Nicholas Steiner

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Dr. Nicholas C. Steiner is a faculty member of the Earth and Atmospheric Sciences Department of the City College of the City University of New York as a Research Assistant Professor. Professor Steiner's research focus is on the applied science of remote sensing for terrestrial ecosystems and surface hydrology. He has expertise in using remote sensing observations and modeling at microwave frequencies to understand surface hydrology and advance water and carbon cycle science.

EDUCATION

2012 Ph.D., Earth and Environmental Sciences, The Graduate Center of the City University of New York, New York, NY

2007 M.A., Earth and Atmospheric Sciences, City College of the City University of New York, New York, NY

2004 B.A., University of Colorado, Boulder, CO

PROFESSIONAL APPOINTMENTS

2018 - current   Research Assistant Professor, Earth and Atmospheric Sciences, City College of the City University of New, New York, NY

2021 - current   Affiliate Professor, Environmental Initiative, Advanced Science Research Center at The Graduate Center of the City University of New York, NY

2016   Visiting Research Faculty, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA

2012 - 2016   Postdoctoral Research Scientist, City College of the City University of New, New York, NY

PROFESSIONAL AWARDS

NASA Group Achievement Award, Carbon in the Arctic Vulnerability Experiment Airborne Science Campaign, 2014

RESEARCH SUPPORT: $3.93M TOTAL ($0.49 M AS LEAD)

NSF Collaborative Research: BoCP-Implementation: US-Sao Paulo: Functional responses to environmental change in South American transitional ecosystems, $777,506 Co-Principal Investigator (Submitted)

MSSM/CUNY Climate Change Health Impact Interdisciplinary Research Initiative : Environmental Disparities and the Risk of West Nile Virus in New York City, $50,000, CUNY Principal Investigator (2023)

NASA Grant No. NNH22ZDA001N-IDS: Predicting the Impact of Contemporary Climate Extremes on Nitrogen Flux along the Land-to-Ocean Continuum: Integrated Remote Sensing and Modeling Applied to the Mississippi River Basin, Collaborator (2023)

NASA Collaborative Study: SMAP Characterization of Vegetation Biometry with Field Portable Scanning LiDAR in support of SMAPVEX, $50,000, Unsolicited (2023, extension)

NASA Grant No. NNH22ZDA001N-ESAT: Remote sensing of urban ecosystem function in the megacity: Fine resolution characterization of water stress in New York City urban forests with ECOSTRESS, $378,030, Lead Investigator (2022)

NASA Grant No. N18STE22: Characterizing Terrestrial Surface Hydrodynamics and Biodiversity with Synthetic Aperture Radar: Contributions to NISAR Science, $ 344,991.00, Co-Investigator (2022)

NASA Collaborative Study: SMAP Characterization of Vegetation Biometry with Field Portable Scanning LiDAR in support of SMAPVEX, $50,000, Unsolicited (2022)

NASA Grant No. NNH20ZDA001N-CYGNSS: Methane emissions from tropical wetlands: Characterizing a critical terrestrial carbon cycle process using inundation extent and dynamics derived from CYGNSS, $664,341, Co-Investigator (2021)

Google Research Credits Program: Inundation Mapping under Tropical Forests using Global Ecosystem Dynamics Investigation (GEDI), $5.000, Lead Investigator (2020)

NASA Grant No. NNH18ZDA001N-RST: Parameterizing Microwave Scattering Models with Vegetation Structural Observations: Informing Multi-Frequency Radar with LIDAR, $498,683, Co-Investigator (2020)

NASA Grant No. 19-ISROASAR19-0044: Discerning the Freeze/Thaw State of Land Surface Components with L and S Band Radar, $100,387, Co-Investigator (2020)

NASA Grant No. NNH18ZDA001N-NST: Characterizing Terrestrial Surface Hydrodynamics and Biodiversity with Synthetic Aperture Radar: Contributions to NISAR Science, 2019-2021, $345,448, Co-Investigator (2019)

PSC-CUNY Research Award Program, Intelligent Laser Mapping of Tropical Forest Structure and Function under Climate Change, $6,000, Lead Investigator (2019)

NASA Grant No. NNH15ZDA001N-HMA: Assessing Impacts of Climate-Induced Change on River Flow and Economic Output in the High Mountain Asia Region, 2016-2019, $1,036,782, Co-Investigator (2016)

NASA Grant No. NNH15ZDA001N-SUSMP: Monitoring seasonal soil frost dynamics in boreal-Arctic ecosystems with SMAP, (2016), $495,956, Co-Investigator (2016)

NASA Grant No. NNH12ZDA001N-INCA: Development and Testing of Potential Indicators for the National Climate Assessment. (2013), Collaborator (2013)

PUBLICATIONS

1.   Colliander, A., Cosh, M. H., Bourgeau-Chavez, L., Kelly, V., Kraatz, S., Siqueira, P., Walker, V. A., Chen, X., Roy, A., Lakhankar, T., McDonald, K., **Steiner, N. C.,** Kurum, M., Kim, S., Berg, A., Xu, X., Konings, A., Misra, S., Vittucci, C., Kimball, J., Entekhabi, D., & Yueh, S. H. (in review). SMAP Validation Experiment 2019-2022 (SMAPVEX19-22) to improve soil moisture and vegetation optical depth retrievals in temperate forests. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*.

2.   **Steiner, N. C.**, McDonald, K. C., Thibault, K., Hass, B., & Tesser, D. (in prep.). Plot-scale forest structural models from terrestrial laser scanning. *Remote Sensing of Environment*

3.   Berg, A. A., Wicks, K., Ambadan, J. T., Roy, A., Magagi, R., Helgason, W., Colliander, A., Cosh, M. H., Tetlock, E., Gorrab, A., Roy, C., Salmabadi, H., Amini, Y., Alijani, Z., MacRae, H., Muhuri, A., Wang, H., Lee, J., Xu, X., Riis, N., David, C., Creen, J., McDonald, K., **Steiner, N. C.,** Misra, S., & Yueh, S. (2024). Soil Moisture Active Passive Soil Moisture Validation Experiment 2022 (SMAPVEX22-Boreal) over Canadian boreal forest. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*.

4.   Jeong, J., Ghosh, A., Colliander, A., Steiner, N., Tsang, L., Kurum, M., Yueh, S., McDonald, K., & Cosh, M. (in review). Full-wave Simulations of Forest at L-band with Fast Hybrid Method and Comparison with GNSS Signals. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*.

5.   †Yilman S. Pineda, Stephanie L. DeVries, Steiner, N. C., Karin A. Block-Cora (2023) Bioleaching of refractory gold in mine tailings by Alcaligenes faecalis, Minerals 13.3 (2023): 410.

6.   †Brown, M. G., McDonald, K. C., Zimmermann, R., **Steiner, N. C.**, Devries, S. L., & Bourgeau-Chavez, L. L. (2022). Characterization of site-specific vegetation activity in Alaskan wet and dry tundra as related to climate and soil state. Ecosphere, DOI: 10.1002/ecs2.3939

7.   †Scher, C., ***Steiner, N. C**., & McDonald, K. C. (2021). Mapping seasonal glacier melt across the Hindu Kush Himalaya with time-series synthetic aperture radar (SAR). *The Cryosphere*, 15, 4465-4482, doi:10.5194/tc-15-4465-2021.

8.   Holtzman, N. M., Anderegg, L. D., Kraatz, S., Mavrovic, A., Sonnentag, O., Pappas, C., **Steiner N**... & Konings, A. G. (2021). L-band vegetation optical depth as an indicator of plant water potential in a temperate deciduous forest stand. *Biogeosciences*, 18(2), 739-753.

9.   Duncan, B. N., Ott, L. E., Abshire, J. B., Brucker, L., Carroll, M. L., Carton, J., …, **Steiner, N**. …, et al. (2020). Space-based observations for understanding changes in the arctic-boreal zone. Reviews of Geophysics, 58

10. Kayastha, R. B., **Steiner, N**., Kayastha, R., K Mishra, S., & McDonald, K. (2020). Comparative study of hydrology and icemelt in three Nepal river basins using the glacio-hydrological degree-day model (GDM) and observations from the Advance Scatterometer (ASCAT). Frontiers in Earth Science, 7, 354.

11. †Jensen, K., McDonald, K., Podest, E., Rodriguez-Alvarez, N., Horna, V., & **Steiner, N.** (2018). Assessing L-Band GNSS-Reflectometry and Imaging Radar for Detecting Sub-Canopy Inundation Dynamics in a Tropical Wetlands Complex. *Remote Sensing*, *10*(9), 1431.

12. Mishra, S. K., Hayse, J., Veselka, T., Yan, E., Kayastha, R. B., LaGory, K., ... & **Steiner, N.** (2018). An integrated assessment approach for estimating the economic impacts of climate change on River systems: An application to hydropower and fisheries in a Himalayan River, Trishuli. *Environmental Science & Policy*, *87*, 102-111.

13. Parazoo, N. C., Arneth, A., Pugh, T. A., Smith, B., **Steiner, N.,** Luus, K., ... & Rödenbeck, C. (2018). Spring photosynthetic onset and net CO 2 uptake in Alaska triggered by landscape thawing. *Global change biology* 24(8), 3416-3435.

14. Hartery, S., Commane, R., Lindaas, J., Sweeney, C., Henderson, J., Mountain, M., …, **Steiner, N.,** & Wofsy, S. C. (2018). Estimating regional-scale methane flux and budgets using CARVE aircraft measurements over Alaska. *Atmospheric Chemistry and Physics*, *18*(1), 185-202.

15. Henderson, J. M., Eluszkiewicz, J., Mountain, M. E., Nehrkorn, T., Chang, R. Y.-W., Karion, A., Miller, J. B., Sweeney, C., **Steiner, N.,** Wofsy, S. C., and Miller, C. E. (2015) Atmospheric transport simulations in support of the Carbon in Arctic Reservoirs Vulnerability Experiment (CARVE), *Atmos. Chem. Phys. Discuss*., 14, 27263-27334, doi: 10.5194/acpd-14-27263-2014

16. **Steiner, N**. and Tedesco, M. (2014) A wavelet snowmelt detection algorithm applied to enhanced-resolution scatterometer data over Antarctica (2000–2009), *The Cryosphere*, 8, 25-40, doi:10.5194/tc-8-25-2014, 2014.

17. Tedesco, M., Foreman, C., Anton, J., **Steiner, N**., & Schwartzman, T. (2013). Comparative analysis of morphological, mineralogical, and spectral properties of cryoconite in Jakobshavn Isbræ, Greenland, and Canada Glacier, Antarctica. *Annals of Glaciology*, 54(63), 147. doi: 10.3189/2013AoG63A417

18. Barrand, N. E., Vaughan, D. G., **Steiner, N.,** Tedesco, M., Munneke, P. K., van den Broeke, M. R., & Hosking, J. S. (2013). Trends in Antarctic Peninsula surface melting conditions from observations and regional climate modeling. *J. Geophys. Res.: Earth Surface*, 118. doi: 10.1029/2012JF002559

19. Tedesco, M., Luthje, M., Steffen, K., **Steiner, N.,** Fettweis, X., Willis, I., & Banwell, A. (2012). Measurement and modeling of ablation of the bottom of supraglacial lakes in western Greenland. *Geophysical Research Letters*, 39. doi: L0250210.1029/2011gl049882

20. Tedesco, M., and **Steiner, N.** (2011) In-situ multispectral and bathymetric measurements over a supraglacial lake in western Greenland using a remotely controlled

watercraft. *Cryosphere*, 5(2), 445-452. doi: 10.5194/tc-5-445-2011

21. Alimova, A., Katz, A., **Steiner, N**., Rudolph, E., Wei, H., Steiner, J. C., & Gottlieb, P. (2009) Bacteria-clay interaction: structural changes in smectite induced during biofilm formation. *Clays and Clay Minerals*, 57 (2), 205. doi: 10.1346/CCMN.2009.0570207

*Corresponding author, †Student author

COUNT AND MENTIONS

Publications: 21, Total times cited: 947, H-index: 16, i10-index: 16

TEACHING EXPERIENCE

SUS7502C Capstone Interdisciplinary Team Project, Department of Sustainability in the Urban Environment, City College of the City University of New York, New York, NY, Fall 2023-Spring 2024

EASB9020 Quantitative Methods for Geophysical Data Analysis, Department of Earth and Atmospheric Science, City College of the City University of New York, New York, NY, Fall 2013

EAS3119 MATLAB for Environmental Science, Department of Earth and Atmospheric Science, City College of the City University of New York, New York, NY, Fall 2010

EAS106 Introduction to Earth Systems Science, Department of Earth and Atmospheric Science, City College of the City University of New York, New York, NY, Adjunct Assistant Professor, 2005-2009

STUDENT RESEARCH AND COMMITTEE SERVICE

Committee Member: C, Scher, 2019, "Snowmelt Detection on Alpine Glaciers using SAR Time Series", Master of Science in Geology

Committee Member: Y. Pineda, 2019, "Comparison of gold extraction yields by cyanide treatment vs. bioleaching procedure", Master of Science in Geology

INVITED TALKS

1. Lamont-Doherty Earth Observatory of Columbia University, "Microwave remote sensing of the freezing and thawing cryosphere". 2020

2. California Institute of Technology, Jet Propulsion Laboratory, "The Remote Sensing of Land Surface Properties over the Alaskan Arctic in Support of the Carbon in the Arctic Reservoir Experiment (CARVE)". 2016

CONTRIBUTED TALKS

1. **Steiner N.,** McDonald K. C. (2017) Multiscale radar mapping of surface melt over

mountain glaciers in High Mountain Asia, *American Geophysical Union, Fall General Assembly*

2. **Steiner N.,** McDonald K. C., Podest E., Dinardo S. J., Miller, C. E. (2016) Characterization of surface properties over permafrost soils using a high resolution mid-infrared camera as part of the Carbon in the Arctic Vulnerability Experiment (CARVE), *American Geophysical Union, Fall General Assembly*

3. **Steiner N.,** McDonald K. C., Schroeder R., Miller C. E and S. Dinardo (2013) Landscape Temperature and Frozen/Thawed Condition over Alaska with Infrared and Active/Passive Microwave Remote Sensing: Determination of Thermal Controls on Land-Atmosphere Carbon Flux in Support of CARVE, *American Geophysical Union, Fall General Assembly*

4. **Steiner N.,** Ioannou I., Amin R., Zhou J., Gilerson A., Gross B., Moshary F. and S. Ahmed, (2008) Characteristics of CDOM Absorption in UV and their Application for the Advanced IOP Retrieval Algorithms, *American Geophysical Union, Ocean Sciences Meeting*

5. **Steiner N.,** St. John S., Breger D., and J. C. Steiner (2007) Scanning Electron Microscope and Micro-Chemical Speciation of Sulfate-dominated, lead-bearing aerosols, *American Meteorological Society 88th Annual Meeting*

ELECTRONIC PUBLICATIONS AND REPORTS, REFEREED

Box, J. E., Cappelen, J., Chen, C., Decker, D., Fettweis, X., Hall, D., **Steiner N**, ... & Mernild, S. H. (2011). Greenland ice sheet. *Arctic Report Card.* National Oceanic and Atmospheric Administration Arctic Program

Vorosmarty, C., Rawlins, M., Hinzman, L., Francis, J., Serreze, M., Liljedahl, A., McDonald, K., Piasecki, M. & Rich, R. (2018). *Opportunities and Challenges in Arctic System Synthesis: A Consensus Report from the Arctic Research Community*. New York, NY. City University of New York. (**Steiner N.** – Contributing Author)

DATASETS IN RESEARCH DATA REPOSITORY

Steiner, N., McDonald, K. C., and Scher, C.: High mountain Asia 90 m Glacier Surface Melt/Freeze Phenology from SAR Imagery, Boulder, Colorado USA, NASA National Snow and Ice Data Center Distributed Active Archive Center (NSIDC-DAAC), doi: https://doi.org/10.5067/05I6ZHZWHSVV, 2021.

Steiner, N. and K. C. McDonald, High Mountain Asia ASCAT Freeze/Thaw/Melt Status, Version 1. Boulder, Colorado USA. NASA National Snow and Ice Data Center Distributed Active Archive Center (NSIDC-DAAC) doi: https://doi.org/10.5067/L319IEPK63VC, 2018

Steiner, N., K.C. McDonald, and C.E. Miller (2018) CARVE: Daily Thaw State of Boreal and Arctic Alaska from AMSR-E and SSM/I, 2003-2014. ORNL DAAC, Oak

Ridge, Tennessee, USA. doi: https://doi.org/10.3334/ORNLDAAC/1383, 2017

Steiner, N., K.C. McDonald, E. Podest, C.E. Miller, and S.J. Dinardo. CARVE: L1 Airborne Forward Looking Infrared Radiance Counts, Alaska, 2013-2015. ORNL-DAAC, Oak Ridge, Tennessee, USA. https://doi.org/10.3334/ORNLDAAC/1428, 2017

MEDIA COVERAGE

Jenkins, M. (2010). Changing Greenland: MELT ZONE: Dust settles, ice melts, lakes are born—and rubber duckies disappear, *National Geographic*, *217*(6), 34. (**N. Steiner** - Expedition Member/Featured Researcher)

ACADEMIC/UNIVERSITY SERVICE

Grant Panel Reviewer: NASA Earth Science Division, 2018, 2022, NSF, 2023

Special Topics Editor: *Remote Sensing*

Journal Reviewer: *Remote Sensing of Environment; Water Resources Review; Remote Sensing Letters; Geoscience and Remote Sensing Letters; Forests; Remote Sensing; Journal of Applied Remote Sensing, Journal of Geophysical Research*

Faculty Mentor: *City College Initiative to Promote Academic Success in Stem (CIPASS), TerraDrone Team, 2017, 2018*

Member: Interagency Arctic Research Policy Committee (IARPC)

Member: User Working Group, National Snow and Ice Data Center, NASA Distributed Active Archive Center, Boulder, CO, 2013-2019

FIELD COURSEWORK

North American Cordillera, five-week geology field course, Department of Geological Sciences and Engineering, University of Nevada, Reno, 2005

PROFESSIONAL MEMBERSHIP

American Geophysical Union, Institute of Electrical and Electronics Engineers, Association for Computing Machinery

CONFERENCE PROCEEDINGS

1. Colliander, A., Cosh, M. H., Bourgeau-Chavez, L. L., Kelly, V., Kraatz, S., Siqueira, P. R., McDonald, K. C., **Steiner, N**., Kurum, M., Roy, A., & others. (2023). Temperate forest biomass and water content observed with L-band radiometry: Experimental results from SMAPVEX19-22. In *AGU Fall Meeting Abstracts* (Vol. 2023, No. 1636, pp. H13M-1636).

2. Shen, X., Zhang, Q., Yang, Q., Helfrich, S., Kellndorfer, J., Straka, W. C., Hao, W., **Steiner, N**., Ruff, T., & Torres, J. (2023). What granularity of DEM is recommended to map flood depth from high resolution extent? In *AGU Fall Meeting Abstracts* (Vol. 2023, pp. H33D-06).

3. Yang, Q., Shen, X., Zhang, Q., Helfrich, S., Kellndorfer, J., Straka, W. C., Hao, W., **Steiner, N. C.,** Villa, M., Ruff, T., & others. (2023). Advancements in operational SAR flood extent and depth mapping: Addressing challenges in snow, arid, and urban environments on a global scale. In *AGU Fall Meeting Abstracts* (Vol. 2023, pp. H33D-03).

4. Podest, E., McDonald, K. C., Jensen, K., Tesser, D., Berndt, S., **Steiner, N. C.,** Zimmermann, R., Zhang, Z., & Poulter, B. (2023). CYGNSS inundation patterns over a tropical wetlands complex. In *AGU Fall Meeting Abstracts* (Vol. 2023, No. 1886, pp. B11I-1886).

5. **Steiner, N.,** McDonald, K. C., & Podest, E. (2022). Scattering properties of ecosystem structure and composition: Using terrestrial lidar for parameterization in radar scattering models of forests. In *Fall Meeting 2022*. AGU.

6. McDonald, K. C**., Steiner, N.,** Tesser, D., Podest, E., Zimmermann, R., Niessner, A., Rios, M., Urquiza, J. D., & Chapman, B. (2024). NISAR Tropical WETlands Validation Experiment (WETVEX): Implementation of a ground validation infrastructure to characterize inundation extent and dynamics in a tropical wetlands complex in Pacaya Samiria, Peru. In *Chapman Conference on Remote Sensing of the Water Cycle*. AGU.

7. McDonald, K., Podest, E., **Steiner, N.,** Tesser, D., Zimmermann, R., Niessner, A., Rios, M., Urquiza, J. D., Huneini, R., Downs, B., & others. (2024). NISAR: Seeing beyond the trees to understand wetlands, forests and biodiversity. In *IGARSS 2024-2024 IEEE International Geoscience and Remote Sensing Symposium* (pp. 6775-6778). IEEE.

8. **Steiner, N.,** McDonald, K., Tesser, D., Thibault, K., Hass, B., & Podest, E. (2021, December). Plot-scale Forest Structural Models from Terrestrial Laser Scanning. In AGU Fall Meeting Abstracts (Vol. 2021, pp. B23E-02).

9. Brown, M. G., McDonald, K. C., Zimmermann, R., **Steiner, N**., Devries, S. L., & Bourgeau-Chavez, L. L. (2019). Characterization of Site-Specific Alaskan Tundra Vegetation Activity as Driven by Climate and Soil Conditions. AGU Fall Meeting 2019. AGU.

10. Holtzman, N., Anderegg, L. D., Kraatz, S., Mavrovic, A., Roy, A., Sonnentag, O. ., **Steiner, N**., … others. (2019). Microwave Radiometry for Remote Sensing of Plant Water Status Dynamics: Stand-Scale Evaluation in a Temperate Deciduous Forest. AGU Fall Meeting 2019. AGU.

11. Scher, C., **Steiner, N.,** & McDonald, K. C. (2019). Significant Glacier Surface Melt Detected Across the Himalayas in Synthetic Aperture Radar Time Series. AGU Fall Meeting 2019. AGU.

12. **Steiner, N**, McDonald, K. C., Podest, E., & Davitt, A. W. D. (2019). Frost Degree-

Day Mapping over Permafrost Soils in the Arctic Boreal Zone from Multifrequency Passive Microwave Radiometry. AGU Fall Meeting 2019. AGU.

13. Tesser, D., **Steiner, N.,** Horna, V., Vicentini, A., Campos, P., & McDonald, K. C. (2019). Characterization of Ecosystem Structure in Tropical Forests Using Point Clouds Derived from LIDAR and Drone to Support Interpretation of Radar Imaging Data Sets. AGU Fall Meeting 2019. AGU.

14. Brown, M. G., McDonald, K., Zimmermann, R., **Steiner, N.,** Devries, S., & Bourgeau-Chavez, L. (2018). Variability in Seasonal Vegetation and Soil Biophysics Observed with In Situ Station Data and Microwave Remote Sensing in Boreal-Arctic Ecosystems. AGU Fall Meeting Abstracts.

15. Davitt, A. W. D., McDonald, K., Tesser, D., & **Steiner, N.** (2018). A multi-sensor and modeling approach to identify grapevine growth and health for improved vineyard monitoring and management. AGU Fall Meeting Abstracts.

16. **Steiner, N.,** Podest, E., Davitt, A., Brown, M., & McDonald, K. (2018). Monitoring Seasonal Soil Frost Dynamics in Boreal-Alaska Ecosystems with Multi-Frequency Radiometer Observations. AGU Fall Meeting Abstracts.

17. Tesser, D., **Steiner, N.,** & McDonald, K. (2018). Multiscale Characterization of Tropical Forest Structure Integrating SAR Remote Sensing, Drone Mapping, and Microclimate Analysis. AGU Fall Meeting Abstracts.

18. McDonald, K. C., **Steiner, N.,** Khadka Mishra, S., Krakauer, N., Lakhankar, T., Hayse, J., … Houser, P. (2018). Assessment of Climate-Induced Change in River Flow and Associated Effects on Hydropower Generation and Ecosystem Services in Nepal using Satellite Remote Sensing. AGU Fall Meeting Abstracts.

19. Podest, E., Rodriguez-Alvarez, N., McDonald, K., Jensen, K., & **Steiner, N.** (2018). Mapping Global Wetlands Using Smap Radar Data. AGU Fall Meeting Abstracts.

20. Davitt, A. W. D., Winter, J., McDonald, K., Escobar, V., & **Steiner, N.** (2017). A blended approach to analyze staple and high-value crops using remote sensing with radiative transfer and crop models. AGU Fall Meeting Abstracts.

21. Khadka Mishra, S., Hayse, J., Veselka, T., Yan, E., Kayastha, R., McDonald, K., … **Steiner, N.,** …, Lagory, K. (2017). Economic Analysis of the Impacts of Climate-Induced Changes in River Flow on Hydropower and Fisheries in Himalayan region. AGU Fall Meeting Abstracts.

22. **Steiner, N.** & McDonald, K. (2017). Multiscale radar mapping of surface melt over mountain glaciers in High Mountain Asia. AGU Fall Meeting Abstracts.

23. **Steiner, N.** McDonald, K. C., Podest, E., Dinardo, S. J., & Miller, C. E. (2016). Characterization of surface properties over permafrost soils using a high resolution mid-infrared camera as part of the Carbon in the Arctic Vulnerability Experiment (CARVE). AGU Fall Meeting Abstracts.

24. Hartery, S., Chang, R., Commane, R., Lindaas, J., Miller, S., Wofsy, S., … **Steiner, N.** … others. (2015). Constraining the 2012-2014 growing season Alaskan methane budget using CARVE aircraft measurements. AGU Fall Meeting Abstracts.

25. **Steiner, N.**, McDonald, K., Dinardo, S., & Miller, C. (2015). Snowmelt and Surface Freeze/Thaw Timings over Alaska derived from Passive Microwave Observations using a Wavelet Classifier. AGU Fall Meeting Abstracts.

26. Lamb, B., McDonald, K., **Steiner, N.**, Azarderakhsh, M., & Schroeder, R. (2014). Integrated Land Surface Water State Indicators for Climate Assessment. AGU Fall Meeting Abstracts.

27. **Steiner, N.**, McDonald, K., Miller, C., & Dinardo, S. (2014). A Comparison of Satellite and Aircraft-Mounted Thermal Observations of Freeze/Thaw Cycling of the Alaska Tundra and Boreal Forests during the Carbon in the Arctic Vulnerability Experiment (CARVE). AGU Fall Meeting Abstracts.

28. Azarderakhsh, M., McDonald, K., Schroeder, R., **Steiner, N.**, & Podest, E. (2013). Spatial and Temporal Analysis of inundation and Freeze/Thaw states in Alaska Using High Resolution ALOS PALSAR Observations. AGU Fall Meeting Abstracts.

29. Schroeder, R., McDonald, K., Azarderakhsh, M., **Steiner, N.**, Dunbar, R., Zimmermann, R., & Küppers, M. (2013). ASCAT MetOp-A Backscatter Observations over the Global Land Surface: Application to Monitoring Recent Trends in Lake and Wetland Extent and to Monitoring Crop Growth over the United States. AGU Fall Meeting Abstracts.

30. **Steiner, N.**, McDonald, K., Schroeder, R., Miller, C., & Dinardo, S. (2013). Landscape Temperature and Frozen/Thawed Condition over Alaska with Infrared and Active/Passive Microwave Remote Sensing: Determination of Thermal Controls on Land-Atmosphere Carbon Flux in Support of CARVE. AGU Fall Meeting Abstracts.

31. Datta, R., Tedesco, M., Alexander, P., Fettweis, X., **Steiner, N.**, & Gallee, H. (2012). Assessment of the MAR regional climate model over the Antarctic Peninsula (1999-2009) through spaceborne enhanced spatial resolution melting maps and near-surface observations. AGU Fall Meeting Abstracts.

32. Schroeder, R., McDonald, K., Kimball, J., Dunbar, S., Azarderakhsh, M., **Steiner, N.**, … Küppers, M. (2012). Compiling ASCAT Scatterometer Data for Continuing Global Vegetation State Monitoring: An initial comparison with SeaWinds-on-QuikSCAT Scatterometer Data. AGU Fall Meeting Abstracts.

33. **Steiner, N.**, McDonald, K., Schroeder, R., & Azarderakhsh, M. (2012). Ground Validated Freeze/Thaw Timings Using Multifrequency Active and Passive Satellite Observations: A Comparison of Retrieval Methodologies. AGU Fall Meeting Abstracts.

34. Azarderakhsh, M., McDonald, K., Schroeder, R., Chapman, B., **Steiner, N.**, Podest, E., … Pinales, J. (2012). Application of ALOS PALSAR ScanSAR Data for Determining the Freeze/Thaw Surface State over Alaska. AGU Fall Meeting Abstracts.

35. Alexander, P., Tedesco, M., **Steiner, N**, Marshall, H., Luthcke, S., & Fettweis, X. (2011). Identification of accumulation, density and grain size bias in the regional climate model MAR over the Greenland ice sheet using in-situ and remotely sensed data. AGU Fall Meeting Abstracts.

36. **Steiner, N.**, & Tedesco, M. (2011). An Enhanced Resolution Quikscat Derived Antarctic Melt Record (1999-2009): Development and Evaluation of Wavelet-Based Methods. AGU Fall Meeting Abstracts.

37. Tedesco, M., Marshall, H., & **Steiner, N.** (2010). From Colorado to Greenland: The 2010 Ground Passive and Active Snow (GAPS) Experiment. AGU Fall Meeting Abstracts.

38. **Steiner, N.**, & Tedesco, M. (2009). NIR photography results from the 2009 Ground Passive and Active Snow (GAPS) Experiment. AGU Fall Meeting Abstracts.

39. **Steiner, N.**, & Tedesco, M. (2008). Combined active/passive microwave wavelet-based approach for snowmelt detection over Antarctica ice shelves. AGU Fall Meeting Abstracts.

40. Lampousis, A., Kenyon, P., Sanwald, K., & **Steiner, N.** (2007). Electrical Imaging of Infiltration in Agricultural Soils on Long Island, New York. AGU Fall Meeting Abstracts.