

DANIEL J. VARON

Curriculum Vitae | 1 October 2020

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29 Oxford Street | Cambridge, Massachusetts 02138

RESEARCH EXPERIENCE

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| 2020– | Postdoctoral Fellow
<i>Faculty mentor: Daniel Jacob</i>
Project: Quantifying methane emissions from oil/gas basins with satellite observations | Harvard University |
| 2020– | Research Scientist
<i>Analytics team</i>
Graduate student intern researcher from 2016–2019
Project: Quantifying methane point sources with high-resolution satellite observations | GHGSat Inc. |

EDUCATION

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| 2020 | PhD in Environmental Science and Engineering
Secondary field in Computational Science and Engineering
<i>Faculty mentor: Daniel Jacob</i> | Harvard University |
| 2018 | MSc in Applied Mathematics
<i>Faculty mentor: Daniel Jacob</i> | Harvard University |
| 2014 | BSc in Physics
First Class Honours
<i>Faculty mentors: Shaun Lovejoy, Tracy Webb</i> | McGill University |
| 2014 | BA in English Literature
First Class Honours
<i>Faculty mentor: David Hensley</i> | McGill University |

PUBLICATIONS

Manuscripts under review

1. **Varon, D. J.**, D. Jervis, J. McKeever, I. Spence, D. Gains, and D. J. Jacob: High-frequency monitoring of anomalous methane point sources with multispectral Sentinel-2 satellite observations. *Atmos. Meas. Tech. Discuss.*, 2020.
2. Lyon, D. R., B. Hmiel, R. Gautam, M. Omara, K. Roberts, Z. R. Barkley, K. J. David, N. L. Miles, V. C. Monteiro, S. J. Richardson, S. Conley, M. L. Smith, D. J. Jacob, L. Shen, **D. J. Varon**, A. Deng, X. Rudelis, N. Sharma, K. T. Story, A. R. Brandt, M. Kang, E. A. Kort, A. J. Marchese, and S. P. Hamburg: Concurrent variation in oil and gas methane emissions and oil price during the COVID-19 pandemic. *Atmos. Chem. Phys. Discuss.*, 2020.
3. Jervis, D., J. McKeever, B. O. A. Durak, J. J. Sloan, D. Gains, **D. J. Varon**, A. Ramier, M. Strupler, and E. Tarrant: The GHGSat-D Imaging Spectrometer. *Atmos. Meas. Tech. Discuss.*, 2020.

Selected Publications

4. **Varon, D. J.**, D. J. Jacob, J. McKeever, and D. Jervis: Quantifying time-averaged methane emissions from individual coal mine vents with GHGSat-D satellite observations. *Environ. Sci. Tech.*, [doi:10.1021/acs.est.0c01213](https://doi.org/10.1021/acs.est.0c01213), 2020.

5. **Varon, D. J.**, J. McKeever, D. Jervis, J. D. Maasakkers, S. Pandey, S. Houweling, I. Aben, T. Scarpelli, and D. J. Jacob: Satellite discovery of anomalously large methane point sources from oil/gas production. *Geophys. Res. Lett.*, doi:10.1029/2019GL083798, 2019.
6. **Varon, D. J.**, D. J. Jacob, J. McKeever, D. Jervis, B. O. A. Durak, Y. Xia, Y. Huang: Quantifying methane point sources from fine-scale satellite observations of atmospheric methane plumes. *Atmos. Meas. Tech.*, doi:10.5194/amt-11-5673-2018, 2018.

Additional published research

7. Cusworth, D. H., R. M. Duren, A. K. Thorpe, S. Pandey, J. D. Maasakkers, I. Aben, D. Jervis, **D. J. Varon**, D. J. Jacob, C. A. Randles, M. Smith, R. Gautam, M. Omara, G. Schade, P. E. Dennison, C. Frankenberg, D. Gordon, E. Lopinto, and C. E. Miller: Multi-satellite imaging of a gas well blowout provides new insights for methane monitoring. *Geophys. Res. Lett.*, in press.
8. Zhang, Y., R. Gautam, S. Pandey, M. Omara, J. D. Maasakkers, P. Sadavarte, D. Lyon, H. Nesser, M. P. Sulprizio, **D. J. Varon**, R. Zhang, D. Houweling, D. Zavala-Araiza, R. A. Alvarez, A. Lorente, S. P. Hamburg, I. Aben, & D. J. Jacob: Quantifying methane emissions from the largest oil producing basin in the U.S. from space. *Science Advances*, doi:10.1126/sciadv.aaz5120, 2020.
9. Cusworth, D. H., D. J. Jacob, **D. J. Varon**, C. Chan Miller, X. Liu, K. Chance, A. K. Thorpe, R. M. Duren, C. E. Miller, D. R. Thompson, C. Frankenberg, L. Guanter, and C. A. Randles: Potential of next-generation imaging spectrometers to detect and quantify methane point sources from space. *Atmos. Meas. Tech.*, doi:10.5194/amt2019-202, 2019.
10. Lovejoy, S., D. Schertzer, **D. J. Varon**: Do GCMs predict the climate... or macro-weather? *Earth System Dynamics* 4, 439-454. doi:10.5194/esd-4-439-2013, 2013.

PRESENTATIONS

Invited talks

- 2019 Satellite discovery of anomalously large methane point sources from oil/gas production. (U14C-10) American Geophysical Union Fall Meeting, San Francisco, CA, 9-13 December.
- 2019 Quantifying methane point sources with fine-scale satellite observations. SRON Netherlands Institute for Space Research, Utrecht, Netherlands, 24 May.

Conference Presentations

- 2020 Satellite Discovery of Anomalously Large Methane Point Sources from Oil/Gas Production. MIT A+B Applied Energy Symposium, Cambridge, MA, 12-14 August.
- 2019 Quantifying methane emissions from individual point sources with the GHGSat-D satellite instrument. (A53F-03) American Geophysical Fall Meeting, San Francisco, CA, 9-13 December.
- 2019 Quantifying methane emissions from individual coal mine vents with GHGSat-D satellite observations. 15th International Workshop on Greenhouse Gas Measurements from Space, Sapporo, JP, 3-5 June.
- 2019 Quantifying methane emissions from individual coal mine vents with GHGSat-D satellite observations. Industrial Methane Measurements Conference, Rotterdam, NL, 22-23 May.
- 2018 Quantifying methane point sources from fine-scale (GHGSat) satellite observations of atmospheric methane plumes. 14th International Workshop on Greenhouse Gas Measurements from Space, Toronto, ON, 8-10 May.

- 2017 Quantifying methane point sources from fine-scale (GHGSat) satellite observations of atmospheric methane plumes. ([A32D-07](#)) American Geophysical Union Fall Meeting, New Orleans, LA, 11-15 December.

Selected poster presentations

- 2018 Quantifying methane emissions from individual coal mine vents with GHGSat-D satellite observations. ([A43R-3443](#)) American Geophysical Union Fall Meeting, Washington, DC, 10-14 December.

TEACHING EXPERIENCE

Teaching assistant

Responsibilities included developing new class materials, leading class discussions, writing and grading all assignments, and meeting with students individually.

- 2017 *Atmospheric Chemistry* Harvard University
Overall teaching score of 4.7/5.0 based on student reviews
Awarded Harvard Certificate of Distinction in Teaching

HONORS & AWARDS

- 2019 Member of the Sigma Xi Honor Society
2018 AGU Outstanding Student Presentation Award
2017 Harvard University Certificate of Distinction in Teaching
2015 Stonington Graduate Fellowship of Environmental Science and Engineering
2014 McGill University Dean's Honour List

PROFESSIONAL SERVICE

- Reviewer** Atmospheric Measurement Techniques, Environmental Science and Technology
- Member** American Geophysical Union, European Geophysical Union
- Organizer** Building an inclusive community in EPS/ESE: Addressing gender-based discrimination and harassment. Department-wide event, February 2018.

SELECTED PRESS

- [The Economist](#) Using satellites to spot industry's methane leaks
[New York Times](#) A methane leak, seen from space, proves to be far larger than thought
[Forbes](#) Detection of methane leak from space could herald a revolution
[Bloomberg](#) Satellite studying volcanoes finds giant oilfield methane plume