

MICHAEL R. GALLAGHER

Curriculum Vitae
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michael.r.gallagher@noaa.gov
+1(720)663-9312

\$LANGUAGE = :
\$LC_ALL = en_US

EDUCATION

Ph.D. Atmospheric and Oceanic Sciences University of Colorado	Summer 2019
Doctorant Invité L'École Polytechnique, Paris France	Jan-Dec 2018
B.Sc. Engineering Physics, sub-disciplines of Computer Science and Applied Math — SUMMA CUM LAUDE University of Colorado	Dec 2011

RESEARCH

Research Scientist — Arctic physical processes and climate Cooperative Institute for Research in Environmental Sciences (CIRES/NOAA)	2019-current
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Please view my publications on page two. Primary science topics of interest include: Arctic climate and global impacts, atmospheric drivers of melt and their Arctic-local implications, connections to synoptic transport, energy, snowfall, and moisture budgets, net Greenland mass balance, central Arctic sea-ice extent, and microphysical processes such as cloud formation and boundary layer turbulence. Engineering topics of interest include: Arctic in situ observation platforms, applications of machine learning algorithms, and data processing/software development.

With these specific topics I hope to advance human understanding of the Arctic and its critical relationship to the changing climate by: (1) studying socially relevant climate phenomena utilizing expertise from across research domains, ideally combining in situ observations with spatial perspectives from satellites and high resolution models. (2) advanced in situ research platforms in power, cost, and flexibility in order to increase spatial/temporal coverage of observations in critical regions; (3) production of quality near-realtime datasets and post-processing to enhance uptake for the improvement of internal model physics of forecasts and climate projections

OUTREACH AND MENTORSHIP

The usefulness of (climate) research is determined by the clear communication of scientific conclusions and the ensuing implications. Because of the extreme geographic/socioeconomic disparities in the USA, outreach to underserved communities and students in particular is of extreme concern for "climate science literacy". I have many presentations full of photography from my years working at Arctic field sites, in the sea ice and on icesheets that I present to rooms full of children at every opportunity. Communities prioritized for outreach are: "Title 1" schools, impoverished public libraries, and "low resource" rural communities. If you would like to discuss outreach, a classroom visit, or are a student from such a community, please don't hesitate to send [e-mail](#) or call.

TEACHING

Instructor <i>Courses in Physics, Atmospheric Science, and Computing</i>	2010 - 2017 CU Boulder
<ul style="list-style-type: none">◆ Devised and gave lectures for 200+ students, including weekly discussions in office hours.◆ Worked as a laboratory instructor to improve students' tactile understanding of science.◆ Coordinated local science education and outreach to local K-12 schools	

AWARDS & ACTIVITIES

- ◆ Invited speaker at Aspen Global Climate Change conference on "Arctic Climate and Weather Extremes", Spring 2022
- ◆ Invited student researcher from January 2018 - December 2018, at École Polytechnique, Paris, France
- ◆ Award for 'Excellence in Science Pedagogy and Teaching' by University of Colorado
- ◆ Conferred awards for 'Outstanding Graduate in Engineering' and 'Outstanding Undergraduate Research' December 2011.

TECHNICAL SKILLS

Software: Proficient in the following languages/software, with at least 5 years experience, python, NCL, \LaTeX , C++, git, (e)Lisp, bash, csh, fish, BASIC, and matlab[®]. Moderate skills and proficiency, with at minimum 1 year experience using C, Fortran and Java. FOSS advocate.

Hardware: Observation platform hardware integration, centralized data acquisition, hardware design from prototype to CNC automated fabrication, design of PCBs, including automated troubleshooting with oscilloscopes and other testbench shenanigans.

Adare, A., Aidala, C., Ajitanand, N. N., Akiba, Y., Akimoto, R., Alexander, J., Alfred, M., Al-Ta'ani, H., Andrews, K. R., Angerami, A., et al. ϕ meson production in the forward/backward rapidity region in Cu + Au collisions at $\sqrt{s_{NN}} = 200$ GeV. *Phys. Rev. C* **93**, 024904. <https://link.aps.org/doi/10.1103/PhysRevC.93.024904> (2 Feb. 2016).

Adare, A., Afanasiev, S., Aidala, C., Ajitanand, N. N., Akiba, Y., Akimoto, R., Alexander, J., Aoki, K., Apadula, N., Asano, H., et al. An Upgrade Proposal from the PHENIX Collaboration. *arXiv e-prints*, arXiv:1501.06197. arXiv: [1501.06197 \[nucl-ex\]](https://arxiv.org/abs/1501.06197) (Jan. 2015).

Adare, A., Aidala, C., Ajitanand, N. N., Akiba, Y., Akimoto, R., Alexander, J., Alfred, M., Aoki, K., Apadula, N., Aramaki, Y., et al. Nuclear matter effects on J/ψ production in asymmetric Cu + Au collisions at $\sqrt{s_{NN}} = 200$ GeV. *Phys. Rev. C* **90**, 064908. <https://link.aps.org/doi/10.1103/PhysRevC.90.064908> (6 Dec. 2014).

Adare, A., Aidala, C., Ajitanand, N. N., Akiba, Y., Akimoto, R., Alexander, J., Aoki, K., Apadula, N., Asano, H., Atomssa, E. T., et al. sPHENIX: An Upgrade Concept from the PHENIX Collaboration. *arXiv e-prints*, arXiv:1207.6378. arXiv: [1207.6378 \[nucl-ex\]](https://arxiv.org/abs/1207.6378) (July 2012).

Hanks, J. A., Sickles, A. M., Cole, B. A., Franz, A., McCumber, M. P., Morrison, D. P., Nagle, J. L., Pinkenburg, C. H., Sahrmueller, B., Steinberg, P., et al. Method for separating jets and the underlying event in heavy ion collisions at the BNL Relativistic Heavy Ion Collider. *Phys. Rev. C* **86**, 024908. <https://link.aps.org/doi/10.1103/PhysRevC.86.024908> (2 Aug. 2012).

FIELD WORK PHOTOGRAPHY

Photography is an incredible tool for science communication, here is a small sample of my photos from Alaska, Greenland, and the central Arctic. These show sea ice melt ponds in summer, snowflakes from the north pole, the vast infinite Greenland ice sheet at the 11k foot summit, a Glacier encampment on the northern slope of Alaska, a tower at 88°N during Arctic winter, and a melting permafrost ice wedge. Everything from the frozen cold of winter to the tundra collapsing with the impact of climate change in summer, illustrations of the realities of the remote north. A CV easter egg for anyone who made it this far.





