

# Oscar Chimborazo

## Curriculum Vitae

Juan José Flores 164  
y Av. 17 de Julio  
Ibarra, ECUADOR  
☎ +593-9-96090904  
✉ ochimborazo@gmail.com



### Educational Background

- 2018 **Ph.D., Atmospheric Science**, University at Albany, State University of New York, Albany, USA  
Dissertation title: “*Projected Changes in Climate, Elevation-Dependent Warming, and Extreme Events over Continental Ecuador for the Period 2041–2070*”  
Adviser: Prof. Mathias Vuille
- 2003 **Physicist**, Escuela Politécnica Nacional, Quito, Ecuador  
Thesis title: “*Formulation of a Non-Linear Dynamical Model Applied to the Evolution of a Spherical Symmetry Nebular System*”  
Tutor: Prof. Douglas Moya

### Languages

Spanish Native  
English Fluent

### Computer skills

- Operating systems** GNU/Linux, Mac OS X, Windows.
- Writing software, office suits** L<sup>A</sup>T<sub>E</sub>X, TeXShop, Kile, TexnicCenter, WinEdt, Microsoft Office, Open Office, Libre Office, etc.
- Programming languages** Python, R, Matlab, Octave, Fortran, Java, C/C++, Bash Scripting, C-Shell.
- Atmospheric science software** NCL, IDV, VAPOR, GRADS, CDO, NCO, Panoply

### Interests

- Research** Climate, Climate Change, Extreme events, Weather, Atmospheric Modeling.
- Teaching** Climate Physics, Climate and Weather Modeling, Statistical Analysis of Data, Physics, Mathematics.

Reading Science, world history, adventure and science-fiction books.

## Courses and Workshops

- 2021 University Teaching: Computer Strategies and Tools for Online Education, organized by Universidad Técnica de Ambato, April 27– June 3, 2020.
- 2020 - CORDEX Central America and South America Online Paper-Writing Workshop on Regional Climate Modeling, November 24–25 & December 8–9, 2020, WCRP CORDEX.
- 2020 - Summer School on Effective HPC for Climate and Weather, August 24th – 28th, 2020, organized by the Centre of Excellence in Simulation of Weather and Climate in Europe (ESiWACE). Topics: Extreme-Scale Computation, Parallel Programming in Practice, Modern Storage, Input/Output and Middleware, Machine Learning, Data Analytics and Visualisation, Performance Analysis, Containers.
- 2020 - MOOC Course for Teachers: How to prepare virtual classes, organized by Universidad Técnica de Ambato, April 20th – 24th, 2020.
- 2016 - CMIP Analysis Platform Tutorial: workshop to learn how to use the platform for analyzing CMIP models on CISL’s GLADE disk storage resources, August 16th–18th, 2016 at the NCAR Mesa Lab in Boulder, Colorado.
- 2015 - NASA Summer School: Using Satellite Observations to Advance Climate Models, from August 31st – September 4th, 2015 at the Keck Institute for Space Studies at Caltech in Pasadena, California.
- 2013 -WCRP VAMOS/CORDEX Workshop on Latin-America and Caribbean CORDEX LAC: Phase I - South America September 11–13, 2013 Lima, Perú.
  - 1<sup>st</sup> Climate School on “Andean Climate Variability and Change” in Lima, Peru from 3–6 September 2013.
  - Basic WRF Tutorial and WRF Regional Climate Downscaling Tutorial in Boulder Colorado in July 2013.
  - PASI on Atmospheric Processes in Latin America and the Caribbean: Observations, Analysis, and Impacts - May 27, 2013 – June 07, 2013 Cartagena, Colombia.
- 2010 - Workshop on Modeling, Modelamiento de Nicho Ecológico usando Maxent y Diva-Gis from November 30, 2010 to December 2, 2010.
  - International Workshop on Climatology, ¿Qué Modelo del Clima Utilizar en los trópicos para estudios de Impacto del Cambio Climático?, October, 2010.
  - Workshop on NCL language, Introducción al Análisis y Visualización de datos climáticos con NCL, September, 2010
  - Workshop on Modeling using a japanese model, “Nuevas Salidas del Modelo TL959 para Cambio Climático en Ecuador y Análisis de Consenso de salidas de Modelos de Cambio Climático en Ecuador”, Quito, September, 2010.
  - Workshop on climatic signals, “Manejo de FCLIMDEX para Detección y Vigilancia de Señales Climáticas” April, 2010.

- Short Course on the Geostationary Satellite system, GOES, March, 2010, taught in INAMHI.

- Workshop on Seasonal Forecasting: “Integración de los Pronósticos Estacionales con la Información Hidrológica para los sectores vinculados al agua en el Oeste de Sudamérica”, CIFEN, January, 2010.

## Employment History

- Octubre/2021–**Occasional-Teacher**, *Yachay Tech University*, Urcuquí, Imbabura, Ecuador  
Presente Responsibilities: Teaching Physics and Statistical Physics as professor of the School of Physical Sciences and Nanotechnology. Research on weather and climate simulations.
- Dec/2020–**Researcher-Teacher**, *Universidad Técnica de Ambato*, Ambato, Tungurahua,  
Feb/2021 Ecuador  
Responsibilities: Teaching elemental courses of Statistics and Chemistry at the Civil Engineering career. Research projects related to climate simulations.
- Sep/2019–**Researcher-Teacher**, *Universidad Técnica de Ambato*, Ambato, Tungurahua,  
Aug/2020 Ecuador  
Responsibilities: Teaching basic courses of Physics and Mathematics at the Civil Engineering career. Working in research projects related to climate simulations.
- Julio/2019–**Teacher**, *Universidad Regional Amazónica IKIAM*, Tena, Napo, Ecuador  
Ago/2019 Responsibilities: Teaching Glaciology and Atmospheric Science at the Geoscience and Water Sciences careers.
- Aug/2016–**Teaching assistant**, *Department of Atmospheric and Environmental Sciences*  
May/2017 *(DAES), University at Albany, SUNY, Albany, NY, USA*  
Responsibilities: TA for GEO 221 course during the fall 2016 semester, and TA for ENV 105 course during the spring 2017 semester.
- Aug/2012–**Research assistant**, *The Research Foundation for The State University of*  
Aug/2016 *New York, Albany, NY, USA*  
Responsibilities: Graduate student tasks.
- Nov/2008–**Researcher**, *Working Group on Modeling in the National Institute of Mete-*  
Jul/2012 *orology and Hydrology “INAMHI”, Gestión Meteorológica, INAMHI, Quito,*  
Ecuador  
Responsibilities: Implementation of mesoscale numerical models for weather forecasting (MM5 and WRF), writing of scripts to produce maps that show model and observational information, validation of the model outputs with real data from the network of stations located in different places within Ecuador.
- Jan/2006–**Systems analyst**, *Sokoloil S.A.*, Quito, Ecuador  
Jan/2007 Responsibilities: Coordinating and executing tasks to back up the technical information of Petroproducción, as part of the project “Technical Data Warehouse”.
- Aug/2005–**Printer technician**, *Compuhelp S.A.*, Quito, Ecuador  
Jan/2006 Responsibilities: Diagnosing, replacing parts and fixing of computers and printers.
- Nov/2004–**Specialist in managing data**, *Petroproducción*, Quito, Ecuador  
Mar/2005 Responsibilities: Support in managing technical data.
- Nov/2003–**Programmer**, *Escuela Politécnica Nacional*, Quito, Ecuador  
Mar/2004 Responsibilities: Research and development of new software for high school education.

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## Other Activities

- 05/2002-11/2003 **Physics Laboratory Assistant**, *Escuela Politécnica Nacional*, Quito, Ecuador  
Responsibilities: Teaching Physics and carry out laboratory practices, grading exams and laboratory reports.
- 04/2001-03/2002 **Apprenticeship**, *Escuela Politécnica Nacional*, Quito, Ecuador  
Design and writing of Guides for Electronics Laboratory Practices in the Physics Career
- 11/1999-03/2000 **Apprenticeship**, *Escuela Politécnica Nacional*, Quito, Ecuador  
Research and Development of Technologies for the Control of Physical Parameters of Greenhouse Cultivation

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## Publications

- PEER REVIEW: • Vargas, D., **Chimborazo, O.**, E. László, M. Temovski, and L. Palcsu (2022). Rainwater isotopic composition in the Ecuadorian Andes and Amazon reflects cross-equatorial flow seasonality. *Water*, 14(13), 2121. [📄 doi:10.3390/w14132121](https://doi.org/10.3390/w14132121).
- **Chimborazo, O.**, J. R. Minder, and M. Vuille (2022). Observations and Simulated Mechanisms of Elevation-Dependent Warming over the Tropical Andes, *J. Climate*, 35(3), 1021-1044. [📄 doi:10.1175/JCLI-D-21-0379.1](https://doi.org/10.1175/JCLI-D-21-0379.1).
- **Chimborazo, O.** and M. Vuille, 2021: Present-day climate and projected future temperature and precipitation changes in Ecuador, *Theor. Appl. Climatol.* [📄 doi:10.1007/s00704-020-03483-y](https://doi.org/10.1007/s00704-020-03483-y). It can be read here: <https://rdcu.be/cdiJT>
- Erazo, B., L. Bourrel, F. Frappart, **O. Chimborazo**, D. Labat, L. Dominguez-Granda, D. Matamoros and R. Mejia, 2018: Validation of satellite estimates (Tropical Rainfall Measuring Mission, TRMM) for rainfall variability over the Pacific slope and coast of Ecuador. *Water*, 10, 213 [📄 doi:10.3390/w10020213](https://doi.org/10.3390/w10020213)
- IN PREPARATION: • **Chimborazo, O.** and M. Vuille, 2023: Projected changes in climate extremes over continental Ecuador for the period 2041–2070 using WRF as a regional climate model
- NON PEER REVIEW: • **Chimborazo, O.**, S. Guitarra, y A. G. Muñoz, 2010: Final Report: Analysis of New Output of the TL-959 Model. *Proyectos MAE-INAMHI*. Quito. 430 pp.

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## Talks

- 2022 -Speaker at the webinar : “Alerta Temprana y Acción Temprana” with the talk “Cambios proyectados de eventos extremos en el Ecuador para el período 2041-2070”, March 23, 2022.
- 2021 -Speaker in “Charlas de divulgación científica” organizada por el grupo de divulgación científica Físicos.ec with the talk “Estudiando el cambio climático en Ecuador durante el siglo XXI mediante modelos numéricos”, March 25, 2021.
- 2020 -Speaker at “Ciclo de Conferencias Latitud Cero 2020” with the talk “Calentamiento Dependiente de la Elevación (EDW) sobre los Andes Ecuatorianos”, September 10, 2020.

- 2020 -Speaker at Universidad de las Fuerzas Armadas–ESPE sede Santo Domingo de los Tsáchilas con la charla titulada “Proyecciones del cambio climático en Ecuador, usando un modelo regional para un futuro cercano 2041–2070”, May 22, 2020.
- 2019 -Presenter at the XVI Encuentro de Física “Desafíos computacionales en la física contemporánea” with the talk “Proyecciones del cambio climático en Ecuador para el período 2041-2070: resultados de un modelo de mesoescala atmosférica configurado para estudiar el clima regional”, November 28, 2019.