Gabrielle R. Leung

Curriculum Vitae

Contact Information

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Education

2025 *(expected)* Ph.D. Atmospheric Science
Colorado State University (CSU), Fort Collins, CO, USA

2022 M.S. Atmospheric Science
Colorado State University (CSU), Fort Collins, CO, USA
Thesis Title: "Processes Driving Shallow Convective Development and their Interactions with Aerosols: Aerosol Transport and Aerosol Breezes"

2019 B.S. Physics, *magna cum laude*
Ateneo de Manila University (ADMU), Quezon City, Philippines
Thesis Title: "Atmospheric Tracer Composition over the West Philippine Sea: Volatile Organic Compound Sources, Transport, and Impacts"

Research and Work Experience

Aug 2020 – Present Graduate Research Assistant
van den Heever Research Group
Colorado State University, Fort Collins, CO, USA

2015 – 2020 Researcher
Air Quality Dynamics & Instrumentation Laboratory
Manila Observatory, Quezon City, Philippines

2018 – 2019 Researcher
Regional Climate Systems Laboratory
Manila Observatory, Quezon City, Philippines

Summer 2018 Researcher
Climatology Laboratory
Tokyo Metropolitan University, Tokyo, Japan

Grant and Fellowship Funding

NASA FINESST 2022
Future Investigators in NASA Earth and Space Science and Technology Fellowship

CSU Walter Scott Jr. College of Engineering Graduate Fellowship 2020

Publications

10. **Leung, G.R.**, L.D. Grant, and S.C. van den Heever, 2023: Representation of updraft velocity and precipitation rate distributions as a function of grid spacing. In preparation.
9. **Leung, G.R.**, L.D. Grant, and S.C. van den Heever, 2023: Deforestation-driven changes in clouds over Southeast Asia are modulated by moisture and aerosols. To be submitted to *Nat. Clim. Change.*
8. Sokolowsky, G.A.*, S.W. Freeman*, [and 13 others, including **G.R. Leung**], 2023. *tobac* v1.5: Introducing Fast 3D Tracking, Splits and Mergers, and Other Enhancements for Identifying Meteorological Phenomena. *these authors contributed equally to this work. In review at *Geoscientific Model Development*
7. **Leung, G.R.**, S.M. Saleeby, G.A. Sokolowsky, S.W. Freeman, and S.C. van den Heever, 2023: Aerosol-cloud impacts on aerosol detrainment and rainout in shallow maritime tropical clouds. *Atmos. Chem. Phys.* doi: 10.5194/acp-23-5263-2023
6. **Leung, G.R.**, and S.C. van den Heever, 2023: Aerosol breezes drive cloud and precipitation increases. *Nat. Comm.* doi: 10.1038/s41467-023-37722-3
5. Reid, J.S., [and 76 others, including **G.R. Leung**], 2023. The coupling between tropical meteorology, aerosol lifecycle, convection, and radiation, during the Clouds, Aerosol and Monsoon Processes Philippines Experiment ($CAMP^2Ex$). *Bull. Am. Metero. Soc..* doi: 10.1175/BAMS-D-21-0285.1
4. **Leung, G.R.**, S.C. van den Heever, 2022. Controls on the development and circulation of terminal and transient congestus clouds and implications for midlevel aerosol transport. *J Atmos. Sci.*. doi: 10.1175/JAS-D-21-0314.1
3. Crosbie, E., [and 23 others, including **G.R. Leung**], 2022. Measurement report: Closure analysis of aerosol-cloud composition in tropical maritime warm convection. *Atmos. Chem. Phys.* doi: 10.5194/acp-22-13269-2022
2. Stahl, C., [and 20 others, including **G.R. Leung**], 2021. Total organic carbon and the contribution from speciated organics in cloud water: airborne data analysis from the CAMP2Ex field campaign. *Atmos. Chem. Phys.* doi: 10.5194/acp-21-14109-2021
1. Lorenzo, G.R., [and 20 others, including **G.R. Leung**], 2021. Measurement report: Firework impacts on air quality in Metro Manila, Philippines, during the 2019 New Year revelry. *Atmos. Chem. Phys.* doi: 10.5194/acp-21-6155-2021

Achievements and Awards

JPL Center for Climate Sciences Summer School participant 2023

Herbert Riehl Memorial Award 2023

CSU Department of Atmospheric Science, for best publication based on thesis work

David L. Dietrich Honorary Scholarship 2022
CSU Department of Atmospheric Science, for outstanding aerosol & air quality research

2nd Place Student Oral Presentation, 19th Conference on Mesoscale Processes 2022

NASA Group Achievement Award (CAMP^{2}Ex) 2020

St. Ignatius de Loyola Award
ADMU, for outstanding performance of a graduating student 2019

ADMU Special Award for Excellent Research in the Environmental Sciences 2019

ADMU Department of Physics Program Award 2019

International Global Atmospheric Chemistry (IGAC) Travel Grant 2018

ADMU Freshman Merit Scholarship 2014

Field Experience

2022	Operations Manager *BioAerosols and Convective Storms – Phase II* **BACS-II**, Fort Collins, Colorado, USA
2021	Radiosonde Operator, Drone Pilot *BioAerosols and Convective Storms – Phase I* **BACS-I**, Fort Collins, Colorado, USA
2019	Flight Scientist, Ground Controller, Weather Forecaster *Cloud, Aerosol, and Monsoon Processes Philippines Experiment* **CAMP^{2}Ex**, Clark, Philippines
2019 – 2020	Instrumentation Set-up & Maintenance *CAMP^{2}Ex Weather and Composition Monitoring* **CHECSM**, Quezon City, Philippines

Teaching Experience

GTA for ATS620: Thermodynamics and Cloud Physics	2023 – Present
Drone and radiosonde instructor for van den Heever Group	2022 – Present

First-Author Conference Presentations

- **Leung, G.R.,** S.C. van den Heever, 2023. "Aerosol breezes" from mesoscale aerosol gradients drive precipitation increases. *AMS 3rd Symposium on Mesoscale Processes.* Denver, CO. Oral.

- **Leung, G.R.,** S.C. van den Heever, 2022. Thermal circulations and precipitation increases driven by mesoscale aerosol gradients. *AMS 16th Conference on Cloud Physics*. Madison, WI. Oral.
- **Leung, G.R.,** S.C. van den Heever, 2022. Updraft structure and detrainment in transient and terminal congestus clouds. *AMS 19th Conference on Mesoscale Processes*. Virtual. Oral.
- **Leung, G.R.,** S.C. van den Heever, J.S. Reid, 2021. Convective transport and midlevel detrainment from congestus clouds. *AGU Fall Meeting*. New Orleans, LA. Oral.
- **Leung, G.R.**, [and 8 others], 2018: Volatile organic compound emissions in the South China Sea during the 2011 *Vasco* cruise: sources, emission rates, and ozone formation. *15th International Global Atmospheric Chemistry (IGAC) Science Conference*. Takamatsu, Japan. Poster.
- **Leung, G.R.**, [and 8 others], 2018: Volatile organic compound emissions in the South China Sea during the 2011 *Vasco* cruise: emission ratios and source apportionment. *AOGS 14th Annual Meeting*. Singapore. Poster.

Service/Outreach Activities

Atmospheric Chemistry and Physics, reviewer	2023 – Present
CSU/CIRA Diversity, Equity, and Inclusion Committee, member	2022 – Present
CSU Graduate Students of Color, member	2022 – Present
CSU ATS International Student and Scholar Association, board	2022 – 2023
CSU Little Shop of Physics, science demonstration volunteer	2022 – 2023
The Mind Museum, science communicator	2018
Ateneo Mathematics Olympiad, tutor	2015 – 2016