George Ban-Weiss, Ph.D.

Work Address:
3620 South Vermont Ave KAP210
Astani Dept of Civil and Environmental Engineering

Phone: +1 213 740 9124
Email: banweiss@usc.edu
Website: https://sites.usc.edu/banweiss/

Education:

Ph.D.	*University of California, Berkeley*	Mechanical Engineering	May 2008
M.S.	*University of California, Berkeley*	Mechanical Engineering	May 2005
B.S.	*University of California, Berkeley*	Mechanical Engineering	May 2003

Awards and Honors

- National Science Foundation Early CAREER Award (2018)
- American Geophysical Union (AGU), Global Environmental Change Early Career Award (2018)
- Pasquale and Adelina Arpea Early Career Chair (2018)
- Named by MIT Technology Review as one of the world's 35 top innovators under the age of 35, TR35 (2014)
- My PhD student, Trevor Krasowsky, won the William F. Ballhaus "Best Dissertation" Award out of over 160 engineering graduates (May 10, 2018)
- Rose Hills Foundation Research Award (2014)
- Charles Lee Powell Foundation Research Award (2014)
- Invited to present research at the Hot City Cool Roofs Symposium, which brought together scientists and policy makers, including LA Mayor Villaraigosa. Results contributed to an update to the Municipal Building Code for Los Angeles requiring that all new and refurbished homes use cool roofs.
- Part of the development team that won a 2016 R&D 100 award. The developed technology, termed the "cool roof time machine", simulates outdoor soiling and weathering processes in the lab, reproducing in less than three days the solar reflectance of roofing products naturally aged for three years (2016).

Academic Positions:

• Civil and Environmental Engineering University of Southern California	**Assistant Professor**	Aug 2013-current
• Heat Island & Climate Science Groups Lawrence Berkeley National Lab	**Project Scientist**	Apr 2012-Aug 2013
• Heat Island Group Atmospheric Sciences Dept, Lawrence Berkeley National Lab	**Postdoctoral Research Associate**	Oct 2010-Apr 2012
• Dept of Global Ecology Carnegie Institution, Stanford	**Postdoctoral Research Scientist**	Oct 2008-Oct 2010

Industry Position:

- Powerlight Corporation Berkeley, CA — **Product Development Intern** — Aug 2004-Aug 2005

Encyclopedia articles / book chapters:

(1) **Ban-Weiss GA** and Collins WD (2015) ***Aerosols: Role in Radiative Transfer***. Encyclopedia of Atmospheric Sciences 2nd Edition, Pages 66-75. DOI 10.1016/B978-0-12-382225-3.00053-0

Peer-Reviewed Publications:

As of May 2019 from Web of Science:
Citations = >1,500
h-index = 21

Underline = "Corresponding" senior author
"*" = Ban-Weiss' research group members at USC

All listed *Impact Factors* are for 2017

In revisions, in review, and almost submitted:

(57) Ko J*, Krasowsky T*, **Ban-Weiss GA** (almost submitted) Measurements to determine mixing state of black carbon emitted from the 2017/2018 California wildfires and urban Los Angeles. (Should be submitted May 2019)

(56) Chen M*[1], **Ban-Weiss GA**, Sanders K (almost submitted) Utilizing smart-meter data to project impacts of urban warming on residential electricity use for vulnerable populations in Southern California. (Should be submitted May 2019)

[1]Chen M is co-advised by Ban-Weiss and Sanders. Ban-Weiss and Sanders are co-corresponding authors.

(55) Chen M*[2], Sanders K, **Ban-Weiss GA** (in review) A new method utilizing smart meter data for identifying the existence of air conditioning in residential homes.

[2]Chen M is co-advised by Ban-Weiss and Sanders. Ban-Weiss and Sanders are co-corresponding authors.

(54) Baniassadi A, Sailor D, **Ban-Weiss GA** (in revisions) Potential energy and climate benefits of super-cool materials as a rooftop strategy. *Urban Climate. Impact Factor N/A*

Published:

2019

(53) Zhang J*, Li Y*, Tao W, Liu J, Levinson R, Mohegh A*, **Ban-Weiss GA** (2019) Investigating the urban air quality effects of cool walls and cool roofs in Southern California. *Environmental Science and Technology.* In press. *Impact Factor 6.65*

(52) Li Y*, Zhang J*, Sailor D, **Ban-Weiss GA** (2019) Effects of urbanization on regional meteorology and air quality in Southern California. *Atmospheric Chemistry and Physics*. 19, 4439-4457. https://doi.org/10.5194/acp-19-4439-2019. *Impact Factor 5.51*

(51) Xu J[3], Zhang J[3]*, Liu J, Tao S, **Ban-Weiss GA** (2019) Influence of cloud microphysical processes on black carbon wet removal, global distributions, and radiative forcing. *Atmospheric Chemistry and Physics*. 19, 1587 – 1603. https://doi.org/10.5194/acp-19-1587-2019. *Impact Factor 5.51*

[3]J Xu and J Zhang contributed equally to this paper

(50) Taleghani M, Crank P, Mohegh A*, Sailor D, **Ban-Weiss GA** (2019) The impact of heat mitigation strategies on the energy balance of a neighborhood in Los Angeles. *Solar Energy.* 177, 604-611. https://doi.org/10.1016/j.solener.2018.11.041. *Impact Factor 4.37*

(49) Tang X, Ughetta L, Shannon S, Houze de l'Aulnoit S, Chen S, Gould R, Russell M, Zhang J*, **Ban-Weiss GA**, Everman R, Klink F, Levinson R, Destaillats H (2019) De-pollution efficacy of photocatalytic roofing granules. *Building and Environment.* In press. https://doi.org/10.1016/j.buildenv.2019.03.056. *Impact Factor 4.54*

2018

(48) Zhang J*, Mohegh A*, Li Y*, Levinson R, **Ban-Weiss GA** (2018) Systematic comparison of the influence of cool wall versus cool roof adoption on urban climate in the Los Angeles basin. *Environmental Science & Technology.* 52, 11188 – 11197. https://doi.org/10.1021/acs.est.8b00732. *Impact Factor 6.65*

(47) Krasowsky T*, McMeeking G, Sioutas C, **Ban-Weiss GA** (2018) Characterizing the evolution of physical properties and mixing state of black carbon particles: from near a major highway to the broader urban plume in Los Angeles. *Atmospheric Chemistry and Physics*. 18, 11991 – 12010. https://doi.org/10.5194/acp-2017-1020. *Impact Factor 5.51*

(46) Chen M*[4], **Ban-Weiss GA**, Sanders K (2018) The role of household level electricity data in improving estimates of the impacts of climate on building electricity use. *Energy and Buildings.* 180, 146 – 158. https://doi.org/10.1016/j.enbuild.2018.09.012. *Impact Factor 4.46*

[4]Chen M is co-advised by Ban-Weiss and Sanders. Ban-Weiss and Sanders are co-corresponding authors.

(45) Mohegh A*, Levinson R, Taha H, Gilbert H, Zhang J*, Li Y*, Tang T*, **Ban-Weiss GA** (2018) Observational evidence of neighborhood scale reductions in air temperature associated with increases in roof albedo. *Climate.* 6, 98. https://doi.org/10.3390/cli6040098. *Impact Factor N/A*

(44) Santamouris M, **Ban-Weiss GA**, Osmond P, Paolini R, Synnefa A, Cartalis C, Muscio A, Zinzi M, , Morakinyo T, Ng E, Tan Z, Takebayashi H, Sailor D, Crank P, Taha H, Pisello A, Rossi F, Zhang J*, Kolokotsa D. (2018) Progress in urban greenery mitigation science – assessment methodologies advances technologies and impact on cities. *Journal of Civil Engineering and Management*. 24, 638 – 671. https://doi.org/10.3846/jcem.2018.6604. *Impact Factor 3.71*

(43) Taha H, Levinson R, Mohegh A*, Gilbert H, **Ban-Weiss GA**, Chen S (2018) Air temperature response to neighborhood-scale variations in albedo and canopy cover in the real world: fine-resolution meteorological modeling and mobile temperature observations in the Los Angeles climate archipelago. *Climate.* 6, 53. https://doi.org/10.3390/cli6020053. *Impact Factor N/A*

(42) Baniassadi A, Sailor D, Crank P, **Ban-Weiss GA** (2018) Direct and indirect effects of high-albedo roofs on energy consumption and thermal comfort of residential buildings. *Energy and Buildings.* 178, 71-83. https://doi.org/10.1016/j.enbuild.2018.08.048. *Impact Factor 4.46*

(41) Crank P, Sailor D, **Ban-Weiss GA**, Taleghani M (2018) Evaluating the ENVI-met microscale model for suitability in analysis of targeted urban heat mitigation strategies. *Urban Climate.* 26, 188-197. https://doi.org/10.1016/j.uclim.2018.09.002. *Impact Factor N/A*

(40) Mousavi A, Sowlat M, Hasheminassab S, Pikelnaya O, Polidori A, **Ban-Weiss GA**, Sioutas C (2018) Impact of particulate matter (PM) emissions from ships, locomotives, and freeways in the communities near the ports of Los Angeles (POLA) and Long Beach (POLB) on the air quality in the Los Angeles county. *Atmospheric Environment.* 195, 159-169. https://doi.org/10.1016/j.atmosenv.2018.09.044. *Impact Factor 3.71*

2017

(39) Mohegh A*, Rosado P, Jin L, Millstein D, Levinson R, **Ban-Weiss GA** (2017) Modeling the climate impacts of deploying solar reflective cool pavements in California cities. *Journal of Geophysical Research - Atmospheres*. 122. https://doi.org/10.1002/2017JD026845. *Impact Factor 3.38*

(38) Epstein S, Lee SM, Katzenstein A, Carreras-Sospedra M, Zhang X, Farina S, Vahmani P*, Fine P, **Ban-Weiss GA** (2017) Air-quality implications of widespread adoption of cool roofs on ozone and particulate matter in southern California. *Proceedings of the National Academy of the Sciences*. 114, 8991 – 8996. https://doi.org/10.1073/pnas.1703560114. *Impact Factor 9.40*

(37) Rosado P, **Ban-Weiss GA**, Mohegh A*, Levinson R (2017) Influence of street setbacks on solar reflection and air cooling by reflective streets in urban canyons. *Solar Energy*. 144, 144-157. https://doi.org/10.1016/j.solener.2016.12.026. *Impact Factor 4.37*

(36) Shirmohammadi F, Sowlat M, Hasheminassab S, Saffari A, **Ban-Weiss GA**, Sioutas C (2017) Emission rates of particle number, mass and black carbon by the Los Angeles Airport (LAX) and its impact on air quality in Los Angeles. *Atmospheric Environment.* 151, 82-93, https://doi.org/10.1016/j.atmosenv.2016.12.005. *Impact Factor 3.71*

(35) Yi K, Liu J, **Ban-Weiss GA**, Zhang J*, Tao W, Cheng Y, Ta S (2017) Response of the global surface ozone distribution to Northern Hemisphere sea surface temperature changes: implications for long-range transport. *Atmospheric Chemistry and Physics.* 17, 8771-8788. https://doi.org/10.5194/acp-17-8771-2017. *Impact Factor 5.51*

(34) Fu X, Liu J, **Ban-Weiss GA**, Zhang J*, Huang X, Ouyang B, Popoola O, Tao S (2017) Effects of canyon geometry on the distribution of traffic-related air pollution in a large urban area: Implications of a multi-canyon air pollution dispersion model. *Atmospheric Environment.* 165, 111-121, https://doi.org/10.1016/j.atmosenv.2017.06.031. *Impact Factor 3.71*

(33) Tao W, Liu J, **Ban-Weiss GA**, Zhang L, Zhang J*, Yi K, Tao S (2017) Potential impacts of urban land expansion on Asian airborne pollutant outflows. *Journal of Geophysical Research - Atmospheres.* 122, 7646 – 7663. https://doi.org/10.1002/2016JD025564. *Impact Factor 3.38*

(32) Gilbert H, Rosado P, **Ban-Weiss GA**, Harvey J, Li H, Mandel B, Millstein D, Mohegh A*, Saboori A, Levinson R (2017) Energy and environmental consequences of a cool pavement campaign. *Energy and Buildings.* 157, 53-77, https://doi.org/10.1016/j.enbuild.2017.03.051. *Impact Factor 4.46*

2016

(31) Vahmani P*, Sun F, Hall A, **Ban-Weiss GA** (2016) Investigating the climate impacts of urbanization and the potential for cool roofs to counter future climate change in Los Angeles. *Environmental Research Letters.* 11, https://doi.org/10.1088/1748-9326/11/12/124027. *Impact Factor 4.54*

This paper resulted in the following press:

- Los Angeles Times Article
  - http://www.latimes.com/projects/la-sci-cooling-los-angeles/
- ~10 minute radio interviews on public radio (KPCC and KCRW)
  - http://www.scpr.org/programs/airtalk/2017/02/13/55022/can-los-angeles-lower-its-own-temperature-by-three/
  - http://www.kcrw.com/news-culture/shows/press-play-with-madeleine-brand/trumps-new-immigration-rules-and-unconventional-phone-calls#seg-mayor-garcetti-aims-to-make-la-3-degrees-cooler

(30) Vahmani P* and **Ban-Weiss GA** (2016) Climatic consequences of adopting drought tolerant vegetation over Los Angeles as a response to California drought. *Geophysical Research Letters*. 43, https://doi.org/10.1002/2016GL069658. *Impact Factor 4.34*

This paper resulted in the following press:

- Chosen by the editors at Geophysical Research Letters to be featured as an EOS Research Spotlight
  - https://eos.org/research-spotlights/switching-to-drought-tolerant-plants-could-alter-urban-climates
- Los Angeles Times Article
  - http://www.latimes.com/science/sciencenow/la-sci-sn-lawn-drought-plants-20160801-snap-story.html
- ~6 minute interview on public radio (KPCC)
  - http://www.scpr.org/programs/take-two/2016/08/03/50987/drought-plants-may-keep-water-use-low-and-temperat/
- Article at KQED (San Francisco Bay area public radio)
  - https://ww2.kqed.org/science/2016/08/31/landscaping-for-drought-could-make-warm-nights-cooler/

(29) Zhang J*, Zhang K, Liu J, **Ban-Weiss GA** (2016) Revisiting the climate impacts of cool roofs around the globe using an earth system model. *Environmental Research Letters*. 11. https://doi.org/10.1088/1748-9326/11/8/084014. *Impact Factor 4.54*

(28) Krasowsky T*, McMeeking G, Wang D, Sioutas C, **Ban-Weiss GA** (2016) Real-world measurements of the impact of atmospheric aging on physical and optical properties of ambient black carbon particles. *Atmospheric Environment*. 142, 496-504, https://doi.org/10.1016/j.atmosenv.2016.08.010. *Impact Factor 3.71*

(27) Taleghani M*, Sailor D, **Ban-Weiss GA** (2016) Micrometeorological simulations to predict the impacts of heat mitigation strategies on pedestrian thermal comfort in a Los Angeles neighborhood. *Environmental Research Letters*. 11, 1-12, https://doi.org/10.1088/1748-9326/11/2/024003. *Impact Factor 4.54*

(26) Vahmani P* and **Ban-Weiss GA** (2016) Impact of remotely sensed albedo and vegetation fraction on simulation of urban climate in WRF-urban canopy model: A case study of the urban heat island in Los Angeles. *Journal of Geophysical Research - Atmospheres*. 121, 1511–1531, https://doi.org/10.1002/2015JD023718. *Impact Factor 3.38*

2015

(25) Zhang J*, Liu J, Tao S, **Ban-Weiss GA** (2015) Long-range transport of black carbon to the Pacific Ocean and its dependence on aging timescale. *Atmospheric Chemistry and Physics*, 15, 11521-11535. https://doi.org/10.5194/acp-15-11521-2015. *Impact Factor 5.51*

(24) Krasowsky T*, Daher N, Sioutas C, **Ban-Weiss GA** (2015) Measurement of particulate matter emissions from in-use locomotives. *Atmospheric Environment*, 113, 187-196. https://doi.org/10.1016/j.atmosenv.2015.04.046. *Impact Factor 3.71*

(23) **Ban-Weiss GA**, Woods J, Millstein D, Levinson R (2015) Using remote sensing to quantify albedo of roofs in seven California cities, Part 2: Results and application to climate modeling. *Solar Energy*, 115, 791-805. https://doi.org/10.1016/j.solener.2014.10.041. *Impact Factor 4.37*

(22) **Ban-Weiss GA**, Woods J, Levinson R (2015) Using remote sensing to quantify albedo of roofs in seven California cities, Part 1: Methods. *Solar Energy*, 115, 777-790. https://doi.org/10.1016/j.solener.2014.10.022. *Impact Factor 4.37*

(21) Tao W, Liu J, **Ban-Weiss GA**, Hauglustaine DA, Zhang L, Zhang Q, Cheng Y, Yu Y, Tao S (2015) Effects of urban land expansion on the regional meteorology and air quality of eastern China. *Atmospheric Chemistry and Physics*, 15, 8597-8614, https://doi.org/10.5194/acp-15-8597-2015. *Impact Factor 5.51*

2014

(20) **Ban-Weiss GA**, Jin L, Bauer S, Bennartz R, Liu X, Zhang K, Ming Y, Jiang J (2014) Evaluating clouds, aerosols, and their interactions in three global climate models using COSP and satellite observations. *Journal of Geophysical Research - Atmospheres*. 119, 876-901. https://doi.org/10.1002/2014JD021722. *Impact Factor 3.38*

2013

(19) **Ban-Weiss GA**, Wray C, Delp W, Ly P, Akbari H, Levinson R (2013) Electricity production and cooling energy savings from installation of building-integrated photovoltaic roof on an office building. *Energy and Buildings*, 56, 210-220, https://doi.org/10.1016/j.enbuild.2012.06.032. *Impact Factor 4.46*

(18) MacCracken MC, Shin HJ, Caldeira K, **Ban-Weiss GA** (2013) Climate response to imposed solar radiation reductions in high latitudes. *Earth System Dynamics*, 4, 301–315, https://doi.org/10.5194/esd-4-301-2013. *Impact Factor 3.77*

2012

(17) **Ban-Weiss GA**, Cao L, Bala G, Caldeira K (2012) Dependence of climate forcing and response on the altitude of black carbon aerosols. *Climate Dynamics*, 38, 897-911, https://doi.org/10.1007/s00382-011-1052-y. *Impact Factor 3.77*

2011

(16) **Ban-Weiss GA**, Bala G, Cao L, Pongratz J, Caldeira K (2011) Climate forcing and response to idealized changes in surface latent and sensible heat. *Environmental Research Letters*, 6, https://doi.org/10.1088/1748-9326/6/3/034032. *Impact Factor 4.54* *
***Environmental Research Letters Highlight Paper of 2011**

(15) Anderson RG, Canadell JG, Randerson JT, Jackson RB, Hungate BA, Baldocchi DD, **Ban-Weiss GA**, Bonan GB, Caldeira K, Cao L, Diffenbaugh NS, Gurney KR, Kueppers LM, Law BE, Luyssaert S, O'Halloran TL (2011) Biophysical considerations in forestry for climate protection. *Frontiers in Ecology and the Environment*, 9, 174-182. https://doi.org/10.1890/090179. *Impact Factor 8.30*

(14) Bala G, Caldeira K, Nemani R, Cao L, **Ban-Weiss GA**, Shin HJ (2011) Albedo enhancement of marine clouds to counteract global warming: impacts on the hydrological cycle. *Climate Dynamics*, 37, 915-931. https://doi.org/10.1007/s00382-010-0868-1. *Impact Factor 3.77*

(13) Levinson R, Pan H, **Ban-Weiss GA**, Rosado P, Paolini R, Akbari H (2011) Potential benefits of solar reflective car shells: cooler cabins, fuel savings and emission reductions. *Applied Energy*, 88, 4343-4357, https:// doi.org/10.1016/j.apenergy.2011.05.006. *Impact Factor 7.9*

(12) Sleiman, M, **Ban-Weiss GA**, Gilbert H, Francois D, Berdahl P, Kirchstetter T, Destaillats H, Levinson R (2011) Soiling of building envelope surfaces and its effect on solar reflectance-Part I: analysis of roofing product databases. *Solar Energy Materials and Solar Cells*, 95, 3385-3399. https://doi.org/10.1016/j.solmat.2011.08.002. *Impact Factor 5.02*

2010

(11) **Ban-Weiss GA**, Lunden MM, Kirchstetter TW, Harley RA (2010) Size-resolved particle number and volume emission factors for on-road gasoline and diesel motor vehicles. *Journal of Aerosol Science*, 41, 5-12, https://doi.org/10.1016/j.jaerosci.2009.08.001. *Impact Factor 2.28*

(10) **Ban-Weiss, GA**, Caldeira K (2010) Geoengineering as an optimization problem. *Environmental Research Letters*, 5, 1-9. http://doi.org/10.1088/1748-9326/5/3/034009. *Impact Factor 4.54*

(9) Cao L, Bala B, Caldeira K, Nemani R, **Ban-Weiss GA** (2010) Importance of carbon dioxide physiological forcing to future climate change. *Proceedings of the National Academy of Sciences*, 107, 9513-9518. https://doi.org/10.1073/pnas.0913000107. *Impact Factor 9.40*

(8) Strawa AW, Kirchstetter TW, Hallar AG, **Ban-Weiss GA**, McLaughlin JP, Harley RA, Lunden MM, Kean AJ (2010) Optical and physical properties of primary on-road vehicle particle emissions and their implications for climate change. *Journal of Aerosol Science*, 41, 36-50. https://doi.org/10.1016/j.jaerosci.2009.08.010. *Impact Factor 2.28*

2009

(7) **Ban-Weiss GA**, Kirchstetter TW, Lunden MM, Harley RA (2009) Measurement of black carbon and particle number emission factors from individual heavy-duty trucks. *Environmental Science and Technology*, 43, 1419-1424. https://doi.org/10.1021/es8021039. *Impact Factor 6.65*

(6) Cao L, Bala B, Caldeira K, Nemani R, **Ban-Weiss GA** (2009) Climate response to physiological forcing of carbon dioxide simulated by the coupled Community Atmosphere Model (CAM3.1) and Community Land Model (CLM3.0). *Geophysical Research Letters*, 36, L10402, https://doi.org/10.1029/2009GL037724. *Impact Factor 4.34*

(5) Kean AJ, Littlejohn D, **Ban-Weiss GA**, Harley RA, Kirchstetter TW, Lunden MM (2009) Trends in on-road vehicle emissions of ammonia. *Atmospheric Environment*, 43, 1565-1570. https://doi.org/10.1016/j.atmosenv.2008.09.085. *Impact Factor 3.71*

2008

(4) **Ban-Weiss GA**, McLaughlin, JP, Harley RA, Kean AJ, Grosjean E, Grosjean D (2008) Carbonyl and nitrogen dioxide emissions from gasoline- and diesel-powered motor vehicles. *Environmental Science and Technology*, 42, 3944-3950. https://doi.org/10.1021/es8002487. *Impact Factor 6.65*

(3) **Ban-Weiss GA**, McLaughlin JP, Harley RA, Lunden MM, Kirchstetter TW, Kean AJ, Strawa AW, Stevenson ED, Kendall GR (2008). Long-term changes in emissions of nitrogen oxides and particulate matter from on-road gasoline and diesel vehicles. *Atmospheric Environment*, 42, 220-232. https://doi.org/10.1016/j.atmosenv.2007.09.049. *Impact Factor 3.71*

(2) Lee DY, Park SS, **Ban-Weiss GA**, Fanucchi MV, Plopper CG, Wexler AS (2008). Bifurcation model for characterization of pulmonary architecture. *The Anatomical Record*, 291, 379-389. https://doi.org/10.1002/ar.20643. *Impact Factor 1.37*

2007

(1) **Ban-Weiss GA**, Chen JY, Buchholz BA, Dibble RW (2007) A numerical investigation into the anomalous slight NO_x increase when burning biodiesel; A new (old) theory. *Fuel Processing Technology*, 88, 659-667. https://doi.org/10.1016/j.fuproc.2007.01.007. *Impact Factor 3.96*

Conference Papers:

(4) Seo S, Mohegh A*, **Ban-Weiss GA**, Liu Y. (2018) Automatically inferring data quality for spatiotemporal forecasting. *6th International Conference on Learning Representations (ICLR).* https://openreview.net/forum?id=ByJIWUnpW

(3) Seo S, Mohegh A*, **Ban-Weiss GA**, Liu Y. (2017) Data quality network for spatiotemporal forecasting. *Deep Learning for Physical Sciences Workshop at the 31st Conference on Neural*

Information Processing Systems (DLPS-NIPS).
https://dl4physicalsciences.github.io/files/nips_dlps_2017_17.pdf

(2) Seo S, Mohegh A*, **Ban-Weiss GA**, Liu Y. (2017) Graph convolutional autoencoder with recurrent neural networks for spatiotemporal forecasting. *Proceedings of the Seventh International Workshop on Climate Informatics*. https://doi.org/10.5065/D6222SH7

(1) **Ban-Weiss, GA**, Gupta, R., Chen, J.Y., Dibble, R.W. *A numerical and experimental investigation into the anomalous slight NO_x increase when burning biodiesel; A new (old) theory.* Western States Combustion Institute Conference Paper. Stanford University, October 18, 2005.

Reports:

(1) Ly P, Ban-Weiss G, Wray C, Delp, W, Akbari H, Levinson R (2013) ***Building Integrated building integrated photovoltaic (BIPV) roofs for sustainability and energy efficiency.*** Environmental Security Technology Certification Program (ESTCP). Energy and Water ESTCP Number: EW-200813

Oral Presentations (given by Ban-Weiss):

* indicates members of the Ban-Weiss group

Ban-Weiss GA. *Investigating the climate and air pollution impacts of adopting heat mitigation strategies and drought tolerant vegetation in Southern California.* Wildland Urban Interfaces: Expanding Perspectives in Southern California. Center for Conservation Biology 2019 Symposium, University of California, Riverside, April 19, 2019. **Invited Speaker and Panelist.**

Ban-Weiss GA. *Modeling and observations to identify optimal heat mitigation strategies.* Hammer Conversations: Future L.A.: Hot! Hot! Hot!, Hammer Museum, University of California, Los Angeles. November 14, 2018. **Invited Speaker and Panelist**

Ban-Weiss GA. *Modeling and observations to identify optimal heat mitigation strategies.* Fourth Climate Change Assessment Symposium. Long Beach, CA. November 2, 2018. **Invited Speaker and Panelist**

Ban-Weiss GA. *Modeling and observations to identify optimal heat mitigation strategies.* Urban Science Workshop. Lawrence Berkeley National Laboratory, Berkeley, CA. September 25, 2018. **Invited Speaker**

Ban-Weiss GA. *Modeling and observations to identify optimal heat mitigation strategies.* California Adaptation Forum. Sacramento, CA. August 28, 2018. **Invited Speaker and Panelist**

Ban-Weiss GA. *Modeling and observations to identify optimal heat mitigation strategies.* Making climate assessments work: learning from California and other subnational climate assessments. **National Academy of the Sciences**. Washington D.C. August 14, 2018. **Invited Speaker and Panelist**

*** Invited to present my group's research at the National Academy of the Sciences to help cities and states learn from California on how to conduct policy-relevant climate research**

Zhang J*, Tang X, Levinson R, Destaillats H, Mohegh A*, Li Y*, Tao W, Liu J, **Ban-Weiss GA**. *Investigating the influence of cool wall adoption on climate and air quality in the Los Angeles basin.* 10th International Conference on Urban Climate/14th Symposium on the Urban Environment. New York, New York. August 7, 2018.

Zhang J*, Gilbert H, Taha H, Levinson R, **Ban-Weiss GA.** *The Writing's On the Wall: Cool Wall Research and Measures.* Environmental Protection Agency. EPA's Heat Island Webcast Series. February 22, 2018. **Invited Speaker**

Ban-Weiss GA. *Interactions of urbanization, heat mitigation, climate, and air pollution from urban to global scale.* Geophysical Fluid Dynamics Laboratory (GFDL), Princeton University, Princeton, New Jersey. January 16, 2018. **Invited Speaker**

Epstein S, Lee SM, Katzenstein A, Carreras-Sospedra M, Zhang X, Farina S, Vahmani P*, Fine P, **Ban-Weiss GA.** *Air quality implications of widespread adoption of cool roofs on ozone and particulate matter in southern California.* American Geophysical Union (AGU) Fall Meeting. New Orleans, LA. December 11, 2017.

Ban-Weiss GA. *Urban climate impacts of cool walls*. Solar reflective "cool" walls workshop. Lawrence Berkeley Laboratory, Berkeley, CA, October 26, 2017. **Invited Speaker**

Zhang J*, Tang X, Levinson R, Destaillats H, Mohegh A*, Li Y*, Tao W, Liu J, **Ban-Weiss GA.** *Investigating the Influence of Photocatalytic Cool Wall Adoption on Meteorology and Air Quality in the*

Los Angeles Basin. 36nd Annual Conference of the American Association for Aerosol Research (AAAR). Raleigh, North Carolina. October 19, 2017.

Ban-Weiss GA. *Urbanization, heat mitigation, climate, and air pollution, from urban to global scale*. Lawrence Berkeley Laboratory Seminar Series, Climate Sciences Division, Berkeley, CA, August 28, 2017. **Invited Speaker**

Vahmani P*, Sun F, Hall A, **Ban-Weiss GA.** *Investigating the climate impacts of urbanization, and the potential for cool roofs to counter future climate change in Southern California,* American Meteorological Society (AMS), 13th Annual Symposium on the Urban Environment, Seattle, WA, January 26, 2017.

Ban-Weiss GA. *Opportunities for improving heat resilience in cities using land cover change,* Resilience By Design University*,* California College of the Arts, San Francisco, CA, October 7, 2016. **Invited Speaker**

Ban-Weiss GA. *Quantifying the urban heat island effect in LA, and the climate impacts of heat mitigation strategies from neighborhood to global scale,* Los Angeles Regional Collaborative (LARC), Los Angeles, CA, October 5, 2016. **Invited Speaker***

*****Included attendance from the Los Angeles Mayor's Office of Sustainability

Ban-Weiss GA. *Investigating optimal urban heat mitigation strategies for vulnerable populations in a changing climate.* California Energy Commission, Sacramento, CA May 13, 2016. **Invited Speaker**

Ban-Weiss GA, Jin L, Bauer S, Bennartz R, Liu X, Zhang K, Ming Y, Jiang J. *Assessing aerosol-cloud interactions at global scale using climate models and satellite observations.* Yoram Kaufman Symposium. NASA Goddard Space Center, Greenbelt, MD, June 23, 2016. (Accepted talk, but canceled due to medical leave.)

Ban-Weiss GA, Jin L, Bauer S, Bennartz R, Liu X, Zhang K, Ming Y, Jiang J. *Assessing aerosol-cloud interactions at global scale using climate models and satellite observations.* 96th American Meteorological Society (AMS) Annual Meeting. New Orleans, LA. January 11, 2016. (canceled due to medical leave.) **Invited Speaker.**

Ban-Weiss GA. *Urban Heat Island and Air Pollution Mitigation as Climate Change Adaptation*. **National Academy of the Sciences**, U.S.-Iran Symposium on Climate Change: Impacts and Mitigation. UC Irvine, CA. March 31, 2015. **Invited Speaker.**

Ban-Weiss GA, Jin L, Bauer S, Bennartz R, Liu X, Zhang K, Ming Y, Jiang J. *Evaluating Aerosols, Clouds, and Their Interactions in Three Global Climate Models.* 13th AeroCom Workshop. Steamboat Springs, CO. October 1, 2014.

Ban-Weiss GA. *Cool Roofs That Reflect the High Notes to Space.* EmTech2014. Massachusetts Institute of Technology (MIT). Boston, MA, Sept 24, 2014. **Invited Speaker.**
http://www.technologyreview.com/emtech/14/video/watch/innovators-under-35-george-ban-weiss/

Ban-Weiss GA, Jin L, Bauer S, Bennartz R, Liu X, Zhang K, Ming Y, Jiang J. *Evaluating Aerosols, Clouds, and Their Interactions in Three Global Climate Models Using COSP and Satellite Measurements.* 32nd Annual Conference of the American Association for Aerosol Research. Portland, OR. October 3, 2013.

Ban-Weiss GA, Jin L, Bauer S, Bennartz R, Liu X, Zhang K, Ming Y, Jiang J. *Evaluating Aerosols, Clouds, and Their Interactions in Three Global Climate Models Using COSP and Satellite Measurements.*

Department of Energy (DOE), Atmospheric System Research (ASR), Science Team Meeting. Potomac, Maryland, March 21, 2013. **Invited Speaker.**

Ban-Weiss GA. *Research and Outreach For Cool Roofs in California and Beyond,* Hot City Cool Roofs Symposium, March 8, 2013. **Invited Speaker** (spoke after Mayor Villaraigosa, mayor of Los Angeles).*

***Results that I showed during this presentation contributed to an update to the Municipal Building Code for Los Angeles requiring that all new and refurbished homes use cool roofs.**

Ban-Weiss GA, Jin L, Bauer S, Bennartz R, Liu X, Zhang K, Ming Y, Jiang J. *Evaluating Aerosol Indirect Effects in Three Global Climate Models using COSP and Satellite Measurements*. FASTER (FAst-physics System TEstbed and Research) meeting. NASA GISS, New York, New York, August 24, 2012. **Invited Speaker.**

Ban-Weiss GA, Levinson R. *Cool ideas for California*. Presented to California Secretary for Natural Resources, California Secretary for Environmental Protection (reports to Governor of CA), and Director of Lawrence Berkeley Laboratory, Berkeley, CA. January 20, 2012. **Invited Speaker.**

Ban-Weiss GA. *Aerosols: From the Tailpipe to Climate Change.* Sonoma Technology Inc., Petaluma, CA. Oct 19, 2011. **Invited Speaker**.

Ban-Weiss GA, Levinson R. *Update to Provisional Aged Solar Reflectance of Roofing Products.* California Energy Commission, 2013 Energy Efficiency Building Standards Staff Workshop. Sacramento, CA. June 10, 2011. **Invited Speaker.**

Ban-Weiss GA*, Characterization of Gas- and Particle-Phase Emissions From On-Road Motor Vehicles.* NASA Ames Research Center, Mountain View, CA. May 13, 2008. **Invited Speaker**.

Ban-Weiss GA, McLaughlin JP, Harley RA, Lunden MM, Kirchstetter TW, Kean AJ, Strawa AW, Stevenson ED, Kendall GR. *Long-Term Changes in Gas- and Particle-Phase Emissions from On-Road Diesel and Gasoline Vehicles.* Diesel Engine-Efficiency and Emissions Research (DEER) Conference. Detroit, MI, August 14, 2007.

Ban-Weiss GA, McLaughlin JP, Harley RA, Lunden MM, Kirchstetter TW, Kean AJ, Strawa AW, Stevenson ED, Kendall GR. *On-Road Measurement of Light-Duty Gasoline and Heavy-Duty Diesel Vehicle Emission Trends.* 17th CRC On-Road Vehicle Emissions Workshop. San Diego, CA. March 27, 2007.

Ban-Weiss GA, Chen JY, Buchholz BA, Dibble RW. *A Numerical and Experimental Investigation Into the Anomalous Slight NO_x Increase When Burning Biodiesel; A New (Old) Theory.* Western States Combustion Institute Meeting. Stanford University, October 18, 2005.

Oral Presentations (given by Ban-Weiss group members):

Bold indicates presenter
* indicates members of the Ban-Weiss group

Li Y*, Zhang J*, Sailor DJ, Ban-Weiss GA, *The impact of urbanization on meteorology and air quality in Southern California*. 10th International Conference on Urban Climate/ 14th Symposium on the Urban Environment. New York, NY. August 6, 2018

Mohegh A*, Gilbert H, Taha H, Levinson R, Ban-Weiss GA. *Modeling and observations to detect*

neighborhood-scale heat islands to inform effective countermeasures in Los Angeles. Presentation to LA Mayor's Sustainability office, June 5, 2018. **Invited Speaker**

Zhang J*, Tang X, Levinson R, Destaillats H, Mohegh A*, Li Y*, Tao W, Liu J, Ban-Weiss GA. *Investigating the influence of photocatalytic cool wall adoption on meteorology and air quality in the Los Angeles basin*. American Geophysical Union (AGU) Fall Meeting. New Orleans, LA. December 11, 2017

Mohegh M*, Taha H, Levinson R, Ban-Weiss GA. *Investigating relationships between the air temperature urban heat island effect and land use characteristics in the Los Angeles basin using high density observations and mobile transects*. American Geophysical Union (AGU) Fall Meeting. New Orleans, LA. Dec 2017

Zhang J*, Zhang K, Liu J, Ban-Weiss GA. *Revisiting the climate impacts of cool roofs around the globe using an earth system model*. American Geophysical Union (AGU) Fall Meeting. San Francisco, CA. December 13, 2016

Zhang J*, Ban-Weiss GA. *On the impacts of heat mitigation strategies from neighborhood to global scale.* Consortium on urban heat islands with academia and Los Angeles Mayor Sustainability Office, Los Angeles, CA, July 7, 2016. **Invited Speaker.**

Zhang J*, Liu J, Tao S, Ban-Weiss GA. *Transport of black carbon to the Pacific Ocean and its dependence on aging timescale*. International Conference on Carbonaceous Particles in the Atmosphere. Berkeley, CA. August 13, 2015

Krasowsky T*, McMeeking GR, Wang D, Sioutas C, Ban-Weiss, GA. *Measurements of the impact of atmospheric aging on physical and optical properties of ambient black carbon particles in Los Angeles*. The 11th session of the International Conference on Carbonaceous Particles in the Atmosphere. Berkeley, CA. August 13, 2015.

Poster Presentations (given by Ban-Weiss and his group members):

Bold indicates presenter
* indicates members of the Ban-Weiss group

Zhang J*, Li Y*, Tao W, Liu J, Levinson R, Mohegh A*, **Ban-Weiss GA**. *Assessing air quality co-benefits and penalties of urban heat mitigation strategies in the Los Angeles Basin.* American Geophysical Union (AGU) Fall Meeting. Washington D.C. December 11, 2018.

Chen M*, Sanders, KT, Ban-Weiss GA. *Spatial and Socioeconomic Distributions of Electricity-temperature Sensitivities in the Los Angeles Metropolitan Region.* American Geophysical Union (AGU) Fall Meeting. Washington D.C. December 12, 2018

Ko J*, Krasowsky T*, Ban-Weiss GA. *Measuring the Physical Properties of Refractory Black Carbon off the Los Angeles Coast.* 2018 International Aerosol Conference. St. Louis, MO. September 3, 2018.

Ban-Weiss GA, Vahmani P*, *Climatic consequences of adopting drought tolerant vegetation over Los Angeles as a response to California drought*. American Geophysical Union (AGU) Fall Meeting. San Francisco, CA. December 13, 2016.

Krasowsky T*, McMeeking GR, Wang D, Sioutas C, Ban-Weiss, GA. *Ambient measurements on the impact of aging on physical and optical properties of black carbon particles*. American Association for Aerosol Research. Portland, OR. October 17-21, 2016.

Zhang J*, Liu J, Tao S, Ban-Weiss GA. *Long-range transport of black carbon to the Pacific Ocean and its dependence on aging timescale*. National Aeronautics and Space Administration (NASA) Kaufman Symposium. Greenbelt, MD. June 22, 2016.

Zhang J*, Zhang K, Liu J, Ban-Weiss GA. *Revisiting the climate impacts of cool roofs around the globe using an earth system model*. American Geophysical Union (AGU) Fall Meeting. San Francisco, CA. December 13, 2015.

Vahmani P*, Ban-Weiss GA. *Satellite-supported modeling of the relationships between urban heat island and land use/cover changes*, American Geophysical Union (AGU) Fall Meeting. San Francisco, CA. December 2015

Mohegh M*, Ban-Weiss GA, Levinson R, Rosado P. *Investigating the Effects of "Cool" Solar Reflective Pavements on California Climate*. American Geophysical Union (AGU) Fall Meeting. San Francisco, CA. December 2015

Zhang J*, Liu J, Ban-Weiss GA, Tao S. *Investigating the vertical distribution and source attribution of black carbon over the Pacific Ocean*. American Geophysical Union (AGU) Fall Meeting. San Francisco, CA. December 17, 2014

Krasowsky T*, Daher N, Sioutas C, Ban-Weiss GA, *Measurement of Particulate Matter Emission Factors from In-Use Locomotives.* American Geophysical Union (AGU) Fall Meeting. San Francisco, CA, December 17, 2014.

Zhang J*, Liu J, Tao S, Ban-Weiss GA. Investigating the Vertical Distribution and Source Attribution of Black Carbon over the Pacific Ocean American Geophysical Union (AGU) Fall Meeting. San Francisco, CA, December 16, 2014.

Zhang J*, Liu J, Ban-Weiss GA, Tao S. *Investigating the vertical distribution and source attribution of black carbon over the Pacific Ocean*. Aerosol Comparisons between Observations and Models (AeroCom) Meeting. Steamboat Springs, CO. October 1, 2014

Krasowsky T*, Daher N, Sioutas C, Ban-Weiss GA, *Measurement of Black Carbon, Lung Deposited Surface Area, Particle Number, and Fine Particle (PM2.5) Emission Factors from Individual Locomotives.* ESRN workshop. University of Southern California. Los Angeles, CA, May 2, 2014.

Ban-Weiss GA, Bauer S, Bennartz R, Liu X, Zhang K, Ming Y, Jiang J, *Evaluating Aerosols, Clouds, and Their Interactions in Three Global Climate Models Using COSP and Satellite Measurements*. Berkeley Atmospheric Science Symposium. Berkeley, CA, February 8, 2013.

Ban-Weiss GA, Bauer S, Bennartz R, Liu X, Zhang K, Ming Y, Jiang J, *Evaluating Aerosols, Clouds, and Their Interactions in Three Global Climate Models Using COSP and Satellite Measurements*. American Geophysical Union (AGU) Fall Meeting. San Francisco, CA, December 4, 2012.

Ban-Weiss, G.A. *Next Generation Materials for Cool Roofing Applications.* LBNL Accelerated Aging of Building Materials Conference. Berkeley, CA, July 28, 2011

Ban-Weiss, G.A., Bala, G., Cao, L., Pongratz, J., Caldeira, K. *Understanding the Climate Consequences of Evapotranspiration Changes: A Theoretical Perspective.* American Geophysical Union (AGU) Fall Meeting. San Francisco, CA, December 15, 2010.

Ban-Weiss, G.A., Caldeira, K., Cao, L., Bala, G. *Climate Response to Black Carbon Aerosols: Dependence on Altitude.* American Geophysical Union (AGU) Fall Meeting. San Francisco, CA, December 15, 2009.

Ban-Weiss, G.A., Harley, R.A., Lunden, M.A., Kirchstetter, T.W. *Measurement of Black Carbon and Particle Number Emission Factors From Individual Heavy-Duty Trucks.* International Conference on Carbonaceous Particles in the Atmosphere. Lawrence Berkeley National Laboratory. August 12, 2008.

Ban-Weiss, G.A., McLaughlin, J.P., Harley, R.A., Lunden, M.M., Kirchstetter, T.W., Kean, A.J. *Long-Term Changes in Gas- and Particle-Phase Emissions from On-Road Diesel and Gasoline Vehicles.* UC Berkeley Energy Symposium: Leadership at the Nexus of Science, Policy, & Business. UC Berkeley, March 7, 2008.

Ban-Weiss, G.A., McLaughlin, J.P., Harley, R.A., Lunden, M.M, Kirchstetter, T.W., Kean, A.J. *Long-Term Changes in Gas- and Particle-Phase Emissions from On-Road Diesel and Gasoline Vehicles.* American Geophysical Union (AGU) Fall Meeting. San Francisco, CA, December 11, 2007.

Ban-Weiss, G.A., McLaughlin, J.P., Harley, R.A., Lunden, M.M, Kirchstetter, T.W., Kean, A.J. *Long-Term Changes in Gas- and Particle-Phase Emissions from On-Road Diesel and Gasoline Vehicles.* 7th annual Berkeley Atmospheric Science Center Symposium. Berkeley, CA, October 5, 2007.

Lunden, M.M., Ban-Weiss, G.A., Kirchstetter, T.W., McLaughlin, J.P., Harley, R.A. *Characteristics of On-Road Light-Duty and Heavy-Duty Vehicle Particulate Emissions.* American Association for Aerosol Research (AAAR) 26th Annual Conference. Reno, NV. September 25, 2007.

Strawa, A.W., Hallar, A.G., Kirchstetter, T.W., Lunden, M.M., Ban-Weiss, G.A., Harley, R.A., McLaughlin, J.P., Kean, A.J. *Measurement of the Optical Properties of On-Road Light-Duty and Heavy-Duty Vehicle Particulate Emissions.* American Association for Aerosol Research (AAAR) 26th Annual Conference. Reno, NV. September 25, 2007.

Ban-Weiss, G.A., McLaughlin, J.P., Harley, R.A., Lunden, M.M, Kirchstetter, T.W., Kean, A.J. A. *Long-Term Changes in Gas- and Particle-Phase Emissions from On-Road Diesel and Gasoline Vehicles.* Diesel Engine-Efficiency and Emissions Research (DEER) Conference. Detroit, MI, August 14, 2007.

Ban-Weiss, G.A., McLaughlin, J.P., Harley, R.A., Lunden, M.M., Kirchstetter, T.W., Kean, A.J. *On-Road Measurement of Gasoline and Diesel Engine Emission Trends.* University of California Transportation Center Annual Conference. UC Los Angeles, Feb 16, 2007.

Ban-Weiss, G.A., McLaughlin, J.P., Harley, R.A., Lunden, M.M., Kirchstetter, T.W., Kean, A.J. *On-Road Measurement of Gasoline and Diesel Engine Emission Trends.* Berkeley Energy Resource Collaborative (BERC) Conference - Challenges, Opportunities, and the Role of UC Berkeley in Creating a Sustainable Energy Future. UC Berkeley, March 21, 2006.

Ban-Weiss, G.A., Harley, R.A. *Heavy-Duty Diesel Emissions in CA: Past, Present, and Future.* University of California Transportation Center Annual Conference. UC Berkeley, Feb 10, 2006.

<u>Research Funding Awards</u> (as a USC investigator)

Summary: $2.1 million in funding to Ban-Weiss group

13)
"CAREER: Enhancing urban sustainability: an integrative approach toward synergistic solutions to reduce urban temperatures, air pollution, and water use in a changing climate"
Sponsor: National Science Foundation (Early CAREER Award)
$509,822 (for Ban-Weiss group)
Jan 15, 2018 – Dec 31, 2022
PI: George Ban-Weiss

12)
"LA 100% Renewable Energy Study"
Sponsor: Los Angeles Department of Water and Power
Prime: National Renewable Energy Laboratory
$190,000 (for Ban-Weiss group)
June 10, 2018 – July 9, 2020
PI: Kelly Sanders
Co-PI: George Ban-Weiss

11)
"Pollutant Emission Rates from Maritime Sources"
Sponsor: California Air Resources Board
Prime: University of California, Berkeley
$100,752 (for Ban-Weiss group)
Oct 15, 2018 – October 14, 2019
USC PI: George Ban-Weiss
UC Berkeley PI: Thomas Kirchstetter

10)
"Cal-thrives: A California Toolkit for heat resiliency in vulnerable environments"
Sponsor: Strategic Growth Council
Prime: Lawrence Berkeley National Laboratory
$74,235 (for Ban-Weiss group)
January 1, 2019 – June 30, 2020
USC PI: George Ban-Weiss
LBNL PI: Max Wei

9)
"High resolution air quality monitoring and air pollutant data analytics"
Sponsor: Indo-US Science and Technology Forum
$61,128 (for Ban-Weiss group)
May 24, 2018 – Dec 31 2022
USC co-PI: George Ban-Weiss
USC PI: Eun Sok Kim
Project PI: Prof Bharadwaj Amrutur, Indian Institute of Science, Bangalore
(This funding source requires the project PI to be from India)

8)
"Lost City: Songs from a changing sea"
Sponsor: USC Visions and Voices
$26,000

June 1 2016 – May 31 2017
PI: George Ban-Weiss

7)
"Collaborative: Development of a multi-scale model to determine optimal urban heat mitigation strategies for vulnerable populations in a changing climate"
Sponsor: National Science Foundation
$210,061 (for Ban-Weiss group)
June 1 2015 – May 31 2019 (including a 1-year no-cost extension)
PI: George Ban-Weiss
co-PI: David Sailor (Arizona State University)

6)
"CyberSEES: Type 1: A novel machine learning framework for urban heat island causal analysis: a marriage of observations and physical models"
Sponsor: National Science Foundation
$200,000 (for Ban-Weiss group)
September 1, 2015 – August 31 2019 (including a no-cost extension)
PI: Yan Liu (USC)
Co-PI: George Ban-Weiss

5)
"Solar-reflective "cool" walls: benefits, technologies, and implementation"
Sponsor: California Energy Commission, Electric Program Investment Charge (EPIC) program
Prime: Lawrence Berkeley National Laboratory.
$250,000 (for Ban-Weiss group)
October 7, 2015 – June 30 2018
USC PI: George Ban-Weiss
LBNL PI: Ronnen Levinson

4)
"Monitoring the Urban Heat Island Effect and the Efficacy of Future Countermeasures"
Sponsor: California Energy Commission, Electric Program Investment Charge (EPIC) program
Prime: Lawrence Berkeley National Laboratory.
$82,000 (for Ban-Weiss group)
October 26 2015 – December 31, 2018
USC PI: George Ban-Weiss
LBNL PI: Ronnen Levinson

3)
"Determining climate-relevant properties of atmospheric particles: from emissions sources to aging in the atmosphere"
Sponsor: Charles Lee Powell Foundation Research Award
$160,278.
Bundle grant for research and equipment

2)
"Can increased use of urban vegetation and "cool" roofs and pavements counter the effects of future climate change while simultaneously improving air quality in Los Angeles?"
Sponsor: The Rose Hills Foundation 2014 Research Fellowship.
$150,000 (for Ban-Weiss group).
July 1 2014 – June 30 2016
PI: George Ban-Weiss

1)
“Life-Cycle Assessment and co-benefits of cool pavements”
Sponsor: California Air Resources Board.
Prime: Lawrence Berkeley National Laboratory.
$68,000 (for Ban-Weiss group)
August 16 2013 – March 31 2016
USC PI: George Ban-Weiss
LBNL PI: Ronnen Levinson

Research Group

Graduated PhD students

- Trevor Krasowsky (PhD)
  Aug 2013 – December 2017
  (passed qualifying exam May 12, 2016 and defense Oct 12, 2017)
  Now at California Air Resources Board

- Mohammadhassan (Arash) Mohegh (PhD)
  Aug 2013 – December 2018
  (passed qualifying exam May 10, 2017 and defense August 1, 2018)
  Now a postdoc at George Washington University with Prof Susan Anenberg

- Jiachen Zhang (PhD)
  August 2014 – May 2019
  (passed qualifying exam May 8, 2017 and defense November 30, 2018)
  Currently on maternity leave and will begin a postdoc with Ban-Weiss in June 2019

Current PhD students

- Mo Chen*
  August 2015 – current
  *Co-advised with Prof Kelly Sanders

- Yun Li (PhD)
  August 2016 – current

- Joseph Ko (PhD)
  August 2017 – current

- Hannah Schlaerth (PhD)
  August 2018 – current

Postdoctoral Researchers

- Pouya Vahmani
  September 2014 – March 2016
  Now at Lawrence Berkeley National Laboratory

Visiting Scholars

- Mohammad Taleghani, PhD
  Now at University of Salford in Manchester (UK)

Professional Activity / Service (outside of USC):

General Activities (updated April 2019)

- Member of the Committee on Cooling and Urban Heat Impacts. This committee is made up of mostly policy makers from various entities of the city and county of Los Angeles (including the LA Mayor's Office). I am the only academic on the committee. The goal of the committee is to create appropriate policies to promote reducing temperatures in Los Angeles via smart land use decisions. (July 2018 – current) (**invited**)

- Contributor to California Collaborative for Climate Change Solutions (C4S), Demonstration projects for the C4S platform. Lead coordinating authors, Veerabhadran Ramanathan (UC San Diego) and Benjamin Houlton (UC Davis) (March 2018 – current) (**invited**)

- Contributing lead author for California's Fourth Climate Assessment (Nov 2017-Dec 2018) (**invited**)

- Contributor to California's Fourth Climate Assessment, including quarterly meetings and providing guidance (January 2016 – Dec 2018)

- Providing expertise to the LA Mayor's Office of Sustainability to inform their sustainability plan, which includes targets for urban heat island reduction. This includes carrying out analyses of satellite data and ground monitors to develop metrics that can be used to assess their progress in meeting heat island reduction policies (summer 2015 - current) (**invited**)

- Speaker for EPA's Heat Island Webinar Series to explain research results to a largely policy maker audience (Feb 2018) (**invited**)

- Member of the Scientific Working Group for the City of Long Beach Climate Action and Adaptation Plan (summer 2017 - current) (**invited**)

- Panelist for 2018 National Science Foundation CBET CAREER Webinar. (This NSF webinar was attended by Assistant Professors across the nation to receive training on developing effective CAREER proposals.) (**invited**)

- Presentation on our urban heat island research to LA Mayor's Substantiality office (June 5, 2018) (**invited**)

- Panelist for Staff Workshop on Actionable Climate Science for the Electricity and Natural Gas Sectors, California Energy Commission, March 16, 2017 (**invited**)

Conference chair (since 2013)

- Session creator and session chair at American Geophysical Union Fall Meeting. *Towards understanding the 3-dimensional distribution of gases,aerosols and clouds via synergistic use of models and satellite, aircraft, and ground based observations***,** December, 2015.

- Session chair at National Academy of the Sciences, U.S.-Iran Symposium on Climate Change: Impacts and Mitigation. *Environmental impacts of climate change.* UC Irvine, CA. March 31, 2015.

- Session creator and session chair at American Geophysical Union Fall Meeting. *Constraining aerosol indirect forcing in climate models with observations***,** December 13, 2013.

- Co-chair ASCE International Workshop on Computing in Civil Engineering, *Computing for Sustainability and Environment*, June 23-25 2013.

Peer reviewer (since 2013)

- Invited reviewer for National Science Foundation, Environmental Sustainability Program under Bruce Hamilton (November 2018)

- Reviewer for the following journals: Atmospheric Chemistry and Physics, Environmental Science and Technology, Atmospheric Environment, Geophysical Research Letters, Journal of Geophysical Research

- Invited "expert reviewer" for the Nobel Prize winning Intergovernmental Panel on Climate Change (IPCC), 5th Assessment Report (AR5), Jan 2013.

Service to USC

Student Screening Exam committees

Spring 2019
- Joseph Ko
- Sina Taghvaee

Spring 2018
- Yun Li
- Amir Baniassadi

Spring 2017
- Mo Chen
- Christopher Lovett
- Mohammad Sowlatt
- Measrainsey Meng

Spring 2016
- Jiachen Zhang
- Farimah Shirmohammadi

Spring 2015
- Trevor Krasowsky
- Mohammadhassan (Arash) Mohegh
- Rebecca Peer

Spring 2014
- Arian Saffari.

Qualifying Exam committees

- Eyuphan Koc (CEE), May 16, 2019
- Measrainsey Meng (CEE), May 8, 2019
- Ghena Alhanaee (CEE), May 8, 2019
- Yan Xu (Spatial Sciences), April 29, 2019
- Sina Taghvaee (CEE), April 16, 2019
- Meida Chen (CEE), November 19, 2018
- Biayna Bogosian (USC School of Cinematic Arts, Media Arts, and Practice Division), May 1, 2018
- Mohammad Sowlatt (CEE), February 28, 2018
- Sungyong Seo (CEE), January 31, 2018
- Christopher Lovett (CEE), January 23, 2018
- Rebecca Peer (CEE), September 12, 2017
- Arash Mohegh (CEE), May 10, 2017
- Farimah Shirmohammadi (CEE), May 9, 2017
- Jiachen Zhang (CEE), May 8, 2017
- Simin Ahmadi Karvigh (CEE), January 18, 2017
- Trevor Krasowsky (CEE), May 12, 2016
- Jun Hu (Earth Sciences), October 4, 2016
- Zheng Yang (CEE), October 15, 2014
- Arian Safari (CEE), November 4, 2014
- Sina Hasheminassab (CEE), February 28, 2014
- Dongbin Wang (CEE), February 7, 2014

Dissertation committees

- Mohammad Sowlatt
- Jiachen Zhang
- Christopher Lovett
- Mohammadhassan (Arash) Mohegh
- Farimah Shirmohammadi
- Trevor Krasowsky
- Arian Safari
- Sina Hasheminassab
- Sylvia Dee (Earth Sciences)

Other mentorship

- Participating in the faculty mentorship program. Acting as **faculty mentor** for Assistant Professor Daniel McCurry

CEE Department committees

- Annual Faculty Review Committee (AFR) – Spring 2018
- Annual PhD Student Review Committee – Spring 2018
- Environmental Engineering B.S. and M.S. Curriculum Committee – Spring 2014 – current
- PhD Admissions and Fellowships Committee, Civil and Environmental Engineering – Spring 2014 –current
- Numerous Visitor Request Committees –Fall 2013 – current
- Department Seminar Series Committee, Civil and Environmental Engineering – Fall 2013 – current

- Marketing (Newsletter) Committee, Civil and Environmental Engineering – Fall 2013, Spring 2014, Fall 2015
- Research space committee – Spring 2015
- Department website committee - since Spring 2014 - 2016
- TA/RA Awards Committee (Dept Awards), Civil and Environmental Engineering – Fall 2013 and 2014
- Committee for Nomination of University Outstanding TA Award – Fall 2013 and 2014
- TA Committee, Civil and Environmental Engineering – Spring 2014

Viterbi School of Engineering committees

- Fleischer Prize committee –Fall 2014 – current
- Explore USC panelist – Spring 2017, 2018, 2019

University committees

- Center for High Performance Computing (HPC) faculty advisory committee (March 2017 – current)
- Guest panelist for the University Research Committee (meeting attended on January 31, 2019)

USC Internal Proposal / Grant reviewer

- Rose Hills Fellowship, March 2019
- Rose Hills Fellowship, March 2017
- Rose Hills Fellowship, March 2015

USC Panels

- Panelist for "Preparing & Submitting NSF CAREER Award Proposals," put on by the Center for Excellence in Research and moderated by Randy Hall. April 26, 2018.

- Viterbi Academic Career Mentoring Panel Series – Career in Industry vs. Research Labs vs. Academia. April 16, 2015

Public Outreach

- Spearheaded and performed in a musical show that explores our relationship to the environment through song. Show was performed at College of the Holy Cross as part of their "Arts Transcending Borders" series. (October 17-18, 2018)

- Hosted two middle school teachers from LA Unified School District in my lab as part of USC's Research Experience for Teachers (RET) program. Developed curriculum with these teachers for their science classes, which included having them take extensive field measurements to gain "hands on" experience. (Summer 2018)

- Spearheaded and performed in a musical show that explores our relationship to the environment through song. Show was performed at the "Prototype Festival", an avant guarde opera festival in Manhattan. (January 11-13, 17-20 2018 (10 shows total))

- Spearheaded and performed in a musical show that explores our relationship to the environment through song. Show was performed as part of USC's Visions and Voices series. (April 2017)

- Hosted two middle school teachers from LA Unified School District in my lab as part of USC's Research Experience for teachers program. Developed curriculum with these teachers for their science classes. (Summer 2015)

- Video Glossary entry for "Heat Island". Lawrence Berkeley Lab. http://videoglossary.lbl.gov/#n76 (May 2013)

- Part of a team developing science curriculum for 6th graders based on Heat Island research. Taught lessons in 6th grade classrooms in Berkeley Unified School District. (2011-2012)

- Career day at Albany high school. "Postdoctoral Research Scientist & Professional Jazz Bassist" (Nov 2011)

Student Awards given to my PhD Students

Trevor Krasowsky

- William F. Ballhaus "Best Dissertation" Award out of over 160 engineering graduates in the Viterbi School of Engineering at USC – 2018
- Best Dissertation Awardee in Environmental Engineering – 2018
- American Association of Aerosol Research Student Poster Award – 2016
- Environmental Engineering Teaching Assistant of the year – 2015
- Railway Association of Southern California Annual Scholarship – 2014
- Viterbi Fellowship – 2013

Jiachen Zhang

- Student Paper Award, Southern California Chinese-American Environmental Protection Association – 2018
- Environmental Engineering Researcher of the year – 2016
- Student Paper Award, Southern California Chinese-American Environmental Protection Association – 2016
- CESASC scholarship, Chinese-American Engineers and Scientists Association – 2016
- Viterbi Fellowship – 2014

Mo Chen

- Theodore and Wen-Hui Chen Endowed Fellowships (from USC Graduate School) – 2019–2020.
- Fu "Dave" Yen Fellowship in Environmental Engineering – 2016
- CESASC scholarship, Chinese-American Engineers and Scientists Association – 2017

Yun Li

- Second place at the ASU Urban Climate Research Center Poster Event – 2018
- Provost Fellowship – 2016

Joseph Ko

- Viterbi Fellowship – 2017

Hannah Schlaerth

- National Science Foundation, Graduate Research Fellowship Program – 2019
- Viterbi Fellowship – 2018

Selected Press (since 2012)

LA Times, *L.A. takes climate change fight to the streets by pouring cooler pavement, https://www.latimes.com/local/lanow/la-me-cool-pavement-climate-change-20190425-story.html* (April 2019)

Washington Post, *As temperatures keep trending up, 'heat belt' cities maneuver to stay livable,* https://www.washingtonpost.com/national/as-temperatures-keep-trending-up-heat-belt-cities-maneuver-to-stay-livable/2018/08/29/3c7ef2f2-ab15-11e8-a8d7-0f63ab8b1370_story.html?noredirect=on&utm_term=.0b09667b137c (August 2018)

Science News, *Are we ready for the deadly heat waves of the future*, https://www.sciencenews.org/article/are-we-ready-deadly-heat-waves-future (April 2018)

Bloomberg, *This coating can make streets cooler*, https://www.bloomberg.com/news/articles/2018-01-29/this-coating-can-make-streets-cooler (August 2018)

NPR (radio interview), *What you need to know about LA's urban heat problem*, https://curious.kcrw.com/2017/09/what-you-need-to-know-about-las-urban-heat-problem (Sept 2017)

Gizmodo, *The Radical Plan to Cool Down L.A. as the World Heats Up*, https://gizmodo.com/the-radical-plan-to-cool-down-la-as-the-world-heats-up-1797711611 (August 2017)

New York Times, *A Plan to Cool Down L.A.*, https://www.nytimes.com/2017/07/07/us/california-today-cool-pavements-la.html?em_pos=large&emc=edit_ca_20170707&nl=california-today&nlid=23413005&ref=img&te=1 (July 2017)

Huffington Post Article, *Songs from a changing sea: A Spiritual Journey Beneath the Waves* https://www.huffingtonpost.com/entry/songs-from-a-changing-sea-a-spiritual-journey-beneath_us_591f702ee4b0b28a33f62c2e?ncid=engmodushpmg00000003 (May 2017)

Los Angeles Times Article, *L.A.'s mayor wants to lower the city's temperature. These scientists are figuring out how to do it*. http://www.latimes.com/projects/la-sci-cooling-los-angeles/ (Feb 2017)

Public radio (KPCC), Air talk, 10 minute radio interview, *Can Los Angeles lower its own temperature by 3 degrees?* http://www.scpr.org/programs/airtalk/2017/02/13/55022/can-los-angeles-lower-its-own-temperature-by-three/ (Feb 2017)

Public radio (KCRW), **Press play**, 10 minute radio interview, *Mayor Garcetti aims to make LA three degrees cooler*, http://www.kcrw.com/news-culture/shows/press-play-with-madeleine-brand/trumps-new-immigration-rules-and-unconventional-phone-calls#seg-mayor-garcetti-aims-to-make-la-3-degrees-cooler (Feb 2017)

Los Angeles Time Article, *Will replacing thirsty lawns with drought-tolerant plants make L.A. hotter?* http://www.latimes.com/science/sciencenow/la-sci-sn-lawn-drought-plants-20160801-snap-story.html (August 2016)

Public radio (KPCC), Take two, 6 minute radio interview, *Drought plants may keep water use low, but temperatures high*, http://www.scpr.org/programs/take-two/2016/08/03/50987/drought-plants-may-keep-water-use-low-and-temperat/ (August 2016)

Article at KQED (San Francisco Bay area public radio), *Landscaping for Drought Could Make Warm Nights Cooler*, https://ww2.kqed.org/science/2016/08/31/landscaping-for-drought-could-make-warm-nights-cooler/ (August 2016)

Chosen by the editors at GRL to be featured as an **EOS Research Spotlight**, *Switching to Drought-Tolerant Plants Could Alter Urban Climates*, https://eos.org/research-spotlights/switching-to-drought-tolerant-plants-could-alter-urban-climates (Sept 2016)

89.3 KPCC (NPR affiliate). *Map: Is your roof adding to LA's 'heat island'?* http://www.scpr.org/news/2014/09/25/46947/map-is-your-roof-adding-to-la-s-heat-island/ (Sept 2014)

UC Berkeley Alumni Magazine Wolf E, *Cool Play: Innovator Aims to Combat Global Warming From the Rooftops Down*, http://alumni.berkeley.edu/california-magazine/just-in/2014-09-05/cool-play-innovator-aims-combat-global-warming-rooftops-down (Sept 2014)

Popescu A, *A USC professor who studies climate and pollution influences policy in California,* ***MIT Technology Review***, http://www.technologyreview.com/lists/innovators-under-35/2014/humanitarian/george-ban-weiss/ (August 2014) ***Berkeley Alumni Magazine***

Daily Trojan X Yi, *Viterbi professors named to MIT's list of innovators*, http://dailytrojan.com/2014/08/27/viterbi-professors-named-to-mits-list-of-innovators/ (August 2014)

Berkeley Engineering, *Young Berkeley engineers recognized as innovators, humanitarians*, http://engineering.berkeley.edu/2014/08/young-berkeley-engineers-recognized-innovators-humanitarians (August 2014)

The Weather Channel, Live television interview**.** *Reducing the urban heat island*. http://www.youtube.com/watch?feature=player_detailpage&v=U-7q55gDxqQ (June 2013)

New York Times, Robbins J, *Why Trees Matter*, https://www.nytimes.com/2012/04/12/opinion/why-trees-matter.html?mtrref=www.google.com&gwh=B3B51B732120D1556AB93BCB766E22B8&gwt=pay (April 2012)