

CURRICULUM VITA

DAVID O. BLANCHARD

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Flagstaff, Arizona 86001
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EDUCATION

- Ph.D. Atmospheric Science, Colorado State University
Dissertation title: *Jet-induced inertial instabilities and the growth of mesoscale convective systems.*
Advisor: Prof. William R. Cotton
- M.S. Atmospheric Science, Colorado State University
Thesis title: *Variations of the convective field pattern in south Florida and its relationship to the synoptic flow.*
Advisor: Prof. Roger Pielke
- B.S. Meteorology, Florida State University

MAJOR FIELDS

Weather Analysis and Forecasting
Synoptic-Dynamic Meteorology
Radar Meteorology

Mesoscale Convective Systems
Tornadoes and Severe Weather
Convective Initiation

PROFESSIONAL RECORD

April 1999–present
Meteorologist/National Weather Service
Flagstaff, Arizona

April 1996–March 1999
Research Scientist, NOAA/National Severe Storms Laboratory and
University of Oklahoma/ Cooperative Institute for Mesoscale Meteorological Studies
Boulder, Colorado

November 1994–September 1995
Visiting Scientist, NCAR/Research Applications Program
Boulder, Colorado

June 1993–October 1994
Visiting Scientist, UCAR/Cooperative Program for Meteorology, Education and Training
Boulder, Colorado

March 1978–October 1994
Meteorologist, NOAA/Environmental Research Laboratories
Boulder, Colorado

HONORS AND AWARDS

- 2006 Dept. of Commerce Bronze Medal (Group Award) for North American Monsoon Experiment/Forecast Operations
- 2006 For diligently searching out ground-truth for warning verification and conducting storm surveys in remote terrain
- 2006 For lead role in bringing new beneficial software and hardware applications to the office
- 2006 For development of case studies on WES and delivery of training as the AWOC Coordinator
- 2005 For development and implementation of AWOC convective training and development of WES case studies
- 2005 For outstanding performance during record-breaking winter series of storms
- 2004 For providing comprehensive training to NWS forecast staff
- 2003 For outstanding performance and actions that resulted in saving lives of wildland firefighters
- 2003 For outstanding teaching and presentation of Fire Weather courses at the Arizona Wildfire Academy
- 2003 For developing training sessions and case studies on WES
- 2002 For outstanding performance during an extended severe weather episode
- 2001 For improvements to NWS science and service programs
- 2001 For assuming responsibility for customer fire weather training
- 2000 For providing excellent service and fire weather forecasts for the Outlet and Pumpkin wildfires
- 2000 For showing initiative in developing an upgraded snow worksheet for forecast operations
- 1999 For providing outstanding public service during severe weather events, especially role in decision making resulting in timely warnings
- 1999 For providing excellent service to ensure public safety during flash floods in Grand Canyon NP
- 1998 Outstanding Performance Award for analysis and interpretation of VORTEX data
- 1997 Commendable Performance Award for analysis and interpretation of VORTEX data
- 1994 Outstanding Performance Award for improving and enhancing COMET case studies and curriculum materials
- 1993 Commendable Performance Award for improving and enhancing COMET case studies and curriculum materials
- 1992 Certificate of Appreciation awarded for contributions in education and community outreach

1988 Commendable Performance Award, PRE-STORM data analysis
1980 Outstanding Performance Award, FACE field program

METEOROLOGICAL FIELD EXPERIENCE

| | | |
|-----------|-----------|---|
| 1998 | HaL | PROBE vehicle Team Leader and Field Commander |
| 1997–1998 | SubVORTEX | PROBE vehicle Team Leader and co-PI |
| 1996 | STERAO | Forecaster |
| 1994 | VORTEX | PROBE vehicle Team Leader |
| 1991 | COPS-91 | Forecaster; Operations Control Assistant |
| 1985 | PRE-STORM | Airborne Mission Specialist; Operations Control Assistant |
| 1984 | AIMCS | Airborne Mission Specialist |
| 1983 | RT-83 | Field observer |
| 1982 | JAWS | Field observer |
| 1978–1980 | FACE | Forecaster; Airborne Mission Specialist |

TEACHING EXPERIENCE

| | |
|-----------|---|
| 2004–2007 | Instructor and Facilitator for WES and AWOC training |
| 2001–2003 | Lecturer for S-190 and S-290 Fire Weather courses for U.S. Forest Service |
| 1998 | Invited lecturer, COMET and OTB classes |
| 1993–1997 | Invited lecturer, COMET Special Mesoscale and COMAP courses |
| 1994–1998 | Mentor, COMET COMAP course |
| 1994 | Classroom Assistant, COMET COMAP Course |
| 1993 | Classroom Assistant and Participant, COMET Special Mesoscale Course |

PROFESSIONAL MEMBERSHIPS

American Meteorological Society
American Geophysical Union
National Weather Association

PROFESSIONAL COMMITTEES AND EDITORSHIP

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| 2004–2006 | American Meteorological Society–Severe Local Storms Committee |
| 2000–2004 | Associate Editor, Monthly Weather Review |
| 1996–2003 | American Geophysical Union—Atmospheric Dynamics Committee |
| 1997–1998 | TIMEX field program planning committee |
| 1993–1994 | VORTEX field program planning committee |

WORKSHOP AND INVITED PRESENTATIONS

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| 2007 | Presentation at Southwestern Hydrometeorological Workshop |
| 2005, 2007 | Presentations at Southwestern Monsoon Workshop |

- 2001 Invited presentation at NWS/Central Region SOO workshop
- 2000 Invited presentation at NWS/Western Region Forecasters workshop
- 2000 Invited presentation at 1st VORTEX Symposium.
- 1999 Invited presentation of VORTEX results at NWS spring weather workshop
- 1998 Invited presentation of VORTEX results at 3rd Workshop on Northern Plains Convection
- 1998 Invited presentations of VORTEX results at COMET/OTB workshop
- 1997 Presentation of tornadogenesis failure event at 2nd VORTEX workshop
- 1997 Presentation of convective initiation hypothesis at TIMEX workshop
- 1997 Presentation of results of inertial instability and mesoscale convective system growth to Atmospheric Sciences group at Los Alamos National Laboratory
- 1996 Presentation of preliminary results of VORTEX case study
Presentation and tutorial of methods for computing vertical velocity from Doppler radar data
- 1990 Presentation of quasi-geostrophic diagnostics and Q-vectors using National Meteorological Center gridded data at NOAA/Forecast Systems Laboratory Technical Review.
- 1987 Panel Member, Battan Memorial Radar Conference.
- 1986 Presentation at NOAA/Environmental Sciences Group program review on mesoscale convective patterns and quasi-geostrophic forcing.
- 1985 Preliminary results of rawinsonde data collection and quality control, PRE-STORM workshop.

OTHER PROFESSIONAL ACCOMPLISHMENTS

- Develop climatology of severe weather events in Arizona.
- Development and testing of forecast tools relating jet streaks and severe weather outbreaks.
- Tested and evaluated existing Doppler radar analysis packages for suitability on specialized datasets collected during VORTEX.
- Analysis and interpretation of airborne and DOW Doppler radar data to evaluate tornadogenesis hypotheses.
- Developed curriculum materials and workstation practicums for the instruction of professional meteorologists.
- Investigated dynamic relationship between upper-tropospheric inertial instability and clear air turbulence.
- Developed pattern recognition techniques for predicting mesoscale convective system evolution and organization.
- Collaborated in the development of statistical techniques for estimating rainfall over large areas using digitized radar data.
- Partnership with NMC Transition Project to develop software for NOAA operational forecasting and research.
- Developed pattern recognition techniques for predicting the development and evolution of sea breeze convective systems.
- Manager for mobile mesonet laboratory during VORTEX (1997)

Mentor, COMET COMAP course (1994, 1995, 1997).
Participant, 1st WSR-88D Users Workshop, Norman, Okla. (October 1994)
Participant, COMET Hydrometeorology Course (June 1993).
MBO on profiler evaluation presented to NOAA management (March 1992).
Developed Operations and Forecast Center for COPS-91 Field Experiment (1991).
Participant in TOGA-COARE aircraft planning sessions (Fall 1991).
Developed Operations and Forecast Center for PRE-STORM Field Experiment (1985).
Airborne mission specialist on NOAA WP-3D (1978, 1984, 1985).

COMMUNITY SERVICES

Presented background material pertaining to Sub-VORTEX to media groups (1997).
Presentations on tornadoes for local high school Environmental Awareness Conference (1997).
Provided support for computer labs at elementary school (1995)
Guest instructor in training sessions for local SkyWarn storm spotter network (1991).
Host for tours of the Weather Laboratory for the Forecast Systems Laboratory and the Weather Research Program (1986–1992).
Interviewed about severe weather producing the Limon, CO tornado (June 1990).
Interviewed on heavy snow-producing weather in Colorado (November 1987).
Interviewed during cloud seeding operations in south Florida (June 1980).

TECHNICAL AND COMPUTER SKILLS

Numerical Mesoscale Models

Extensive use of MAPS/RUC model output in forecasting and research activities.
Development and research use of RAMS mesoscale model.
Research use of MM5 mesoscale model

Meteorological Workstations

AWIPS, PCWS, DARRRE, GEMPAK/GARP, and McIDAS.

Computer Languages, Operating Systems, and Application Programs

Programming experience with many operating systems and languages, including FORTRAN, C, UNIX, OS X, NeXTstep, DOS, VMS, HTML.

Extensive experience with NCAR Graphics, World Wide Web, X Window applications, and word processing, drawing, and graphing applications.

Statistical Packages

SPSS, SAS, MRPP, StarPac, KaleidaGraph.

PUBLICATIONS—REFEREED

- Blanchard, D. O., 1986: "Ash devils" near Mt. Saint Helens. *Bull. Amer. Meteor. Soc.*, **67**, 535–536.
- Blanchard, D. O., 1990: Mesoscale convective patterns of the southern High Plains. *Bull. Amer. Meteor. Soc.*, **71**, 994–1005.
- Blanchard, D. O., 1991: Response to “Comments on ‘Mesoscale convective patterns of the southern high plains’.” *Bull. Amer. Meteor. Soc.*, **72**, 390–391.
- Blanchard, D. O., 1998: Assessing the vertical distribution of convective available potential energy. *Wea. Forecasting*, **13**, 870–877.
- Blanchard, D. O., W. R. Cotton, and J. M. Brown, 1998: Mesoscale circulation growth under conditions of weak inertial instability. *Mon. Wea. Rev.*, **126**, 118–140.
- Blanchard, D. O., and K. W. Howard, 1986: The Denver hailstorm of 13 June 1984. *Bull. Amer. Meteor. Soc.* **67**, 1123–11321.
- Blanchard, D. O., and R. E. Lopez, 1985: Spatial patterns of convection in south Florida. *Mon. Wea. Rev.*, **113**, 1282–1299.
- Lopez, R. E., D. Atlas, D. Rosenfeld, J. L. Thomas, D. O. Blanchard, and R. L. Holle, 1989: Estimation of areal rainfall using the radar echo area time integral. *J. Appl. Meteor.*, **28**, 1162–1175.
- Lopez, R. E., D. O. Blanchard, D. Rosenfeld, W. L. Hiscox, and M. J. Casey, 1984: Population characteristics, development processes, and structure of radar echoes in south Florida. *Mon. Wea. Rev.*, **112**, 56–75.
- Lopez, R. E., P. T. Gannon, Sr., D. O. Blanchard, and C. C. Balch, 1984: Synoptic and regional circulation parameters associated with the degree of convective shower activity in south Florida. *Mon. Wea. Rev.*, **112**, 686–703.
- Markowski, P. M., J. M. Straka, E. N. Rasmussen, and D. O. Blanchard, 1998: Variability of storm-relative helicity during VORTEX. *Mon. Wea. Rev.*, **126**, 2959–2971.
- McCaul, E. W., and D. O. Blanchard, 1990: A low-precipitation cumulonimbus along the dryline in Colorado. *Mon. Wea. Rev.*, **118**, 2768–2773.
- Rasmussen, E. N., and D. O. Blanchard, 1998: A baseline climatology of sounding-derived supercell and tornado forecast parameters. *Wea. Forecasting*, **13**, 1148–1164.
- Rasmussen, E. N., S. Richardson, J. M. Straka, P. M. Markowski, and D. O. Blanchard, 2000: The association of significant tornadoes with a baroclinic boundary on 2 June 1995. *Mon. Wea. Rev.*, **128**, 174–191.

Sanders, F., and D. O. Blanchard, 1993: The origin of a severe thunderstorm in Kansas on 10 May 1985. *Mon. Wea. Rev.*, **121**, 133–149.

Watson, A. I., and D. O. Blanchard, 1984: The relationship between total area divergence and convective precipitation in south Florida. *Mon. Wea. Rev.*, **112**, 673–685.

PUBLICATIONS—NON-REFEREED

Blanchard, D. O., 1983: Variations of the convective field pattern in south Florida and its relationship to the synoptic flow. M. S. Thesis, Dept. of Atmospheric Sciences, Colorado State University, Fort Collins, Colorado, 81 pp.

Blanchard, D. O., 1987: Relationships between radar echo patterns within mesoscale convective systems and the large-scale forcing. Extended Abstracts, *3rd Conference on Mesoscale Processes*, Vancouver, BC, Amer. Meteor. Soc.

Blanchard, D. O., 1992: Analysis of a tornadic supercell using airborne Doppler radar. Preprints, *International Conference on Precipitation Processes*, Montreal, QB, 777–780.

Blanchard, D. O. 1992: Evolution of a mesoscale convective complex: The role of inertial instability. Preprints, *5th Conference on Mesoscale Processes*, Atlanta, GA, Amer. Meteor. Soc., 341–346

Blanchard, D. O., 1994: Jet-induced inertial instabilities and the growth of mesoscale convective systems. Ph.D. Dissertation, Dept. of Atmospheric Sciences, Colorado State University, Fort Collins, Colorado, 191 pp. (Also available as *Dept. of Atmospheric Science Report #571*, Colorado State University, Fort Collins, Colorado, 191 pp.)

Blanchard, D. O., 2000: Forecasting severe weather along the Mogollon Rim Convergence Zone. Preprints, *20th Conference on Severe Local Storms*, Orlando, FL, Amer. Meteor. Soc., 563–566.

Blanchard, D. O., 2002: Evolution of a mesoscale convective vortex over northern Arizona. Preprints *21st Conference on Severe Local Storms*, San Antonio, TX, Amer. Meteor. Soc., 58–61.

Blanchard, D. O., 2006: A cool season severe weather episode in northern Arizona. Preprints, *23rd Conference on Severe Local Storms*, St. Louis, MO, Amer. Meteor. Soc.

Blanchard, D. O., and W. R. Cotton, 1994: Jet-induced inertial instability and upscale growth of mesoscale convective systems. Preprints, *6th Conference on Mesoscale Processes*, Portland, OR, Amer. Meteor. Soc., 369–372.

- Blanchard, D. O., and B. A. Klimowski, 2004: Supercell evolution in environments with unusual hodographs. Preprints *22nd Conference on Severe Local Storms*, Hyannis, MA., Amer. Meteor. Soc.
- Blanchard, D. O., and R. E. Lopez, 1982: The effects of surface features on the convective field pattern in south Florida as a function of synoptic flow regime. Abstracts, *14th Technical Conference on Hurricanes and Tropical Meteorology*, San Diego, CA, Amer. Meteor. Soc.
- Blanchard, D. O., and R. E. Lopez, 1984: Spatial and temporal variations of the convective field pattern in south Florida and its relationship to the synoptic flow. Preprints, *15th Conference on Hurricanes and Tropical Meteorology*, Miami, FL, Amer. Meteor. Soc., 493–499.
- Blanchard, D. O., and R. E. Lopez, 1984: Variations of the convective field pattern in south Florida and its relationship to the synoptic flow. NOAA Tech. Memo. ERL ESG-4. U.S. Dept. of Commerce, Boulder, Colorado, 80303, 77 pp.
- Blanchard, D. O., and J. M. Straka, 1998: Some possible mechanisms for tornadogenesis failure in a supercell. Preprints, *19th Conference on Severe Local Storms*, Minneapolis, MN, Amer. Meteor. Soc., 116–119.
- Blanchard, D. O., and A. I. Watson, 1986: Modes of mesoscale convection observed during the PRE-STORM program. Preprints, *23rd Conference on Radar Meteorology* Snowmass, CO, Amer. Meteor. Soc., J155–J158.
- Cunning, J. B., and D. O. Blanchard, 1987: Mesoscale interactions in the development of a large squall line system. Extended Abstracts, *3rd Conference on Mesoscale Processes*. Vancouver, BC, Amer. Meteor. Soc.
- Dowell, D. C., H. B. Bluestein, D. O. Blanchard, and D. P. Jorgensen, 1993: Airborne Doppler analysis of an Oklahoma supercell. Preprints, *26th International Conference on Radar Meteorology*, Norman, OK, Amer. Meteor. Soc., 212–214.
- Lopez, R. E., D. O. Blanchard, D. Rosenfeld, M. J. Casey, and W. L. Hiscox, 1981: FACE-2 data reductions and analysis (prior to disclosure of the treatment decisions): Part III, S- and C-band radar observations in support of FACE-2. NOAA Tech. Memo. ERL OWRM-7, U.S. Dept. of Commerce, Boulder, Colorado 80303, 267 pp.
- Lopez, R. E., P. T. Gannon, Sr., and D. O. Blanchard, 1980: Convective rainfall patterns in south Florida. Abstracts, *13th Technical Conference on Hurricanes and Tropical Meteorology*. Miami, FL, Amer. Meteor. Soc.
- Lopez, R. E., P. T. Gannon, Sr., and D. O. Blanchard, 1982: Synoptic and regional scale influences in the development of convective rainfall patterns in south Florida. Abstracts, *14th Technical Conference on Hurricanes and Tropical Meteorology*. San Diego, CA, Amer. Meteor. Soc.

- Lopez, R. E., J. L. Thomas, D. O. Blanchard, and R. L. Holle, 1983: Estimation of rainfall over an extended region using only measurements of the area covered by radar echoes. Preprints, *21st Conference on Radar Meteorology*, Edmonton, AB, Amer. Meteor. Soc., 681-686.
- Maier, M., and D. Blanchard, 1979: Meteorological conditions associated with faults on the FPL Fort Myers-Ranch 240 kV transmission line. Final report prepared for the Florida Power and Light Company, Miami, Florida.
- Maier, M., D. Blanchard, and A. Barnston, 1982: Surface rainfall-lightning relationships for south Florida thunderstorms. Abstracts, *1982 fall meeting of the American Geophysical Union.*, San Francisco, CA.
- Sanders, F., and D. O. Blanchard, 1990: The origin of a severe thunderstorm in Kansas on 10 May 1985. Preprints, *16th Conference on Severe Local Storms*, Kannanaskis, AB, Amer. Meteor. Soc.
- Watson, A. I., D. O. Blanchard, D. P. Jorgensen, and D. W. Burgess, 1993: The kinematic structure of a supercell thunderstorm seen by airborne Doppler radar. Preprints, *26th International Conference on Radar Meteorology*, Norman, OK, Amer. Meteor. Soc., 209-211.
- Watson, A. I., J. Cunning, R. Holle, P. Gannon, and D. Blanchard, 1981: Low-level convergence and the prediction of convective precipitation in south Florida. Technical Report No. 4, NOAA Environmental Research Laboratories, Office of Weather Research and Modification, Boulder, Colorado and Illinois State Water Survey, Champaign-Urbana, Illinois. (National Technical Information Service, Springfield, Va., AD-A097 553/2), 228 pp.
- Watson, A. I., R. L. Holle, and D. O. Blanchard, 1983: The relationship between total area divergence and convective precipitation in south Florida and Illinois. Preprints, *9th Conference on Aerospace and Aeronautical Meteorology*, Omaha, NE, Amer. Meteor. Soc., 106-111.