# DANIEL J. VARON

Curriculum Vitae | 5 August 2020

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29 Oxford Street | Cambridge, Massachusetts 02138

## RESEARCH EXPERIENCE

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| 2020– | **Postdoctoral Fellow** | Harvard University |

*Faculty mentor: Daniel Jacob*
Project: Quantifying methane emissions from oil/gas basins with satellite observations

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| 2016– | **Research Scientist** | GHGSat Inc. |

*Analytics team*
Project: Quantifying methane point sources with high-resolution satellite observations

## EDUCATION

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| 2020 | **PhD in Environmental Science and Engineering** | Harvard University |

Secondary field in Computational Science and Engineering
*Faculty mentor: Daniel Jacob*

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| 2018 | **MSc in Applied Mathematics** | Harvard University |

*Faculty mentor: Daniel Jacob*

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| 2014 | **BSc in Physics** | McGill University |

First Class Honours
*Faculty mentors: Shaun Lovejoy, Tracy Webb*

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| 2014 | **BA in English Literature** | McGill University |

First Class Honours
*Faculty mentor: David Hensley*

## PUBLICATIONS

### Manuscripts under review

1. 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.*, under review.

### Selected Publications

2. **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, 2020.

3. **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.

4. **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**

5. 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.

6. 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.

7. 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

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 discussions, leading class discussions, writing and grading all assignments, and meeting with students individually.

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

## HONORS & AWARDS

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| 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

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| **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

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| 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 |