

Curriculum Vitae
Christoforus Bayu Risanto
Meteorologist & Atmospheric Scientist
Vatican Observatory
V-00120 Vatican City State

Education

- Ph.D., Atmospheric Sciences, University of Arizona, 2021. Dissertation title: Improving Daily and Sub-seasonal Precipitation Forecasts in Arid Regions through Convective-Permitting Modeling and Data Assimilation. Advisor: Christopher L. Castro, PhD. Co-advisor: Avelino F. Arellano, Jr. PhD.
- M.S., Atmospheric Sciences, Creighton University, 2016. Thesis title: Interannual variability of nocturnal low-level cloud and nocturnal low-level jet occurrence from 1999 to 2014 over northern Australia and the Indonesian archipelago. Advisor: Jon M. Schrage, PhD.
- Certificate Program, Atmospheric Sciences, Creighton University, 2014
- M.A., Theology, Sanata Dharma University, Indonesia, 2012. Thesis title: Theological Reflection on Teilhard de Chardin's Ideas and Its Impacts on Ecology. Advisor: Purwahadiwardaya, PhD.
- B.A., Philosophy, Driyarkara School of Philosophy, Indonesia, 2007. Small thesis title: A study of physical and mathematical time of Newton and Einstein and its impact on epistemology. Advisor: Karlina Supelli, PhD.

Employment

- Meteorologist and Atmospheric Scientist at Vatican Observatory, Vatican City State, July 2024 to present.
- Postdoctoral Research Assistant I, Department of Hydrology and Atmospheric Science, University of Arizona, December 2021 – July 2024.
- Executive Editor of BASIS magazine, Yogyakarta, Indonesia, January 2023 – present.
- Editorial staff member in BASIS magazine, Yogyakarta, Indonesia, July 2010 – December 2022.
- Graduate Research Assistant, Department of Hydrology and Atmospheric Sciences, University of Arizona, January 2019 – 2021. Work: Arabian Peninsula precipitation variability, extremes, trends, and ultra-fine predictability up to sub-seasonal scales.
- Graduate Research Assistant, Department of Hydrology and Atmospheric Sciences, University of Arizona, July 2017 – 2018. Work: improving monsoon precipitation forecast for Southwestern US and Northwestern Mexico, using WRF model and data assimilation. This work is supported by Consortium for Arizona – Mexico Arid Environment (CAZMEX).
- Graduate Teaching Assistant, Institute of Physics and Atmospheric Sciences, University of Arizona, August 2016 – 2017. Work: assisting undergraduate students in the Introduction to Atmospheric Sciences and Weather, Climate, and Society courses.

- Physics teacher, Xavier High School, Federated States of Micronesia, August 2007 – May 2009. Courses taught: Physics, Geometry, General Science, and Religion.

Awards

- Krider Endowment Scholarship in Atmospheric Sciences/Physics 2020 received in the academic year of 2020/2021 from the University of Arizona.
- Travel Grant 2019, received in the Fall Semester of 2019 from the Graduate and Professional Student Council (GPSC), the University of Arizona.
- Fellowship Award 2018, received in the Fall Semester of 2018 from the Hydrology and Atmospheric Department, the University of Arizona.
- Galileo Circle Scholarship Award 2018 received in May 2018 from the University of Arizona.

Selected Scholarly

- **Risanto, C. B.**, Arellano Jr., A. F., Koch, S. E., Castro, C. L., Shohan, S., Adams, D. K., Weckwerth, T. M., Pinto, J. O., & Kay, J. (2026). Improving Monsoon Precipitation Forecast Accuracy over Arizona with GPS-PWV Data Assimilation. *Monthly Weather Review*, **154**, 1731–1758, <https://doi.org/10.1175/MWR-D-25-0101.1>.
- Attada, R., Luong, T. M., Dasari, H. P., Chang, H., Sharma, N., Karumuri, R. K., **Risanto, C. B.**, Castro, C. L., & Hoteit, I. (2026). Decade-Long Cloud-Resolving Model Simulations for Arabian Peninsula Winter Precipitation: Climatology and Extremes. *J. Applied Meteorology and Climatology*, **65**, 1117–1138, <https://doi.org/10.1175/JAMC-D-25-0123.1>.
- Chun, K.P., Aragão, L., Olmo, M.E., **Risanto, C. B.** et al. (2026). New horizons in statistical downscaling and AI approaches for sustainable km-scale climate simulations. *npj Climate and Atmospheric Science*, **9**, 151. <https://doi.org/10.1038/s41612-026-01424-6>
- Hoteit, I., Abualnaja, Y., Afzal, S., Aman, C., Antony, C., **Risanto, C. B.**, et al. (2025). New climate change center of Saudi Arabia: Advancing understanding and prediction for the Arabian Peninsula climate. *Earth's Future*, **13**, e2025EF006296. <https://doi.org/10.1029/2025EF006296>
- Shohan, S., S. E. Koch, C. L. Castro, A. F. Arellano, J. Kay, **C. B. Risanto**, T. M. Weckwerth, J. O. Pinto, D. K. Adams, et al. (2025). Impact of assimilating GPS precipitable water vapor on simulations of two North American monsoon convective events using observing system simulation experiments. *Journal of Geophysical Research: Atmospheres*, **130**, e2025JD044491, <https://doi.org/10.1029/2025JD044491>
- Luong, T. M., H. P. Dasari, R. Attada, H.-I Chang, **C. B. Risanto**, C. L. Castro, et al. (2025). Rainfall climatology and predictability over the Kingdom of Saudi Arabia at

subseasonal scale. *Quarterly Journal of the Royal Meteorological Society*, **e5015**, <https://doi.org/10.1002/qj.5015>

- **Risanto, C. B.**, H.-I Chang, T. M. Luong, et al. (2024) Retrospective sub-seasonal forecasts of extreme precipitation events in the Arabian Peninsula using convective-permitting modeling. *Climate Dynamics*, **62**, 2877–2906, <https://doi.org/10.1007/s00382-022-06336-8>
- Chang H.-I, Y. Chikamoto, S. S-Y Wang, C. L. Castro, M. D. LaPlante, **C. B. Risanto**, X. Huang, P. Bunn (2024). Enhancing extreme precipitation predictions with dynamical downscaling: A convection-permitting modeling study in Texas and Oklahoma. *Journal of Geophysical Research: Atmosphere*, **129**, e2023JD038765, <https://doi.org/10.1029/2023JD038765>
- Dominguez, F., and **Coauthors** (2024). Advancing South American Water and Climate Science through Multidecadal Convection-Permitting Modeling. *Bulletin American Meteorology Society*, **105**, E32–E44, <https://doi.org/10.1175/BAMS-D-22-0226.1>.
- **Risanto, C. B.**, J. M. Moker, A. F. Arellano, C. L. Castro, Y. L. Serra, T. M. Luong, and D. K. Adams, (2023). On the Collective Importance of Model Physics and Data Assimilation on Mesoscale Convective System and Precipitation Forecasts over Complex Terrain. *Monthly Weather Review*, **151**, 1993–2008, <https://doi.org/10.1175/MWR-D-22-0221.1>.
- Ehsani, M. R., S. Heflin, **C. B. Risanto**, Ali Behrangi, (2022). How well do satellite and reanalysis precipitation products capture North American monsoon season in Arizona and New Mexico? *Weather and Climate Extremes*, **38**, <https://doi.org/10.1016/j.wace.2022.100521>.
- **Risanto, C. B.**, Castro, C. L., Arellano, A. F., Jr., Moker, J. M., Jr., and Adams, D. K. (2021). The Impact of Assimilating GPS Precipitable Water Vapor in Convective-Permitting WRF-ARW on North American Monsoon Precipitation Forecasts over Northwest Mexico. *Monthly Weather Review*, **149**, 3013–3035, <https://doi.org/10.1175/MWR-D-20-0394.1>
- **Risanto, C.B.**, Castro, C.L., Moker, J.M., Jr., Arellano, A.F., Jr., Adams, D.K., Fierro, L.M., Minjarez Sosa, C.M., (2019). Evaluating Forecast Skills of Moisture from Convective-Permitting WRF-ARW Model during 2017 North American Monsoon Season. *Atmosphere*, **10**, 694. <https://doi.org/10.3390/atmos10110694>
- Ehsani, M. R., J. Arevalo, **C. B. Risanto**, M. Javadian, C. J. Devine, A. Arabzadeh, H. L. Venegas-Quiñones, A. P. Dell’Oro, A. Behrangi, 2020. 2019–2020 Australia Fire and Its Relationship to Hydroclimatological and Vegetation Variabilities. *Water*, **12**, 3067. <https://doi.org/10.3390/w12113067>.

Selected Presentations

- **Risanto, C. B.**, S. Gilpin, A. Arellano: Investigating the Application of Generalized Gaspari-Cohn Correlation Function in Vertical Localization. EGU General Assembly 2026, Vienna, Austria, 3 May – 8 May 2026, <https://doi.org/10.5194/egusphere-egu26-2699>.
- **Risanto, C. B.**, Arellano, Jr., A. F., Koch, S., Castro, C. L., Shohan, S., and Adams, D. K.: Impacts of Assimilating GPS-PWV in Convective-permitting Model on Forecasting Monsoon Precipitation over Arizona Complex Terrain. EGU General Assembly 2025, Vienna, Austria, 27 Apr–2 May 2025, EGU25-100, <https://doi.org/10.5194/egusphere-egu25-100>, 2025.
- **Risanto, C. B.**, A. F. Arellano, C. L. Castro, S. E. Koch, S. M. S. Shohan, T. M. Weckwerth, J. O. Pinto, J. Kay. Assessing the Impact of Data Assimilation and Microphysics Schemes on Monsoon Precipitation Forecasts over Arizona Complex Terrain. 21st Conference on Mountain Meteorology, American Meteorological Society, 21-26 June 2024, Boise, Idaho.
- **Risanto, C. B.**, J. M. Moker, A. F. Arellano, C. Castro, Y. L. Serra, T. Luong, D. K. Adams (2023). On the Importance of Multi-Scale Constraints on Mesoscale Convective System and Precipitation Forecasts over Complex Terrain. 103rd American Meteorological Society Annual Meeting, 9 January 2023, Denver, Colorado.
- Chang, H.-I, **C. B. Risanto**, T. Luong, H. Dasari, R. Attada, C. Castro, I. Hoteit (2023). Tracking Mesoscale Convective Systems during Active Convection Season in the Arabian Peninsula. 103rd American Meteorological Society Annual Meeting, 9 January 2023, Denver, Colorado.
- Girone, D. J., **C. B. Risanto**, L. M. Fierro, H.-I Chang, C. L. Castro, S. Koch (2022). A Forecast Evaluation of the North American Summer Monsoon Precipitation over Arizona in Recent Years. Mountain Meteorology Conference, 8 January 2022, Boulder, Colorado.
- **Risanto, C. B.**, C. L. Castro, A. F. Arellano, J. M. Moker, and D. K. Adams (2021). The Impact of Precipitable Water Vapor Data Assimilation on North American Monsoon Precipitation Forecasts in Northern Mexico. Advances in Data Assimilation, Predictability, and Uncertainty Quantification at the American Geophysical Union Fall Meeting 2021, 13 – 17 December 2021, New Orleans, Louisiana.
- **Risanto, C. B.**, C. L. Castro, H.-I Chang, I. Hoteit, and T. Luong (2021). Evaluating Arabian Peninsula extreme weather ensemble forecast simulations at convective-permitting scale and sub-seasonal timescale. 35th Conference on Hydrology at American Meteorological Society 101st Annual Meeting, 10 – 15 January 2021, New Orleans, Louisiana.
- **Risanto, C. B.**, C. L. Castro, A. F. Arellano, J. M. Moker, and D. K. Adams (2021). The Impact of Precipitable Water Vapor Data Assimilation on North American Monsoon

Precipitation Forecasts in Northern Mexico. 25th Conference on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface (IOAS-AOLS) - Field Experiments: Observational and Assimilation Results at American Meteorological Society 101st Annual Meeting, 10 – 15 January 2021, New Orleans, Louisiana.

- **Risanto, C. B.,** C. L. Castro, A. F. Arellano Jr., L. Mendoza-Fierro, and J. M. Moker Jr. (2020). Forecasting North American Monsoon Precipitation with Data Assimilation. The 24th Conference on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface (IOAS-AOLS) at American Meteorological Society 100th Annual Meeting, 12 – 16 January 2020, Boston, Massachusetts.
- **Risanto, C. B.,** C. L. Castro, H. I. Chang, I. Hoteit, and T. M. Luong (2020). Simulating Extreme Precipitation over the Arabian Peninsula Using a Convective-Permitting Subseasonal Reforecast Product. The 30th Conference on Weather Analysis and Forecasting (WAF)/26th Conference on Numerical Weather Prediction (NWP) at American Meteorological Society 100th Annual Meeting, 12 – 16 January 2020, Boston, Massachusetts.
- **Risanto, C. B.,** J. M. Moker, C. L. Castro, A. F. Arellano, D. K. Adams, L. M. Fierro (2019). CAZMEX 2017: Improving Monsoon Precipitation Forecast in Northwest Mexico and Southwest U. S. The 23rd Conference on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface (IOAS-AOLS) at American Meteorological Society 99th Annual Meeting, 6 – 10 January 2019, Phoenix, Arizona.
- **Risanto, C. B.,** A. F. Arellano, C. L. Castro, and J. M. Moker (2018): Improving Summer Monsoon Precipitation Forecasts in Southwest US and Northwest Mexico; A CAZMEX 2017 Field Campaign. 2018 El Día del Agua y la Atmósfera Conference at the University of Arizona. 9 April 2018.
- **Risanto, C. B.** and A. F. Arellano (2017): Sensitivity Analysis of Convective Cloud and Precipitation to Biomass-Burning Aerosols in the Maritime Continent (Sumatra and Borneo). 2017 El Día del Agua y la Atmósfera Conference at the University of Arizona. 27 March 2017.
- **Risanto, C. B.** and J. M. Schrage (2016): Low-level Cloud and Low-level Jet Occurrence during Warm ENSO events in Indonesia and Northern Australia. The 28th Conference on Climate Variability and Change, at American Meteorological Society 96th Annual Meeting, 10-14 January 2016, New Orleans, LA.
- Wagner, T. J., B. H. Decicco, A. A. Ellis, R. M. Hepper, L. C. Mahoney, M. Salerno, **C. B. Risanto,** K. Wright, and J. F. Schalles (2015), The July 2012 Niobrara Valley Wildfires and Their Aftermath: Satellite and Radiative Characteristics. The 20th Conference on Satellite Meteorology and Oceanography, at American Meteorological Society 95th Annual Meeting, 4-8 January 2015, Phoenix, AZ.