

Eric A. Kort

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RESEARCH APPOINTMENTS

Associate Professor	2019-present
Assistant Professor	2013-2019
Climate and Space Sciences and Engineering, Applied Physics University of Michigan, Ann Arbor, MI	
W. M. Keck Institute for Space Studies Postdoctoral Fellow	2011-2013
Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA	

EDUCATION

Ph.D., Applied Physics , Harvard University, Cambridge, MA	2011
S.M., Applied Physics , Harvard University, Cambridge, MA	2005
B.A., Physics (with Honors), minor Mathematics, Pomona College, Claremont, CA	2004

HONORS AND AWARDS

NSF CAREER award	2017
NASA New Investigator Program (NIP) in Earth Science award	2014
Early Career Award, Gordon Conference for Atmospheric Chemistry, Atmospheric Chemistry Colloquium for Emerging Senior Scientists (ACCESS)	2013
W. M. Keck Institute for Space Studies Postdoctoral Fellowship National Center for Atmospheric Research	2011-2013
Advanced Study Program Postdoctoral Fellowship (Declined)	2011
Outstanding Student Paper Award, Fall Meeting, AGU	2010
National Defense Science and Engineering Graduate (NDSEG) Fellowship	2007-2010
Edmunds Physics Prize, Pomona College	2004
Tileston Physics Prize, Pomona College	2003

AIRBORNE CAMPAIGNS

- **Flaring & Fossil Fuels: Uncovering Emissions and Losses (F³UEL), Gulf of Mexico/TX, Summer 2020
- East-Coast Outflow Greenhouse Gas study, Covid response (ECO-Covid), East Coast US, Spring 2020
- * East-Coast Outflow Greenhouse Gas study (ECO-GHG), East Coast US, Spring 2018
- Offshore oil & gas emissions assessment, Gulf of Mexico, Winter 2018
- * Greenhouse Emissions in the Midwest (GEM), Minnesota, Summer 2017; GEM-2, Winter 2018; GEM-3, Spring 2018
- ** Fertilizer Emissions Airborne Study (FEAST), Colorado & Mississippi River Valley, Spring 2017
- * The O₂/N₂ Ratio and CO₂ Airborne Southern Ocean Study (ORCAS), Chile, Winter 2016
- ** Twin Otter Project Defining Oil/gas Well emissioNs (TOPDOWN), New Mexico** & Pennsylvania*, Spring 2015
- * TOPDOWN, North Dakota, Colorado, Spring 2014
- * Barnett methane emissions study (Environmental Defense Fund), Denton, TX, Fall 2013

HIAPER Pole to Pole Observations (HIPPO-5), Pole to Pole, Summer-Fall 2011; HIPPO-4, Pole to Pole, Spring-Summer 2011
 California Nexus, Research at the Nexus of Air Quality and Climate Change (CALNEX), Ontario, CA, Spring 2010
 HIPPO-2, Pole to Pole, Fall 2009; HIPPO-3, Pole to Pole, Spring 2010;
 HIPPO-1, Pole to Pole, Winter 2009
 Stratosphere-Troposphere Analyses of Regional Transport (START08), Broomfield, CO, Spring 2008
 (* instrument PI and/or mission scientist, ** overall project PI)

TEACHING

Earth System Evolution (AOSS 320, CLIMATE 320), University of Michigan, Fall 2014- 2016, 2018
 Earth System Interactions (AOSS 475), University of Michigan, Winter 2014-2019
 AOSS Seminar (AOSS 749), University of Michigan, Fall 2014 & Winter 2015

SERVICE ACTIVITIES

Permian Methane Analysis Project, Environmental Defense Fund, Scientific Advisory Panel (2019-present)
 European Commission Joint Research Centre workshop participant and report co-author “Atmospheric monitoring and inverse modeling for verification of GHG inventories” (2017-2018)
 Japanese National Institute for Environmental Studies (NIES), workshop participant and report co-author “A guidebook on the use of satellite greenhouse gases observation data for verification of greenhouse gases emission inventories” (2017-2018)
 Co-lead for Workshop Towards Addressing Major Gaps in the Global Methane Budget, Linde Center, Caltech (2017)
 World Meteorological Organization Integrated Global GHG Information System (IG³IS) planning & implementation team (2016-2020)
 Co-chair of NACP breakout session on “Quantification and attribution of anthropogenic methane emissions in North America” (2015)
 Co-organizer Workshop on Measurements in Oil and Gas Production Regions, NOAA ESRL (2015)
 Public forum on Four Corners methane, Farmington, New Mexico (2015)
 JPL Carbon Cycle & Ecosystems Initiative steering committee member (2013)
 American Geophysical Union member

University of Michigan service:

President’s Commission on Carbon Neutrality: Carbon Accounting Sub Group (2019)
 Climate and Space Sciences and Engineering research excellence committee (2019-present)
 Climate and Space Sciences and Engineering mentoring committee (2018-present)
 Climate and Space Sciences and Engineering executive committee (2016-present)
 Climate and Space Sciences and Engineering graduate admission committee (2015-2019)
 Faculty transition team for new School of Sustainability at University of Michigan (2016-2017)
 Michigan Geophysical Union judge (2014, 2015)
 University of Michigan College of Engineering Graduate Symposium conference judge (2015)
 Atmospheric, Oceanic and Space Sciences Seminar co-organizer (2014-2015)
 President Schlissel’s committee on Greenhouse Gas Reduction, University of Michigan (2014-2015)
 UM Integrated Assessment on Hydraulic Fracturing in Michigan (consulting member; 2014-2015)
 Qualifying and prospectus exams: Anna Savage (2014, Applied Physics), Ben Isaacoff (2014, Applied Physics), Jamie MacLennan (2014, Applied Physics), Rebecca Craig (2014, Chemistry), Liz Ultee (2015, AOSS), Judit Szente (2015, AOSS), Zach Butterfield (2015, CLaSP), Rahul Gogna (2016,

Applied Physics), Samantha Basile (2016/2017, CLaSP), Anthony Torres (2016/2017, CLaSP), Shane Coffing (2017, Applied Physics), Dien Wu (2017, U. of Utah), Brian Swiger (2018, CLaSP)
 PhD committees: Chunpeng Wang (2014, AOSS), Anna Savage (2017, Applied Physics), Rebecca Craig (2018, Chemistry), Matthew Wozniak (2019, CLaSP)
 PhD committees chaired/co-chaired: John Ware (2018, Physics), Alexander (Sandro) Gvakharia (2019, Applied Physics)

Review tasks:

Peer reviewer for *Nature*, *PNAS*, *Nature Geoscience*, *Geophysical Research Letters*, *Nature Scientific Reports*, *Atmospheric Chemistry and Physics*, *Journal of Geophysical Research*, *Global Biogeochemical Cycles*, *Environmental Pollution*, *Atmospheric Measurement Techniques*, and *Environmental Science and Technology*

Proposal reviewer (*NSF*, *NERC*, *NSERC*, *Belmont Forum*, *Netherlands Space Office*, *Swedish National Space Board*) & panelist for *NASA* (2013, 2014 [2], 2016, 2019)

INVITED SEMINARS

Andrews University, Chemistry & Biochemistry (2019); Max Planck Institute for Biogeochemistry, Jena, Germany (2017); University of California- Berkeley, Berkeley Atmospheric Sciences Center Seminar (2017); University of Colorado- Boulder, Atmospheric and Oceanic Sciences (2017); California Institute of Technology, Environmental Science and Engineering (2017); University of Washington, Atmospheric Science (2017); University of Toronto, Center for Global Change Science Distinguished Lecturer Series (2017); Dartmouth College (2017); NASA GMAO, Goddard Space Flight Center (2015); NOAA ESRL Chemical Science Division (2014); University of Michigan, Atmospheric, Oceanic and Space Sciences (2014); UiT The Arctic University of Norway, (CAGE) Centre for Arctic Gas Hydrate, Environment, and Climate (2013); Boston University, Terrestrial Biogeochemistry (2013); Massachusetts Institute of Technology, Civil & Environmental Engineering (2013); University of Michigan, Atmospheric, Oceanic and Space Sciences (2013); Jet Propulsion Laboratory (2013); Pomona College, Physics (2012); UC Irvine, Earth System Science (2012); UCLA, Atmospheric and Oceanic Sciences (2012); Caltech, ESE & Society discussion group (2012); Caltech, Yuk Lunch seminar (2011); Jet Propulsion Laboratory (2011); JAMSTEC, Yokohama, Japan (2010)

PUBLICATIONS

As of March 2020: Google Scholar h-index = 36, total citations = 5584
 (indicates Kort group member)

76. Gorchov Negron AM, Kort EA, Conley SA, Smith ML, *Airborne Assessment of Methane Emissions from Offshore Platforms in the U.S. Gulf of Mexico*, Environ. Sci. Technol., doi: 10.1021/acs.est.0c00179, 2020.
75. Yang EG, Kort EA, Wu D, Lin JC, Oda T, Ye X, Lauvaux T, *Using space-based observations and Lagrangian modeling to evaluate urban carbon dioxide emissions in the Middle East*, J. Geophys. Res. Atmospheres, doi: 10.1029/2019JD031922, 2020.
74. Ye X, Lauvaux T, Kort EA, Oda T, Feng S, Lin JC, Yang EG, Wu D, *Constraining fossil fuel CO₂ emissions from urban area using OCO-2 observations of total column CO₂*, J. Geophys. Res. Atmospheres, doi: 10.1029/2019JD030528, 2020.
73. Wu D, Lin JC, Oda T, Kort EA, *Space-based quantification of per capita CO₂ emissions from cities*, Environ. Res. Lett. 15 035004, <https://doi.org/10.1088/1748-9326/ab68eb>, 2020.

72. Yu X, Millet DB, Wells KC, Griffis TJ, Chen X, Baker JM, Conley SA, Smith ML, Gvakharia A, Kort EA, Plant G, Wood JD, *Top-down constraints on methane point source emissions from animal agriculture and waste based on new airborne measurements in the US Upper Midwest*, J. Geophys. Res. Biogeosciences, doi: 10.1029/2019JG005429, 2020.
71. Morgan EJ, Stephens BB, Long MC, Keeling RF, Bent JD, McKain K, Sweeney C, Hoecker-Martinez MS, Kort EA, *Summertime Atmospheric Boundary Layer Gradients of O₂ and CO₂ over the Southern Ocean*, J. Geophys. Res. Atmospheres, 124, doi: 10.1029/2019JD031479, 2019.
70. Huang Y, Kort EA, Karion A, Ware J, Mueller K, Gourdji S, *Seasonally resolved excess urban methane emissions from the Baltimore/Washington, DC metropolitan region*, Environ. Sci. Technol., doi: 10.1021/acs.est.9b02782, 2019.
69. Asher E, Hornbrook RS, Stephens BB, Kinnison D, Morgan E, Keeling R, Atlas E, Schauffler S, Tilmes S, Kort EA, Hoecker-Martinez M, Long M, Lamarque JF, Saiz-Lopez A, McKain K, Sweeney C, Hills AJ, Apel EC, *Novel approaches to improve estimates of short-lived halocarbon emissions during summer from the Southern Ocean using airborne observations*, Atmos. Chem. Phys., 19, 14071–14090, <https://doi.org/10.5194/acp-19-14071-2019>, 2019.
68. Cui YY, Vijayan A, Falk M, Hsu YK, Yin D, Chen XM, Zhao Z, Avise J, Chen Y, Verhulst K, Duren R, Yadav V, Miller C, Weiss R, Keeling R, Kim J, Iriaci LT, Tanaka T, Johnson MS, Kort EA, Bianco L, Fischer ML, Stroud K, Herner J, Croes B, *A multi-platform inversion estimation of statewide and regional methane emissions in California during 2014-2016*, Environ. Sci. Technol., doi: 10.1021/acs.est.9b01769, 2019.
67. Plant G, Kort EA, Floerchinger C, Gvakharia A, Vimont I, Sweeney C, *Large fugitive methane emissions from urban centers along the US East Coast*, Geophysical Research Letters, doi:10.1029/2019GL082635, 2019.
66. Ware J, Kort EA, Duren R, Verhulst K, Yadav V, *Detecting Urban Emissions Changes and Events with a Near Real Time Capable Inversion System*, J. Geophys. Res. Atmospheres, 124, 5117-5130. doi:10.1029/2018JD029224, 2019.
65. Turner A*, Frankenberg C*, Kort EA*, *Interpreting contemporary trends in atmospheric methane*, PNAS Perspective, 201814297, doi:10.1073/pnas.1814297116, 2019. *authors contributed equally.
64. Gaubert B, Stephens BB, Basu S, Chevallier F, Deng F, Kort EA, Patra PK, Peters W, Rodenbeck C, Saeki T, Schimel D, Van der Laan-luijckx I, Wofsy S, Yin Y, *Global atmospheric CO₂ inverse models converging on neutral tropical land exchange but diverging on fossil fuel and atmospheric growth rate*, Biogeosciences, 16, 117-134, <https://doi.org/10.5194/bg-16-117-2019>, 2019.
63. Gvakharia A, Kort EA, Smith M, Conley S, *Testing and evaluation of a new airborne system for continuous N₂O, CO₂, CO, and H₂O measurements: the Frequent Calibration High-performance Airborne Observation System (FCHAOS)*, Atmos. Meas. Tech. 11, 6059-6074, <https://doi.org/10.5194/amt-11-6059-2018>, 2018.
62. Wu D, Lin JC, Oda T, Ye X, Lauvaux T, Yang EG, Kort EA, *A Lagrangian Approach Towards Extracting Signals of Urban CO₂ Emissions from Satellite Observations of Atmospheric Column CO₂ (XCO₂): X-Stochastic Time-Inverted Lagrangian Transport model (“X-STILT v1.1”)*, Geosci. Model Dev., 11, 4843-4871, <https://doi.org/10.5194/gmd-11-4843-2018>, 2018.
61. Zeng ZC, Natraj V, Xu F, Pongetti TJ, Shia RL, Kort EA, Toon GC, Sander SP, Yung YL, *Constraining Aerosol Vertical Profile in the Boundary Layer Using Hyperspectral Measurements of Oxygen Absorption*, Geophysical Research Letters, 45, 10,772–10,780. <https://doi.org/10.1029/2018GL079286>, 2018.

60. Alvarez RA, Zavala-Araiza D, Lyon DR, Allen DT, Barkley ZR, Brandt AR, Davis KJ, Herndon SC, Jacob DJ, Karion A, Kort EA, Lamb BK, Lauvaux T, Maasakkers JD, Marchese AJ, Omara M, Pacala SW, Peischl J, Robinson AL, Shepson PB, Sweeney C, Townsend-Small A, Wofsy SC, Hamburg SP, *Assessment of Methane Emissions from the U.S. Oil and Gas Supply Chain*, Science, 10.1126/science.aar7204, 2018.
59. Gourdji SM, Yadav V, Karion A, Mueller KL, Conley S, Ryerson T, Nehr Korn T, Kort EA, *The Aliso Canyon natural gas leak as a natural tracer experiment: reducing errors in aircraft atmospheric inversion estimates of point-source emissions*, Environmental Research Letters, 13, 045003, 2018.
58. Stephens BB, Long MC, Keeling RF, Kort EA, Sweeney C, Apel EC, Atlas EL, Beaton S, Bent JD, Blake NJ, Bresch JF, Casey J, Daube BC, Diao M, Diaz E, Dierssen H, Donets V, Gao BC, Gierach M, Green R, Haag J, Hayman M, Hills AJ, Hoecker-Martinez MS, Honomichl SB, Hornbrook RS, Jensen JB, Li RR, McCubbin I, McKain K, Morgan EJ, Nolte S, Powers JG, Rainwater B, Randolph K, Reeves M, Schauffler SM, Smith M, Smith K, Stith J, Stossmeister G, Toohey DW, Watt AS, *The O₂/N₂ Ratio and CO₂ Airborne Southern Ocean (ORCAS) Study*, Bull. Amer. Meteor. Soc. doi:10.1175/BAMS-D-16-0206.1, 2018.
57. Barkley ZR, Lauvaux T, Davis KJ, Deng A, Miles NL, Richardson SJ, Cao Y, Sweeney C, Karion A, Smith M, Kort EA, Schwietzke S, Murphy T, Cervone G, Martins D, Maasakkers JD, *Quantifying methane emissions from natural gas production in northeastern Pennsylvania*, Atmos. Chem. Phys., 17, 13941-13966, <https://doi.org/10.5194/acp-17-13941-2017>, 2017.
56. Conley S, Faloona I, Mehrotra S, Suard M, Lenschow DH, Sweeney C, Herndon S, Schwietzke S, Petron G, Pifer J, Kort EA, Schnell R, *Application of Gauss' Theorem to quantify localized surface emissions from airborne measurements of wind and trace gases*, Atmos. Meas. Tech., 10, 3345-3358, <https://doi.org/10.5194/amt-10-3345-2017>, 2017.
55. Thorpe AK, Frankenberg C, Thompson DR, Duren RM, Aubrey AD, Bue BB, Green RO, Gerilowski K, Krings T, Borchard J, Kort EA, Sweeney C, Conley S, Roberts DA, Dennison PE, *Airborne DOAS retrievals of methane, carbon dioxide, and water vapor concentrations at high spatial resolution: application to AVIRIS-NG*, Atmos. Meas. Tech., 10, 3833-3850, <https://doi.org/10.5194/amt-10-3833-2017>, 2017.
54. Smith ML, Gvakharia A, Kort EA, Sweeney C, Conley S, Faloona I, Newberger T, Schnell R, Schwietzke S, Wolter S, *Airborne quantification of methane emissions over the Four Corners region*, Environ. Sci. Technol., doi: 10.1021/acs.est.6b06107, 2017.
53. Gvakharia A, Kort EA, Brandt AR, Peischl J, Ryerson TB, Schwarz JP, Smith ML, Sweeney C, *Methane, black carbon, and ethane emissions from natural gas flares in the Bakken Shale, ND*, Environ. Sci. Technol., doi: 10.1021/acs.est.6b05183, 2017.
52. Cui YY, Brioude J, Angevine WM, Peischl J, McKeen SA, Kim SW, Neuman JA, Henze D, Bousserez N, Fischer ML, Jeong S, Michelsen HA, Bambha RP, Liu Z, Santoni GW, Daube BC, Kort EA, Frost GF, Ryerson TB, Wofsy SC, Trainer M, *Top-down estimate of methane emissions in California using a mesoscale inverse modeling technique: The San Joaquin Valley*, J. Geophys. Res. Atmos., 122, doi:10.1002/2016JD026398, 2017.
51. Frankenberg C, Thorpe A, Thompson DR, Hulley G, Kort EA, Vance N, Borchardt J, Krings T, Gerilowski K, Sweeney C, Conley S, Bue B, Aubrey A, Hook S, Green R, *Airborne methane remote measurements reveal heavy-tail flux distribution in Four Corners region*, Proceedings of the National Academy of Sciences, doi: 10.1073/pnas.1605617113, 2016.

50. Ware J, Kort EA, DeCola P, Duren R, *Aerosol Lidar Observations of Atmospheric Mixing in Los Angeles: Climatology and Implications for Greenhouse Gas Observations*, J. Geophys. Res., doi: 10.1002/2016JD024953, 2016.
49. Inoue M, Morino I, Uchino O, Nakatsuru T, Yoshida Y, Yokota T, Wunch D, Wennberg PO, Roehl CM, Griffith DWT, Velazco VA, Deutscher NM, Warneke T, Notholt J, Robinson J, Sherlock V, Hase F, Blumenstock T, Rettinger M, Sussmann R, Kyrö E, Kivi R, Shiomi K, Kawakami S, De Mazière M, Arnold SG, Feist DG, Barrow EA, Barney J, Dubey M, Schneider M, Iraci L, Podolske JR, Hillyard P, Machida T, Sawa Y, Tsuboi K, Matsueda H, Sweeney C, Tans PP, Andrews AE, Biraud SC, Fukuyama Y, Pittman JV, Kort EA, and Tanaka T, *Bias corrections of GOSAT SWIR XCO₂ and XCH₄ with TCCON data and their evaluation using aircraft measurement data*, Atmos. Meas. Tech., 9, 3491-3512, doi:10.5194/amt-9-3491-2016, 2016.
48. Kort EA, Smith ML, Murray LT, Gvakharia A, Brandt A, Peischl J, Ryerson TB, Sweeney C, Travis K, *Fugitive emissions from the Bakken shale illustrate role of shale production in global ethane shift*, Geophysical Research Letters, 43, doi:10.1002/2016GL068703, 2016.
47. Peischl J, Karion A, Sweeney C, Kort EA, Smith ML, Brandt AR, Yeskoo T, Aikin KC, Conley SA, Gvakharia A, Trainer M, Wolter S, Ryerson TB, *Quantifying atmospheric methane emissions from oil and natural gas production in the Bakken shale region of North Dakota*, J. Geophys. Res., doi: 10.1002/2015JD024631, 2016.
46. Frankenberg C, Kulawik SS, Wofsy S, Chevallier F, Daube B, Kort EA, O'Dell C, Olsen ET, Osterman G, *Using airborne HIAPER Pole-to-Pole Observations (HIPPO) to evaluate model and remote sensing estimates of atmospheric carbon dioxide*, Atmos. Chem. Phys., 16, 7867-7878, doi:10.5194/acp-16-7867-2016, 2016.
45. Hopkins FM, Kort EA, Bush SE, Ehleringer JR, Lai CT, Blake DR, Randerson JT, *Spatial patterns and source attribution of urban methane in the Los Angeles Basin*, J. Geophys. Res., 121, doi: 10.1002/2015JD024429, 2016.
44. Patra PK, Saeki T, Dlugokencky EJ, Ishijima K, Umezawa T, Ito A, Aoki S, Morimoto S, Kort EA, Crotwell A, Ravi Kumar K, Nakazawa T, *Regional methane emission estimation based on observed atmospheric concentrations (2002-2012)*, Journal of the Meteorological Society of Japan, 2016, 94 (1), pp. 91-113, doi: 10.2151/jmsj.2016-006, 2016.
43. Zavala-Araiza D, Lyon DR, Alvarez RA, Davis KJ, Harriss R, Herndon SC, Karion A, Kort EA, Lamb BK, Lan X, Marchese AJ, Pacala SW, Robinson AL, Shepson PB, Sweeney C, Talbot R, Townsend-Small A, Yacovitch TI, Zimmerle D, Hamburg SP, *Reconciling divergent estimates of oil and gas methane emissions*, Proceedings of the National Academy of Sciences, doi:10.1073/pnas.1522126112, 2015.
42. Schwarz JP, Holloway JS, Katich JM, McKeen S, Kort EA, Smith ML, Ryerson TB, Sweeney C, Peischl J, *Black Carbon Emissions from the Bakken Oil and Gas Development Region*, Environ. Sci. Technol. Lett., doi: 10.1021/acs.estlett.5b00225, 2015.
41. Smith ML, Kort EA, Karion A, Sweeney C, Herndon SC, Yacovitch TI, *Airborne ethane observations in the Barnett Shale: Quantification of ethane flux and attribution of methane emissions*, Environ. Sci. Technol., doi: 10.1021/acs.est.5b00219, 2015.
40. Karion A, Sweeney, C, Kort EA, Shepson PB, Brewer A, Cambaliza M, Conley S, Davis K, Deng A, Hardesty M, Herndon SC, Lauvaux T, Lavoie T, Lyon D, Newberger T, Petron G, Rella C, Smith M, Wolter S, Yacovitch TI, Tans P, *Aircraft-based estimate of total methane emissions from the Barnett Shale region*, Environ. Sci. Technol., doi: 10.1021/acs.est.5b00217, 2015.

39. Wells KC, Millet DB, Boussez N, Henze DK, Chaliyakunnel S, Griffis TJ, Luan Y, Dlugokencky EJ, Prinn RG, O'Doherty S, Weiss RF, Dutton GS, Elkins JW, Krummel PB, Langenfelds R, Steele LP, Kort EA, Wofsy SC, Umezawa T, *Simulations of atmospheric N₂O with GEOS-Chem and its adjoint: evaluation of observational constraints*, *Geosci. Model Dev.*, 8, 3179-3198, doi: 10.5194/gmd-8-3179-2015, 2015.
38. Deng F, Jones DBA, Walker TW, Keller M, Bowman KW, Henze DK, Nassar R, Kort EA, Wofsy SC, Walker KA, Bourassa AE, Degenstein DA, *Sensitivity analysis of the potential impact of discrepancies in stratosphere-troposphere exchange on inferred sources and sinks of CO₂*, *Atmos. Chem. Phys.*, 15, 11773-11788, doi: 10.5194/acp-15-11773-2015, 2015.
37. Cui YY, Brioude J, McKeen SA, Angevine WM, Kim SW, Frost GJ, Ahmadov R, Peischl J, Boussez N, Liu Z, Ryerson TB, Wofsy SC, Santoni GW, Kort EA, Fischer ML, Trainer M, *Top-down estimates of methane emissions in California using a mesoscale inverse modeling technique: I. The South Coast Air Basin*, *J. Geophys. Res.*, 120, doi: 10.1002/2014JD023002, 2015.
36. Wong KW, Fu D, Pongetti TJ, Newman S, Kort EA, Duren R, Hsu Y-K, Miller CE, Yung YL, Sander SP, *Mapping CH₄: CO₂ ratios in Los Angeles with CLARS-FTS from Mount Wilson, California*, *Atmos. Chem. Phys.*, 15, 241-252, doi:10.5194/acp-15-241-2015, 2015.
35. Alexe, M, Bergamaschi P, Segers A, Detmers R, Butz A, Hasekamp O, Guerlet S, Parker R, Boesch H, Frankenberg C, Scheepmaker RA, Dlugokencky E, Sweeney C, Wofsy SC, Kort EA, *Inverse modeling of CH₄ emissions for 2010-2011 using different satellite retrieval products from GOSAT and SCIAMACHY*, *Atmos. Chem. Phys.*, 15, 113-133, doi:10.5194/acp-15-113-2015, 2015.
34. Gray JM, Frohling S, Kort EA, Ray DK, Kucharik CJ, Ramankutty N, Friedl MA, *Direct human influence on atmospheric CO₂ seasonality from increased cropland productivity*, *Nature*, 515 (7527), 398-401, doi:10.1038/nature13957, 2014.
33. Kort EA, Frankenberg C, Costigan KR, Lindemaier R, Dubey MK, Wunch D, *Four Corners: the largest US methane anomaly viewed from space*, *Geophysical Research Letters*, 41 (19), 6898-6903, doi:10.1002/2014GL061503, 2014.
32. Inoue M, Morino I, Uchino O, Miyamoto Y, Saeki T, Yoshida Y, Yokota T, Sweeney C, Tans PP, Biraud SC, Machida T, Pittman JV, Kort EA, Tanaka T, Kawakami S, Sawa Y, Tsuboi K, Matsueda H, *Validation of XCH₄ derived from SWIR spectra of GOSAT TANSO-FTS with aircraft measurement data*, *Atmos. Meas. Tech.*, 7, 2987-3005, doi:10.5194/amt-7-2987-2014, 2014.
31. Hutyra LR, R Duren, KR Gurney, N Grimm, EA Kort, E Larson, G Shrestha, *Urbanization and the carbon cycle: Current capabilities and research outlook from the natural sciences perspective*, *Earth's Future*, doi: 10.1002/2014EF000255, 2014.
30. Yacovitch TI, Herndon SC, Roscioli JR, Floerchinger C, McGovern RM, Agnese M, Petron G, Kofler J, Sweeney C, Karion A, Conley SA, Kort EA, Nahle L, Fischer M, Hildebrandt L, Koeth J, McManus BJ, Nelson DD, Zahniser M, Kolb CE, *Demonstration of an Ethane Spectrometer for Methane Source Identification*, *Environ. Sci. Tech.*, 48 (14), pp 8028-8034, doi: 10.1021/es501475q, 2014.
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28. Miller SM, Worthy DEJ, Michalak AM, Wofsy SC, Kort EA, Havice TC, Andrews AE, Dlugokencky EJ, Kaplan JO, Levi PJ, Tian H, Zhang B, *Observational constraints on the distribution, seasonality, and environmental predictors of North American boreal methane emissions*, *Global Biogeochemical Cycles*, doi: 10.1002/2013GB004580, 2014.

27. Houweling S, Krol M, Bergamaschi P, Frankenberg C, Dlugokencky EJ, Morino I, Notholt J, Sherlock V, Wunch D, Beck V, Gerbig C, Chen H, Kort EA, Rockmann T, Aben I, *A multi-year methane inversion using SCIAMACHY, accounting for systematic errors using TCCON measurements*, *Atmos. Chem. Phys.*, 14, 3991-4012, doi:10.5194/acp-14-3991-2014, 2014.
26. Deng F, Jones DBA, Henze DK, Bousserez N, Bowman KW, Fisher JB, Nassar R, O'Dell C, Wunch D, Wennberg PO, Kort EA, Wofsy SC, Blumenstock T, Deutscher NM, Griffith D, Hase F, Heikkinen P, Sherlock V, Strong K, Sussmann R, Warneke T, *Inferring regional sources and sinks of atmospheric CO₂ from GOSAT XCO₂ data*, *Atmos. Chem. Phys.*, 14, 3703-3727, doi:10.5194/acp-14-3703-2014, 2014.
25. Santoni GW, Daube BC, Kort EA, Jimenez R, Park S, Pittman JV, Gottlieb E, Xiang B, Zahniser MS, Nelson DD, McManus JB, Peischl J, Ryerson TB, Holloway JS, Andrews AE, Sweeney C, Hall BD, Hintsa EJ, Moore FL, Elkins JW, Stephens BB, Wofsy SC, *Evaluation of the Airborne Quantum Cascade Laser Spectrometer (QCLS) measurements of the carbon and greenhouse gas suite— CO₂, CH₄, N₂O, and CO – during the CalNex and HIPPO campaigns*, *Atmos. Meas. Tech.*, 7, 1509-1526, doi:10.5194/amt-7-1509-2014, 2014.
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PRESENTATIONS & POSTERS (*invited)

(indicates Kort group member)

- Long MC, Stephens BB, Sweeney C, Kort EA, Keeling RF, McKain K, *The Atmospheric Signature of Southern Ocean Carbon Fluxes*, AGU Ocean Sciences, San Diego, 2020.
- Sweeney C, Plant G, Kort E, Floerchinger C, *Tracking Urban Emissions of Greenhouse Gases during the East Coast Outflow (ECO) Experiment*, AMS100, Boston, 2020.
- *Kort EA, Gorchov Negron AM, Plant G, *Methane Emissions from Oil and Gas Systems: Losses in Production and Consumption*, AGU Fall Meeting, San Francisco, CA, 2019.
- *Kort EA, Gvakharia A, Plant G, *Evaluating Regional N₂O Emissions and Drivers Using Airborne Observations*, AGU Fall Meeting, San Francisco, CA, 2019.
- Huber D, Kort EA, Steiner AL, *Space-Based Observations of Seasonal NO_x Emissions from Agriculture*, AGU Fall Meeting, San Francisco, CA, 2019.
- Plant G, Kort EA, Maasackers JD, Aben I, *Urban Methane Emissions Estimates from TROPOMI CH₄ and CO Observations*, AGU Fall Meeting, San Francisco, CA, 2019.
- Wu D, Lin JC, Fasoli B, Oda T, Kort EA, Duarte H, *Towards quantifying urban CO₂ emissions for global cities using column CO₂ and SIF data*, AGU Fall Meeting, San Francisco, CA, 2019.
- Sweeney C, Plant G, Kort EA, Floerchinger C, *Detecting urban emissions using commercial aircraft measurements*, AGU Fall Meeting, San Francisco, CA, 2019.

- Nelson RR, Eldering A, Pavlick R, Kurosu TP, Kort EA, Oda T, Nassar R, O'Dell C, Taylor T, Somkuti P, Fisher B, Merrelli AJ, Crisp D, Kiel M, *OCO-3 Snapshot Area Mapping Mode: Early Results*, AGU Fall Meeting, San Francisco, CA, 2019.
- Lin JC, Wu D, Roten D, Fasoli B, Oda T, Kort EA, *Overcoming challenges in using satellite-based CO₂ data to understand carbon emissions from cities around the world*, AGU Fall Meeting, San Francisco, CA, 2019.
- Yu X, Millet DB, Wells KC, Griffis TJ, Henze DK, Cao H, Conley S, Smith M, Gvakharia A, Kort EA, Plant G, Czarnetzki A, *New constraints on regional methane emissions in the US Upper Midwest based on GEM aircraft measurements and the GEOS-Chem model*, AGU Fall Meeting, San Francisco, CA, 2019.
- Kort EA, *Role of Space-Based Measurements in Urban Emissions Monitoring*, IG3IS/TRANSCOM meeting, Paris, 2019.
- Kort EA, *Observational constraints on anthropogenic CO₂ emissions: current capabilities and the impact on detecting carbon-climate feedbacks*, AGU Chapman Conference, Understanding Carbon Climate Feedbacks, Scripps, 2019
- Kort EA, Gorchov Negron AM, Smith ML, Conley S, *Airborne observation of fugitive methane emissions from offshore oil and gas platforms*, Atmospheric Chemistry Gordon Conference, Maine, 2019.
- Kort EA, Gvakharia A, Smith ML, Conley S, *Using airborne observations to quantify N₂O emissions from fertilizer plants and croplands in the Mississippi River Valley*, 8th International Symposium on Non-CO₂ Greenhouse Gases, Amsterdam, 2019.
- *Kort EA, Turner AJ, Frankenberg C, *Contemporary Atmospheric Methane: Addressing Contradictions and Pathways Forwards*, AGU Fall Meeting, Washington DC, 2018.
- Negron AG, Kort EA, Smith ML, Conley S, *Methane Emissions from Offshore Oil and Gas Platforms in the Gulf of Mexico*, AGU Fall Meeting, Washington DC, 2018.
- Gvakharia A, Kort EA, Smith ML, Conley S, Frauhammer K, DelGrosso S, *Quantification and Analysis of Agricultural N₂O Fluxes Using Continuous Airborne Atmospheric Observations*, AGU Fall Meeting, Washington DC, 2018.
- Huang Y, Kort EA, Karion A, Ware J, Plant G, Sweeney C, Floerchinger CR, Mueller K, *Excess Urban Methane Emissions from the Northeast Corridor Washington, DC/Baltimore Metropolitan Region*, AGU Fall Meeting, Washington DC, 2018.
- Yang EG, Kort EA, Wu D, Lin JC, Ye X, Lauvaux T, Oda T, *Toward using OCO-2 Observations and Lagrangian Modeling to Estimate Urban Carbon Dioxide Emissions in the Middle East*, AGU Fall Meeting, Washington DC, 2018.
- Sweeney C, Kort EA, Floerchinger CR, Plant G, Karion A, Shepson P, *The urban methane paradox: Results from the 2018 East Coast Outflow experiment*, AGU Fall Meeting, Washington DC, 2018.
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- Kort EA, Gvakharia A, Plant G, Smith ML, Conley S, *The 2017 Fertilizer Emissions Airborne Study (FEAST): Quantifying N₂O emissions from croplands and fertilizer plants in the Mississippi River Valley*, NSF Atmospheric Chemistry Principal Investigator meeting, Boulder, 2018.
- Kort EA, Gvakharia A, Smith ML, Conley S, Frauhammer K, *The 2017 Fertilizer Emissions Airborne Study (FEAST): Quantifying N₂O emissions from croplands and fertilizer plants in the Mississippi River Valley*, AGU Fall Meeting, New Orleans, 2017.
- Gvakharia A, Kort EA, Smith ML, Conley S, *Airborne testing and demonstration of a new flight system based on an Aerodyne N₂O-CO₂-CO-H₂O mini-spectrometer*, AGU Fall Meeting, New Orleans, 2017.
- Yang EG, Kort EA, Ware JF, Ye X, Lauvaux T, Wu D, Lin JC, Oda T, *Using OCO-2 observations and Lagrangian modeling to constrain urban carbon dioxide emissions in the Middle East*, AGU Fall Meeting, New Orleans, 2017.
- Ye X, Lauvaux T, Kort EA, Oda T, Feng S, Lin J, Yang EG, Wu D, Elderling A, *Quantifying global fossil-fuel CO₂ emissions: from OCO-2 to optimal observing designs*, AGU Fall Meeting, New Orleans, 2017.
- Wozniak M, Steiner A, Ault A, Kort EA, Lersch T, Casuccio G, *Lidar measurements of boundary layer depolarization and CCSEM-EDX compositional analysis of airborne particles on collocated passive samplers throughout the forest canopy during the 2016 airborne pollen season at UMBS, Pellston, MI*, AGU Fall Meeting, New Orleans, 2017.
- Gourdji SM, Yadav V, Karion A, Mueller KL, Kort EA, Conley S, Ryerson T, Nehr Korn T, *Quantifying point source emissions with atmospheric inversions and aircraft measurements: the Aliso Canyon natural gas leak as a tracer experiment*, AGU Fall Meeting, New Orleans, 2017.
- Wu D, Lin J, Oda T, Ye X, Lauvaux T, Yang EG, Kort EA, *Towards Interpreting the Signal of CO₂ Emissions from Megacities by Applying a Lagrangian Receptor-oriented Model to OCO-2 XCO₂ data*, AGU Fall Meeting, New Orleans, 2017.
- McKain K, Sweeney C, Newberger T, Daube B, Stephens BB, Kort E, Commane R, Wofsy SC, Morgan EJ, Bent JD, Keeling RF, Montzka S, *Adaptation of a commercial greenhouse gas analyser for airborne measurements with expanded altitude range and application on the ORCAS and ATom campaigns*, GGMT, Switzerland, 2017.
- Vogel FR, Turnbull J, Kort E, Gurney K, DeCola P, Tarasova O, and the IG3IS team, *Integrated urban Greenhouse Gas Information System: Advances in the urban GHG monitoring implementation plan and results of previous and current city-scale studies*, GGMT, Switzerland, 2017.
- Stephens BB, Long MC, Keeling RF, Sweeney C, Kort EA, Morgan EJ, Bent JD, McKain K, Mikaloff-Fletcher S, Patra P, *Atmospheric oxygen constraints on Southern Ocean air-sea CO₂ flux seasonality*, ICDC10, Switzerland, 2017.
- McKain K, Sweeney C, Long M, Stephens B, Kort E, Morgan E, Bent J, Keeling R, *Using large-scale vertical gradients of atmospheric trace gases to constrain air-sea CO₂ fluxes in the Southern Ocean*, ICDC10, Switzerland, 2017.

- *Kort EA, Stephens BB, Long MC, Keeling R, Sweeney C, and the ORCAS Science Team, *Early Results from ORCAS: The O₂/N₂ Ratio and CO₂ Airborne Southern Ocean Study*, American Meteorological Society Annual Meeting, Seattle, 2017.
- Kort EA, Yang E, Ware J, Ye X, Lauvaux T, Wu D, Lin J, Oda T, *Towards constraining megacity fossil-fuel emissions estimates with OCO-2 observations and Lagrangian modeling*, American Geophysical Union Fall meeting, San Francisco, 2016.
- Hoecker-Martinez M, Kort EA, Long M, Stephens B, *Using Lagrangian flights and modeling to study O₂ and CO₂ fluxes over the Southern Ocean during the O₂/N₂ Ratio and CO₂ Airborne Study (ORCAS)*, American Geophysical Union Fall meeting, San Francisco, 2016.
- Stephens B, Long M, Keeling R, Sweeney C, Kort EA, Bent J, Morgan E, Watt A, Hoecker-Martinez M, Daube B, McKain K, Smith M, Newberger T, *Southern Ocean Zonal Scale Summertime Oxygen Outgassing and Carbon Dioxide Ingassing*, American Geophysical Union Fall meeting, San Francisco, 2016.
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- Smith M, Kort EA, Gvakharia A, Sweeney C, Conley S, *Airborne Quantification of Methane Emissions over the Four Corners Region*, American Geophysical Union Fall meeting, San Francisco, 2016.
- Thorpe A, Frankenberg C, Thompson D, Duren R, Aubrey A, Bue B, Green R, Gerilowski K, Krings T, Borchardt J, Kort EA, Sweeney C, Conley S, Roberts D, Dennison P, Ayasse A, *Attributing Methane and Carbon Dioxide Emissions from Anthropogenic and Natural Sources Using AVIRIS-NG*, American Geophysical Union Fall meeting, San Francisco, 2016.
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- Barkley Z, Lauvaux T, Davis K, Deng A, Miles N, Richardson S, Martins D, Cao Y, Sweeney C, McKain K, Schwietzke S, Smith M, Kort EA, *Top-down Estimate of Methane Emissions from Natural Gas Production in Northeastern Pennsylvania Using Aircraft and Tower Observations*, American Geophysical Union Fall meeting, San Francisco, 2016.
- *Kort EA, Smith M, Gvakharia A, Sweeney C, Frankenberg C, Conley S, *TOPDOWN 2015: A Multi-aircraft Assessment of Methane Emissions in the Four Corners Region*, American Geophysical Union Fall meeting, San Francisco, 2015.
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- Gvakharia A, Kort E, Sweeney C, Peischl J, Ryerson T, Brandt A, Smith M, *Quantitative airborne assessment of gas flaring combustion efficiency in the Bakken Shale*, American Geophysical Union Fall meeting, San Francisco, 2015.

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- Patra P, Saeki T, Dlugokencky E, Ishijima K, Umezawa T, Ito A, Aoki S, Morimoto S, Kort E, Crotwell A, Kumar K, Nakazawa T, *Regional emission and loss budgets of atmospheric methane (2002–2012)*, American Geophysical Union Fall meeting, San Francisco, 2015.
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- Stephens BB, Bent JD, Watt AS, Shertz SR, Keeling RF, Wofsy SC, Kort EA, Daube BC, Santoni GW, *Airborne measurements of oxygen concentration from the surface to the lower stratosphere*, GGMT, Scripps, 2015.
- *Kort EA, *Observing the Anthropogenic Miasma: Methane, Ethane, and Carbon Dioxide*, Atmospheric Chemistry Gordon Research Conference, Waterville Valley, NH, 2015.
- Kort EA et al., *OCO-2, megacities, and mixed layer depths*, Los Angeles – Paris Megacities Carbon project meeting, Paris, France, 2015.
- Ware J, Kort EA, DeCola P, Duren R, *PBL observations and analysis*, Megacities Carbon Project Workshop, Pasadena, CA, 2015.
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- *Kort EA, Ware J, Duren R, Schimel D, Miller CE, DeCola P, *Informing urban carbon emissions with atmospheric observations: motivation, methods, and reducing uncertainties*, AGU Fall meeting, San Francisco, 2014.
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- *Wofsy SC, Kort E, Crosson E, Keutsch F, *Recent developments in measurements of atmospheric trace gases*, CLEO: Science and Innovations, 2014.
- Kort EA, Smith ML, Karion A, Sweeney C, Frankenberg C, Wunch D, Costigan K, Lindenmaier R, Dubey M, *New Space-based and Airborne measurements and approaches to quantify and attribute Methane emissions*, Global Emissions Initiative (GEIA) conference, Boulder, CO, 2014.
- Kort EA, Frankenberg C, Wunch D, Costigan K, Lindenmaier R, Dubey M, *Space-based observations of anomalous methane emissions: Four Corners*, IWGGMS10, Noordwijk, Netherlands, 2014.
- Wong C, Fu D, Pongetti T, Newman S, Kort E, Duren R, Hsu YK, Miller C, Yung Y, Sander S, *Tracking greenhouse gas emissions from a US megacity by remote sensing from a mountaintop site*, EGU General Assembly Conference, Vienna, 2014.
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