

Carlos S. López Carrillo

Contact Information

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Current Appointment

Research Scientist.
Geophysical Research Center, New Mexico Tech¹.

Education

1994–2001 PhD in Physics at New Mexico Tech¹, Socorro, New Mexico, USA.

Spring 2000 NCAR/ATD Workshop: "Airborne Doppler Radar Data Analysis".
Bolder CO., 13-16 March.

Summer 1996 NATO Advanced Study: "The physics and parameterization of moist convection". Kloster Seeon, Bavaria, Germany.

1987–1989 Curricula from the program of Master of Science degree in Physics. Autonomous Meritorious University of Puebla, Puebla, Mexico.

1982–1987 Bachelor of Science Degree in Physics. Autonomous University of Nuevo Leon, Nuevo Leon, Mexico.

Employment

2003–present Research Scientist. Geophysical Research Center, New Mexico Tech¹.

2001–2003 Postdoctoral Research Physicist. Geophysical Research Center, New Mexico Tech¹.

1994–2001 Research Assistant, New Mexico Tech.¹

1990–1993 College Teacher, Technological and Higher Studies Institute of Monterrey.

Teaching Experience

2008–present Appointed Adjunct Professor, New Mexico Tech.

Spring Semester, 2010,2011: Vibrations and Waves (Sophomore level) at New Mexico Tech, Physics Department.

Fall Semester, 2009: Weather and Climate (Junior level) at New Mexico Tech, Physics Department.

Spring Semester, 2007: Thermodynamics and Statistical Mechanics (Senior level) at New Mexico Tech, Physics Department.

1990–1993 Taught Freshman and Sophomore level classes in physics and mathematics at the Technological and Higher Studies Institute of Monterrey.

2006 New Mexico Assessment of Teacher Basic Skills, status:Passed.

2007 New Mexico Assessment of Teacher Competency- Secondary, status:Passed.

2011 New Mexico Mathematics Endorsement Content Knowledge Assessment, status:Passed.

2011 New Mexico Spanish Endorsement Content Knowledge Assessment, status:Passed.

Outreach

New Mexico State Science Olympiad: Physics lab event official, since 2004.

New Mexico State Science Olympiad: Physics lab workshop for teacher coaches, since 2004.

New Mexico State Science Fair: Event judge.

Publications

Journal Papers

1. D. J. Raymond, S. L. Sessions, and C. López-Carrillo, 2011: Thermodynamics of Tropical Cyclogenesis in the Northwest Pacific. *Journal of Geophysical Research*, submitted.
2. Carlos López-Carrillo and D. J. Raymond, 2010: Retrieval of Three-Dimensional Wind Fields from Doppler Radar Data using an efficient two-step approach. *Atmospheric Measurements Techniques*, accepted.
3. D. J. Raymond and Carlos López-Carrillo, 2010: The Vorticity Budget of Developing Typhoon Nuri (2008) *Atmospheric Chemistry and Physics*.
4. Carlos López-Carrillo and D. J. Raymond, 2005: Moisture tendency equations in a tropical atmosphere. *Journal of the Atmospheric Sciences*.
5. D. J. Raymond, Graciela Raga, Chris Bretherton, John Molinari, Carlos López-Carrillo, Zeljka Fuchs, 2003: Convective Forcing in the Intertropical Convergence Zone of the East Pacific *Journal of the Atmospheric Sciences*, **60**, 2064-2082.
6. D. J. Raymond, Carlos López-Carrillo, and Lucio López Cavazos, 1998: Case-studies of developing east Pacific easterly waves. *Quart. J. Roy. Meteor. Soc.*, **124**, 2005-2034.

Presentations and Conference Papers

1. C. López-Carrillo, S. Gjorgjievska, and David J. Raymond, 2011: Progress in the Analysis of PREDICT Data In *PREDICT workshop at the Naval Postgraduate school, Monterey CA.*
2. C. López-Carrillo and Raymond, D J (2010): Retrieval of typhoon wind fields from Doppler radar and dropsonde data using an efficient 2-step approach. In *29th Conference on Hurricanes and Tropical Meteorology*.
3. C. López-Carrillo and Raymond, D J (2009): Wind Retrieval from airborne Doppler radar (TCS-08 field campaign), In *34th Conference on Radar Meteorology*
4. C. López-Carrillo and Raymond, D J (2007): New Wind Information From a Single Doppler Radar, *Eos Trans. AGU*, 88(23), Jt. Assem. Suppl., Abstract A23B-06
5. C. López-Carrillo and D. J. Raymond, 2006: Observations during EPIC2001 –Diurnal cycle in the East Pacific. In *27th Conference on Hurricanes and Tropical Meteorology*.
6. C. López-Carrillo, David J. Raymond, 2005: Gross Moist Stability in the East Pacific. In *2005 American Geophysical Union Fall Meeting*.

7. C. López-Carrillo, David J. Raymond, 2005: Mass Fluxes in the East Pacific. In *32nd Conference on Radar Meteorology*.
8. C. López-Carrillo, David J. Raymond, 2004: Relación entre el ciclo diurno de la conveccion y los huracanes en el Pacifico del Este. In *XI Congreso Latinoamericano e Ibérico de Meteorología*
9. C. López-Carrillo, David J. Raymond, 2004: Diurnal Cycle of Tropical Storms in the East Pacific In *2004 Western Pacific Geophysics Meeting*.
10. C. López-Carrillo, David J. Raymond, 2004: Kinematical Characteristic of the Tropical Storm Juliette In *25th Conference on Hurricanes and Tropical Meteorology*.
11. C. López-Carrillo, David J. Raymond, 2003: Spatial variability of the entropy in the boundary layer In *EPIC workshop in Bolder Co. 2003*.
12. C. López-Carrillo, David J. Raymond, 2002: Mesoscale Convective Mass Fluxes in the Eastern Pacific. In *2002 American Geophysical Union Fall Meeting.*, 300
13. C. López-Carrillo, David J. Raymond, and Z. Fuchs, 2002: Development of New Convective Cells in the East Pacific. In *24th Conference on Hurricanes and Tropical Meteorology.*, 525–526
14. C. López-Carrillo and David J. Raymond, 2000: Gross Moist Stability in Tropical Systems. In *24th Conference on Hurricanes and Tropical Meteorology.*, 220–221
15. David J. Raymond and Carlos López Carrillo, 2000: Cloud-Radiation Interactions and Convective Forcing. In *24th Conference on Hurricanes and Tropical Meteorology.*, 508–509
16. Carlos López Carrillo, 2000: Moisture Interchange Between Clouds and Environment in a Tropical Atmosphere. In *24th Conference on Hurricanes and Tropical Meteorology.*, 510–511
17. C. López-Carrillo and David Raymond, 1999: Observational study of tropospheric moisture and deep convection during TOGA COARE. In *23rd Conference on Hurricanes and Tropical Meteorology.*, 159–160
18. David Raymond and C. López-Carrillo, 1998: Does Ekman Pumping Work in Tropical Cyclones? In *78th AMS Annual Meeting*.
19. C. López-Carrillo and David Raymond, 1997: Kinematical Characteristics in Developing Easterly Waves. In *22rd Conference on Hurricanes and Tropical Meteorology.*, 551–552

Field Experiments

PREDICT Pre-Depression Investigation of Cloud-systems in the Tropics (Sep 3 – Oct 1, 2010.) In this experiment, I was involved in the development of a 3-dimensional variational scheme for the analysis of thermodynamic data collected

by dropsondes, and in the mission planning for the NCAR-GV aircraft. I also was mission scientist on nine research flights and scientific observer on one flight:

- RF11** Sep 5, 2008 –Third Mission into PGI38L (Gaston).
- RF15** Sep 10, 2008 –Second Mission into PGI44L (Karl).
- RF19** Sep 14, 2008 –Sixth Mission into PGI44L (Karl).
- RF20** Sep 20, 2008 –First Mission into PGI46L (Matthew).
- RF21** Sep 21, 2008 –Second Mission into PGI46L (Matthew).
- RF22** Sep 22, 2008 –Third Mission into PGI46L (Matthew).
- RF23** Sep 24, 2008 –Forth Mission into PGI46L (Matthew).
- RF24** Sep 27, 2008 –First Mission into PGI50L (Nicole).
- RF25** Sep 28, 2008 –First Mission into PGI50L (Nicole).
- RF26** Sep 30, 2008 –First Mission into PGI50L.

TCS08 Tropical Cyclone Structure-08 (Aug 1 – Oct 1, 2008.) In this experiment, I was involved in the development of a 3-dimensional variational scheme for the analysis of Doppler radar and dropsonde winds. I also participated as a communication officer, on board the P-3 aircraft from the U.S Naval Research Laboratory for the following research missions:

- RF04** Aug 17, 2008 – Nuri, Tropical Depression Stage.
- RF06** Aug 29, 2008 – Tropical Wave
- RF07** Sep 02, 2008 – Tropical Wave.
- RF08** Sep 08, 2008 – Tropical Wave.
- RF09** Sep 09, 2008 – Tropical Wave.

IFEX Intensity Forecasting EXperiment (July 1 – July 20, 2005.) In this experiment, I participate as scientific observer and flew on the NOAA-P3-42 research flight on July 15.

EPIC Eastern Pacific Investigation Of Climate (Sep 1 – Oct 12, 2001.) In this experiment, I was mainly concerned with the collection and analysis of Doppler Radar Data. I also participated as a research scientist on board the NOAA-WP3-43 on missions:

- Sep 16, 2001 –ITCZ
- Sep 20, 2001 –ITCZ
- Sep 21, 2001 –RECONN Tropical Storm Juliette”
- Sep 28, 2001 –ITCZ(aborted due to engine problem)
- Oct 3, 2001 –ITCZ
- Oct 5, 2001 –ITCZ
- Oct 6, 2001 –ITCZ/Intercomparison
- Oct 7, 2001 –ITCZ

Special Skills

- Formal training in numerical analysis and data processing, inverse theory, non-linear programming.
- Computer programming – particularly in C and Python.
- Familiarity with Unix, Linux and Windows environments.
- Fluency in Spanish.

Awards

Scholarship National Council of Science and Technology of Mexico. Mexico, Mexico.

Scholarship State Council of Science and Technology of Puebla. Puebla, Puebla, Mexico.

Memberships

AMS – American Meteorological Society

AGU – American Geophysical Union.

¹New Mexico Institute of Mining and Technology