

# William S. Daniels

<https://wsdaniels.github.io/>

(206) 383-7619

wdaniels@mines.edu

5110 Williams Fork Trl, Boulder, CO, 80301

## Education

---

PhD Statistics, Colorado School of Mines, GPA 4.00	(in progress)
M.S. Statistics, Colorado School of Mines, GPA 4.00	2021
B.S. Engineering Physics, Colorado School of Mines, GPA 3.99	2019

## Research Projects

---

### Monitoring Methane Emissions from Oil and Gas Operations Apr 2020 - Present

*Colorado School of Mines, Department of Applied Mathematics and Statistics*

- Working on a variety of projects broadly seeking to more completely and accurately monitor methane emissions from the oil and gas industry.
- Detrended continuous monitoring data and used them to help pinpoint potential emissions sources.
- Created an empirical Bayesian hierarchical model to estimate daily methane fields on a very fine grid with uncertainty using coarsely “pixelated” satellite observations.

### Modeling Atmospheric Carbon Monoxide Aug 2019 - Present

*Colorado School of Mines, Department of Applied Mathematics and Statistics*

- Used lagged multiple linear regression to model atmospheric carbon monoxide from climate indices.
- Implemented a regularization method that preserves hierarchical model structure between main effects and interaction effects.
- Created a framework to highlight the optimally performing models over a range of complexities.
- Used cross-validation to quantify stability of selected model terms, aiding model interpretability.

## Selected Publications and Presentations

---

1. **William Daniels**, Dorit Hammerling, Rebecca Buchholz, Helen Worden, Fatimah Ahamad. Predicting fire season intensity in Maritime Southeast Asia with interpretable models. *EarthArXiv*, doi:10.31223/X59320, (2021).
2. Meera Duggal, **William Daniels**, Rebecca Buchholz, Dorit Hammerling. Optimizing genetic algorithm parameters for atmospheric carbon monoxide modeling. *NCAR Technical Notes* (No. NCAR/TN-566+STR), doi:10.5065/h45f-c987, (2021).
3. **William Daniels**, James Crompton, Dorit Hammerling, Morgan Bazilian. Initial findings from continuous monitoring of oil and gas operations. *Payne Institute for Public Policy Commentary Series*, (2021).
4. **William Daniels**, Dorit Hammerling, Rebecca Buchholz. regClimateChem: An R package for data driven variable selection applied to atmospheric carbon monoxide. *NCAR Technical Notes* (No. NCAR/TN-562+STR), doi:10.5065/e8xj-3k89, (2020).
5. **William Daniels**, Kevin-Druis Merenda, Lawrence Wiencke. What can elves tell us about very strong lightning? *APS April Meeting*, Volume 64, Number 3, (2019).

## Academic Achievements

---

<b>Fellowships</b>	Harvey Graduate Fellowship	2019 - 2021
	Mines Undergraduate Research Fellowship	2017 - 2018
<b>Awards</b>	Best Talk in Environmental Science Session, Mines GRADS	2020
	Mines Physics Department Distinguished Graduate	2019
	Outstanding Presentation Award, APS April Meeting	2019
	1 <sup>st</sup> Place Poster, Mines Physics Research Symposium	2019