

BIOGRAPHICAL SKETCH

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PROFESSIONAL PREPARATION

- B.S., Physics, Iowa State University, 1976.
- Ph.D., Atmospheric Sciences, University of Washington, 1980.

EMPLOYMENT HISTORY

- Postdoctoral Research Associate, University of Washington, 1980-1981.
- Postdoctoral Research Associate, National Center for Atmospheric Research, 1981-1982.
- Research Scientist, Physical Dynamics, 1982-1986.
- Senior Research Scientist, Northwest Research Associates, 1986-present.
- Senior Visiting Scientist, Naval Postgraduate School, 2007-present.
- Adjunct Professor, University of Illinois at Urbana-Champaign.

RECENT PUBLICATIONS

- Zhang, G., Z. Wang, T.J. Dunkerton, M.S. Peng, and G. Magnusdottir, 2016: Extratropical Impacts on Atlantic Tropical Cyclone Activity. *J. Atmos. Sci.*, 73, 1401-1418.
- Rutherford, B., T.J. Dunkerton, M.T. Montgomery, 2015: Lagrangian vortices in developing tropical cyclones. *Quart. J. Roy. Meteor. Soc.*, 141(693), 3344-3354.
- Lussier, L. L., B. Rutherford, M. T. Montgomery, M. A. Boothe and T. J. Dunkerton, 2015: Examining the role of the easterly wave critical layer and vorticity accretion during the tropical cyclogenesis of Hurricane Sandy. *Mon. Wea. Rev.*, 143(5), 1703-1722.
- Rutherford, B., T.J. Dunkerton, M.T. Montgomery, and S.A Braun, 2014: The genesis of Hurricane Nate and its interaction with a nearby environment of very dry air. *Mon. Wea. Rev.*, submitted.
- Dunkerton, T.J., M.T. Montgomery, S.A. Braun, Z. Wang, B. Rutherford, D. Hence, G. Susca-Lopata, H. Archambault, L. Lussier III, S. Abarca, and M. Boothe, 2014: Genesis and persistence of Hurricane Nadine (2012) provides multiple opportunities for in situ sampling by unmanned aircraft. *AMS Hurricanes & Tropical Meteorology*, San Diego, CA.
- Montgomery, M.T., C. Davis, T.J. Dunkerton, Z. Wang, C. Velden, R. Torn, S.J. Majumdar, F. Zhang, R.K. Smith, L. Bosart, M.M. Bell, J.S. Haase, A. Heymsfield, J. Jensen, T. Campos and M.A. Boothe, 2012: The Pre-Depression Investigation of Cloud Systems in the Tropics (PREDICT) Experiment: Scientific Basis, New Analysis Tools and Some First Results. *Bull. Amer. Meteorol. Soc.*, 93(2), 153-172.
- Wang, Z., T.J. Dunkerton and M.T. Montgomery, 2012: Application of the marsupial paradigm to tropical cyclone formation from northwestward propagating disturbances. *Mon. Wea. Rev.*, 140(1), 66-76.

OTHER RELEVANT PUBLICATIONS

- Wang, Z., M. T. Montgomery, and T. J. Dunkerton, 2010: Genesis of Pre-hurricane Felix (2007). Part II: Warm core formation, precipitation evolution and predictability. *J. Atmos. Sci.*, 67, 1730-1744
- Wang, Z., M. T. Montgomery, and T. J. Dunkerton, 2010: Genesis of Pre-hurricane Felix (2007). Part I: The Role of the Easterly Wave Critical Layer. *J. Atmos. Sci.*, 67, 1711-1729.

- ❑ Dunkerton, T.J., B.A. Walter, W. Perrie, D.G. Long, B. Williams, C. Nie, J. Zhang, E. Uhlhorn, R. Rogers and P. Black, 2010: Coincident microwave and in situ measurements in the eye of Hurricane Katrina (2005) at peak intensity. *AMS Hurricanes & Tropical Meteorology*, Tucson, AZ.
- ❑ Dunkerton, T. J., M.T. Montgomery and Z. Wang, 2009: Tropical cyclogenesis in a tropical wave critical layer: easterly waves. *Atmos. Chem. Phys.*, 9, **5587-5646**.
- ❑ Wang, Z., M. T. Montgomery and T. J. Dunkerton, 2008: A dynamically-based method for forecasting tropical cyclogenesis location in the Atlantic sector using global model products. *Geophys. Res. Lett.*, 36, L03801.

COMMUNITY SERVICE ACTIVITIES

- ❑ Copernicus Co-Editor, *Atmospheric Chemistry & Physics*
Editorial oversight of papers, primarily in atmospheric dynamics, composition and clouds; includes detailed preliminary Editor review, evaluation of reviews, recommendation for publication and highlighted feature status; quantity per year (20-30) ranks high among ACP Co-Editors.
- ❑ Graduate student and postdoctoral mentoring:
Visiting appointments at the Naval Postgraduate School and UIUC foster interaction with younger Principal Investigators and their research teams; NPS Meteorology currently supports 8 NRC Postdocs, four of whom are collaborators in research groups led by Drs. Mike Montgomery and Pat Harr; UIUC Atmospheric Sciences includes four graduate students as collaborators, advised by Dr. Zhuo Wang.
- ❑ Scientific foundation, planning & execution of field campaigns
The highly successful PREDICT field campaign to study tropical cyclogenesis in the West Atlantic and adjacent seas was based on the new “marsupial paradigm” of tropical cyclogenesis formulated by us; advance planning was done in collaboration with Dr. Mike Montgomery and other members of the PREDICT Steering Committee; planning is now underway for a similar campaign in the tropical West Pacific; real-time participation at St. Croix, and post-analysis of PREDICT data, are priorities.
- ❑ Short-range forecast products for tropical cyclogenesis
Montgomery Pouch Products hosted at NPS are designed on the theoretical foundation of the marsupial paradigm, including recent extensions to include Lagrangian kinematics, tracer transport, and bulk metrics of circulation and deformation. Analysis of forecast skill is included in the research. These products are utilized in real-time by NSF- & NASA-supported field campaigns, and in retrospective analysis by interested individuals in the public and private sectors.

GRADUATE ADVISOR & POSTDOCTORAL SPONSORS

- ❑ James R. Holton, University of Washington (deceased)
- ❑ National Center for Atmospheric Research

GRADUATE STUDENTS & POSTDOCTORAL FELLOWS, 2008-2014

- ❑ Abarca, Sergio, Naval Postgraduate School*
- ❑ Fritz, C., UIUC Atmospheric Sciences
- ❑ Hankes, I., UIUC Atmospheric Sciences
- ❑ Li, W.-W., UIUC Atmospheric Sciences
- ❑ Lussier III, L., Naval Postgraduate School*
- ❑ Riemer, M., Naval Postgraduate School*
- ❑ Rutherford, B., Naval Postgraduate School*
- ❑ Wang, Z., Naval Postgraduate School (now at UIUC)*
- ❑ Zhang, G., UIUC Atmospheric Sciences

*NRC Postdoctoral Research Associate