Victor A. Pinto

Ph.D. (c) Atmospheric and Oceanic Sciences - Space Physics

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Education

University of California, Los Angeles **September 2011 - (Expected) June 2019**
Ph.D. (c) Atmospheric and Oceanic Sciences - *Space Physics*
Advisor: Dr. Larry Lyons. *Co-advisor:* Dr. Jacob Bortnik
Title: Influence of the solar wind in the dynamics of relativistic electrons on the Earth's radiation belts

University of California, Los Angeles **June 2014**
M.S. Atmospheric and Oceanic Sciences

Universidad de Chile, Santiago, Chile **March 2009 - September 2011**
M.S. Physics
Advisor: Dr. Alejandro Valdivia. *Co-advisor:* Dr. Marina Stepanova
Title: Studies of the turbulence in the Earth?s magnetosphere using data from SAMBA and THEMIS

Universidad de Chile, Santiago, Chile **March 2002 - December 2006**
B.S. Physics

Professional Experience

Research

Graduate Student Researcher **June 2014 - present**
UCLA Atmospheric and Oceanic Sciences Department
- Research interests: solar wind-magnetosphere interactions, dynamics of ultra-relativistic electrons in the radiation belts.
- Led research that combines statistical data analysis and case-studies to predict ultra-relativistic electron dynamics.
- Collaborated with researchers in different institutions by providing data analysis solutions and physical insights

Visiting Researcher **June 2016 - September 2016**
NASA Goddard Space Flight Center, Greenbelt, MD
- Developed code to process and analyze data from Van Allen Probes and GOES satellites for studies of belt electrons
- Authored 2 publications and co-authored 1 publications using data analysis techniques developed during the visit

Teaching

Teaching Fellow, Associate, Assistant **September 2015 - present**
Department of Atmospheric and Oceanic Sciences, UCLA
- Led discussion sessions for 4 different courses, increasing student participation through active-learning techniques
- Developed and revised class material, homework assignments and exams. Managed evaluation logistic
- **Courses:** Climate Change: puzzles and policy; Introduction to the Atmospheric Environment; Fundamentals of Air and Water Pollution; Climate Change and Climate Modeling

Assistant Professor **March 2010 - September 2011**
Universidad Catolica del Maule, Talca, Chile
- Top researcher university-wide in 2010 for publication of 2 articles and presentations in 4 international conferences.
- Taught 6 different physics courses for engineering and high-school teacher students
- Led a curricular revision, re-design and modernization of several courses
- **Courses:** Introduction to Geophysics, Thermodynamics and fluid dynamics, Mechanics, Introduction to Physical Sciences, Introduction to Programming in Python.

Lecturer **March 2010 - September 2011**
Universidad de Valparaiso, Santiago, Chile
- Developed and taught several physics courses for engineering students.
- Led the implementation of the Physics laboratory.
- **Courses:** Electromagnetism, Optics and Waves, Mechanics.

High-School Physics Teacher **March 2009 - Dec 2009**
Liceo Experimental Manuel de Salas, Santiago, Chile
- Taught courses for 1st and 2nd year students,
- Prepared class material, exam content, lab material.

Field and Lab Work

Chilean Scientific Antarctic Expedition 47 **February 2011**
Replacement and installation of SAMBA ground-based magnetometers in base Escudero and O'Higgins.
- Coordinated the logistics between the Chilean Antarctic Institute and UCLA to replace and maintain magnetometers located in two Chilean Antarctic bases
- Managed logistics of import, customs, shipping, and delivery of scientific equipment
- Led the field team that replaced and calibrated the instruments.

Awards, Grants and Fellowships

Outstanding Student Paper Award, American Geophysical Union Fall Meeting 2017 2018

Top 100 Physics paper in 2017, Scientific Reports Journal 2018

UCLA/Salesforce Data Science Challenge 2017 (3rd place), UCLA 2017

Becas Chile Fellowship Program for Graduate Studies abroad, Chilean Government. 2011

Thesis support in Antarctic topics grant, Chilean Antarctic Institute 2009

Peer-Reviewed Publications

1. **Pinto, V. A.,** Bortnik, J., Moya, P. S., Lyons, L. R., Sibeck, D. G., Kanekal, S. G., et al. (2018). Characteristics, occurrence, and decay rates of remnant belts associated with three-belt events in the Earth's radiation belts. Geophysical Research Letters, 45. https://doi.org/10.1029/2018GL080274
2. Antonova, E. E., Stepanova, M. V., Moya, P. S., **Pinto, V. A.,** Vovchenko, V. V., Ovchinnikov, I. L., & Sotnikov, N. V. (2018). Processes in auroral oval and outer electron radiation belt. Earth, Planets and Space, 70(1). https://doi.org/10.1186/s40623-018-0898-1
3. **Pinto, V. A.,** Kim, H.-J., Lyons, L. R., & Bortnik, J. (2018). Interplanetary parameters leading to relativistic electron enhancement and persistent depletion events at geosynchronous orbit and potential for prediction, Journal of Geophysical Research: Space Physics, 123. https://doi.org/10.1002/2017JA024902
4. Farias, C., **Pinto, V. A.,** & Moya, P. S. (2017). What is the temperature of a moving body? Scientific Reports, 7(1). https://doi.org/10.1038/s41598-017-17526-4
5. Moya, P. S., **Pinto, V. A.,** Sibeck, D. G., Kanekal, S. G., & Baker, D. N. (2017). On the effect of geomagnetic storms on relativistic electrons in the outer radiation belt: Van Allen Probes observations. Journal of Geophysical Research: Space Physics, 122. https://doi.org/10.1002/2017JA024735
6. Kim, H.-J., Lyons, L., **Pinto, V. A.,** Wang, C.-P., & Kim, K.-C. (2015). Revisit of relationship between geosynchronous relativistic electron enhancements and magnetic storms. Geophysical Research Letters, 42(15), 6155?6161. https://doi.org/10.1002/2015GL065192
7. Moya, P. S., **V. A. Pinto,** A. F. Viñas, D. G. Sibeck, W. S. Kurth, G. B. Hospodarsky, and J. R. Wygant (2015), Weak kinetic Alfvén waves turbulence during the 14 November 2012 geomagnetic storm: Van Allen Probes observations, J. Geophys. Res. Space Physics, 120,https://doi.org/10.1002/2014JA020281.
8. **Pinto, V. A.,** Stepanova, M., Antonova, E. E., & Valdivia, J. A. (2011). Estimation of the eddy-diffusion coefficients in the plasma sheet using THEMIS satellite data. Journal of Atmospheric and Solar-Terrestrial Physics, 73(11?12), 1472?1477. https://doi.org/10.1016/j.jastp.2011.05.007
9. Stepanova, M., **Pinto, V. A.,** Valdivia, J. A., & Antonova, E. E. (2011). Spatial distribution of the eddy diffusion coefficients in the plasma sheet during quiet time and substorms from THEMIS satellite data. Journal of Geophysical Research: Space Physics, 116(A5). https://doi.org/10.1029/2010JA015887

Presentations

Conference Presentations and Posters (selected from past five years)

1. **Pinto, V. A.,** et. al. Spatial characterization of relativistic electron enhancements in the Earth?s outer radiation belt during the Van Allen Probes era. AGU Fall Meeting, December 2018, Washington, DC **(invited)**
2. **Pinto, V. A.,** et. al. Characteristics, occurrence, and decay rates of remnant belts associated with three-belt events in the Earth's radiation belts. AGU Fall Meeting, December 2018, Washington, DC (poster)
3. **Pinto, V. A.,** et. al. Solar wind influence in the occurrence of relativistic electron enhancement events in the Earth's radiation. GEM Summer Workshop, June 2018, Santa Fe, NM (poster)
4. **Pinto, V. A.,** et. al. Spatial characterization of relativistic electron enhancements in the Earth's outer radiation belt. AGU Fall Meeting, December 2017, New Orleans, LA **(OSPA award)**
5. **Pinto, V. A.,** et. al. Monitoring relativistic electron enhancements in the Earth?s outer radiation belt: results from Van Allen Probes. The Magnetosphere: New Tools, New Thinking, New Results, November 2017, Puerto Varas, Chile
6. **Pinto, V. A.,** et. al. Spatial and temporal characterization of relativistic electron enhancements during the Van Allen Probes era. AGU Fall Meeting, December 2016, San Francisco, CA (poster)
7. **Pinto, V. A.,** et. al. Dynamics of Relativistic Electrons for Van Allen Probes and GOES satellites. GEM Summer Workshop, June 2016, Santa Fe, NM (poster)
8. **Pinto, V. A.,** et. al. Relativistic Electron Enhancement and Dropout Events at GEO Orbit associated to CME and CIR driven storms. GEM Summer Workshop, June 2015, Aspen, CO (poster)
9. **Pinto, V. A.,** et. al. Relevance of solar wind parameters in the occurrence of relativistic electron events at geostationary orbit. AGU Fall Meeting, December 2014, San Francisco, CA (poster)
10. **Pinto, V. A.,** et. al. Relevance of solar wind parameters in the occurrence of relativistic electron event at geosynchronous orbit. GEM Summer Workshop, June 2014, Portsmouth, VA (poster)

Invited talks and Seminars

1. **Pinto, V. A.** Influence of the solar wind in the dynamics of relativistic electrons on the Earth's radiation belts. UCLA Atmospheric and Oceanic Sciences Department 270 Seminar, October 2008, Los Angeles, CA
2. **Pinto, V. A.** Influencia del viento solar en la dinámica de electrones relativistas en los anillos de radiación de Van Allen. Departamento de Física, Facultad de Ciencias, Universidad de Chile. August 2018, Santiago, Chile
3. **Pinto, V. A.** Relativistic electrons in the Earth?s Radiation Belts: from concepts to science. UCLA Career Center Jumpstart your career in Physics, February 2017, Los Angeles, CA
4. **Pinto, V. A.** Electrones relativistas en los anillos de radiación: conceptos e impactos. Departamento de Física, Facultad de Ciencias, Universidad de Chile. November 2016, Santiago, Chile

Leadership and Service

UCLA Atmospheric and Oceanic Sciences Graduate Students Association September 2012 - June 2017
Served as President (2016 - 2017) and Webmaster (2012 - 2016).

UCLA Dashew Center for International Students and Scholars September 2016 - June 2017
International Ambassador for all grad students of South America.

UCLA Math, Physics and Sciences Council September 2015 - June 2017
Served as board member and representative to the UCLA Graduate Student Association

Chilean Association of Graduate Students June 2009 - Present
Founder Member of the association, election official , election manager

Skills and Qualifications

- **Languages:** Spanish (native), English (fluent)
- **Coding:** Python, IDL, Matlab, Bash, LaTeX, HTML,
- **Miscellaneous:** Linux operating systems, Inkscape, LimeSurvey survey manager, Office Suite.
- **Data Analysis:** Satellite missions (THEMIS, RBSP, GOES, OMNI), Numpy, Pandas, Matplotlib, SciPy, SpacePy, SunPy