

Naruki Hiranuma (a.k.a., Seonggi Moon)

Dept. of Life, Earth and Environmental Sciences | West Texas A&M University (WTAMU)
Natural Sciences Building 321, Canyon, TX 79016
Phone: 806-651-3872 | Email: nhiranuma@wtamu.edu
ORCID: 0000-0001-7790-4807 | Res. ID: D-3780-2014

a. Professional Preparation

West Texas A&M University	Environmental Science	M.S.	2005
Texas A&M University	Atmospheric Science	Ph.D.	2010
Pacific Northwest National Lab	Atmospheric Science	Postdoc	2012

b. Appointments

2019 –	Adjunct Professor, Texas Tech Univ., Dept. of Environmental Toxicology, Lubbock, TX
2016 –	Assistant Professor, West Texas A&M Univ., Dept. of Life, Earth and Environmental Sciences, Canyon, TX
2012 – 2016	Research Scientist (TV-L 13), Karlsruhe Institute of Technology, Institute for Meteorology and Climate Research – Atmospheric Aerosol Research, Karlsruhe, Germany
2009	Summer Research Fellow, Environmental Molecular Sciences Lab., Richland, WA & Lawrence Berkeley National Lab., Berkeley, CA

c. External Grants (last five years)

2020 –	<i>The Role of Ice-Nucleating Particles and Their Feedback on Clouds in Warming Arctic Climate (PI)</i> . Grant specification – NSF CAREER; Amount \$500,000 (\$260,879 to date); Source - NSF, Funding ID: 1941317; Award Period Covered: 07/01/2020-06/30/2025
2019 –	<i>Small Field Campaign: Aerosol-Ice Formation Closure Pilot Study (Co-PI)</i> . Grant specification - U.S. DOE Atmospheric System Research program; Amount: \$357,055 ; Source - U.S. DOE; Funding ID: FAP (DE-SC0020006); Award Period Covered: 05/01/2019-10/31/2020
2018 – 2019	<i>Investigation of Morphological and Mixing State Properties of Aerosol and Ice Crystal Residual Particles from the Atlantic Sector of the Arctic (PI)</i> . Grant specification - Environmental Molecular Sciences Laboratory (EMSL) General Cycle grant; Amount \$49,567 ; Source - U.S. DOE, Funding ID: 50504; Award Period Covered: 10/01/2018 - 09/30/2019
2018 –	<i>Implications of Aerosol Physicochemical Properties Including Ice Nucleation at ARM Mega Sites for Improved Understanding of Microphysical Atmospheric Cloud Processes (PI)</i> . Grant specification – DOE Early Career Research Program (ECRP) Award; Amount \$750,000 ; Source - U.S. DOE, Office of Science; Funding ID: DE-SC0018979; Award Period Covered: 09/01/2018 - 08/31/2023
2018 –	<i>Integration of Multidisciplinary Research and Creative Activities into the Learning Experience (Collaborator)</i> . Grant specification – Tier One Program (TOP) Grant; Amount \$300,000 ; Source - Texas A&M University, Funding ID: N/A; Period Covered: 09/01/2018 - 08/31/2021
2018 –	<i>Fate & Transport of Antimicrobial-Resistant Bacteria in Feedyard Dust: filling the gaps (Collaborator)</i> . Grant specification - Texas A&M AgriLife Research Air Quality Research Seed Grant Program; Amount \$247,735 ; Source - Texas A&M AgriLife Research, Funding ID: N/A; Award Period Covered: 09/01/2018 - 08/31/2020
2018	<i>AIDA (Aerosol Interaction and Dynamics in the Atmosphere) Investigation on Ice Nucleation Activity of Dust Particles Emitted from Cattle Feeding Operations in Texas Panhandle (PI)</i> . Grant specification - Transnational Access under EUROCHAMP-2020;

- Amount **\$13,405**; Source - EUROCHAMP-2020, Funding ID: 730997; Award Period Covered: 10/01/2018 - 11/30/2018
- 2018 *Ice Nucleating Particles in the Arctic Region (Collaborator)*. Grant specification – CNR grant; Amount **\$8,000**; Source - National Research Council - Institute of atmospheric sciences and climate, Funding ID: INPAR; Award Period Covered: 04/15/2018 - 09/30/2018
- 2016 – 2017 *Chemical and Physical Characterization of Fertile Soil-derived Ice Residuals from the Fifth International Ice Nucleation Workshop in November 2014 - FIN-1 (Co-I)*. Grant specification - EMSL Scientific theme grant; Amount **\$31,841**; Source - U.S. DOE, Funding ID: 49302; Award Period Covered: 10/01/2016 - 09/30/2017
- 2015 – 2017 *Development and Evaluation of A Simple but Powerful Method for Measuring Atmospheric Ice Nucleating Particles (Co-I)*. Grant specification - Arctic Challenge for Sustainability (ArCS) project grant; Amount **\$33,000**; Source - Japan Society for the Promotion of Science (JSPS); Funding ID: 15K13570; Award Period Covered: 4/1/2015 - 3/31/2017
- 2015 – 2016 *Molecular Identification of Non-proteinaceous Biological Particles towards Nucleating Ice (Co-I)*. Grant specification - EMSL general user grant; Amount **\$24,519**; Source - U.S. DOE, Funding ID: 49077; Award Period Covered: 10/15/2015 - 09/30/2016
- 2015 – 2017 *Central Coordination and Administration of the INUIT research unit (Participant)*. Grant specification - Ice Nucleation Research Unit (INUIT)-2; Amount **\$365,615**; Source - Deutsche Forschungsgemeinschaft (DFG), Funding ID: MO668/4-2
Award Period Covered: 04/01/2015 - 03/31/2017

d. Internal Grants

- 2018 – 2019 KRF: Investigating Arctic Amplification and Contribution of Atmospheric Ice-Nucleating Particles; Amount **\$4,997 (PI)**
- 2017 – 2018 KRF: Research on Vertical Profiling of Agricultural Aerosols; Amount **\$4,997 (PI)**
- 2017 WTAMU Foundation Development Grant: Soil Dust: Lofting, Transport, Characterization, and Interactions with Clouds and Climate; Amount **\$1,540 (PI)**
- 2017 Summer Faculty Development Grant: Taking the ESRI GIS courses; Amount **\$2,447 (PI)**
- 2016 – 2017 KRF: Investigating the contribution of agricultural dusts to atmospheric hail formation; Amount **\$4,993 (PI)**

e. Memberships

- 2012 – Member, Conference Network: European Geosciences Union (EGU)
- 2007 – Member, Conference Network: American Geophysical Union (AGU)
- 2007 – Member, Conference Network: American Meteorological Society (AMS)

f. Awards and Scholarships/Fellowships

- 2020 University Intellectual Contributions Award, West Texas A&M University
- 2020 PCANS College Intellectual Contributions Award, West Texas A&M University
- 2020 NSF CAREER Award, National Science Foundation
- 2019 PCANS College Intellectual Contributions Award, West Texas A&M University
- 2018 Early Career Research Program Award, U.S. DOE, Office of Science
- 2017 Ny-Ålesund Atmosphere Flagship Program Travel Award, Norwegian Polar Institute
- 2009 PNNL Summer Research Institute Fellowship, Battelle / Pacific Northwest National Lab
- 2008 National Atmospheric Deposition Program (NADP) Travel Award, NADP
- 2007 AMS Student Presentation Award, AMS
- 2006 NASA Tropospheric Chemistry Program Travel Scholarship, AMS
- 2005 Pathways to the Doctorate Fellowship, Texas A&M University System
- 2004 Student Endowment Scholarship, West Texas A&M University

g. Synergistic & Leadership Activities

Invited Lectures: I am internationally sought after for guest lectures. Since 2013, I have given 12 invited lectures in 8 different nations (2 in Germany, 2 in Japan, 1 in Italy, 1 in Austria, 1 in Israel, 1 in Swiss, 1 in the U.K., 2 in the U.S.) and one solicited online lecture recently given for European Geosciences Union.

Editorial Board Service: I joined the topic board of *Atmosphere* as of October, 2019. Further, I am also an editor of special issue in *Atmosphere* (Aerosol Influence on Mixed-Phase and Ice Clouds: Laboratory, Field, Remote-Sensing and Modeling Studies) for 2019-2020. I also have been an editorial board member of two *Environmental Science* journals since April, 2017. In the last six years, I have been a reviewer for >30 papers and science research proposals as a peer/panel member for Natural Environment Research Council in the U.K., Italian Scientific Committee on Antarctic Research, NSF and the U.S. DOE.

Conference Service: I served as a conference session convener & chair for AGU Fall Meeting (2013, 2015 and 2018) as well as AMS Annual Meeting (2018 and 2020). Sessions I led helped the INP research community to discuss their research, and I provided a venue for researchers to come together that fostered further collaborations.










Outreach: I have developed curricular modules with a local school district, provided outreach lectures at museum/zoo and conducted training for the local Boy Scouts to obtain their environmental science-related merit badges. This provided an important and well-received service to these organizations. I also supervised an NSF-funded student project (NSF-EAPSI on freezing of nano-cellulose and Ny-Ålesund samples) in 2017, and we have presented the outcome at the local middle school and AMS (with the best student poster presentation award) to educate as well as outreach to the public.

Organization of International Research Efforts: I helped organize the international research campaigns for inter-comparing >20 ice nucleation instruments and 11 aerosol mass spectrometers as well as chemical characterization of simulated cloud particles at the Fifth Ice Nucleation (FIN) workshop, held in Karlsruhe, Germany, during 3-26 Nov. 2014 & 9-28 March 2015, with other world-renowned community leaders, including Dr. Paul DeMott, CSU & Dr. Ottmar Möhler, KIT. This activity was in part supported by NSF. I am also involved in the recent EUROCHAMP-2020 infrastructure activity. I have acquired a guest visit travel award from the Ny-Ålesund Atmosphere Flagship program and used the travel funds to attend an international workshop to present my INP research.

Online Curricular Activities: With support of WTAMU IT office, I have successfully transformed two of the face-to-face environmental science courses, which I teach at WTAMU, to online courses. My online educational activities target teaching environmental science to both traditional and non-traditional students in the Texas Panhandle community. Combining the topics of environmental science is an efficient and interesting tool to connect audiences with fundamental science by demonstrating how science provides information so one can interpret, digest and solve everyday life problems. I have developed and implemented a series of mobile online hands-on laboratory modules to achieve my goals.

Academic Advisory: I have mentored 13 students at WTAMU for their research projects (2 M.S. students, 1 Ph.D. student and 10 undergraduates) with extramural funding supports (e.g., DOE-ECRP, NSF-EAPSI). My students are active on producing scientific deliverables (i.e., publication and >10 conference products). All students got their scientific product (poster at the least) while researching with me. Several students under my supervision received travel/research grants, providing them with important international research opportunities.

h. Computer Skills

 MatLab	 Igor Pro	 IDL
 Fortran77	 Oracle Virtual Box	 SPSS
 SQL	 LabView	 MS Office

i. Collaborators

Anderson, Todd (TTU, TX, USA); Adachi, Kouji (Meteorological Research Institute, Japan); Adams, Michael (University of Leeds, UK); Bell, David M. (Paul Scherrer Institute, Switzerland); Belosi, Franco (CNR-ISAC Bologna, Italy); Bingemer, Heinz (University of Frankfurt, Germany); Cappelletti, David (University of Perugia, Italy); China, Swarup (Pacific Northwest National Lab., WA, USA); Clewett, Cathy (University of Wisconsin-Madison, WI, USA); Conen, Franz (University of Basel, Switzerland); Creamean, Jessie M. (Colorado State University, CO, USA); Curtius, Joachim (University of Frankfurt, Germany); Czicz, Dan J. (Purdue University, IN, USA); DeMott, Paul J. (Colorado State University, CO, USA); Fridlind, Ann M. (NASA Goddard Institute for Space Studies, NY, USA); Georgakopoulos, Dimitri G. (Agricultural University of Athens, Greece); Gill, Thomas (UTEP, TX, USA); Grawe, Sarah (TROPOS, Germany); Hoffmann-Tüllmann, Nadine (Karlsruhe Institute of Technology, Germany); Höhler, Kristina (Karlsruhe Institute of Technology, Germany); Kiselev, Alexei (Karlsruhe Institute of Technology, Germany); Knopf, Daniel A. (Stony Brook University, NY, USA); Kobayashi, Atsuko (Tokyo Institute of Technology, Japan); Koike, Makoto (University of Tokyo, Japan); Koop, Thomas (University Bielefeld, Germany); Kulkarni, Gourihar (Pacific Northwest National Lab., WA, USA); Lacher, Larissa (Karlsruhe Institute of Technology, Germany); Laskin, Alexander (Purdue University, IN, USA); Liu, Xiaohong (TAMU, TX, USA); Mayor, Greg (TTU, TX, USA); Mazzola, Mauro (CNR-ISAC Bologna, Italy); Möhler, Ottmar (Karlsruhe Institute of Technology, Germany); Murakami, Masataka (Nagoya University, Japan); Murray, Benjamin J. (University of Leeds, UK); Petters, Markus D. (North Carolina State University, NC, USA); Riemer, Nicole (University of Illinois at Urbana-Champaign, IL, USA); Rinaldi, Matteo (CNR-ISAC Bologna, Italy); Rudich, Yinon (Weizmann Institute of Science, Israel); Santachiara, Gianni (CNR-ISAC Bologna, Italy); Schill, Gregg P. (NOAA, CO, USA); Schnaiter, Martin (Karlsruhe Institute of Technology, Germany); Schneider, Johannes (Max Planck Institute for Chemistry, Germany); Stopelli, Emiliano (Eawag, Switzerland); Sullivan, Ryan C. (Carnegie Mellon University, PA, USA); Suski, Kaitlyn (JUUL Labs, CA, USA); Szakall, Miklos (University of Mainz, Germany); Traversi, Rita (University of Florence, Italy); Ullrich-Fösig, Romy (Karlsruhe Institute of Technology, Germany); Umo, Nsikanabasi (Karlsruhe Institute of Technology, Germany); Wagner, Robert (Karlsruhe Institute of Technology, Germany); Wex, Heike (TROPOS, Germany); Zellenyuk, Alla (Pacific Northwest National Lab., WA, USA); Zhang, Kai (Pacific Northwest National Lab., WA, USA)

j. Co-editors

Kraemer, John (Southeast Missouri State University, MO, USA, *Journal of Environmental Science: Current Research*); Santangelo, Nicoletta (University of Naples, Italy, *Journal of Environmental Science and Allied Research*); Kulkarni, Gourihar (Pacific Northwest National Lab., WA, USA, *Atmosphere*); Diao, Minghui (San Jose State University, CA, USA, *Atmosphere*)

k. Graduate and Postdoctoral Advisors

Auvermann, Brent W. (Texas AgriLife Research, TX, USA); Brooks, Sarah D. (TAMU, TX, USA); Rogers, William J. (WTAMU, TX, USA); Shilling, John (PNNL, WA, USA)

l. Graduate Advisees (3)

Vepuri, Hemanth-Sandeep (WTAMU/TTU, TX, USA); Cory, Kimberly M. (WTAMU, TX, USA); Whiteside, Craig L. (WTAMU, TX, USA)

m. Undergraduate Advisees (10)

Kimberly Saucedo (WTAMU, TX, USA); Whittington, Chloe (WTAMU, TX, USA); Magaraggia, Emily (WTAMU, TX, USA); Davis, Cory (WTAMU, TX, USA); Hou, Yidi (WTAMU, TX, USA); McFarlin, Reece (WTAMU, TX, USA); Mills, Joshua (WTAMU, TX, USA); Rodriguez, Cheyanne (WTAMU, TX, USA); Salcido, Zachary (WTAMU, TX, USA); Wittlake, Briggs (WTAMU, TX, USA)

n. Peer-reviewed Publications (*WTAMU student/collaborator)

1. Kulkarni, G., **Hiranuma, N.**, Möhler, O., Höhler, K., China, S., Cziczo, D. J., and DeMott, P. J.: A new method for operating a continuous flow diffusion chamber to investigate immersion freezing: assessment and performance study, *Atmos. Meas. Tech. Discuss.*, <https://doi.org/10.5194/amt-2019-386>, in review, 2020.
2. Steinke, I., **Hiranuma, N.**, Funk, R., Höhler, K., Tüllmann, N., Umo, N. S., Weidler, P. G., Möhler, O., and Leisner, T.: Complex plant-derived organic aerosol as ice-nucleating particles – more than a sum of their parts?, *Atmos. Chem. Phys. Discuss.*, <https://doi.org/10.5194/acp-2019-869>, in review, 2019.
3. **Hiranuma, N.**, Adachi, K., Bell, D. M., Belosi, F., Beydoun, H., Bhaduri, B., Bingemer, H., Budke, C., Clemen, H.-C., Conen, F., ***Cory, K. M.**, Curtius, J., DeMott, P. J., Eppers, O., Grawe, S., Hartmann, S., Hoffmann, N., Höhler, K., Jantsch, E., Kiselev, A., Koop, T., Kulkarni, G., Mayer, A., Murakami, M., Murray, B. J., Nicosia, A., Petters, M. D., Piazza, M., Polen, M., Reicher, N., Rudich, Y., Saito, A., Santachiara, G., Schiebel, T., Schill, G. P., Schneider, J., Segev, L., Stopelli, E., Sullivan, R. C., Suski, K., Szakáll, M., Tajiri, T., Taylor, H., Tobo, Y., Ullrich, R., Weber, D., Wex, H., Whale, T. F., ***Whiteside, C. L.**, Yamashita, K., Zelenyuk, A., and Möhler, O.: A comprehensive characterization of ice nucleation by three different types of cellulose particles immersed in water, *Atmos. Chem. Phys.*, 19, 4823-4849, 2019.
4. DeMott, P. J., Möhler, O., Cziczo, D. J., **Hiranuma, N.**, Petters, M. D., Petters, S. S., Belosi, F., Bingemer, H. G., Brooks, S. D., Budke, C., Burkert-Kohn, M., Collier, K. N., Danielczok, A., Eppers, O., Felgitsch, L., Garimella, S., Grothe, H., Herenz, P., Hill, T. C. J., Höhler, K., Kanji, Z. A., Kiselev, A., Koop, T., Kristensen, T. B., Krüger, K., Kulkarni, G., Levin, E. J. T., Murray, B. J., Nicosia, A., O'Sullivan, D., Peckhaus, A., Polen, M. J., Price, H. C., Reicher, N., Rothenberg, D. A., Rudich, Y., Santachiara, G., Schiebel, T., Schrod, J., Seifried, T. M., Stratmann, F., Sullivan, R. C., Suski, K. J., Szakáll, M., Taylor, H. P., Ullrich, R., Vergara-Temprado, J., Wagner, R., Whale, T. F., Weber, D., Welti, A., Wilson, T. W., Wolf, M. J., and Zenker, J.: The Fifth International Workshop on Ice Nucleation phase 2 (FIN-02): laboratory intercomparison of ice nucleation measurements, *Atmos. Meas. Tech.*, 11, 6231-6257, 2018.
5. Suski, K. J., Bell, D. M., **Hiranuma, N.**, Möhler, O., Imre, D., and Zelenyuk, A.: Activation of intact bacteria and bacterial fragments mixed with agar as cloud droplets and ice crystals in cloud chamber experiments, *Atmos. Chem. Phys.*, 18, 17497-17513, 2018.
6. ***Ghosh, N.**, ***Sherali, N.**, **Hiranuma, N.**, Banerjee, P., Sherali, S., Romero, R., Rogers, J., Bennert, J., Vitale, J., Saadeh, C., Revanna, C.: Air pollution with 2.5 micron particulate matters and testing the decay of the aerosol concentration as a function of time to compare the efficiency of AHPCO® and Bi-Polar units in reducing the indoor particle counts, *European Scientific Journal*, 14, 26-40, 2018.
7. Ullrich, R., Hoose, C., Möhler, O., Niemand, M., Wagner, R., Höhler, K., **Hiranuma, N.**, Saathoff, H., and Leisner, T.: A new ice nucleation active site parameterization for desert dust and soot, *J. Atmos. Sci.*, 74, 699-717, 2017.
8. **Hiranuma, N.**, Möhler, O., Kulkarni, G., Schnaiter, M., Vogt, S., Vochezer, P., Järvinen, E., Wagner, R., Bell, D. M., Wilson, J., Zelenyuk, A., and Cziczo, D. J.: Development and characterization of an ice-selecting pumped counterflow virtual impactor (IS-PCVI) to study ice crystal residuals, *Atmos. Meas. Tech.*, 9, 3817-3836, 2016.
9. **Hiranuma, N.**, Möhler, O., Yamashita, K., Tajiri, T., Saito, A., Hoffmann, N., Hoose, C., Jantsch, E., Koop, T., and Murakami, M.: Ice nucleation by cellulose and its potential contribution to ice formation in clouds, *Nature Geoscience*, 8, 273-277, 2015.
10. **Hiranuma, N.**, Augustin-Bauditz, S., Bingemer, H., Budke, C., Curtius, J., Danielczok, A., Diehl, K., Dreischmeier, K., Ebert, M., Frank, F., Hoffmann, N., Kandler, K., Kiselev, A., Koop, T., Leisner, T., Möhler, O., Nillius, B., Peckhaus, A., Rose, D., Weinbruch, S., Wex, H., Boose, Y., DeMott, P. J., Hader, J. D., Hill, T. C. J., Kanji, Z. A., Kulkarni, G., Levin, E. J. T., McCluskey, C. S., Murakami, M., Murray, B. J., Niedermeier, D., Petters, M. D., O'Sullivan, D., Saito, A., Schill, G. P., Tajiri, T., Tolbert, M. A., Welti, A., Whale, T. F., Wright, T. P., and Yamashita, K.: A comprehensive

- laboratory study on the immersion freezing behavior of illite NX particles: a comparison of seventeen ice nucleation measurement techniques, *Atmos. Chem. Phys.*, 15, 2489-2518, 2015.
11. Wex, H., Augustin-Bauditz, S., Boose, Y., Budke, C., Curtius, J., Diehl, K., Dreyer, A., Frank, F., Hartmann, S., **Hiranuma, N.**, Jantsch, E., Kanji, Z. A., Kiselev, A., Koop, T., Möhler, O., Niedermeier, D., Nillius, B., Rösch, M., Rose, D., Schmidt, C., Steinke, I., and Stratmann, F.: Intercomparing different devices for the investigation of ice nucleating particles using Snomax® as test substance, *Atmos. Chem. Phys.*, 15, 1463-1485, 2015.
 12. **Hiranuma, N.**, Paukert, M., Steinke, I., Zhang, K., Kulkarni, G., Hoose, C., Schnaiter, M., Saathoff, H., and Möhler, O.: A comprehensive parameterization of heterogeneous ice nucleation of dust surrogate: laboratory study with hematite particles and its application to atmospheric models, *Atmos. Chem. Phys.*, 14, 13145-13158, 2014.
 13. **Hiranuma, N.**, Hoffmann, N., Kiselev, A., Dreyer, A., Zhang, K., Kulkarni, G., Koop, T., and Möhler, O.: Influence of surface morphology on the immersion mode ice nucleation efficiency of hematite particles, *Atmos. Chem. Phys.*, 14, 2315-2324, 2014.
 14. **Hiranuma, N.**, Brooks, S. D., Moffet, R. C., Glen, A., Laskin, A., Gilles, M. K., Liu, P., MacDonald, A. M., Strapp, J. W., and McFarquhar, G. M.: Chemical characterization of individual particles and residuals of cloud droplets and ice crystals collected on board research aircraft in the ISDAC 2008 study, *J. Geophys. Res. Atmos.*, 118, 6564-6579, 2013.
 15. Shakya, K. M., Liu, S., Takahama, S., Russell, L. M., Keutsch, F. N., Galloway, M. M., Shilling, J. E., **Hiranuma, N.**, Song, C., Kim, H., Paulson, S.E., Pfaffenberger, L., Barmet, P., Slowik, J., Prevot, A. S. H., Dommen, J., and Baltensperger, U.: Similarities in STXM-NEXAFS spectra of atmospheric particles and secondary organic aerosol generated from glyoxal, α -pinene, isoprene, 1,2,4-trimethylbenzene, and d-limonene, *Aerosol Sci. Technol.*, 47, 543-555, 2013.
 16. You, Y., Renbaum-Wolff, L., Carreras-Sospedra, M., Hanna, S. J., **Hiranuma, N.**, Kamal, S., Smith, M. L., Zhang, X., Weber, R. J., Shilling, J. E., Dabdub, D., Martin, S. T., and Bertram, A. K.: Images reveal that atmospheric particles can undergo liquidliquid phase separations, *P. Natl. Acad. Sci. USA*, 109, 13188-13193, 2013.
 17. Zaveri, R. A., Shaw, W. J., Cziczo, D. J., Schmid, B., Ferrare, R. A., Alexander, M. L., Alexandrov, M., Alvarez, R. J., Arnott, W. P., Atkinson, D. B., Baidar, S., Banta, R. M., Barnard, J. C., Beranek, J., Berg, L. K., Brechtel, F., Brewer, W. A., Cahill, J. F., Cairns, B., Cappa, C. D., Chand, D., China, S., Comstock, J. M., Dubey, M. K., Easter, R. C., Erickson, M. H., Fast, J. D., Floerchinger, C., Flowers, B. A., Fortner, E., Gaffney, J. S., Gilles, M. K., Gorkowski, K., Gustafson, W. I., Gyawali, M., Hair, J., Hardesty, R. M., Harworth, J. W., Herndon, S., **Hiranuma, N.**, Hostetler, C., Hubbe, J. M., Jayne, J. T., Jeong, H., Jobson, B. T., Kassianov, E. I., Kleinman, L. I., Kluzek, C., Knighton, B., Kolesar, K. R., Kuang, C., Kubátová, A., Langford, A. O., Laskin, A., Laulainen, N., Marchbanks, R. D., Mazzoleni, C., Mei, F., Moffet, R. C., Nelson, D., Obland, M. D., Oetjen, H., Onasch, T. B., Ortega, I., Ottaviani, M., Pekour, M., Prather, K. A., Radney, J. G., Rogers, R. R., Sandberg, S. P., Sedlacek, A., Senff, C. J., Senum, G., Setyan, A., Shilling, J. E., Shrivastava, M., Song, C., Springston, S. R., Subramanian, R., Suski, K., Tomlinson, J., Volkamer, R., Wallace, H. W., Wang, J., Weickmann, A. M., Worsnop, D. R., Yu, X.-Y., Zelenyuk, A., and Zhang, Q.: Overview of the 2010 Carbonaceous Aerosols and Radiative Effects Study (CARES), *Atmos. Chem. Phys.*, 12, 7647-7687, 2012.
 18. Liu, S., Shilling, J. E., Song, C., **Hiranuma, N.**, Zaveri, R. A., and Russell, L. M. Hydrolysis of organonitrate functional groups in aerosol particles, *Aerosol Sci. Technol.*, 46, 1359-1369, 2012.
 19. **Hiranuma, N.**, Kohn, M., Pekour, M. S., Nelson, D. A., Shilling, J. E., and Cziczo, D. J.: Droplet activation, separation, and compositional analysis: laboratory studies and atmospheric measurements, *Atmos. Meas. Tech.*, 4, 2333-2343, 2011.
 20. **Hiranuma, N.**, Brooks, S. D., Gramann, J., and Auvermann, B. W.: High concentrations of coarse particles emitted from a cattle feeding operation, *Atmos. Chem. Phys.*, 11, 8809-8823, 2011.
 21. Wright, M. E., Atkinson, D. B., Ziemba, L., Griffin, R., **Hiranuma, N.**, Brooks, S. D., Lefer, B., Perna, R., Rappenglück, B., and Luke, W. Extensive aerosol optical properties and aerosol mass related

measurements during TRAMP/TexAQS 2006 – implications for PM compliance and planning, *Atmos. Environ.*, 44, 4035-4044, 2010.

22. **Hiranuma, N.**, Brooks, S. D., Thornton, D. C. O., and Auvermann, B. W.: Atmospheric ammonia mixing ratios at an open-air cattle feeding facility, *J. Air Waste Manage. As.*, 60, 210-218, 2010.
23. Upadhyay, J., Auvermann, B. W., Paila, A.N., and **Hiranuma, N.**: Open-path transmissometry to determine the atmospheric extinction efficiency of feedyard dust, *Transactions of the ASABE*, 51, 1433-1441, 2008.
24. **Hiranuma, N.**, Brooks, S. D., Auvermann, B. W., and Littleton, R.: Using environmental scanning electron microscopy to determine the hygroscopic properties of agricultural aerosols, *Atmos. Environ.*, 42, 1983-1994, 2008.

o. Unrefereed Publications (*WTAMU student/collaborator)

1. **Hiranuma, N.**, ***Vepuri, H. S. K.**, Lacher, L., Nadolny, J., and Möhler, O.: Characterization of a new Portable Ice Nucleation Experiment chamber (PINE) and first field deployment in the Southern Great Plains, *Earth and Space Science Open Archive*, DOI: <https://doi.org/10.1002/essoar.10502526.1>, 2020.
2. ***Rodriguez, C. A.**, ***Vepuri, H. S. K.**, and **Hiranuma, N.**: Implications of precipitation particle properties for improved understanding of ice-nucleating particles in West Texas, *Earth and Space Science Open Archive*, DOI: <https://www.essoar.org/doi/abs/10.1002/essoar.10502568.1>, 2020.
3. ***Kimberly Cory**, ***Joshua Mills**, Yutaka Tobo, Kotaro Murata, Kumiko Goto-Azuma, ***Craig Whiteside**, ***Bobby McCauley**, ***Carolyn Bouma**, and **Naruki Hiranuma**: Laboratory measurements of immersion freezing abilities of non-proteinaceous and proteinaceous biological particulate proxies, *Earth and Space Science Open Archive*, DOI: <https://doi.org/10.1002/essoar.10500739.1>, 2019.
4. ***Craig Whiteside**, Yutaka Tobo, Sarah Brooks, ***Oliver Mulamba**, Jessica Mirrielees, and **Naruki Hiranuma**: Immersion freezing of coal combustion ash particles from the Texas Panhandle, *Earth and Space Science Open Archive*, DOI: <https://doi.org/10.1002/essoar.10500578.1>, 2019.
5. **Hiranuma, N.**, Auvermann, B. W., ***Cory, K. M.**, Georgakopoulos, D., and Belosi, F.: AIDA (Aerosol Interaction and Dynamics in the Atmosphere) investigation on the ice nucleation activity of dust particles emitted from cattle feeding operations in the Texas Panhandle., For EUROCHAMP-TNA Program, 2019, available at: <https://www.eurochamp.org/Project/Documentation/TNAdocuments.aspx>.
6. **Hiranuma, N.**, Möhler, O., Wex, H., Kulkarni, G., Boose, Y., Bundke, U., Cziczo, D. J., Danielczok, A., Ebert, M., Garimella, S., Hoffmann, N., Höhler, K., Kanji, Z. A., Kiselev, A., Raddatz, M., and Stetzer, O.: Immersion freezing of clay minerals and bacterial ice nuclei, in: *Nucleation and Atmospheric Aerosols, 19th International Conference*, edited by: DeMott, P. J., and O'Dowd, C. D., AIP Publishing, Melville, New York, 914-917, 2013.
7. Möhler, O., **Hiranuma, N.**, Höhler, K., Hoose, C., Hummel, M., Niemand, M., Oehm, C., Schmitt, T., Steinke, I., and Wagner, R.: Parameterizations of ice formation derived from AIDA cloud simulation experiments, in: *Nucleation and Atmospheric Aerosols, 19th International Conference*, edited by: DeMott, P. J. and O'Dowd, C. D., AIP Publishing, Melville, New York, 851-858, 2013.
8. **Hiranuma, N.** and Brooks, S. D.: Technical report: The loss rate of Perma Pure PD-Series Dryer for low air flow applications. For Perma Pure LLC, 2007.

p. Oral Presentations and Lectures (†invited; *WTAMU student/collaborator)

1. **†Hiranuma, N.**, ***Vepuri, H. S. K.**, Lacher, L., Nadolny, J., and Möhler, O.: The Portable Ice Nucleation Experiment chamber (PINE): laboratory characterization and field test for its semi-automated ice-nucleating particle measurements in the Southern Great Plains, EGU2020-12385, DOI: <https://doi.org/10.5194/egusphere-egu2020-12385>, EGU Sharing Geoscience Online, May 6, 2020.

2. Abdelmonem, A., Lützenkirchen, J., Ratnayake, S., and **Hiranuma, N.**: A spectroscopic view of mineral aerosol surface aging under atmospheric conditions, EGU2020-8279, DOI: <https://doi.org/10.5194/egusphere-egu2020-8279>, EGU Sharing Geoscience Online, May 6, 2020.
3. †**Hiranuma, N.** and ***Vepuri, H. S. K.**: Atmospheric ice-nucleating particles (INPs), American Chemical Society – WTAMU Chapter Seminar, Canyon, TX, Mar., 2020.
4. Steinke, I., **Hiranuma, N.**, Möhler, O., Burrows, S.: Complex organic particles from terrestrial sources as ice nucleators – more than a sum of their parts? American Association of Aerosol Research (AAAR), Portland, OR, USA, Oct., 2019.
5. Möhler, O., and **Hiranuma, N.**: A comprehensive characterization of ice nucleation by three different types of cellulose particles, 12th International Conference on Carbonaceous Particles in the Atmosphere (ICCPA), Vienna, Austria, Apr., 2019.
6. †**Hiranuma, N.**: Measurements of immersion freezing efficiency of non-proteinaceous and proteinaceous biological aerosols, Lubbock, TX, USA, Nov., 2018.
7. †**Hiranuma, N.**, and 55 co-authors: A comprehensive laboratory study on the immersion freezing behavior of INUIT calibrants: lessons learned and future research directions, INUIT Final Conference and 2nd Atmospheric Ice Nucleation Conference, Grasellenbach, Germany, Feb.-Mar., 2018.
8. **Hiranuma, N.**, and 55 co-authors: A comprehensive dataset on the immersion freezing behaviour of cellulose particles, 98th American Meteorological Society Annual Meeting, 10th Symposium on Aerosol–Cloud–Climate Interactions, Austin, TX, USA, Jan., 2018.
9. †Curtius, J., ... **Hiranuma, N.**, et al.: Heterogeneous Ice Nucleation of Dusts: Overview of Results from the INUIT Project, 98th American Meteorological Society Annual Meeting, 10th Symposium on Aerosol–Cloud–Climate Interactions, Austin, TX, USA, Jan., 2018.
10. DeMott, P. J., Möhler, O., Cziczo, D. J., **Hiranuma, N.**, Brooks, S. D., Petters, M. D., and FIN participant teams: Insights regarding ice nucleating particle measurement capabilities from laboratory and field measurements during the Fifth International Ice Nucleation Workshop, American Geophysical Union Fall Meeting, New Orleans, LA, USA, Dec., 2017.
11. †**Hiranuma, N.**, Möhler, O., Bell, D., El Khoury, P., Kovarik, L., Kulkarni, G., Laskin, A., Mahrt, F., Schiebel, T., Suski, K., Zelenyuk, A., INUIT/FIN-1/ISDAC Team: Chemical and physical characterization of atmospheric ice residuals, CNR-ISAC, Invited Seminar, Bologna, Italy, Oct., 2017.
12. †Möhler, O., **Hiranuma, N.**, Cziczo, D. J., DeMott, P. J., Petters, M. D., and FIN participant teams: A Summary of Results from the Fifth International Ice Nucleation (FIN) Workshop Series, ICNAA, Helsinki, Finland, Jun., 2017.
13. †**Hiranuma, N.**, Möhler, O., Kulkarni, G., Laskin, A., Zelenyuk, A., and INUIT/FIN-1 Team: Chemical and physical characterization of fertile soil-derived ice residuals from the Fifth International Ice Nucleation workshop in November 2014 (FIN-1), EGU Annual Meeting, Vienna, Austria, Apr., 2017.
14. Steinke, I., Funk, R., **Hiranuma, N.**, Möhler, O., Zhang, K.: Immersion freezing properties of complex biological aerosols derived from plants, 5th Workshop - Microphysics of Ice Clouds - Vienna, Austria, Apr., 2017.
15. Schiebel, T., ... **Hiranuma, N.**, et al.: Contribution of Soil Organic Matter to the Ice Nucleation Activity of Arable Soil Dust Aerosol Particles, 97th American Meteorological Society Annual Meeting, 9th Symposium on Aerosol–Cloud–Climate Interactions, Seattle, WA, USA, Jan., 2017.
16. Möhler, O., ... **Hiranuma, N.**, and the INUIT and FIN participant teams: Coordinated laboratory and field research on the sources, distribution, and prediction of atmospheric ice nucleating particles, 97th American Meteorological Society Annual Meeting, Seattle, 9th Symposium on Aerosol–Cloud–Climate Interactions, WA, USA, Jan., 2017.
17. †**Hiranuma, N.**: Chemical and physical characterization of ice residuals from the North Slope of Alaska during ISDAC2008 – Challenges in ArcticCARE-2017, Polar Meteorology and Glaciology Colloquium, NIPR, Tachikawa, Japan, Dec., 2016.

18. †**Hiranuma, N.**: The importance of bioaerosol-cloud interactions in climate studies - Physico-chemical and ice-nucleating properties of cellulose & its potential contribution to ice formation in clouds, Invited Seminar, Leipzig, Germany, Aug., 2016.
19. Möhler, O., **Hiranuma, N.**, et al.: Suppression of the feldspar ice nucleation activity by thin coating layers of secondary organics and sulphuric acid, 17th International Conference on Clouds & Precipitation, Manchester, UK, Jul., 2016.
20. DeMott, P. J. ... **Hiranuma, N.**, et al.: Intercomparison of ice nucleation measurement methods: the Fifth International Ice Nucleation Workshop and ambient aerosol sampling, 17th International Conference on Clouds & Precipitation, Manchester, UK, Jul., 2016.
21. †**Hiranuma, N.**: Technical seminar on atmospheric bioaerosol, Invited Lecture, Weizmann Institute of Science, Rehovot, Israel, Jun., 2016.
22. †**Hiranuma, N.**: Technical seminar on spectrophotometry and aerosol-cloud interactions, Invited Lecture, University of Alaska – Fairbanks, AK, USA, Apr., 2016.
23. Schiebel, T., Höhler, K., Funk, R., Hill, T.C.J., **Hiranuma, N.**, Levin, E.J.T., Nadolny, J., Steinke, I., Suski, K.J., Ullrich, R., Wagner, R., Weber, I., DeMott, P.J., and Möhler, O.: Ice Nucleation Activity of Agricultural Soil Dust Aerosol, EGU Annual Meeting, Vienna, Austria, Apr., 2016.
24. †**Hiranuma, N.**: Technical seminar on atmospheric ice nucleation, Invited Lecture, PSI, Switzerland, Mar., 2016.
25. DeMott, P. J., Suski, K. J., Hill, T. C. J., Levin, E. J. T., McCluskey, C. S., Möhler, O., **Hiranuma, N.**, Schiebel, T., Hoehler, K., Petters, M. D., Bertram, A., Mason, R., Chou, C., and FIN Team: Assessing the varied sources of ice nucleating particles from soils and their atmospheric abundances, AMS Conference, New Orleans, LA, USA, Jan., 2016.
26. †Cziczo, D. J., DeMott, P. J., **Hiranuma, N.**, Möhler, O and FIN Team: Advances in understanding the role of aerosols in cirrus formation from the Fifth International Ice Nucleation (FIN) workshop (invited presentation), AMS Conference, New Orleans, LA, USA, Jan., 2016.
27. **Hiranuma, N.**, Hoose, C., Järvinen, E., Kiselev, A., Möhler, O., Schnaiter, M., Ulrich, R., Cziczo, D.J., Zawadowicz, M., Felgitsch, L., Grothe, H., Kulkarni, G., Reicher, N., Rudich, Y., and Tobo, Y.: Ice nucleation by plant structural materials and its potential contribution to glaciation in clouds, AGU Fall Meeting, San Francisco, CA, USA, Dec., 2015.
28. Möhler, O., **Hiranuma, N.**, Cziczo, D., DeMott, P., Petters, M., and FIN teams: The fifth international ice nucleation workshop activities: overview and selected results, AGU Fall Meeting, San Francisco, CA, USA, Dec., 2015.
29. **Hiranuma, N.**: Getting ahead in making a cloud, DFG-JSPS Workshop on Aerosols, Max Planck Institute for Chemistry, Mainz, Germany, Nov., 2015.
30. †**Hiranuma, N.**: Technical seminar on a PCVI, Invited Lecture, University of Leeds, UK, Oct., 2015.
31. †**Hiranuma, N.**: Technical seminar on a PCVI & cloud chamber, Invited Lecture, PSI, Switzerland, Jul., 2015.
32. Möhler, O., Hiranuma, N., Yamashita, K., Tajiri, T., Saito, A., Kiselev, A., Hoffmann, N., Hoose, C., Jantsch, E., Koop, T., and Murakami, M.: Ice nucleation by cellulose and its potential contribution to ice formation in clouds, IUGG General Assembly, Prague, Jun., 2015.
33. †**Hiranuma, N.**: Technical seminar on a cloud simulation chamber, Invited Lecture, KAUST, Saudi Arabia, May, 2015.
34. **Hiranuma, N.**, Möhler, O., Kiselev, A., Saathoff, H., Weidler, P., Shutthanandan, S., Kulkarni, G., Jantsch, E., and Koop, T.: Surface structure, crystallographic and ice-nucleating properties of cellulose, EGU Annual Meeting, Vienna, Austria, Apr., 2015.
35. Ullrich, R., **Hiranuma, N.**, Hoose, C., Möhler, O., Niemand, M., Steinke, I., Wagner, R.: Dust in AIDA cloud chamber immersion freezing experiments, AMS Annual Meeting, Phoenix, AZ, USA, Jan., 2015.
36. Ullrich, R., **Hiranuma, N.**, Hoose, C., Möhler, O., Niemand, M., Steinke, I., Wagner, R., Cziczo, D., Walter, C., Rieger, and D., Deetz, K.: Quantifying the contribution of soot and dust to ice formation

- in cirrus clouds – a model study using a new parameterization framework, AMS Annual Meeting, Phoenix, AZ, USA, Jan., 2015.
37. Möhler, O., **Hiranuma, N.**, Wex, H., Augustin, S., Curtius, J., Bingemer, H., Diehl, K., Mitra, S., Ebert, M., Kandler, K., Budke, C., and Koop, T.: A comprehensive laboratory study on the immersion freezing behavior of atmospherically relevant aerosols, International Aerosol Conference, Busan, Korea, Aug.-Sep., 2014.
 38. **Hiranuma, N.**: Finding ice nucleating particles, 2nd Cross-disciplinary Meeting of Japanese Young Scientists in Europe, Rüdesheim am Rhein, Germany, Jul., 2014.
 39. Möhler, O., **Hiranuma, N.**, Hoffmann, N., Kiselev, A., Leisner, T., Wex, H., Augustin, S., Curtius, J., Danielczok, A., Diehl, K., Ebert, M., Kandler, K., Budke, C., Koop, T., Schill, G. P., Murakami, M., Kulkarni, G., Murray, B. J., Kanji, Z., Cziczo, D. J., Petters, M., and DeMott, P. J.: A summary of immersion freezing results from the ice nucleation research unit INUIT, AMS, Boston, MA, USA, Jul., 2014.
 40. Lamb, K. D., Clouser, B., Sarkozy, L., Stutz, E., Kühnreich, B., Landsberg, J., Habig, J., **Hiranuma, N.**, Wagner, R., Ebert, V., Kerstel, E., Saathoff, H., Möhler, O., and Moyer, E. J.: Implications of the ISOCLOUD campaigns at the AIDA cloud chamber for ice growth in cold cirrus, AMS, Boston, MA, USA, Jul., 2014.
 41. **Hiranuma, N.**, Möhler, O., Yamashita, K., Tajiri, T., Saito, A., Kiselev, A., Hoose, C., and Murakami, M.: Ice nucleation by cellulose and its potential impact on clouds and climate, EGU Annual Meeting, Vienna, Austria, Apr., 2014.
 42. Ullrich, R., **Hiranuma, N.**, Hoose, C., Möhler, O., Niemand, M., Steinke, I., and Wagner, R.: Developing a new parameterization framework for the heterogeneous ice nucleation of atmospheric aerosol particles, EGU Annual Meeting, Vienna, Austria, Apr., 2014.
 43. Möhler, O., **Hiranuma, N.**, Höhler, K., Hoose, C., Niemand, M., Schmitt, T., Steinke, I., Ullrich, R., and Wagner, R.: Laboratory cloud simulation experiments on ice nucleation processes, Centre Européen de Calcul Atomique et Moléculaire Workshop, Zurich, Switzerland, Apr., 2014.
 44. **Hiranuma, N.**, Hoffmann, N., Paukert, M., Steinke, I., Hummel, M., Kiselev, A., Dreyer, A., Zhang, K., Kulkarni, G., Koop, T., Hoose, C., and Möhler, O.: Influence of surface morphology on the heterogeneous ice nucleation efficiency of hematite particles, AGU Fall Meeting, San Francisco, CA, USA, Dec., 2013.
 45. Möhler, O., **Hiranuma, N.**, Höhler, K., Hoose, C., Hummel, M., Niemand, M., Oehm, C., Schmitt, T., Steinke, I., and Wagner, R.: Parameterizations of ice formation derived from AIDA cloud simulation experiments, Plenary talk, International Conference on Nucleation and Atmospheric Aerosols (ICNAA) 2013, Fort Collins, CO, USA, Jun., 2013.
 46. **Hiranuma, N.**, Möhler, O., Wex, H., Kulkarni, G., Boose, Y., Bundke, U., Cziczo, D. J., Danielczok, A., Ebert, M., Garimella, S., Hoffmann, N., Höhler, K., Kanji, Z.A., Kiselev, A., Raddatz, M., and Stetzer, O.: Immersion freezing of clay minerals and bacterial ice nuclei, European Science Foundation Atmospheric Ice Nucleation Workshop, Vienna, Austria, Apr., 2013.
 47. **Hiranuma, N.** and Möhler, O.: Immersion freezing of clay minerals and its temperature dependence, Invited Lecture, MRI, Tsukuba, Japan, Jan., 2013.
 48. **Hiranuma, N.**: Technique for separation of droplets from the interstitial components, 2012 DMT User Group Meeting, Boulder, CO, USA, Nov., 2012.
 49. **Hiranuma, N.**, Kohn, M., Pekour, M. S., Nelson, D. A., Shilling, J. E., and Cziczo, D. J.: Cloud droplets, ready for prime time, Invited Lecture, Karlsruhe Institute of Technology, Germany, Feb., 2012.
 50. **Hiranuma, N.**, Brooks, S. D., Thornton, D. C. O., Auvermann, B. W., and Fitz, D. R.: Concentration, size distributions, and transport of agricultural aerosols, NADP Conference, Madison, WI, USA, Oct., 2008.
 51. **Hiranuma, N.**, Brooks, S. D., Cheek, L., Thornton, D. C. O., Auvermann, B. W., and Littleton, R.: Optical, morphological, hygroscopic, and chemical properties of agricultural aerosols, International Symposium on Advanced Environmental Monitoring, Honolulu, HI, USA, Feb., 2008.

52. **Hiranuma, N.**, Brooks, S. D., Auvermann, B. W., and Littleton, R.: Size distribution and hygroscopic properties of agricultural aerosols, AMS Conference, San Antonio, TX, USA, Jan., 2007.

q. Poster Presentations (*WTAMU student/collaborator)

1. **Hiranuma, N.**, ***Vepuri, H. S. K.**, Lacher, L., Nadolny, J., and Möhler, O.: Characterization of a new Portable Ice Nucleation Experiment chamber (PINE) and first field deployment in the Southern Great Plains, 100th American Meteorological Society Annual Meeting, 12th Symposium on Aerosol–Cloud–Climate Interactions, Boston, MA, USA, Jan., 2020.
2. ***Rodriguez, C.**, ***Vepuri, H. S. K.**, and **Hiranuma, N.**: Implications of precipitation particle properties for improved understanding of ice-nucleating particles in West Texas, AGU Fall Meeting, San Francisco, CA, USA, Dec., 2019.
3. Rinaldi, M., Mazzola, M., Decesari, S., **Hiranuma, N.**, and Belosi, F.: Spring and summer-time INP observations at Ny Ålesund by DFPC, European Aerosol Conference 2019, Gothenburg, Sweden, Aug., 2019.
4. **Hiranuma, N.**, Lacher, L., Nadolny, J., Vogel, F., Murray, B. J., Adams, M., Boffo, C., Pfeuffer, T., and Möhler, O.: The Portable Ice Nucleation Experiment (PINE): a new commercially available instrument to advance atmospheric ice nucleation research, 2019 ARM/ASR PI Meeting, Rockville, MD, Jun., 2019.
5. **Hiranuma, N.**, Auvermann, B. W., Belosi, F., ***Cory, K. M.**, Georgakopoulos, D. G., Höhler, K., Möhler, O., Norman, K., Saathoff, H., Schaupp, C., Scott, H. M., Shen, X., Steinke, I., Ullrich, R., and Umo, N.: Ice Nucleation Activity of Dust Particles Emitted from Cattle Feeding Operations in the Texas Panhandle, EGU Annual Meeting, Vienna, Austria, Apr., 2019.
6. ***Salcido, Z.**, ***Rodriguez, C.**, Dall'Osto, M., Rinaldi, M., and **Hiranuma, N.**: Laboratory Studies of Ice-Nucleating Particles in the Atlantic Sector of the Southern Ocean: Tackling Polar Amplification, WTAMU Student Research Conference, Canyon, TX, USA, Apr., 2019.
7. ***Rodriguez, C.**, ***Salcido, Z.**, ***Hou, Y.**, ***Wittlake, B.**, Webb, J., and **Hiranuma, N.**: Implications of Precipitation Particle Properties for Improved Understanding of Artificial Rain Enhancement and Hail Prevention in West Texas, WTAMU Student Research Conference, Canyon, TX, USA, Apr., 2019.
8. Umo, N., Wagner, R., Ullrich, R., Höhler, K., **Hiranuma, N.**, Lea-Langton, A., Kiselev, A., Weidler, P. G., Wex, H., Grawe, S., Jones, J. M., Williams, A., Murray, B. J., Leisner, T., and Möhler, O.: Coal fly ash as good ice-nucleating particles in cirrus cloud conditions, 12th International Conference on Carbonaceous Particles in the Atmosphere (ICCPA), Vienna, Austria, Apr., 2019.
9. **Hiranuma, N.**, et al.: Immersion freezing efficiencies of ambient particles collected from five different regions across latitudes, American Geophysical Union Fall Meeting, Washington D.C., USA, Dec., 2018.
10. ***Davis, C.** ... **Hiranuma, N.**, et al.: Ice Nucleation Efficiency of the Laboratory-synthesized Lead Oxide Particles as the Proxy of Lead-containing Aerosols, TAMUS Pathways Conference, Canyon, TX, USA, Nov., 2018.
11. Umo, N. ... **Hiranuma, N.**, et al.: Ice-Nucleating Properties of Coal Fly Ash Particles in Cirrus Cloud Conditions, IAC/AAAR, St. Louis, MO, USA, Sep., 2018.
12. Suski, K. J., Bell, D. M., **Hiranuma, N.**, et al.: Activation of Intact Bacteria and Bacterial Fragments Mixed with Agar as Cloud Droplets and Ice Crystals in Cloud Chamber Experiments, IAC/AAAR, St. Louis, MO, Sep., 2018.
13. ***Davis, C.**, Dreyer, A., and **Hiranuma, H.**: Ice Nucleation Efficiency of the Laboratory-synthesized Lead Oxide Particles as the Proxy of Lead-containing Aerosols, WTAMU Student Research Conference, Canyon, TX, USA, Apr., 2018.
14. Möhler, O., **Hiranuma, N.**, et al.: AIDA ice nucleation research: new findings and developments during the INUIT project, INUIT Final Conference and 2nd Atmospheric Ice Nucleation Conference, Grasellenbach, Germany, Feb.-Mar., 2018.

15. Steinke, I., Funk, R., **Hiranuma, N.**, Möhler, O., and Zhang, K.: Immersion freezing properties of complex biological aerosols derived from plants, INUIT Final Conference and 2nd Atmospheric Ice Nucleation Conference, Grasellenbach, Germany, Feb.-Mar., 2018.
16. ***Cory, K.**, Cappelletti, D., Mazzola, M., Udisti, R., and **Hiranuma, N.**: Laboratory investigation on the immersion freezing behavior of Arctic aerosols collected in Ny-Ålesund, Svalbard, 98th American Meteorological Society Annual Meeting, 10th Symposium on Aerosol–Cloud–Climate Interactions, Austin, TX, USA, Jan., 2018.
17. ***Whiteside, C.**, Auvermann, B., Bush, J., Goodwin, C., ***McFarlin, R.**, and **Hiranuma, N.**: Ice nucleation activity of dust particles emitted from a cattle feeding operation in the Texas Panhandle, 98th American Meteorological Society Annual Meeting, 10th Symposium on Aerosol–Cloud–Climate Interactions, Austin, TX, USA, Jan., 2018.
18. ***Cory, K.**, Tobo, Y., Murata, K., Goto-Azuma, K., Whiteside, C., McCauley, B., Bouma, C., ***Mills, J.**, and **Hiranuma, N.**: Laboratory measurements of immersion freezing abilities of non-proteinaceous and proteinaceous biological particulate proxies, American Geophysical Union Fall Meeting, New Orleans, LA, USA, Dec., 2017.
19. ***Whiteside, C. L.**, Tobo, Y., Mulamba, O., Brooks, S. D., and **Hiranuma, N.**: Immersion freezing of coal combustion ash particles from the Texas Panhandle, American Geophysical Union Fall Meeting, New Orleans, LA, USA, Dec., 2017.
20. Schiebel, T., ... **Hiranuma, N.**, et al.: Ice nucleation activity of arable soil dust aerosol particles, ICNAA, Helsinki, Finland, Jun., 2017.
21. Wonaschütz, A., Ludwig, W., Zawadowicz, M. A., **Hiranuma, N.**, Hitzengerger, R., Cziczo, D. J., DeMott, P. J., Möhler, O., and the FIN01 Team: Comparison of mineral dust and droplet residuals measured with two single particle aerosol mass spectrometers, EGU Annual Meeting, Vienna, Austria, Apr., 2017.
22. Connolly, P., Hoose, C., Liu, X., Cziczo, D. J., Möhler, O., DeMott, P. J., **Hiranuma, N.**, Petters, M. D., and the FIN-2 participants: Results from the FIN-2 formal comparison, EGU Annual Meeting, Vienna, Austria, Apr., 2017.
23. Steinke, I., Funk, R., **Hiranuma, N.**, Möhler, O., Shen, X.: From macromolecules to plant related aerosols – investigating the ice nucleation properties of complex biological particles, 1st Atmospheric IN Conference, Leeds, UK., Jan., 2017.
24. Schiebel, T., Höhler, K., Bertram, A.K., Chou, C., DeMott, P.J., Fröhlich-Nowoisky, J., Funk, R., Hill, T.C.J., **Hiranuma, N.**, Kandler, K., Linke, C., Mohr, C., Pöschl, U., Pummer, B., Ramisetty, R., Saathoff, H., Schnaiter, M., Shen, X., Si, M., Ullrich, R., Wong, C.J., Worringer, A., Leisner, T., and Möhler, O.: Ice Nucleation Activity of Arable Soil Dust Aerosol Particles, 3rd Leipziger Staubtag - interdisciplinary workshop on mineral dust, Leipzig, Germany, Nov., 2016.
25. Connolly, P., Hoose, C., Liu, X., Cziczo, D., Möhler, O., DeMott, P., **Hiranuma, N.**, Petters, M., and the FIN-2 participants: Results from the FIN-2 formal intercomparison of ice nucleation measurement methods, 17th International Conference on Clouds & Precipitation, Manchester, UK, Jul., 2016.
26. Möhler, O., **Hiranuma, N.**, Ullrich, R., and Hoose, C.: The Potential Contribution of Plant Materials to the Ice Nucleation Activity of Vegetated Soil Dust, AMS Conference, New Orleans, LA, USA, Jan., 2016.
27. Möhler, O., **Hiranuma, N.**, Yamashita, K., Tajiri, T., Saito, A., Kiselev, A., Hoffmann, N., Hoose, C., Jantsch, E., Koop, T., and Murakami, M.: Ice nucleation by cellulose and its potential contribution to ice formation in clouds, IUGG General Assembly, Prague, Jun., 2015.
28. Ullrich, R., **Hiranuma, N.**, Hoose, C., Möhler, O., Steinke, I., Wagner, R., Brunner, D., and Cziczo D. J.: Development and model application of a new parameterization framework for heterogeneous ice nucleation in tropospheric clouds, REKLIM (Regionale Klimaänderungen), Berlin, Germany, Oct., 2014.
29. Wex, H., Stratmann, F., Raddatz, M., Niedermeier, D., Nilius, B., Möhler, O., Koop, T., Jantsch, E., **Hiranuma, N.**, Diehl, K., Curtius, J., Budke, C., Boose, Y., and Augustin, S.: Immersion

- freezing of snomax particles: comparison of results from different instruments, EGU Annual Meeting, Vienna, Austria, Apr., 2014.
30. Lamb, K. D. Clouser, B., Sarkozy, L., Stutz, E., Kühnreich, B., Landsberg, J., Habig, J., **Hiranuma, N.**, Wagner, S., Ebert, V., Kerstel, E., Saathoff, H., Möhler, O., and Moyer, E. J.: Investigations into anomalous supersaturation in cold cirrus at the AIDA cloud chamber during the ISOCLOUD campaigns, AGU Fall Meeting, San Francisco, CA, USA, Dec., 2013.
 31. Järvinen, E., Schnaiter¹, M., Vochezer, P., Höhler, K., **Hiranuma, N.**, and Möhler, O.: Inter-comparison of size distribution measurements in cloud expansion studies, European Aerosol Conference 2013, Prague, Czech Republic, Sep., 2013.
 32. **Hiranuma, N.**, Möhler, O., Wex, H., Kulkarni, G., Boose, Y., Bundke, U., Cziczo, D. J., Danielczok, A., Ebert, M., Garimella, S., Hoffmann, N., Höhler, K., Kanji, Z.A., Kiselev, A., Raddatz, M., and Stetzer, O.: Immersion freezing of clay minerals and bacterial ice nuclei, ICNAA2013, Fort Collins, CO, USA, Jun., 2013.
 33. Steinke, I., Funk, R., Danielczok, A., Höhler, K., **Hiranuma, N.**, Hoffmann, N., Hummel, M., Kirchen, S., Kiselev, A., Leue, M., Möhler, O., Saathoff, H., Schnaiter, M., Schwartz, T., Sinerau, B., Stetzer, O., Toprak, E., Ulrich, A., Hoose, C., and Leisner, T.: Enhanced ice nucleation activity of soil dust particles, Goldschmidt Conference 2013, Florence, Italy, Aug., 2013.
 34. **Hiranuma, N.**, Möhler, O., Bingemer, H., Bundke, U., Cziczo, D. J., Danielczok, A., Ebert, M., Garimella, S., Hoffmann, N., Höhler, K., Kanji, Z., Kiselev, A., Raddatz, M., and Stetzer, O.: Immersion freezing of clay minerals and bacterial ice nuclei, EGU Annual Meeting, Vienna, Austria, Apr., 2013.
 35. **Hiranuma, N.**, Möhler, O., Bundke, U., Cziczo, D. J., Danielczok, A., Ebert, M., Garimella, S., Hoffmann, N., Kanji, Z. A., Kiselev, A., Raddatz, M., and Stetzer, O.: Immersion freezing of clay minerals and its time dependence, AGU Fall Meeting, San Francisco, CA, USA, Dec., 2012.
 36. Bertram, A., You, Y., Renbaum-Wolff, L., Carreras-Sospedra, M., **Hiranuma, N.**, Smith, M., Zhang, X., Weber, R. J., Shilling, J. E., Dabdub, D., and Martin, S. T.: Images reveal that atmospheric particles can undergo liquid-liquid phase separations, AGU Fall Meeting, San Francisco, CA, USA, Dec., 2012.
 37. You, Y., Renbaum-Wolff, L., Carreras-Sospedra, M., Hanna, S. J., **Hiranuma, N.**, Kamal, S., Smith, M., Zhang, X., Weber, R., Shilling, J., Dabdub, D., Martin, S. T., and Bertram, A.: Images reveal that atmospheric particles can undergo liquid-liquid phase separations, American Association of Aerosol Research (AAAR), Minneapolis, MN, USA, Oct., 2012.
 38. **Hiranuma, N.**, Cziczo, D. J., Nelson, D. A., Zhang, Q., Setyan, A., Song, C., Shrivastava, M., and Shilling, J. E.: CCN activity of anthropogenically/biogenically influenced aerosol particles downwind of the Sacramento area during CARES, AAAR, Orland, FL, USA, Oct., 2011.
 39. Liu, S., Shilling, J. E., **Hiranuma, N.**, Song, C., and Russell, L. M.: Hydrolysis of organonitrates at intermediate and high relative humidity, AAAR, Orland, FL, USA, Oct., 2011.
 40. Cziczo, D. J., Pekour, M. S., **Hiranuma, N.**, Nelson, D. A., and Zaveri, R. A.: "The effect of particle composition on hygroscopicity and droplet formation at CARES, AAAR, Orland, FL, USA, Oct., 2011.
 41. **Hiranuma, N.**, Cziczo, D. J., Nelson, D. A., Zhang, Q., Setyan, A., Song, C., Shrivastava, M., and Shilling, J. E.: CCN activity of thermodenuded aerosol particles downwind of the Sacramento area urban plume, AGU Fall Meeting, San Francisco, CA, USA, Dec., 2010.
 42. Cziczo, D. J., Pekour, M. S., **Hiranuma, N.**, and Nelson, D. A.: The effect of particle composition on hygroscopicity and droplet formation at CARES, AGU Fall Meeting, San Francisco, CA, USA, Dec., 2010.
 43. Brooks, S. D., **Hiranuma, N.**, Moffet, R., Laskin, A. Moffet, R., Gilles, M. K., and Glen, A.: The role of aerosol composition in Arctic cloud formation, AGU Fall Meeting, San Francisco, CA, USA, Dec., 2010.
 44. Brooks, S. D., Deng, P., Zhou, L., and **Hiranuma, N.**: Size resolved atmospheric aerosol composition by Raman microspectroscopy, AAAR, Portland, OR, USA, Oct., 2010.

45. **Hiranuma, N.**, Brooks, S. D., Thornton, D. C. O., Auvermann, B. W., and Fitz, D. R.: Atmospheric fate and transport of agricultural aerosols and ammonia, AGU Fall Meeting, San Francisco, CA, USA, Dec., 2008.
46. **Hiranuma, N.**, Brooks, S. D., Cheek, L., Thornton, D. C. O., Auvermann, B. W., and Littleton, R.: Hygroscopic, morphological, and chemical properties of agricultural aerosols, AGU Fall Meeting, San Francisco, CA, USA, Dec., 2007.
47. **Hiranuma, N.**, Auvermann, B. W., and Rogers, W. J.: Open-path transmissometry to determine atmospheric extinction efficiency associated with feedyard dust, Air & Waste Management Association, Minneapolis, MN, USA, Jun., 2005.

r. Additional Information

Please allow me to explain for another name that may appear on the my documents. I was born in Japan as an ethnic-Korean resident with the official Korean name (i.e., passport name) of SEONGGI MOON and a Japanese name; NARUKI HIRANUMA. I currently live and work in the U.S. Please note that all of my scientific presentations and papers have been published with "Naruki Hiranuma", as evident in my publication record.