David Vollaro

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# Education

**MS** University at Albany, Atmospheric Science May 1988

 Thesis: “A Large-Scale Analysis of the Evolution of the Outflow Level Winds in an

 Intensifying Tropical Cyclone”

 Advisor: John Molinari

**BS** University at Albany, Atmospheric Science May 1985

 Graduated Magna cum Laude

# Honors and Awards

**Nasa Group Achievement Award, Hurricane and Severe Storm Sentinel** 2015

**Nasa Group Achievement Award, Genesis and Rapid Intensification Processes** 2011

**First enrollee into SUNY combined BS/MS program in Atmospheric Science** 1984

# Experience

**Senior Scientific Programmer**, 1988-present

Research Foundation of the State University of New York

Duties: Use programming skills to process and interpret meteorological observations and model analyses. Assist in the writing and preparation of research publications. Mentor graduate students in proper programming and research habits.

# Publications

Molinari, J., and D. Vollaro 2017: [Monsoon Gyres of the Northwest Pacific: Influences of ENSO, the MJO, and the PacificJapan Pattern.](http://www.atmos.albany.edu/facstaff/vollaro/pubs/Molinari_Vollaro-JCLIM2017.pdf) *Journal of Climate,* **30**, 1765-1777.

Ditchek, S., J. Molinari, and D. Vollaro 2017: [Tropical Cyclone Outflow-Layer Structure and Balanced Response to Eddy Forcings.](http://www.atmos.albany.edu/facstaff/vollaro/pubs/Ditchek.et.al-JAS2017.pdf) *Journal of the Atmospheric Sciences,* **74**, 133-149.

Romps, D.M., J.T. Seeley, D. Vollaro, and J. Molinari, 2014: [Projected increase in lightning strikes in the United States due to global warming.](http://www.atmos.albany.edu/facstaff/vollaro/pubs/Romps.et.al-SCI2014.pdf) *Science,* **346,** 851-854.

Molinari, J., and D. Vollaro, 2014: [Symmetric instability in the outflow layer of a major hurricane.](http://www.atmos.albany.edu/facstaff/vollaro/pubs/Molinari_Vollaro-JAS2014.pdf) *Journal of the Atmospheric Sciences,* **71,** 3739-3746.

Molinari, J., P. Duran, and D. Vollaro, 2014: [Low Richardson number in the tropical cyclone outflow layer.](http://www.atmos.albany.edu/facstaff/vollaro/pubs/Molinari.et.al-JAS2014.pdf) *Journal of the Atmospheric Sciences,* **71,** 3164-3179.

Crandall, B., J. Molinari, and D. Vollaro, 2013: [Forecasting Challenges Associated with Tropical Cyclones Within Subtropical Gyres.](http://www.atmos.albany.edu/facstaff/vollaro/pubs/89gyre_2013WAF.docx) *Weather and Forecasting,* **29**,99-114.

Molinari, J., J. Frank, and D. Vollaro, 2013: [Convective bursts, downdraft cooling, and boundary layer recovery in a sheared tropical storm.](http://www.atmos.albany.edu/facstaff/molinari/Molinari.et.al-MWR2013.pdf) *Monthly Weather Review,* **141**,1048-1060.

Molinari, J.,and D. Vollaro, 2013: [What percentage of western north Pacific tropical cyclones form within the monsoon trough?](http://www.atmos.albany.edu/facstaff/molinari/Molinari_Vollaro-MWR2012a.pdf) *Monthly Weather Review,* **141**, 499-505.

Molinari, J., D.M. Romps, D. Vollaro, and L. Nguyen, 2012: [CAPE in tropical cyclones.](http://www.atmos.albany.edu/facstaff/molinari/Molinari.et.al-JAS2012.pdf) *Journal of the Atmospheric Sciences,* **69,** 2452-2463.

Molinari, J. and D. Vollaro, 2012: [A subtropical cyclonic gyre associated with interactions of the MJO and the midlatitude jet.](http://www.atmos.albany.edu/facstaff/molinari/Molinari_Vollaro-MWR2012.pdf)*Monthly Weather Review,* **140,** 343-357.

Molinari, J., and D. Vollaro, 2010: [Rapid intensification of a sheared tropical storm.](http://www.atmos.albany.edu/facstaff/molinari/Molinari_Vollaro-MWR2010.pdf) *Monthly Weather Review*, **138**, 3869-3885.

Molinari, J., and D. Vollaro, 2010: [Distribution of helicity, CAPE, and shear in tropical cyclones.](http://www.atmos.albany.edu/facstaff/molinari/Molinari_Vollaro-JAS2010.pdf) *Journal of the Atmospheric Sciences*, **67**, 274-284.

Molinari, J., and D. Vollaro, 2008: [Extreme helicity and intense convective towers in Hurricane Bonnie](http://www.atmos.albany.edu/facstaff/molinari/Molinari_Vollaro-MWR2008.pdf). *Monthly Weather Review*, **136**, 4355-4372.

Molinari, J., K. Lombardo, and D. Vollaro, 2007: [Tropical cyclogenesis within an equatorial Rossby wave packet.](http://www.atmos.albany.edu/facstaff/molinari/Molinari.et.al-JAS2007.pdf) *Journal of the Atmospheric Sciences*, **64**, 1301-1317.

Molinari, J., P. Dodge, D. Vollaro, K.L. Corbosiero, and F. Marks, Jr., 2006: [Mesoscale aspects of the downshear reformation of a tropical cyclone.](http://www.atmos.albany.edu/facstaff/molinari/Molinari.et.al-JAS2006.pdf) *Journal of the Atmospheric Sciences*, **63**, 341-354.

Molinari, J., D. Vollaro, and K.L. Corbosiero, 2004: [Tropical cyclone formation in a sheared environment: A case study.](http://www.atmos.albany.edu/facstaff/molinari/Molinari.et.al-JAS2004.pdf) *Journal of the Atmospheric Sciences*, **61**, 2493-2509.

Molinari, J., and D. Vollaro, 2000: [Planetary and synoptic scale influences on eastern Pacific tropical cyclogenesis.](http://www.atmos.albany.edu/facstaff/molinari/Molinari_Vollaro-MWR2000a.pdf) *Monthly Weather Review*, **128**, 3296-3307.

Molinari, J., D. Vollaro, S. Skubis, and M. Dickinson, 2000: [Origins and mechanisms of eastern Pacific tropical cyclogenesis: A case study.](http://www.atmos.albany.edu/facstaff/molinari/Molinari.et.al-MWR2000.pdf) *Monthly Weather Review*, **128**, 125-139.

Molinari, J., S. Skubis, D. Vollaro, F. Alsheimer, and H. Willoughby, 1998: [Potential vorticity analysis of hurricane intensification.](http://www.atmos.albany.edu/facstaff/molinari/Molinari.et.al-JAS1998.pdf) *J. Atmos. Sci.,* **55,** 2632-2644.

Molinari, J., D. Knight, M. Dickinson, D. Vollaro, and S. Skubis, 1997: [Potential vorticity, easterly waves, and tropical cyclogenesis.](http://www.atmos.albany.edu/facstaff/molinari/Molinari.et.al-MWR1997.pdf) *Monthly Weather Review,* **125,** 2699-2708.

Molinari, J., S. Skubis, and D. Vollaro, 1995: [External influences on hurricane intensity: Part III. Potential vorticity structure.](http://www.atmos.albany.edu/facstaff/molinari/Molinari.et.al-JAS1995.pdf) *J. Atmos. Sci.,* **52,** 3593-3606.

Molinari, J., D. Vollaro, and S. Skubis, 1993: [Application of the Eliassen balanced model to real-data tropical cyclones.](http://www.atmos.albany.edu/facstaff/molinari/Molinari.et.al-MWR1993.pdf) *Monthly Weather Review*, **121**, 2409-2419.

Molinari, J., D. Vollaro, and F. Robasky, 1992: Use of ECMWF operational analyses for studies of the tropical cyclone environment. *Meteorology and Atmospheric Physics*, **47**, 127-144.

Molinari, J., and D. Vollaro, 1990: [External influences on hurricane intensity: Part II. Vertical structure and response of the hurricane vortex.](http://www.atmos.albany.edu/facstaff/molinari/Molinari_Vollaro-JAS1990.pdf) *Journal of the Atmospheric Sciences*, **47**, 1902-1918.

Molinari, J., and D. Vollaro, 1989: [External influences on hurricane intensity: Part I. Outflow layer eddy angular momentum fluxes.](http://www.atmos.albany.edu/facstaff/molinari/Molinari_Vollaro-JAS1989.pdf) *Journal of the Atmospheric Sciences*, **46**, 1093-1105.

## Journal Papers in Review

Molinari, J., M. Rosenmayer, D. Vollaro, and S. Ditchek 2018: Turbulence Variations in the Upper Troposphere in Tropical Cyclones from NOAA G-IV Flight-Level Vertical Acceleration Data. *Journal of Climate and Applied Meteorology*. Submitted.

Romps, D.M., A. Charn, R. Holzwith, W. Lawrence, J. Molinari, and D. Vollaro 2018: CAPE times P explains lightning over land but not the land-ocean contrast. *Geophysical Research Letters*. Submitted

# Presentations and Invited Lectures

**Paper Presentations**

“Influences of Vertical Shear and Upper Level Vorticity on Tropical Cyclone Intensification” 20th Conference on Hurricanes and Tropical Meteorology. May 10-14 1993, San Antonio, Texas

 “Excitation of Secondary Eye Walls by External Interactions” 19th Conference on Hurricanes and Tropical Meteorology. May 6-10 1991, Miami Florida.

# Professional Training

**NCAR Command Language Workshop**

DAES Albany, NY May 21-24 2013

Introduction to NCL programming language

# Professional Affiliations

American Meteorological Society 1988-Present

# Professional Service

**Peer-Reviewed Articles for**:

* Monthly Weather Review
* Journal of the Atmospheric Sciences

# Community Service

**Regional Food Bank of Northeastern New York**

Volunteer, Albany, 2016-2018

**Bethlehem Soccer Club**

Youth Coach 2010-2016

**Big Brothers Big Sisters of the Capital Region**

Big brother Volunteer, Albany, 1989-1991

# Computer Skills

**Programming**: Fortran, C-Shell, NCL, Python, GEMPAK, HTML

**Applications**: Microsoft Excel, Word, PowerPoint. McIDAS

**Platforms**: Windows, UNIX, Linux

# References

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