bleck, C.G. Rooth, J. Dukowicz, E.P. Chassignet, and P. Killworth: Inclusion of Thermobaricity in Isopycnic-Coordinate Ocean Model. J. Phys. Oceanogr. 29, 2719-2729, 1999.

Brydon, D., S. Sun, and R. Bleck: A new approximation of the equation of state for sea water, suitable for numerical ocean models. J. Geophys. Res., 104, 1537-1540, 1999.

Paiva, A.M., J.T. Hargrove, E.P. Chassignet, and R. Bleck: turbulent behavior of fine mesh (1/12 deg) numerical simulation of the North Atlantic. J. Mar. Sys., 21, 307-320, 1999.

Smith, L.T., E.P. Chassignet, and R. Bleck: The Impact of Lateral Boundary Conditions and Horizontal Resolution on North Atlantic Water Mass Transformations and Pathways in an Isopycnic Coordinate Ocean Model. J. Phys. Oceanogr. 30, 137-159, 2000.

Vigan X., C. Provost, R. Bleck, and P. Courtier: Sea Surface velocities from Sea Surface Temperature image sequences. Part I: Method and validation using primitive equation model output, J. Geophys. Res., 105, 19499-19514, 2000.

Sun, S., and R. Bleck: Thermohaline circulation studies with an isopycnic coordinate ocean model. J. Phys. Oceanogr., 31, 2761-2782, 2001.

Hu, A., C. Rooth, R. Bleck, and C. Deser: NAO influence on sea ice extent in the Eurasian coastal region. Gephys. Res. Ltrs., 29, 10-1 - 10-4, 2001.

Sun, S., and R. Bleck: Thermohaline circulation and its response to increasing CO_2 in a coupled atmospheric and isopycnal ocean model. Geophys. Res. Ltrs., 28, 4223-4226, 2001.

Bleck, R.: An oceanic general circulation model framed in hybrid isopycnic-Cartesian coordinates. Ocean Modelling, 4, 55-88, 2002.

Chassignet, E., L. T. Smith, G. R. Halliwell, and R. Bleck: North Atlantic simulations with the hybrid coordinate ocean model (HYCOM): Impact of the vertical coordinate choice, reference pressure, and thermobaricity. J. Phys. Oceanogr., 33, 2504-2526, 2003.

Esenkov, O. E., D. B. Olson, and R. Bleck: A study of the circulation and salinity budget of the Arabian Sea with an Isopycnic coordinate ocean model. Deep-Sea Res. II, 50, 2091-2110, 2003.

Bleck, R., and S. Sun: Diagnostics of the oceanic thermohaline circulation in a coupled climate model. Global and Planet. Change, 40, 233-248, 2003.

Benjamin, S., G. A. Grell, J. M. Brown, T. G. Smirnova, and R. Bleck: Mesoscale weather prediction with the RUC hybrid isentropic/ terrain-following coordinate model. Mon. Wea. Rev., 132, 473-494, 2004.

Cheng, W., R. Bleck, and C. Rooth: Multidecadal thermohaline variability in an ocean-atmosphere general circulation model. Climate Dyn., 22, 573-590, 2004.

Wennberg, P.O., S. Peacock, J. T. Randerson, and R. Bleck: Methyl chloroform in the oceans: constraints on atmospheric chemistry and ocean dynamics. Geophys. Res. Ltrs., 31, L16112, 2004.

Peacock, S., M. Maltrud, and R. Bleck, 2005: Putting models to the data test: A case study using Indian Ocean CFC-11 data. Ocean Modelling, 9, 1-22, 2005

Bleck, R.: On the use of hybrid vertical coordinates in ocean circulation modeling. In: An Integrated View of Oceanography: Ocean Weather Forecasting in the 21st Century, E. Chassignet and J. Verron, Eds., Kluwer Acad. Publ., Dordrecht, 109-126, 2005.

Sun, S., and R. Bleck: Multi-century simulations with the coupled GISS-HYCOM climate model: control experiments. Climate Dyn., 26, 407-428, 2006.

Sun, S., and R. Bleck: Geographic distribution of the diapycnal component of thermohaline circulations in coupled climate models. Ocean Modelling, 15, 177-199, 2006.

Chassignet, E.P., H.E. Hurlburt, O.M. Smedstad, G.R. Halliwell, P.J. Hogan, A.J. Wallcraft, R. Baraille, and R. Bleck: The HYCOM (HYbrid Coordinate Ocean Model) data assimilative system. J. Mar. Sys., 65, 60-83, 2007.

Chassignet, E.P., H.E. Hurlburt, E.J. Metzger, O.M. Smedstad, J.A. Cummings, G.R. Halliwell, R. Bleck, R. Baraille, A.J. Wallcraft, C. Lozano, H.L. Tolman, A. Srinivasan, S. Hankin, P. Cornillon, R. Weisberg, A. Barth, R. He, F. Werner, and J. Wilkin: US GODAE: Global Ocean Prediction with the HYbrid Coordinate Ocean Model (HYCOM). Oceanography, 22, 64-75. 2009.

Lee, J.-L., R. Bleck, and A. E. MacDonald: A multistep flux-corrected transport scheme. J. Comput. Phys., 229, 9284-9298, 2010.

Bleck, R., S. Benjamin, J. Lee, A. E. MacDonald: On the Use of an Adaptive, Hybrid-Isentropic Vertical Coordinate in Global Atmospheric Modeling. Mon. Wea. Rev., 2188-2210, 2010.

Romanou, A., W.W. Gregg, J. Romanski, M. Kelley, R. Bleck, R. Healy, L. Nazarenko, G. Russell, G. A. Schmidt, S. Sun, and N. Tausnev: Natural air–sea flux of CO2 in simulations of the NASA-GISS climate model: Sensitivity to the physical ocean model formulation. Ocean Modelling, 66, 16-44, 2013.

Miller, R.L., G.A. Schmidt, L.S. Nazarenko, N. Tausnev, S.E. Bauer, A.D. Del Genio, M. Kelley, K.K. Lo, R. Ruedy, D.T. Shindell, I. Aleinov, M. Bauer, R. Bleck, V. Canuto, Y.-H. Chen, Y. Cheng, T.L. Clune, G. Faluvegi, J.E. Hansen, R.J. Healy, N.Y. Kiang, D. Koch, A.A. Lacis, A.N. LeGrande, J. Lerner, S. Menon, V. Oinas, C. Pérez García-Pando, J.P. Perlwitz, M.J. Puma, D. Rind, A. Romanou, G.L. Russell, M. Sato, S. Sun, K. Tsigaridis, N. Unger, A. Voulgarakis, M.-S. Yao, and J. Zhang: CMIP5 historical simulations (1850-2012) with GISS ModelE2. J. Adv. Model. Earth Syst., 6 441-477, 2014.

Bleck, R., J.-W. Bao, S. G. Benjamin, J. M. Brown, M. Fiorino, T. B. Henderson, J.-L. Lee, A. E. MacDonald, P. Madden, J. Middlecoff, J. Rosinski, T. G. Smirnova, S. Sun, and N. Wang: A Vertically Flow-Following Icosahedral Grid Model for Medium-Range and Seasonal Prediction. Part I: Model Description. Mon. Wea. Rev., 143, 2386-2403, 2015.

Nazarenko, L., G.A. Schmidt, R.L. Miller, N. Tausnev, M. Kelley, R. Ruedy, G.L. Russell, I. Aleinov, M. Bauer, S. Bauer, R. Bleck, V. Canuto, Y. Cheng, T.L. Clune, A.D. Del Genio, G. Faluvegi, J.E. Hansen, R.J. Healy, N.Y. Kiang, D. Koch, A.A. Lacis, A.N. LeGrande, J. Lerner, K.K. Lo, S. Menon, V. Oinas, J.P. Perlwitz, M.J. Puma, D. Rind, A. Romanou, M. Sato, D.T. Shindell, S. Sun, K. Tsigaridis, N. Unger, A. Voulgarakis, M.-S. Yao, and J. Zhang: Future climate change under RCP emission scenarios with GISS ModelE2. J. Adv. Model. Earth Syst., 7, 244-267, 2015.

Danabasoglu, G., S. G. Yeager, W. M. Kim, E. Behrens, M. Bentsen, D. Bi, A. Biastoch, R. Bleck, C. Böning, A. Bozec, V. M. Canuto, C. Cassou, E. Chassignet, A. C. Coward, S. Danilov, N. Diansky, H. Drange, R. Farneti, E. Fernandez, P. G. Fogli, G. Forget, Y. Fujii, S. M. Griffies, A. Gusev, P. Heimbach, A. Howard, M. Ilicak, T. Jung, A. R. Karspeck, M. Kelley, W. G. Large, A. Leboissetier, J. Lu, G. Madec, S. J. Marsland, S. Masina, A. Navarra, G. Nurser, A. Pirani, A. Romanou, D. Salas y Mélia, B. L.Samuels, M. Scheinert, D. Sidorenko, S. Sun, A.-M. Treguier, H. Tsujino, P. Uotila, S. Valcke, A. Voldoire, Q. Wang, and I. Yashayaev: North Atlantic Simulations in Coordinated Ocean-ice Reference Experiments phase II (CORE-II). Part II: Inter-Annual to Decadal Variability. Ocean Modelling, 97, 65-90, 2015.

Green, B. J., S. Sun, R. Bleck, S. J. Benjamin, and G. A. Grell: Evaluation of MJO Predictive Skill in Multiphysics and Multimodel Global Ensembles. Mon.Wea.Rev., 145, 2555-2574, 2017.

Sun, S., R. Bleck, S. G. Benjamin, B. W. Green, G. A. Grell: Subseasonal Forecasting with an Icosahedral, Vertically Quasi-Lagrangian Coupled Model. Part I: Model Overview and Evaluation of Systematic Errors. Mon. Wea. Rev., 146, 1601-1617, 2018.

Sun, S., B. W. Green, R. Bleck, and S. G. Benjamin: Subseasonal Forecasting with an Icosahedral, Vertically Quasi-Lagrangian Coupled Model. Part II: Probabilistic and Deterministic Forecast Skill. Mon. Wea. Rev., 146, 1619-1639, 2018.

Other works and publications (excluding conference abstracts):

Bleck, R., and E. Pantzke: Ein Verschluesselungs-Programm fuer Radiosonden-Messergebnisse. Met. Abhandl. Inst. Meteor. Geophys., Freie Univ. Berlin, 22, 1, Berlin, 90 pp., 1962.

Bleck, R.: Lineare Approximationsmethoden zur Bestimmung ein- und zweidimensionaler numerischer Filter der Dynamischen Meteorologie. Master's Thesis, Inst. Theoret. Meteor., Freie Univ. Berlin, 86 pp., 1965.

Bleck, R.: A Numerical Technique for Calculating Dry- and Moist-adiabatic Trajectories in the Atmosphere. Ph.D. dissertation, Pennsylvania State University, 102 pp., 1968.

Bleck, R., and P.L. Haagenson: Objective Analysis on Isentropic Surfaces. NCAR Tech. Notes, 39, 27 pp., 1968.

Hidy, G.M., R. Bleck, I.H. Blifford, Jr., P.M. Brown, G. Langer, J.P. Lodge, J. Rosinsky, and J.P. Shedlovsky: Observations of Aerosols over Northeastern Colorado. NCAR Tech. Notes, 49, 64 pp., 1970.

Bleck, R.: A Potential Vorticity Numerical Weather Prediction Model in Isentropic Coordinates. In: Subsynoptic Extratropical Weather Systems: Observation, Analysis, Modeling, and Prediction. NCAR Colloquium Notes, Boulder, Colorado, 324-338, 1974.

Shapiro, M., and R. Bleck: Objective Data Analysis, Numerical Weather Prediction and Simulation of Frontogenesis in Isentropic Coordinates. In: Subsynoptic Extratropical Weather Systems: Observation, Analysis, Modeling, and Prediction. NCAR Colloquium Notes, Boulder, Colorado, 575-588, 1974.

Bleck, R.: Numerical modeling of mesoscale cyclogenesis. In: Role of the Gulf of Mexico in the Weather of the United States. Preprints, Texas A&M University, College Station, Texas, 69-75, 1976.

Bleck, R.: Numerical Modeling of Terrain-induced Cyclogenesis. In: Sixth Conference on Weather Forecasting and Analysis. Preprints, Amer. Meteor. Soc., Boston, Mass., 318-324, 1976.

Bleck, R.: Numerical Modeling of Terrain-induced Mesoscale Cyclogenesis. In: Simulation of Large-scale Atmospheric Processes. Preprints, Deutscher Wetterdienst, Offenbach, 147-150, 1976.

Bleck, R.: A Sensitivity Study Concerning Vertical Resolution in Atmospheric Prediction Models. Preprints, Fourth Conf. Num. Wea. Pred., Amer. Meteor. Soc., Boston, Mass., 161-164, 1979.

Foo, E.-C., C.Rooth, and R.Bleck: A two-dimensional diabatic isopycnal model of a coastal up-welling front. In: Coastal Upwelling, F.A. Richards, ed., Amer.Geophys.Union, Washington, D.C., 193-202, 1981.

Bleck, R.: A Sensitivity Experiment Concerning the Numerical Simulation of Lee Cyclogenesis. ALPEX Prelim. Res., World Meteor. Org., Geneva, 20-35, 1982.

Brummer, R., and R. Bleck: The Potential use of Atmospheric Profilers in Short-range Prediction. Proc. Second Internat. Symp. Nowcasting, Norrkoping, Europ. Space Agency SP-208, 209-212, 1984.

Brummer, R., and R. Bleck: Initialization of NWP Models Using Simulated Profiler Observations. Preprints, 22nd Conf. Radar Meteor., Zurich, Amer. Meteor. Soc., 452-455, 1984.

Bleck, R.: Linear Advection. Short- and Med.-Range Wea. Pred. Res. Publ. Series, 8, World Meteor. Org., Geneva, 105-115, 1984.

Bleck, R.: Vertical Coordinate Systems and Differencing Schemes. Short-and Med.-Range Wea. Pred. Res. Publ. Series, 8, World Meteor. Org., Geneva, 169-174, 1984.

Bleck, R., and C. Mattocks: Jet Streak Dynamics and Geostrophic Adjustment Processes During the Initial Stages of Lee Cyclogenesis. Proceedings, International Symposium on Qinghai-Xizang Plateau and Mountain Meteorology, Science Press, Beijing and Amer. Meteor. Soc., Boston, 885-901, 1986.

Kraus, E.B., R. Bleck and H.P. Hanson: The Inclusion of a Surface Mixed Layer in a Large-scale Circulation Model. In Small-Scale Turbulence and Mixing in the Ocean (J.C.J.Nihoul and B.M. Jamart, Eds.), 51-62, 1988.

Bleck, R. and Ge Peng: Numerical Model Errors Affecting the Simulation of Alpine Lee Cyclogenesis. Internat. Conf. on Mountain Meteorol. and ALPEX, Garmisch-Partenkirchen, Germany, 1989.

Benjamin, S.G., T.L. Smith, P.A. Miller, D. Kim, T.W. Schlatter, D. Devenyi, J.-M. Carriere and R. Bleck: Recent Developments in the MAPS Isentropic-sigma Data Assimilation System. Quart. J. Hungarian Met. Service, 97(1), 121-139, 1993.

Benjamin, S.G., R. Bleck, G. Grell, Z. Pan, T.L. Smith, J.M. Brown, J.E. Ramer, P.A. Miller, and K.A. Brundage: Aviation forecasts from the Hybrid-B version of MAPS -- effects of a new vertical coordinate and improved model physics. Preprints, 5th Conf. Aviation Wea. Systems, 2-6 August, Vienna, VA., 1993.

Bleck, R., and E.P. Chassignet: Simulating the Oceanic Circulation in Isopycnic-Coordinate Models. The Oceans: Physiochemical Dynamics and Resources, S.K. Majumdar, E.W. Miller, G.S. Forbes, R.F. Schumalz and A.A. Panah (eds.) The Pennsylvania Academy of Science , 17-39, 1994.

Benjamin, S.G., G.A. Grell, J.M. Brown, R. Bleck, K.J. Brundage, T.L. Smith, and P.A. Miller: An Operational Isentropic/Sigma Hybrid Forecast Model and Data Assimilation System. Symposium of Life Cycles of Extratropical Cyclones, The Life Cycles of Extratropical Cyclones, Vol. III, 268-273, Bergen, Norway, 1994.

Bleck, R., E.P. Chassignet, and L. Smith: WOCE-Related Modeling Continues at the University of Miami. WOCE Notes, 6(3), 18-22, 1994.

Sawdey, A., M. O'Keefe, R. Bleck, and R. W. Numrich: The design, implementation, and performance of a parallel ocean circulation model. In: Coming of Age, Proc. 6th ECMWF Workshop on the Use of Parallel Processors in Meteor., N. Kreitz and G.-R. Hoffman (eds.), World Scientific, Singapore, 523- 550, 1995.

Bleck, R: MICOM-based global modeling in the US. Internat. WOCE Newsletter, 23, 31--33, 1996.

Bleck, R: Miami begins global circulation modeling. WOCE Notes, 8(2), 9-11, 1996.

Bleck, R., S. Sun, and S. Dean,: Global ocean simulations with an isopycnic coordinate model. In: Some New Directions in Science on Computers, G. Bhanot, S. Chen, and P. Seiden, Eds., World Scientific, Singapore, 297-317, 1997.

New, A. L., R. Bleck, Y. Jia, R. Marsh, and S. Barnard: Interdecadal variability of the North Atlantic subtropical gyre: an isopycnic model study. CAS/JSC Working Group on Numerical Experimentation, report no. 21, "Research activities in atmospheric and oceanic modelling", ed. A. Staniforth, February 1995, WMO/TD-No. 665. pp 8.39-8.4, 1995.

Bleck, R.: Ocean modeling in isopycnic coordinates. Ocean Modeling and Parameterization, E.P. Chassignet and J. Verron (Eds.), Kluwer Academic Publishers, 423-448, 1998.

Bleck, R.: Uncertainties in Climate Prediction: The Ocean Perspective. Los Alamos Science, 29, Los Alamos Nat'l Lab, Los Alamos, NM, 29, 42-55, 2005.

Lee, J.-L., R. Bleck, A.E. MacDonald, J.-W. Bao, S. Benjamin, J. Middlecoff, N. Wang, and J. Brown: FIM: A vertically flow-following, finite-volume icosahedral model. Preprints, 22nd Conf. Wea. Analysis & Forecasting, Amer. Meteor. Soc., 5pp, 2007 (online http://ams.confex.com/ams/pdfpapers/124052.pdf).

PROFESSIONAL

Funded Research Performed :

1991-1992	NSF OCE9102560	Influence of Outcropping on Latitude Jet Separation in Multi-Layer Primitive Equations
1991-1995	University of Colorado	Thermohaline Circulations and Global Climate Change

1992- 1998	NSF OCE9206643	Isopycnal Modeling Work in the Context of the World Ocean Circulation Experiment
1993-1995	NSF	U.S. Brazil Cooerative Science Program: A Numerical Study of the Tropical Atlantic Circulation with an Isopycnic Coordinate Circulation Model
1994-1997	DOE DEFG05-94ER61943	Development & Evaluation of the Global Version of the Miami Isopycnic Coordinate Ocean Model
1994-1997	NSF OCE9415911	Sensitivity of Global Ocean Climate Simulations to Upper-Ocean Mixing Parameterizations: Analysis Using Level-Coordinate Mixed Layer Models
1996-1998	ONR N00014-97-1-0096	Extension of the Navy Layered Ocean Model to Shallow Seas: A Hybrid Coordinate Approach
1997-1998	NASA	Satellite Data Assimilation in the Miami Ocean Model: Application to Oceanic Heat Transport Calculations and Process Studies
2004-2006	DOE SCFY031017	Comparison of Cartesian and Isopycnal Simulations of Oceanic Carbon Sequestration via Iron Fertilization and Deep Injection

Editorial Responsibilities:

Reviewer for:

    Journal of the Atmospheric Sciences
    Monthly Weather Review
    Contributions to Atmospheric Science
    Journal of Geophysical Research
    Journal of Computational Physics
    Tellus
    Quarterly Journal of the Royal Meteorological Society
    Journal of Climate and Applied Meteorology
    Office of Naval Research (program reviews)
    Deutsche Forschungsgemeinschaft (program reviews)

Professional and Honorary Organizations:

Member American Geophysical Union

Honors and Awards:

NCAR Technology Advancement Award, 1972
NCAR Outstanding Publication Award, 1973

Other Professional Activities:

Chair, Program Review Committee, Rennell Division, Southampton
Oceanography Centre, U.K., 1996-present.

Member, NSF/ONR Ocean Infrastructure Technology Committee, 2000

Member, NSF/OCE Decadal Planning Committee, 1999-2000

TEACHING

Thesis and Dissertation Advising/Post-doctoral student supervision:

M. Douglas, 1978, M.S., The structure of a disturbance along the
Intertropical Convergence Zone.
J. Gross, 1978, Ph.D., Lake effects storms of Lake Ontatio.
K. Kohler, 1979, M.S., Formation and seasonal variabiity of the levantine
intermediate water.
K. Sashegyi, 1979, M.S., Time variability errors in tri-Doppler radar
analysis of downdrafts in convective storms in South Florida.
E.-C. Foo, 1980, Ph.D. (advisor), A two-dimensional diabatic isopycnal
model of a coastal upwelling front.
J. Letter, 1980, M.S.
P. Gruber, 1980, M.S., Interctions between marine stratocumulus and the
upper ocean heat budget.
W. Wilson, 1981, M.S., Currents and mass transport off the Somalia Coast
during the southwest monsoon.
E. Williams, 1982, M.S., The mean baroclinic circultion in the North
Atlantic from historicl XBT data.
J. Ngamini, 1982, M.S., A case study of a synoptic disturbance over western
Africa in July, 1979.
L. Avila, 1983, M.S. (advisor), Dust storm events over Asia and the
mechanism which pumps dust into the troposphere.
K. Sashegyi, 1983, Ph.D., A linear dynamic model of the East African jet in

a stratified atmosphere.

B. Castro, 1985, Ph.D. (advisor), Subtidal response to wind forcing in the South Brazil Bight during winter.

J. Lorenzetti, 1985, Ph.D., On the modeling of the summer circulation in the South Atlantic Bight by a two-layer finite element model.

C. Mattocks, Ph.D. 1986 (advisor), Jet streak dynamics and geostrophic adjustment processes during the initial stages of lee cyclogenesis.

R. Brummer, 1986, Ph.D. (advisor), On the use of profiler data in limited area numerical weather prediction.

R. Aragao, Ph.D. 1987 (co-advisor), The dynamic effects of the Andes Cordillera on the atmospehric flow: channel model study.

L. Smith, M.S., 1987, (advisor), A wind-driven isopycnic coordinate model of the north and equatorial Atlantic Ocean.

D. Hu, Ph.D., 1991, (advisor), A joint mixed-layer/isopycnic coordinate numerical model of wind- and thermohaline-driven ocean general circulation with model sensitivity study.

X. Cheng, M.S., 1991, (advisor), Shear and curvature vorticity conversion and its physical implications.

S. Sun, M.S., 1992, (advisor), Validation of Layered Ocean Numerical Models Using Analytic Thermocline Solutions.

D. Stewart, Ph.D., 1992, An Investigation of Low-Frequency Planetary Wave Forcing and Predictability in a Simple Global Atmospheric Circulation Model.

M. C. Forbes, Ph.D., 1993, Assimilation of South Atlantic GEOSAT Altimetric Data Into an Isopycnic Ocean Model.

F. Horsfall, Ph.D., 1996 (advisor), The Effect of Variable Atmospheric Forcing on Ocean Subduction of a Passive Tracer: Implications for Global Warming.

S. Sun, Ph.D, 1997 (advisor), The Compressibility Effects in the Miami Isopycnic Coordinate Ocean Model.

A. Paiva, Ph.D., 1999, The Impact of Surface Buoyancy Flux Variability on Water Mass Formation in North Atlantic Numerical Simulations.

O. Esenkov, Ph.D., 2000, Wind-forced Coastal Currents.

D. Jacob, Ph.D., 2000, Two-way feedbacks between Ocean and Hurricane.

W. Cheng, Ph.D., 2000 (advisor), Climate variability in the North Atlantic on decadal and multi-decadal time scales: a numerical study.

He, Z., Ph.D., (advisor)

Hu, A., Ph.D., (committee member)

SERVICE

University Committee and Administrative Responsibilities:

Chairman, Division of Meteorology and Physical Oceanography, University

of Miami, 1990-1995

Chair, Program Review Committee, Southampton Oceanography Centre, 1998 - prresent

NSF Ocean Sciences Decadal Planning Committee

NSF/ONR Ocean Information Technology Infrastructure Committee

Community Activity: Sierra Club, American Recorder Society