

Amir H. Sourì, Ph.D.

Atmospheric Chemistry and Dynamics Laboratory, NASA Goddard Space Flight Center, Greenbelt, MD, USA/GESTAR II, Morgan State University, Baltimore, MD, USA

Education

- Ph.D. (2018) Atmospheric Sciences, University of Houston, 2015-2018
Thesis: Constraining NO_x emissions using spaceborne and airborne remotely sensed NO₂ observations
- M.S. (2014) Remote Sensing, University of Tehran, 2011-2014
Thesis: Water vapor modeling and atmospheric corrections on InSAR technique
- B.S. (2011) Civil-Surveying and Geomatics Eng., University of Tehran, 2007-2011
Thesis: Hydrological modeling of precipitation and flood using geostatistical tools

Current Employment

Associate Research Scientist, NASA Goddard Space Flight Center (614)/GESTAR II (Morgan State University)

Work Experience

- Associate Research Scientist**, NASA Goddard Space Flight Center (614)/GESTAR II (Morgan State University)
- Atmospheric Physicist**, Harvard-Smithsonian Center for Astrophysics, 2018-2023
- Research Assistant**, University of Houston, 2015-2018
- Teaching Assistant**, University of Tehran, 2013-2014

Professional Memberships, Awards, Honors

American Geophysical Union

American Meteorological Society

TEMPO Group Achievement Award, 2020, Awarded by NASA

Outstanding Academic Achievement in Atmospheric Sciences, 2017, University of Houston: for maintaining high GPA and publishing numerous papers during the academic year.

Outstanding Academic Achievement in Atmospheric Sciences, 2016, University of Houston: for maintaining a high GPA and publishing numerous papers during the academic year.

Presidential Fellowship, 2015, University of Houston: for having a strong CV among Ph.D. applicants.

Awarded Grants

● As PI

- (5) ● Long-term Maps of Satellite-Based Ozone Production Rates using OMI, OMPS, and TROPOMI HCHO and NO₂ Observations via Empirical and Machine Learning Methods: Insights from NASA's Air Quality Campaign, 2023-2025, **PI: A.H. Souri**, Co-I: Gonzalo Gonzalez Abad, ACPMAP-AURA, **Amount (total): \$575,718**
- (4) Improved assessment of recent trends in NO_x and VOC emissions and ozone production sensitivity regimes using satellite data, 2023-2025, PI: Matthew Johnson (NASA AMES), Co-Is: **A.H. Souri**, Rajesh Kumar, ACPMAP-AURA, **Amount (my share): ~\$150,000**
- (3) Remote-Sensing of Surface-Level Ozone Sensitivity to Nitrogen Oxides and Volatile Organic Compounds, 2021-2023, PI: Matthew Johnson (NASA AMES), Co-Is: Sajeev Philip, Rajesh Kumar, **A. H. Souri**, and Jeff Geddes, NASA Aura Science Team, **Amount (my share): \$168,909**
- (2) Algorithm maintenance for SAO standard OMI products (HCHO, BrO, OClO, etc.), 2020-2023, PI: Kelly Chance (SAO), Co-Is: Xiong Liu, Gonzalo González Abad, Caroline Nowlan, Chris Miller, Raid Suleiman, Helen Wang, and **A. H. Souri**, NASA Aura Science Team, **Amount (total): \$1,091,802**
- (1) ● Corn Sweat: Contribution of Plant Transpiration during Heatwaves, 2019-2020, **PI: A. H. Souri**, Co-I: H. Wang (SAO), Scholarly Studies Awards Grant from the Smithsonian Institution, **Amount (total): \$74,425**

Peer-Reviewed Journals

($n=39$, fraction of leading authorship[●] = 50%, H-index: 20)

● Leading author or my contribution is equal to the first author's

● Featured

● Based on the ratio of leading-authored papers to the total; a made-up metric to gauge the capability of being independent.

- (39) ● **Souri, A.H.**, González Abad, G., Wolfe, G.M., Verhoelst, T., Vigouroux, C., Pinardi, G., Compernelle, S., Langerock, B., Duncan, B.N., Johnson, M.S., 2024. Feasibility of robust estimates of ozone production rates using satellite observations. *EGUsphere* 1–36.
<https://doi.org/10.5194/egusphere-2024-1947>
- (38) ● **Souri, A.H.**, Duncan, B.N., Strode, S.A., Anderson, D.C., Manyin, M.E., Liu, J., Oman, L.D., Zhang, Z., Weir, B., 2024. Enhancing long-term trend simulation of the global tropospheric hydroxyl (TOH) and its drivers from 2005 to 2019: a synergistic integration of model simulations and satellite observations. *Atmospheric Chemistry and Physics* 24, 8677–8701.
<https://doi.org/10.5194/acp-24-8677-2024>
- (37) Anderson, D.C., Duncan, B.N., Liu, J., Nicely, J.M., Strode, S.A., Follette-Cook, M.B., **Souri, A.H.**, Ziemke, J.R., González-Abad, G., Ayazpour, Z., 2024. Trends and Interannual Variability of the Hydroxyl Radical in the Remote Tropics During Boreal Autumn Inferred From Satellite

Proxy Data. *Geophysical Research Letters* 51, e2024GL108531.

<https://doi.org/10.1029/2024GL108531>

- (36) Hall, K.R., Wang, H., **Souri, A.H.**, Liu, X., Chance, K., 2024. Ozone Anomalies in Dry Intrusions Associated With Atmospheric Rivers. *Journal of Geophysical Research: Atmospheres* 129, e2023JD039949. <https://doi.org/10.1029/2023JD039949>
- (35) Chong, H., González Abad, G., Nowlan, C.R., Chan Miller, C., Saiz-Lopez, A., Fernandez, R.P., Kwon, H.-A., Ayazpour, Z., Wang, H., **Souri, A.H.**, Liu, X., Chance, K., O'Sullivan, E., Kim, J., Koo, J.-H., Simpson, W.R., Hendrick, F., Querel, R., Jaross, G., Seftor, C., Suleiman, R.M., 2024. Global retrieval of stratospheric and tropospheric BrO columns from the Ozone Mapping and Profiler Suite Nadir Mapper (OMPS-NM) on board the Suomi-NPP satellite. *Atmospheric Measurement Techniques* 17, 2873–2916. <https://doi.org/10.5194/amt-17-2873-2024>
- (34) Conway, E.K., **Souri, A.H.**, Benmergui, J., Sun, K., Liu, X., Staebell, C., Chan Miller, C., Franklin, J., Samra, J., Wilzewski, J., Roche, S., Luo, B., Chulakadabba, A., Sargent, M., Hohl, J., Daube, B., Gordon, I., Chance, K., Wofsy, S., 2024. Level0 to Level1B processor for MethaneAIR. *Atmospheric Measurement Techniques* 17, 1347–1362. <https://doi.org/10.5194/amt-17-1347-2024>
- (33) Chulakadabba, A., Sargent, M., Lauvaux, T., Benmergui, J.S., Franklin, J.E., Chan Miller, C., Wilzewski, J.S., Roche, S., Conway, E., **Souri, A.H.**, Sun, K., Luo, B., Hawthorne, J., Samra, J., Daube, B.C., Liu, X., Chance, K., Li, Y., Gautam, R., Omara, M., Rutherford, J.S., Sherwin, E.D., Brandt, A., Wofsy, S.C., 2023. Methane point source quantification using MethaneAIR: a new airborne imaging spectrometer. *Atmospheric Measurement Techniques* 16, 5771–5785. <https://doi.org/10.5194/amt-16-5771-2023>
- (32) **Souri, A.H.**, Kumar, R., Chong, H., Golbazi, M., Knowland, K.E., Geddes, J., Johnson, M.S., 2023. Decoupling in the vertical shape of HCHO during a sea breeze event: The effect on trace gas satellite retrievals and column-to-surface translation. *Atmospheric Environment* 309, 119929. <https://doi.org/10.1016/j.atmosenv.2023.119929>
- (31) Kwon, H.-A., Abad, G.G., Nowlan, C.R., Chong, H., **Souri, A.H.**, Vigouroux, C., Röhling, A., Kivi, R., Makarova, M., Notholt, J., Palm, M., Winkler, H., Té, Y., Sussmann, R., Rettinger, M., Mahieu, E., Strong, K., Lutsch, E., Yamanouchi, S., Nagahama, T., Hannigan, J.W., Zhou, M., Murata, I., Grutter, M., Stremme, W., De Mazière, M., Jones, N., Smale, D., Morino, I., 2023. Validation of OMPS Suomi NPP and OMPS NOAA-20 Formaldehyde Total Columns With NDACC FTIR Observations. *Earth and Space Science* 10, e2022EA002778. <https://doi.org/10.1029/2022EA002778>
- (30) Johnson, M.S., **Souri, A.H.**, Philip, S., Kumar, R., Naeger, A., Geddes, J., Judd, L., Janz, S., Chong, H., Sullivan, J., 2023. Satellite remote-sensing capability to assess tropospheric-column ratios of formaldehyde and nitrogen dioxide: case study during the Long Island Sound

- Tropospheric Ozone Study 2018 (LISTOS 2018) field campaign. Atmospheric Measurement Techniques 16, 2431–2454. <https://doi.org/10.5194/amt-16-2431-2023>
- (29) ● Pan, S., Gan, L., Jung, J., Yu, W., Roy, A., Diao, L., Jeon, W., **Souri, A.H.**, Gao, H.O., Choi, Y., 2023. Quantifying the premature mortality and economic loss from wildfire-induced PM_{2.5} in the contiguous U.S. Science of The Total Environment 875, 162614. <https://doi.org/10.1016/j.scitotenv.2023.162614>, *Featured in theguardian, CBC, Houston Chronicle*
- (28) ● **Souri, A.H.**, Johnson, M.S., Wolfe, G.M., Crawford, J.H., Fried, A., Wisthaler, A., Brune, W.H., Blake, D.R., Weinheimer, A.J., Verhoelst, T., Compornolle, S., Pinardi, G., Vigouroux, C., Langerock, B., Choi, S., Lamsal, L., Zhu, L., Sun, S., Cohen, R.C., Min, K.-E., Cho, C., Philip, S., Liu, X., Chance, K., 2023. Characterization of errors in satellite-based HCHO/NO₂ tropospheric column ratios with respect to chemistry, column-to-PBL translation, spatial representation, and retrieval uncertainties. Atmospheric Chemistry and Physics 23, 1963–1986. <https://doi.org/10.5194/acp-23-1963-2023>
- (27) Jung, J., Choi, Y., **Souri, A.H.**, Mousavinezhad, S., Sayeed, A., Lee, K., 2022. The Impact of Springtime-Transported Air Pollutants on Local Air Quality With Satellite-Constrained NO_x Emission Adjustments Over East Asia. Journal of Geophysical Research: Atmospheres 127, e2021JD035251. <https://doi.org/10.1029/2021JD035251>
- (26) ● **Souri, A.H.**, Chance, K., Sun, K., Liu, X., Johnson, M.S., 2022. Dealing with spatial heterogeneity in pointwise-to-gridded- data comparisons. Atmospheric Measurement Techniques 15, 41–59. <https://doi.org/10.5194/amt-15-41-2022>
- (25) ● **Souri, A.H.**, Chance, K., Bak, J., Nowlan, C.R., González Abad, G., Jung, Y., Wong, D.C., Mao, J., Liu, X., 2021. Unraveling pathways of elevated ozone induced by the 2020 lockdown in Europe by an observationally constrained regional model using TROPOMI. Atmospheric Chemistry and Physics 21, 18227–18245. <https://doi.org/10.5194/acp-21-18227-2021>
- (24) Pouyaei, A., Sadeghi, B., Choi, Y., Jung, J., **Souri, A.H.**, Zhao, C., Song, C.H., 2021. Development and Implementation of a Physics-Based Convective Mixing Scheme in the Community Multiscale Air Quality Modeling Framework. Journal of Advances in Modeling Earth Systems 13, e2021MS002475. <https://doi.org/10.1029/2021MS002475>
- (23) ● **Souri, A.H.**, Nowlan, C.R., González Abad, G., Zhu, L., Blake, D.R., Fried, A., Weinheimer, A.J., Woo, J.-H., Zhang, Q., Chan Miller, C.E., Liu, X., Chance, K., 2020. An Inversion of NO_x and NMVOC Emissions using Satellite Observations during the KORUS-AQ Campaign and Implications for Surface Ozone over East Asia. Atmospheric Chemistry and Physics 20, 9837–9854. <https://doi.org/10.5194/acp-2020-220>
- (22) ● **Souri, A.H.**, Choi, Y., Kodros, J.K., Jung, J., Shpund, J., Pierce, J.R., Lynn, B.H., Khain, A., Chance, K., 2020. Response of Hurricane Harvey’s rainfall to anthropogenic aerosols: A

- sensitivity study based on spectral bin microphysics with simulated aerosols. *Atmospheric Research* 242, 104965. <https://doi.org/10.1016/j.atmosres.2020.104965>
- (21) ● **Souri, A.H.**, Wang, H., Abad, G.G., Liu, X., Chance, K., 2020. Quantifying the Impact of Excess Moisture From Transpiration From Crops on an Extreme Heat Wave Event in the Midwestern U.S.: A Top-Down Constraint From Moderate Resolution Imaging Spectroradiometer Water Vapor Retrieval. *Journal of Geophysical Research: Atmospheres* 125, e2019JD031941. <https://doi.org/10.1029/2019JD031941>
- (20) ● **Souri, A.H.**, Nowlan, C.R., Wolfe, G.M., Lamsal, L.N., Chan Miller, C.E., Abad, G.G., Janz, S.J., Fried, A., Blake, D.R., Weinheimer, A.J., Diskin, G.S., Liu, X., Chance, K., 2020. Revisiting the effectiveness of HCHO/NO₂ ratios for inferring ozone sensitivity to its precursors using high resolution airborne remote sensing observations in a high ozone episode during the KORUS-AQ campaign. *Atmospheric Environment* 117341. <https://doi.org/10.1016/j.atmosenv.2020.117341>
- (19) Jung, J., **Souri, A.H.**, Wong, D.C., Lee, S., Jeon, W., Kim, J., Choi, Y., 2019. The Impact of the Direct Effect of Aerosols on Meteorology and Air Quality Using Aerosol Optical Depth Assimilation During the KORUS-AQ Campaign. *Journal of Geophysical Research: Atmospheres* 124, 8303–8319. <https://doi.org/10.1029/2019JD030641>
- (18) ● Kochanski, A.K., Mallia, D.V., Fearon, M.G., Mandel, J., **Souri, A.H.**, Brown, T., 2019. Modeling Wildfire Smoke Feedback Mechanisms Using a Coupled Fire-Atmosphere Model With a Radiatively Active Aerosol Scheme. *Journal of Geophysical Research: Atmospheres* 124, 9099–9116. <https://doi.org/10.1029/2019JD030558>, *Highlighted in JGR: Atmospheres, Featured in EOS, Science Daily, and Phys.org*
- (17) Wang, H., **Souri, A.H.**, González Abad, G., Liu, X., Chance, K., 2019. Ozone Monitoring Instrument (OMI) Total Column Water Vapor version 4 validation and applications. *Atmospheric Measurement Techniques* 12, 5183–5199. <https://doi.org/10.5194/amt-12-5183-2019>
- (16) Gonzalez Abad, G., **Souri, A.H.**, Bak, J., Chance, K., Flynn, L.E., Krotkov, N.A., Lamsal, L., Li, C., Liu, X., Miller, C.C., Nowlan, C.R., Suleiman, R., Wang, H., 2019. Five decades observing Earth's atmospheric trace gases using ultraviolet and visible backscatter solar radiation from space. *Journal of Quantitative Spectroscopy and Radiative Transfer* 238, 106478. <https://doi.org/10.1016/j.jqsrt.2019.04.030>
- (15) Kotsakis, A., Choi, Y., **Souri, A.H.**, Jeon, W., Flynn, J., 2019. Characterization of Regional Wind Patterns Using Self-Organizing Maps: Impact on Dallas–Fort Worth Long-Term Ozone Trends. *J. Appl. Meteor. Climatol.* 58, 757–772. <https://doi.org/10.1175/JAMC-D-18-0045.1>
- (14) ● **Souri, A.H.**, Choi, Y., Pan, S., Curci, G., Nowlan, C.R., Janz, S.J., Kowalewski, M.G., Liu, J., Herman, J.R., Weinheimer, A.J., 2018. First Top-Down Estimates of Anthropogenic NO_x Emissions Using High-Resolution Airborne Remote Sensing Observations. *Journal of Geophysical Research: Atmospheres* 123, 3269–3284. <https://doi.org/10.1002/2017JD028009>

- (13) Jeon, W., Choi, Y., **Souri, A.H.**, Roy, A., Diao, L., Pan, S., Lee, H.W., Lee, S.-H., 2018. Identification of chemical fingerprints in long-range transport of burning induced upper tropospheric ozone from Colorado to the North Atlantic Ocean. *Science of The Total Environment* 613–614, 820–828. <https://doi.org/10.1016/j.scitotenv.2017.09.177>
- (12) ● **Souri, A. H.**, Choi, Y., Jeon, W., Kochanski, A.K., Diao, L., Mandel, J., Bhave, P.V., Pan, S., 2017. Quantifying the Impact of Biomass Burning Emissions on Major Inorganic Aerosols and Their Precursors in the U.S. *Journal of Geophysical Research: Atmospheres* 122, 12,020-12,041. <https://doi.org/10.1002/2017JD026788>
- (11) ●● **Souri, A. H.**, Choi, Y., Jeon, W., Woo, J.-H., Zhang, Q., Kurokawa, J., 2017. Remote sensing evidence of decadal changes in major tropospheric ozone precursors over East Asia. *Journal of Geophysical Research: Atmospheres* 122, 2474–2492. <https://doi.org/10.1002/2016JD025663>, *Featured in JGR and NSM.*
- (10) Diao, L., Choi, Y., Czader, B., Li, X., Pan, S., Roy, A., **Souri, A.H.**, Estes, M., Jeon, W., 2016. Discrepancies between modeled and observed nocturnal isoprene in an urban environment and the possible causes: A case study in Houston. *Atmospheric Research* 181, 257–264. <https://doi.org/10.1016/j.atmosres.2016.07.009>
- (9) Jeon, W., Choi, Y., Percell, P., **Souri, A.H.**, Song, C.-K., Kim, S.-T., Kim, J., 2016. Computationally efficient air quality forecasting tool: implementation of STOPS v1.5 model into CMAQ v5.0.2 for a prediction of Asian dust. *Geoscientific Model Development* 9, 3671–3684. <https://doi.org/10.5194/gmd-9-3671-2016>
- (8) ● **Souri, A.H.**, Choi, Y., Li, X., Kotsakis, A., Jiang, X., 2016. A 15-year climatology of wind pattern impacts on surface ozone in Houston, Texas. *Atmospheric Research* 174–175, 124–134. <https://doi.org/10.1016/j.atmosres.2016.02.007>
- (7) ● **Souri, A.H.**, Choi, Y., Jeon, W., Li, X., Pan, S., Diao, L., Westenbarger, D.A., 2016. Constraining NO_x emissions using satellite NO₂ measurements during 2013 DISCOVER-AQ Texas campaign. *Atmospheric Environment* 131, 371–381. <https://doi.org/10.1016/j.atmosenv.2016.02.020>
- (6) Diao, L., Roy, A., Czader, B., Pan, S., Jeon, W., **Souri, A.H.**, Choi, Y., 2016. Modeling the effect of relative humidity on nitrous acid formation in the Houston area. *Atmospheric Environment* 131, 78–82. <https://doi.org/10.1016/j.atmosenv.2016.01.053>
- (5) Pan, S., Choi, Y., Roy, A., Li, X., Jeon, W., **Souri, A.H.**, 2015. Modeling the uncertainty of several VOC and its impact on simulated VOC and ozone in Houston, Texas. *Atmospheric Environment* 120, 404–416. <https://doi.org/10.1016/j.atmosenv.2015.09.029>
- (4) ● Choi, Y., **Souri, A.H.**, 2015. Chemical condition and surface ozone in large cities of Texas during the last decade: Observational evidence from OMI, CAMS, and model analysis. *Remote Sensing of Environment* 168, 90–101. <https://doi.org/10.1016/j.rse.2015.06.026>

- (3) ● Sharifi, M.A., **Souri, A.H.**, 2015. A hybrid LS-HE and LS-SVM model to predict time series of precipitable water vapor derived from GPS measurements. *Arab J Geosci* 8, 7257–7272.
<https://doi.org/10.1007/s12517-014-1716-0>
- (2) ● **Souri, A.H.**, Vajedian, S., 2015. Dust storm detection using random forests and physical-based approaches over the Middle East. *J Earth Syst Sci*, 124, 1127–1141.
<https://doi.org/10.1007/s12040-015-0585-6>
- (1) ● Choi, Y., **Souri, A.H.**, 2015. Seasonal behavior and long-term trends of tropospheric ozone, its precursors and chemical conditions over Iran: A view from space. *Atmospheric Environment* 106, 232–240. <https://doi.org/10.1016/j.atmosenv.2015.02.012>

Projects and Technical Reports

NASA ACMAP (2), 2023-present, Joint inversion of NO_x/VOC using multiple satellites

NASA ACMAP (1), 2023-present, PO₃ estimate from space

NASA TOH Estimates from Space, 2023-present, Enhancing long-term trends of TOH using satellites

EDF's MethaneSAT/MethaneAIR, 2020-2023, OSSEs simulations (synthetic L1 and L2 products), geo-location corrections using computer vision techniques, denoising

NASA Aura (2), 2021-2023, Spatial heterogeneity, satellite-based HCHO/NO₂ ratios

NASA Aura (1), 2019-2021, Application of OMI/OMPS satellites in atmospheric sciences

GIST, 2018, Development of a convective transport scheme for the CMAQ model

NIER, 2017, Integrating surface and satellite observations to provide an optimal estimate of surface distribution of particulate matters

TCEQ, 2016, Biomass burning impacts on air quality in the U.S.: Evidence from the CMAQ model in 2012-2014

AQRP, 2015, Inverse modeling of NO_x emissions in Southeast Texas using OMI NO₂

Professional Community Service

Proposals Review Panel: NASA

Journal Article Reviewer (53 papers): *Nature Communication, Geophysical Research Letter, Journal of Geophysical Research: Atmospheres, Atmospheric Chemistry and Physics, Atmospheric Environment, Atmospheric Research, Environmental Science and Technology, Scientific Reports, Remote Sensing, Remote Sensing Letters, International Journal of Remote Sensing, Asia-Pacific Journal of Atmospheric Sciences, Elementa: Science of the Anthropocene, Atmospheric Pollution Research, Arabian Journal of Geosciences, Resources, Conservation, and Recycling.*

Conferences, Meetings and Symposia

● **Invited**

Amir Souri, G. González Abad, G. M. Wolfe, T. Verhoelst, C. Vigouroux, G. Pinardi, S. Compernelle, B. Langerock, B. N. Duncan, and M. S. Johnson. Early Findings in Satellite-based Ozone Production Rate Estimates: Insights from Numerous NASA/NOAA Atmospheric Composition Campaigns, The Quadrennial Ozone Symposium, Boulder, CO, 15–19 July 2024.

Jacob Bushey, Joshua Benmergui, Julian Kostinek, Adam Brandt, Christopher Chan Miller, Kelly Chance, Apisada Chulakadabba, Eamon Conway, Bruce Daube, Jonathan Franklin, Ritesh Gautam, Jacob Hawthorne, Thomas Lauvaux, Yang Li, Xiong Liu, Bingkun Luo, Mark Omara, Sebastien Roche, Jeff Rutherford, Jenna Samra, Maryann Sargent, Evan Sherwin, **Amir Hossein Souri**, Kang Sun, Jonas Wilzewski, Steven C Wofsy, Geostatistical Inverse Modeling of Methane Area Source Emissions from Oil and Gas using MethaneAIR Observations, AMS 2024:

Daniel C Anderson, Bryan Neal Duncan, Julie M Nicely, Sarah A Strode, Junhua Liu, Melanie B Follette-Cook, **Amir Souri**. Trends and Variability of the Hydroxyl Radical in the Tropics Determined from Satellite Observations of its Drivers, AMS 2024.

Matthew S Johnson, **Amir Souri**, Sajeev Philip, Rajesh Kumar, Jia Jung, Scott Meech, How Well Can We Assess Ozone Production Sensitivity Regimes Using Satellite Remote-sensing?, AMS 2024

Amir Souri, Gonzalo González Abad, Glenn Wolfe, Matthew Johnson, Bryan Duncan, Tijn Verhoelst, Early Results of Ozone Production Rate Estimates Using Satellite Observations: Insights From Numerous NASA Atmospheric Composition Campaigns, EGU 2024.

Bryan Duncan, **Amir Souri**, Sarah Strode, Daniel Anderson, Michael Manyin, Junhua Liu, Luke Oman, and Brad Weir, Exploring Biases and Long-term Trends in Tropospheric OH: A Synergistic Approach with Model Simulations, Interpretable Machine Learning, and Satellite Observations, EGU 2024:

Amir Souri, Rajesh Kumar, Heesung Chong, Maryam Golbazi, K Emma Knowland, Jeffrey Geddes, Matthew S Johnson, Unusual formaldehyde (HCHO) vertical profile shapes during a sea breeze event: Implications for geostationary satellite trace gas retrievals, AGU 2023:

Amir Souri, Bryan N Duncan, Sarah A Strode, Daniel C Anderson, Michael Manyin, Luke Oman, Junhua Liu, Brad Weir, Enhancing Long-Term Trend Simulation of OH Through the Synergy of Model Simulations and Aura Ozone Monitoring Instrument (OMI) NO₂ and HCHO Retrievals, AGU 2023.

Julie M Nicely, Daniel C Anderson, Bryan Duncan, Junhua Liu, Sarah A Strode, Melanie B Follette-Cook, **Amir H Souri**, Airborne observations in support of a satellite observation-based OH product, AGU 2023.

Apisada Chulakadabba, Maryann R Sargent, Thomas Lauvaux, Joshua Simon Benmergui, Jonathan E Franklin, Christopher Chan Miller, Jonas Wilzewski, Sébastien Roche, Eamon Conway, **Amir Souri**, Kang Sun, Bingkun Luo, Jacob Hohl, Jenna Samra, Bruce C Daube, Xiong Liu, Kelly Chance, Yang Li, Ritesh Gautam, Mark Omara, Jeffrey Rutherford, Evan D Sherwin, Adam R

- Brandt, Steven C Wofsy, Unlocking the Potential of MethaneAIR: Quantification Techniques, Challenges, and Next Steps, AGU 2023.
- Bingkun Luo, Xiong Liu, Jonathan E Franklin, Eamon Conway, Kang Sun, David Miller, Sébastien Roche, **Amir Souri**, Christopher Chan Miller, Jonas Wilzewski, Joshua Simon Benmergui, Kelly Chance, Steven C Wofsy, Sensor-level Pre-flight Calibration Analysis for MethaneSAT, AGU 2023.
- Sebastien Roche, Christopher Chan Miller, **Amir Souri**, Jonas Wilzewski, Bingkun Luo, Jenna Samra, Maryann R Sargent, Jonathan E Franklin, Kang Sun, Kelly Chance, Xiong Liu, Steven C Wofsy, MethaneAIR Airglow Retrievals, AGU 2023.
- Souri A.**, A Decoupled relationship between HCHO surface and columns during a sea breeze event, Seminar for NASA GSFC (614), 2023, Greenbelt, Maryland.
- Souri, A.**, Johnson, M.S., Wolfe, G.M., Crawford, J., Fried, A., Wisthaler, A., Brune, W.H., Blake, D.R., Weinheimer, A., Verhoelst, T., Compornolle, S., Pinardi, G., Vigouroux, C., Langerock, B., Choi, S., Lamsal, L.N., Zhu, L., Sun, S., Cohen, R., Min, K.-E., Cho, C., Philip, S., Liu, X., Chance, K., 2023. A Complete Picture of Errors Precluding the Precise Diagnosis of Ozone Chemical Regimes Using Satellite-Based HCHO/NO₂ Ratios. Presented at the 103rd AMS Annual Meeting, AMS.
- Souri, A.H.**, Miller, C.C., Liu, X., Roche, S., Wilzewski, J., Benmergui, J., Sun, K., Spurr, R.J.D., Franklin, J., Wofsy, S.C., Chance, K., 2023. MethaneSAT OSSE Simulation to Assess Errors in XCH₄ Derived From the CO₂ and O₂ Proxy Methods. Presented at the 103rd AMS Annual Meeting, AMS.
- **Souri A.**, Characterization of errors in Satellite-based HCHO/NO₂ ratios, Seminar for NASA GSFC (614), 2022, Greenbelt, Maryland.
- Jonas Wilzewski, Sébastien Roche, Christopher Chan Miller, **Amir Souri**, Eamon Conway, Bingkun Luo, Jonathan E Franklin, Julian Kostinek, Jenna Samra, Kang Sun, Jacob Hohl, Xiong Liu, Kelly Chance, Steven C Wofsy, Development of the MethaneSAT Cloud Filter, Presented at the AGU Fall Meeting, 2022, AGU.
- Bingkun Luo, Xiong Liu, Jonathan E Franklin, Eamon Conway, Kang Sun, **Amir Souri**, Christopher Chan Miller, Sebastien Roche, Jonas Simon Simon Wilzewski, Joshua Simon Benmergui, Kelly Chance, Steven C Wofsy, Development of the MethaneSAT L0-1B processor, Presented at the AGU Fall Meeting, 2022, AGU.
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Technical Skills

Programming: MATLAB, Python, FORTRAN, Linux Shell

Models: WRF, GEOS-5, CMAQ, GEOS-Chem, WRF-Chem, MEGAN, WRF-SFIRE, WRF-DA (3D and 4D- var), GEOS-Chem TOMAS, HYSPLIT

Highly-skilled in high performance computing systems (HPC): Compiled, setup, configured, ran numerous libraries, models, scripts, and tools at Harvard's Odyssey/Cannon, SAO's Hydra, and UofH's Spock, Maxwell, and Opuntia clusters.

Languages: English (proficient), Persian (mother tongue), Arabic (basic knowledge)

Github: <https://github.com/ahsouri>

Digital Background

Google Scholar: <https://scholar.google.com/citations?user=CyNCGRAAAAAAJ&hl=en>

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