

Curriculum Vitae for EDWARD J. ZIPSER

EDUCATION

Ph.D., Florida State University, Meteorology, 1965
M.S., Florida State University, Meteorology, 1960
B.S.E., Princeton University, Aeronautical Engineering, 1958

PROFESSIONAL EXPERIENCE

1999-Date	Professor , Dept. of Meteorology, Univ. of Utah, Salt Lake City, Utah <i>1999-2005</i> Chair, Dept. of Meteorology, Univ. of Utah
1990-1999	Professor, Dept. of Meteorology, Texas A&M University, College Station, Texas <i>1990-1995</i> Head, Dept. of Meteorology, Texas A&M Univ.
1990-1998	Scientific Visitor, Mesoscale and Microscale Division, NCAR (2 months each summer)
1976-1990	Senior Scientist, National Center for Atmospheric Research (NCAR), Boulder, Colorado
1966-1990	Ph.D. Scientist, NCAR, Boulder, Colorado <i>1971-1973</i> Chief Scientist, NCAR GARP ¹ Task Group <i>1973-1977</i> Project Head, NCAR GATE ² Project <i>1981-1984</i> Head, Mesoscale Interactions Section, NCAR Convective Storms Division <i>1984-1987</i> Director, NCAR Convective Storms Division/Cloud Systems Division <i>1989 (Spring)</i> NCAR Affiliate Visiting Professor, Dept. of Atmospheric Science, Univ. of Washington

¹ Global Atmospheric Research Program

² Global Atmospheric Research Program Atlantic Tropical Experiment

AREAS OF SPECIALIZATION

Regional and global distribution of storms, using new observational capabilities from satellites such as NASA's Tropical Rainfall Measuring Mission. Understand why heavy rainfall is more frequent in the deep tropics while stronger storms are extremely rare in those same locations compared to the central United States and other mid-latitude regions. Validate indications from remote sensing instruments on satellites by making measurements in the field. Help develop improved recognition and forecasting of severe storms by determining the differences between ordinary and truly exceptional events. Involve students in field programs to give them hands-on experience and deeper understanding.

COURSES TAUGHT (since 1999)

Global Climate Change (METEO 1020), Radar and Satellite Meteorology (METEO 5140/6140), Tropical Meteorology (METEO 6310; now 6510/5510), Severe and Unusual Weather (METEO 1010; with Robl)

SELECTED PROJECT AND FIELD PROGRAM INVOLVEMENT

2010	NASA Genesis and Rapid Intensification Processes (GRIP), Mission Scientist
2008	Taiwan Terrain-Influenced Monsoon Rainfall Experiment (TIMREX)
2006	NAMMA (NASA- African Monsoon Multidisciplinary Analysis) Experiment, Cape Verde Islands, Lead Scientist
2006	TWPICE (Tropical Warm Pool International Cloud Experiment, Darwin Australia, Member Management Team
2005	TCSP (Tropical Cloud Systems and Processes) , Costa Rica, Mission Scientist
2003	SALLJEX (South American Low-Level Jet Exp; radar scientist on NOAA P-3
2002	CRYSTAL-FACE [Production of anvil cirrus by convection-Florida]
2001	Mission Science Management Team for CAMEX-4 (NASA ER-2 and DC-8 missions in hurricanes, based at Jacksonville NAS, Aug-Sept.)
1997-2000	NASA, Tropical Rain Measuring Mission (TRMM): Team Leader for field campaigns in Texas, Florida, Brazil (with LBA), and Kwajalein.
1992-1993	Tropical Ocean-Global Atmosphere, Coupled Ocean Atmosphere Response Experiment (TOGA COARE): Lead Scientist for Convection, NASA Aircraft.
1991	Tropical Experiment in Mexico: Participant.
1987	Equatorial Mesoscale Experiment; Management Team, co-PI on F-27 and Electra.
1987	Taiwan Mesoscale Experiment: Planning Team and Participant.
1987	Convection Initiation and Downburst Experiment: Member Management Team.
1985	Oklahoma-Kansas PRE-STORM experiment: Member, Management Team.
1984	Australian Cold Fronts Program: Lead Scientist on F-27.
1981	CCOPE (Cooperative Convection and Precipitation Experiment), Montana
1980-1981	Hurricane Research Flights in cooperation with HRD colleagues
1974	GATE: Coordinator, Aircraft Program; Airborne Mission Scientist, Mission Scientist, Mission Selection Team.
1971-1972	Mountain Waves and Severe Downslope Windstorms, Boulder CO area
1971-1972	National Hail Research Experiment, occasional participant
1969	BOMEX (Barbados Oceanographic and Meteorological Experiment)
1968	Pre-BOMEX: FSU Barbados Experiment; Led aircraft component
1967	Line Islands Experiment: Central Pacific Ocean. Scientific Coordinator
1963	Dissertation Research based in Roosevelt Roads, Puerto Rico
1960-1962	Occasional hurricane flights (working for NHRP as summer graduate student)

HONORS

- Walter Orr Roberts Lecturer, American Meteorological Society, 2010
- Special Award, American Meteorological Society, for "outstanding contributions to the editorial oversight of the Bulletin of the AMS", 2007.
- Invited Lecturer, NASA Goddard Space Flight Center, 2004.
- Editor's Award, American Meteorological Society, 1999.
- University Space Research Association Visiting Fellowship, NASA Goddard Space Flight Center, 1996-1997.
- Special Award, American Meteorological Society, for "Outstanding Contributions and Leadership in [GATE]", 1977.
- NOAA Award for Outstanding Contributions to [GATE], 1975.

- Research Fellow of (U.K.) NERC, Imperial College, London, 1974-75.
- NCAR Publications Prize, 1969.

HONORARY AND PROFESSIONAL SOCIETIES

American Meteorological Society

2001- date	Editorial Board, Bulletin of the AMS (Chair, 2001-2005)
1999-2001	Member, Chair, Nominating Committee
1993-1995	Member, Chair, Awards Committee
1989-1990	Member, Chair, Committee on Fellows
1983-1987	Member, Chair, Committee on Mesoscale Processes
1982-Date	Fellow of the AMS
1978-1979	President, Denver Chapter
1969-1973	Member, Committee on Hurricanes and Tropical Meteorology
1969-1970	Vice-President, Denver Chapter

American Geophysical Union

Society of the Sigma Xi

SELECTED COMMITTEES

2006-2009	NASA Earth Science Subcommittee
2005-date	NASA Global Precipitation Mission Ground Measurements Advisory Panel
2004-2009	VAMOS (Variability of Monsoons) MESA (Monsoon Experiment South America) Science Steering Group
1997-1999	NAS/NRC/BASC Panel on Global Energy and Water Cycle Experiment (GEWEX).
1996-1999	U.S. Weather Research Program Prospectus Development Teams on Quantitative Precipitation Forecasting, and Hydrologic Aspects of Weather Forecasting.
1996	UCAR Governance Examination Team.
1993-1997	NAS/NRC/BASC Committee on Meteorology, Analysis, and Prediction (Chair).
1992-1998	UCAR University Relations Committee (Chair).
1990-Date	NASA TRMM Science Team.
1987-1989	NAS/NRC Study Design Group for Science of Hydrology; NRC/WSTB Committee on Opportunities in Hydrology.
1986-1990	NASA Science Steering Group for TRMM.
1973-1974	Convection Subpanel of GATE Advisory Panel (Chair).
1972-1976	GATE Advisory Panel to US GARP Committee.
1970-1973	BOMAP Advisory Panel to US GARP Committee.

REFEREED PUBLICATIONS

- Jiang, H., C.Liu, and E.J.Zipser, 2011: A TRMM-based tropical cyclone cloud and precipitation feature database. *J. Appl. Meteor. Climatol.*, **50**, early online release Jan.2011, doi:10.1175/2011JAMC2662.1.
- Xu, W., and E.J.Zipser, 2011: Diurnal variations of precipitation, deep convection, and lightning over and east of the eastern Tibetan Plateau. *J. Climate*, **24**, 448-465. doi:10.1175/2010JCLI3719.1.
- Xu, W., E.J.Zipser, C.Liu and H.Jiang, 2010: On the relationships between lightning frequency and thundercloud parameters of regional precipitation systems. *J. Geophys. Res.*, **115**, D12203, doi:10.1029/2009JD013385.

- Kelley, O.A., J.Stout, M.Summers, and E.J.Zipser, 2010: Do the tallest convective cells over the tropical ocean have slow updrafts? *Mon Wea. Rev.*, **138**, 1651-1672.
- Jiang, H., and E.J.Zipser, 2010: Contributions of tropical cyclones to the global precipitation from 8 seasons of TRMM data: Regional, seasonal, and interannual variations. *J. Climate*, **23**, 1526-1543. DOI: 10.1175/2009JCLI3303.1
- Zawislak, J., and E.J.Zipser, 2010: Observations of 7 African easterly waves in the east Atlantic during 2006. *J. Atmos. Sci.*, **67**, 26-43. DOI:10.1175/2009MWR2982.1
- Liu, C., E.Williams, E.J.Zipser, and G.Burns, 2010: On the diurnal variations of global thunderstorms and the global electrical circuit. *J. Atmos. Sci.*, **67**, 309-323. DOI: 10.1175/2009JAS3248.1
- Cifelli, R., T.Lang, S.A.Rutledge, N.Guy, E.J.Zipser, J.Zawislak, and R.Holtzworth, 2010: Characteristics of an African easterly wave observed during NAMMA. *J. Atmos. Sci.*, **67**, 3-25 DOI: 10.1175/2009JAS3141.1
- Pu, Z., X.Li, and E.J.Zipser, 2009: Diagnosis of the initial and forecast errors in the numerical simulation of the rapid intensification of Hurricane Emily (2005). *Wea. Forecasting*, **5**, 1236-1251.
- Levin, N.E., E.J.Zipser, and T.E.Cerling, 2009: Isotopic composition of waters from Ethiopia and Kenya: Insights into water sources for eastern Africa. *J. Geophys. Res.*, **114**, D23306, doi:10.1029/2009JD012166.
- Xu, W., E.J.Zipser, and C.Liu, 2009: Rainfall characteristics and convective properties of Mei-Yu precipitation systems over South China, Taiwan, and the South China Sea. Part I: TRMM observations. *Mon. Wea. Rev.*, **137**, 4261-4275. DOI: 10.1175/2009MWR2982.1
- Liu, C. and E.J.Zipser, 2009: Implications of the day vs. night differences of water vapor, carbon monoxide, and thin cloud observations near the tropical tropopause. *J. Geophys. Res.*, **114**, DOI:10.1029/2008JD011524.
- Zipser, E.J., and 22 coauthors, 2009: The Saharan air layer and the fate of African easterly waves: NASA's AMMA 2006 field program to study tropical cyclogenesis: NAMMA. *Bull. Amer. Meteor. Soc.*, **90**, 1137-1156. DOI: 10.1175/2009BAMS2728.1
- Kerns, B, and E.J.Zipser, 2009: Four years of tropical ERA-40 vorticity maxima tracks, Part II: Differences between developing and non-developing disturbances. *Mon. Wea. Rev.*, **137**, 2576-2591. DOI: 10.1175/2008MWR2545.1
- Liu, C., and E. J. Zipser, 2009: "Warm rain" in the tropics: Seasonal and regional distribution based on 9 years of TRMM data, *J. Climate*, **22**, 767-779 DOI: 10.1175/2008JCLI2641.1
- Jiang H., J. B. Halverson, E. J. Zipser, 2008: Influence of environmental moisture on TRMM-derived tropical cyclone precipitation over land and ocean, *Geophys. Res. Lett.*, **35**, L17806, doi:10.1029/2008GL034658.
- Liu, C., E.J.Zipser, G.G. Mace, and S. Benson, 2008: Implications of the differences between daytime and nighttime CloudSat observations over the tropics. *J. Geophys. Res.*, **113**, D00A04, doi:10.1029/2008JD009783.
- Kerns, B., K.Greene, and E.J.Zipser, 2008: Four years of tropical ERA-40 vorticity maxima tracks, Part I: Climatology and vertical vorticity structure. *Mon. Wea. Rev.*, **136**, 4301-4319. i DOI: 10.1175/2008JAMC1890.
- Liu, C., E.J.Zipser, D.J.Cecil,S.W.Nesbitt, and S. Sherwood, 2008: A cloud and precipitation feature database from 9 years of TRMM observations. *J. Appl. Meteor. Climatol.*, **47**, 2712-2728. DOI:10.1175/2008JAMC1890.1.
- Li, Y., E.J.Zipser, S.K.Krueger, and M.A.Zulauf, 2008: Cloud-resolving modeling of deep convection during KWAJEX, Part I: Comparison to TRMM satellite and ground-based radar observations. *Mon. Wea. Rev.*, **136**, 2699-2712. DOI: 10.1175/2007MWR22
- Jiang, H., J. B. Halverson, J. Simpson, and E. J. Zipser, 2008: Hurricane "rainfall potential" derived from satellite observations aids overland rainfall prediction. *J. Appl. Meteor. Climatol.*, **47**, 944-959.
- Jiang, H., J. B. Halverson, J. Simpson, and E. J. Zipser, 2008: On the difference of storm wetness of Hurricane Isidore and Lili. Part II: Water budget. *Wea. Forecasting*, **23**, 44-61.
- Liu, C., and E.J.Zipser, 2008: Diurnal cycles of precipitation, clouds, and lightning in the triopics from 9 years of TRMM observations. *Geophys. Res. Letters*, **35**, L04819, doi:10.1029/2007GL032437
- Liu, C., E.Zipser, T.Garrett, J.Jiang, and H.Su, 2007: How do the water vapor and carbon monoxide "tape

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- Jiang, H., P. G. Black, E. J. Zipser, F. D. Marks, and E.W. Uhlhorn, 2006: Validation of rain rate estimation in hurricanes from the Stepped Frequency Microwave Radiometer: algorithm correction and error analysis. *J. Atmos. Sci.* **63** (1), 252-267.
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- Cecil, D.J., S.J.Goodman, D.J.Boccippio, E.J.Zipser, and S.W.Nesbitt, 2005: Three years of TRMM precipitation features. Part 1: Radar, radiometric, and lightning characteristics. *Mon Wea. Rev.*, **133**, 543-566
- Nesbitt, S.W., E.J. Zipser, and C.D. Kummerow, 2004: An examination of Version-5 rainfall estimates from the TRMM Microwave Imager, Precipitation Radar, and rain gauges on global, regional, and storm scales. *J. Appl. Meteor.*, **43**, 1016-1036.
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- Silva Dias, M., 17 co-authors, and E.J. Zipser, 2002: Clouds and rain processes in a biosphere atmosphere interaction context in the Amazon region. *J. Geophys. Res. – Atmos.*, **107** (D20), 8072, doi:10.1029/2001JD000335.
- Cecil, D.J., E.J. Zipser, and S.W.Nesbitt, 2002: Reflectivity, ice scattering, and lightning characteristics of hurricane eyewalls and rainbands. Part I: Quantitative description. *Mon Wea. Rev.*, **130**, 769-784.
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- Toracinta, E.R., and E. J. Zipser, 2001: Lightning and SSM/I ice scattering MCSs in the global tropics. *J. Appl. Meteor.*, **40**, 983-1002.
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- Nesbitt, S.W., E. J. Zipser, and D.J. Cecil, 2000: A census of precipitation features in the tropics using TRMM: Radar, ice scattering, and lightning observations. *J. Climate*, **13** (23), 4087-4106.
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- 124**, 2417-2437.
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- Li, Yaping, 2006: Cloud resolving simulations of tropical cloud systems: Using field program observations to evaluate ice phase microphysics parameterizations. Ph.D. Dissertation, University of Utah, Salt Lake City, UT 84112-0110, Aug. 2006, 185 pp.
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FUNDED RESEARCH PROPOSALS (PI or co-PI; 1990-present)

NASA Venture Class; Hurricane and Severe Storm Sentinel (HS3); PI Scott Braun of NASA GSFC. Univ. of Utah component, E.Zipser, PI. Jun 2010 – May 2015. (Current year budget \$42K, 1 mo PI time.)

NASA: Precipitation Science (NNH09ZDA001N-PRECIP): From TRMM to GPM: Quantitative comparison and diagnostic evaluation of precipitation algorithms in a wide variety of meteorological regimes. May 2010 – April 2013, current year budget \$155K, 0.5 mo. PI time.

NASA: Hurricane Science Research Program: Formation and rapid intensification of tropical cyclones: Intense convective events vs. large-scale controls. Feb 2009 – Jan 2013, Current year budget 81K, 1 month PI time.

Rockwell-Collins Corp: {Co-PI Chuntao Liu} Geographical/seasonal distributions of radar profiles, Apr 2006 - Sep 2011, Current Year \$100K/year, 1 month PI time.

DOE: Validating simulations of anvil cirrus properties (TWP-ICE analysis). May 2008 – May 2011. Current year budget 99K, 0.5 mo. PI time.

NASA: Precipitation Science (NNH06ZDA001N-PMM): Quantitative comparison and diagnostic evaluation of precipitation algorithms in a wide variety of meteorological regimes, Jan 2007- Dec. 2009.

NASA: TCSP (Tropical Clouds and Precipitation Processes) (NNG05GH82G). Properties of convective clouds over tropical oceans: How they may influence tropical cyclongenesis, and the production of cirrus in the tropical tropopause layer. May 2005-April 2008.

NASA: NAMMA (NNH05ZDA001N). Properties of convective clouds over the eastern Atlantic, comparison with the east Pacific, and how they relate to the environment of the tropical waves in each location. June 2006-May 2009,

NASA: Tropical Rain Measuring Mission (TRMM): Validation and Transferability of satellite precipitation estimates, 2003-2006.

NASA: Connecting the Properties of Anvil Cirrus to the Properties of the Convective Source [CRYSTAL-FACE], 2002-2006

NASA: Tropical Rain Measuring Mission (TRMM): Validation and Transferability of latent heating estimation methods, 2000-2002.

NASA: Remote Sensing of Intensity and Organization of Convection in Hurricanes and Tropical Cyclones Before and After Landfall, and Application to Quantitative Precipitation Estimation. 2001-2004

NASA; U.S. Weather Research Program: Intensity and Organization of Convection in Hurricanes and Tropical Cyclones Before and After Landfall, 1998-2001, co-PI Gerald M. Heymsfield, two co-Is.

NASA: Global Distribution of Lightning from the Optical Transient Detector (OTD) and its Relationship to the Global Distribution of Mesoscale Convective Systems, 1997-2000.

NASA: Tropical Rain Measuring Mission (TRMM): Validation and Transferability of Tropical Rain Estimation Methods, 1997-2000, co-I Michael I. Biggerstaff.

NASA: Tropical Rainfall Measuring Mission (TRMM): Validation and Transferability of Tropical Rain Estimation Methods, 1991-1997, co-PI Michael I. Biggerstaff.

NASA: Intensive Boundary Layer Water Cycle Study in the Western Equatorial Pacific for TOGA COARE, 1992-1994, many co-PIs.

NASA: WetNet: Using SSM/I Interactively for Global Distribution of Precipitable Water and Rainfall, 1992-1996, co-PI James P. McGuirk.

NOAA: Cooperative Institute for Applied Meteorological Studies (CIAMS). Long-term contract with Southern Region, National Weather Service (NWS) and Headquarters NWS. 1990-2000+, Richard E. Orville, PI since 1992, many co-Is.

NSF: Structure of Mesoscale Convective Systems in the Tropics, April 1991 - March 1994, Co-I Michael I. Biggerstaff.

NSF: Convective Rainfall in COARE Cloud Systems: Integrating the Upper Tropospheric Rainfall Data, 1992 -1995.

NSF: Lightning Flash Measurements in the TOGA-COARE Program, 1992-1997, co-PI Richard E. Orville.

NSF: Mixing Processes and their Influence on Drop Size Distributions in Florida Cumuli, 1997-2000, co-PI William A. Cooper.

Texas Natural Resources Conservation Commission (TNRCC): Feasibility study for a Mesometeorological Network for Texas. 1993-94; Trajectory Models for use in Texas Air Quality Modeling, 1994-1995; Ambient Monitoring Network Redesign, 1995-1998 , last two with John W. Nielsen-Gammon, Co-PI.