

# EUGENE C. CORDERO

Assistant Professor  
Department of Meteorology  
San José State University  
San José, CA 95192-0104  
Voice: (408) 924-5188  
FAX: (408) 924-5191  
cordero@met.sjsu.edu

## EDUCATION

California State University, Northridge	Physics	B.S., 1988
California State University, Northridge	Physics	M.S., 1991
University of California, Davis	Atmospheric Science	Ph.D., 1995
Monash University, Australia		
Graduate Certificate in Higher Education Teaching		2002

## APPOINTMENTS

Meteorology Department, San Jose State University, USA  
2002-present: Assistant Professor  
Department of Mathematics and Statistics, Monash University, Australia  
1997-2001: Scientist and Lecturer  
Atmospheric Chemistry and Dynamics: NASA Goddard Space Flight Center, USA  
1995-1996: Visiting Scientist

## RESEARCH

### REFEREED PUBLICATIONS

- Nathan, T. R. and E. C. Cordero, 2007: An ozone-modified refractive index for vertically propagating planetary waves. *J. Geophys Res.*, **112**, D02105, doi:10.1029/2006JD007357.
- Cordero, E. and P. M. d. F. Forster, 2006: Stratospheric Variability and Trends in Models used for the IPCC AR4. *Atmos. Chem and Phys.* **6**, 5369–5380.
- Eyring, V., N. Butchart, D. W. Waugh, H. Akiyoshi, J. Austin, S. Bekki, G. E. Bodeker, B. A. Boville, C. Brühl, M. P. Chipperfield, E. Cordero, M. Dameris, M. Deushi, V. E. Fioletov, S. M. Frith, R. R. Garcia, A. Gettelman, M. A. Giorgetta, V. Grewe, L. Jourdain, D. E. Kinnison, E. Mancini, E. Manzini, M. Marchand, D. R. Marsh, T. Nagashima, P. A. Newman, J. E. Nielsen, S. Pawson, G. Pitari, D. A. Plummer, E. Rozanov, M. Schraner, T. G. Shepherd, K. Shibata, R. S. Stolarski, H. Struthers, W. Tian, and M. Yoshiki, 2006: Assessment of temperature, trace species, and ozone in chemistry-climate model simulations of the recent past, *J. Geophys. Res.*, **111**, D22308, doi:10.1029/2006JD007327.
- Cordero, E. C. and T. R. Nathan, 2005: A New Pathway for Communicating the 11-Year Solar Cycle Signal to the QBO. *Geo. Res. Lett.*, **32**, 10.1029/2005GL023696.
- Tabazadeh, A. and E. C. Cordero, 2004: New directions: stratospheric ozone recovery in a changing atmosphere. *Atmos. Env.*, **38**, 647-649.
- Li, S., E. C. Cordero, and D. J. Karoly, 2003: Three-dimensional simulations of springtime breakup of the Antarctic ozone hole. *Aust. Met. Mag.*, **52**, 1-9.
- Cordero, E. C., 2002: Is the ozone hole over your classroom? *Aust. Sci. Teach. J.*, **48**, 34-39.
- Cordero, E. C. and S. Grainger, 2002: Low ozone concentrations over Macquarie Island during 1997 Part I: trajectory analysis. *Aust. Met. Mag.*, **51**, 85-94.

- Cordero, E. C. and T. R. Nathan, 2002: An Examination of Anomalous Low Column Ozone in the Southern Hemisphere Midlatitudes During 1997. *Geo. Res. Lett.*, **29**, doi: 10.1029/2001GL013948.
- Grainger, S. and E. C. Cordero, 2002: Low ozone concentrations over Macquarie Island during 1997. Part II: Satellite Ozone Analysis. *Aust. Met. Mag.*, **51**, 95-106.
- Li, S., E. C. Cordero, and D. J. Karoly, 2002: Transport out of the Antarctic polar vortex from a three-dimensional transport model. *J. Geophys Res.*, **107**, doi: 10.1029/2001JD000508.
- Cordero, E. C. and S. R. Kawa, 2001: Ozone and tracer transport variations in the summer Northern Hemisphere stratosphere. *J. Geophys Res.*, **106**, 12227-12239.
- Cordero, E. C., 2000: Misconceptions in Australian students' understanding of ozone depletion. *Melbourne Studies in Education*, **41**, 85-97.
- Cordero, E. C. and T. R. Nathan, 2000: The influence of wave- and zonal-mean ozone feedbacks on the quasi-biennial oscillation. *J. Atmos. Sci.*, **57**, 3426-3442.
- Nathan, T. R., E. C. Cordero, L. Li, and D. J. Wuebbles, 2000a: Effects of planetary wave breaking on the seasonal variation of total column ozone. *Geophys. Res. Lett.*, **27**, 1907-1910.
- Nathan, T. R., E. C. Cordero, L. Long, and D. J. Wuebbles, 2000b: Effects of planetary wave-breaking on the seasonal variation of total column ozone. *Geo. Res. Lett.*, **27**, 1907-10.
- Cordero, E. C., 1999: The quasi-biennial oscillation as observed by the Upper Atmosphere Research Satellite. *Recent Advances in Stratospheric Processes*, 77-92.
- Nathan, T. R. and E. C. Cordero, Eds., 1999: *Recent advances in stratospheric processes*. Research Signpost, 206 pp.
- Cordero, E. C., T. R. Nathan, and R. S. Echols, 1998: An analytical study of ozone feedbacks on Kelvin and Rossby-gravity waves: Effects on the QBO. *J. Atmos. Sci.*, **55**, 1051-1062.
- Cordero, E. C., S. R. Kawa, and M. R. Schoeberl, 1997: An analysis of tropical transport: Influence of the quasi-biennial oscillation. *J. Geophys Res.*, **102**, 16,453-16,461.
- Nathan, T. R., E. C. Cordero, and L. Li, 1994: Ozone heating and the destabilization of traveling waves during summer. *Geo. Res. Lett.*, **21**, 1531-1534.

## CONFERENCE PRESENTATIONS

*Recent papers have been presented at the following national and international conferences:*

- Stratospheric variability and trends in climate model simulations, **E. Cordero**, January 2007, American Meteorology Society Annual Meeting, San Antonio,
- Temperature trends in the stratosphere and lower troposphere as resolved by coupled atmosphere-ocean climate models by **E. Cordero**, December 2006, American Geophysical Union Fall Meeting, San Francisco.
- Effects of Planetary Wave-Induced Ozone Heating on Downward Control: Implications for Climate Variability, **T. Nathan** and E. Cordero, December 2006, American Geophysical Union Fall Meeting, San Francisco.
- The Evaluation of IPCC Model Simulations For Climate Change Research in Southeast Asia, by **C. Reamruk\*** and E. Cordero, July, 2006, Western Pacific Geophysics Meeting, Beijing, .
- The design of effective teaching materials for climate change science, **Cordero, E.**, February 2006, American Meteorological Society Symposium on Education, Atlanta.
- Stratospheric trends in IPCC model simulations, **Cordero, E.** and F. Snively\*, February 2006, American Meteorological Society Climate Variability and Change, Atlanta.
- Designing Effective Tools for Climate Change Education, **Cordero, E.** and A. Todd, December 2005, American Geophysical Union Fall Meeting, San Francisco. .
- A New Refractive Index for Vertically Propagating Planetary Waves: Implications for Climate Variability, **Nathan, T** and E. Cordero, December 2005, American Geophysical Union Fall Meeting, San Francisco.

\* SJSU student

## **FUNDED GRANTS**

Modeling the climate system's response to the 11-year solar cycle. NASA, July 2005-July 2008, \$273,202 with CO-PI, T. Nathan.

CAREER: Connections between stratospheric perturbations and climate change – The integration of research and education. NSF, Jan 2005-Dec 2009, \$626,830 as PI.

Influence of the quasi-biennial oscillation on global climate change. Submitted to the CSU Awards for Research, Scholarship or Creativity Activity. Proposal funded in June 2004 for \$7,427 for the academic year 2004/2005.

Forecasting and modeling support for SOLVE, SAGE III ozone loss and validation experiment. Proposal funded (as CO-I) in 2000 by NASA for \$54,000.

## **TEACHING AND RELATED EXPERIENCE**

### **COURSES OFFERED**

#### **San Jose State University**

Metr 10: Weather and Climate

Metr 40: Weather Seminar

Metr 61: Introduction to Meteorology

Metr 112: Global Climate Change.

Metr 205A: Advanced Atmospheric Dynamics

#### **Monash University, Australia**

Atmospheric Science 1010: The Dynamic Atmosphere 1999-2000.

#### **University of California, Davis, USA**

Atmospheric Science 121A: Introduction to Dynamic Meteorology.

### **EDUCATIONAL TRAINING:**

**Graduate Certificate in Higher Education Teaching**, Monash University, 2/00 – 2/02. An internationally accredited course designed to assist university teachers in acquiring a range of knowledge and skills to develop and advance their professional teaching practice. The learning modules have both theoretical and practical components that utilize the lecturer's current teaching environment. The course is offered on a part time basis over four semesters.

**Program in College Teaching Participant**, Teaching Resource Center, UC Davis, 6/94 – 6/95. Program aimed to provide graduate students with the opportunity to prepare themselves more fully for careers as college and university instructors. Participation included: i) teaching an atmospheric science course under the guidance of a faculty mentor; ii) regularly scheduled meetings focusing on academic issues such as student motivation, designing effective learning materials and classroom gender inequities and; iii) completion of seven individualized activity reports focusing on various topics related to teaching.

**Professors for the Future Fellow**, Graduate Division, UC Davis 6/92 - 6/93. Program intended to examine the principles of teaching, mentoring and professionalism through activities focusing on the roles students will assume as educators and scholars. Activities include ethics seminars, roundtable meetings with various members of the administration, service on administrative committees, and projects intended to examine the various components of academia. As a founding fellow, helped in the initial development of the program's goals and methods.

## SERVICE

### **NATIONAL COMMITTEES/BOARDS**

Unidata Users' Committee (2006 – present)  
American Meteorological Society: Board of Higher Education (2004 – present)

### **SJSU COMMITTEES**

*College of Science:* Curriculum Committee (2003 – present)  
*Meteorology Department:* Recruitment (2003 – present)

### **ADVISING**

Undergraduate Advisor, Department of Meteorology, SJSU, 2003-present.

#### **Masters thesis advisor for:**

Bhuvana Satish	Interannual Variability of the Effect of the Antarctic Ozone Hole on Southern Midlatitudes (Graduated 8/04)
Chakkrit Reamruk	IPCC Model Simulations of Future Climate Change in Southeast Asia (Graduated 9/2006)
Fred Snively	Stratospheric Climatology as Observed in Global Reanalyses (current)
Sium Tesfai	The Role of Atmospheric Chemistry on Global Temperature Trends (current)
Wittaya Kessomkai	Trends in California's Surface Temperature (current)

#### **Masters thesis committee member:**

Rochelle Balmori	Urbanized MM5 simulations of the Houston Urban Heat Island for the August 2000 Ozone Episode, Prof. Bornstein, 6/2006
Tesfamichael B. Ghidey	MM5 Simulations of mesoscale transport from the SFBA to Sacramento and THE SJV during CCOS, Prof. Bornstein, 12/2004.
Mengsteab Habtegiorgis	Estimation of weather impact on transformer losses and efficiency, Prof. Bornstein, 8/2004.
Eena Sta. Maria	Dynamic and thermal circulation over the Tharsis region over Mars, Prof. Rafkin, 3/2003.

#### **Senior thesis advisor:**

Nick Osterloh	Temperature Trends in the Mojave region (2006)
Jeff Herzstein	Snowpack in the Sierra: Influence of ENSO (2004)
Dan Hussey	Ozone over La Paz, Bolivia (2004)

### **PROFESSIONAL AFFILIATIONS**

American Meteorological Society	(1992-present)
American Geophysical Union	(1993-present)