Daniel John Rutherford, Ph.D.

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EXPERIENCE

International Council on Clean Transportation (San Francisco, CA) **5/2013 – present**
Program Director, Marine and Aviation; Japan Country Lead

- Responsible for mid- and long-term strategy, management, and development of two ICCT programs with seven full-time staff and an annual budget of $1.5 million.
- From 2013 to 2020, served as ICCT's acting marine lead in the International Maritime Organization (IMO). Developed technical papers, directed outreach, and represented ICCT as a member of various delegations.
- Served as ICCT's acting aviation lead and technical observer to the International Civil Aviation Organization's (ICAO) environmental committee. Drafted technical papers, attended working group and policy meetings, and led civil society engagement on the development of emission standards for new aircraft/aircraft engines.
- Coordinated ICCT's limited outreach and research activities in Japan on emissions and efficiency standards for marine vessels and heavy-duty and light-duty vehicles. Identified and secured resources to support these activities. Made technical presentations on environmental standards for the transportation sector at government, academic, and industry workshops.

International Council on Clean Transportation (San Francisco, CA) **7/2008 – 4/2013**
Aviation Program Lead; Japan Country Lead

- Established and led ICCT's aviation program, with responsibility for planning, supervision, recruitment, and development for four full-time staff.
- Participated in the establishment of the world's first CO_2 emission standard for new aircraft as a technical observer to International Civil Aviation Organization (ICAO) environmental working groups via the submission of more than 40 technical and position papers. From 2010 to 2011, co-led a technical ad hoc group in charge of developing test procedures for ICAO's CO_2 certification requirement for new aircraft.
- Prepared technical reports analyzing international best practices in promoting fuel-efficient light and heavy-duty vehicles, reducing heavy-duty emissions, and controlling the climate impact of aircraft. Organized, attended, and presented at international conferences and workshops on these themes.
- Coordinated ICCT's outreach and research activities in Japan, including the development of a Memorandum of Understanding with the Tokyo Metropolitan Government regarding transportation emissions.
- Handled RFP development, contracting, and oversight of multiple consultant contracts of amounts ranging from $10,000 to $700,000.

International Council on Clean Transportation (San Francisco, CA) **5/2007 – 6/2008**
Senior Researcher

- Prepared technical reports analyzing international best practices in promoting fuel-efficient light and heavy-duty vehicles and reducing heavy-duty emissions. Organized, attended, and presented at international conferences and workshops on these themes.
- Coordinated ICCT's outreach and research activities in Japan related to light and heavy-duty vehicles.

TIAX, LLC (Cupertino, CA) **6/2006 – 4/2007**
Senior Engineer

- Conducted technical assessments of clean transportation technologies, including electric drive and hydrogen fuel cell vehicles.

EDUCATION

Stanford University (Stanford, CA) **9/2000 – 9/2006**

- Doctor of Philosophy in Civil and Environmental Engineering

Kyoto University (Kyoto, Japan) **9/2002 – 12/2003**

- Fulbright Graduate Research Fellow, Department of Civil Engineering Systems

Stanford University (Stanford, CA) **9/1999 – 6/2000**

- Master of Science, Civil and Environmental Engineering

University of Minnesota at Morris (Morris, MN) **9/1992 – 6/1996**

- Bachelor of Arts, Chemistry

SELECTED PUBLICATIONS

Graver, B.; Rutherford, D. "Low-cost carriers and U.S. aviation emissions growth, 2005 to 2019." International Council on Clean Transportation. March 2021.

Faber, J.; Hanayama, S.; Zhang, S.; Pereda, P.; Comer, B.; Hauerhof, E.; Schim van der Loeff, W.; Smith, T.; Zhang, Y.; Kosaka, H.; Adachi, M.; Bonello, J.-M.; Galbraith, C.; Gong, Z.; Hirata, K.; Hummels, D.; Kleijn, A.; Lee, D.; Liu, Y.; Lucchesi, A.; Mao, X.; Muraoka, E.; Osipova, L.: Qian, H.; Rutherford, D.; Suárez de la Fuente, S.; Sun, D.; Velandia Perico, C.; Wu, L.; Xing, H.; Yoo, D.H.; Yuan, H. "IMO Fourth GHG Study." International Maritime Organization. London, UK. November 2020.

Graver, B.; Rutherford, D. "CO_2 Emissions from Commercial Aviation: 2013, 2018, and 2019." International Council on Clean Transportation. October 2020.

Zheng, S.X..; Rutherford, D. "Fuel Burn of New Commercial Jet Aircraft: 1960 to 2019." International Council on Clean Transportation. September 2020.

Zheng, S.X.; Rutherford, D. "US–Latin American Airline Fuel Efficiency Ranking, 2017–2018." International Council on Clean Transportation, November 2019.

Graver, B.; Zhang, K.; Rutherford, D. "CO_2 Emissions from Commercial Aviation, 2018." International Council on Clean Transportation, September 2019.

Zheng, S.X.; Graver, B.; Rutherford, D. "U.S. Domestic Airline Fuel Efficiency Ranking, 2017–2018." International Council on Clean Transportation, September 2019.

Chen, C., E. Saikawa, B. Comer, X. Mao, and D. Rutherford, Ship Emission Impacts on Air Quality and Human Health in the Pearl River Delta (PRD) region, China in 2015, with Projections to 2030. *GeoHealth*,https://doi.org/10.1029/2019GH000183, in press.

Mao, X.; Chen C.; Comer, B.; Rutherford, D. "Costs and Benefits of a Pearl River Delta Emission Control Area." International Council on Clean Transportation, July 2019.

Graver, B.; Rutherford, D. "Transatlantic Airline Fuel Efficiency Ranking, 2017." International Council on Clean Transportation, September 2018.

Mao, X.; Rutherford, D. "Delineating a Chinese Emission Control Area: The Potential Impact of Ship Rerouting on Emissions." International Council on Clean Transportation. September 2018.

Jiang, Y.; Yang, J.; Gagné, S.; Chan, T.; Thomson, K.; Fofie, E.; Cary, R.; Rutherford, D.; Comer, B.; Swanson, J.; Lin, Y. Van Rooy, P.; Asa-Awuku, A.; Jung, H.; Barsanti, K.; Karavalakis, G.; Cocker, C.; Durbin, T.; Miller, J.; Johnson, K. "Sources of Variance in BC Mass Measurements from a Small Marine Engine: Influence of the Instruments, Fuels and Loads", Atmos. Env. June 2018.

Graver, B.; Rutherford, D. "Transpacific Airline Fuel Efficiency Ranking, 2016." International Council on Clean Transportation, January 2018.

Comer, B.; Olmer, N.; Mao, X.; Roy, B.; Rutherford, D. "Black Carbon Emissions and Fuel Use in Global Shipping, 2015." International Council on Clean Transportation, December 2017.

Olmer, N.; Rutherford, D. "U.S. Domestic Airline Fuel Efficiency Ranking, 2015–2016." International Council on Clean Transportation, November 2017.

Olmer, N.; Comer, B.; Roy, B.; Mao, X.; Rutherford, D. "GHG Emissions from Global Shipping, 2013 to 2015." International Council on Clean Transportation. November 2017.

Comer, B.; Olmer, N.; Mao, X.; Roy, B.; Rutherford, D. "Prevalence of Heavy Fuel Oil and Black Carbon in Arctic Shipping, 2015 to 2025." International Council on Clean Transportation. May 2017.

Kharina, A.; Rutherford, D.; Zeinali, M. "Cost Assessment of Near- and Mid-term Technologies to Improve New Aircraft Fuel Efficiency." International Council on Clean Transportation. September 2016.

Zou, B.; Kwan, I.; Hansen, M.; Rutherford, D.; Kafle, N. Airline Fuel Efficiency: Assessment Methodologies and Applications in the U.S. Domestic Airline Industry. Chapter 12 in Advances in Airline Economics – Volume 5. Emerald Group Publishing Limited. Series ISSN: 2212-1609. June 2016.

Wang, H.; Mao, X.; Rutherford, D. "Costs and Benefits of Shore Power at the Port of Shenzhen." International Council on Clean Transportation. December 2015.

Kwan, I.; Rutherford, D. "Transatlantic Airline Fuel Efficiency Ranking, 2014." International Council on Clean Transportation. November 2015.

Kharina, A.; Rutherford, D. "Fuel Efficiency Trends for New Jet Commercial Aircraft: 1960 to 2014." International Council on Clean Transportation. September 2015.

Wang, H.; Rutherford, D. "Assessment of the Energy Consumption of LNG Carriers and the Impact of Improving the Energy Efficiency on the Natural Gas Supply Chain." Transportation Research Record. No. 2502, pages 40-47.

Kwan, I.; Rutherford, D. An Assessment of U.S. Domestic Airline Fuel Efficiency Since 2010. "Current Issues in Aviation". Transportation Research Record. No. 2501, pages 1-8.

Azzara, A. J., Haifeng, W., and Rutherford, D. 2015. A 10-Year Projection of Maritime Activity in the U.S. Arctic. A Report to the President. U.S. Committee on the Marine Transportation System, Integrated Action Team on the Arctic, Washington, D.C., 73 p.

Kwan, I.; Rutherford, D. "U.S. Domestic Airline Fuel Efficiency Ranking, 2013." International Council on Clean Transportation. November 2014.

Zeinali, M.; Rutherford, D.; Kwan, I.; Kharina, A. "U.S. Domestic Airline Fuel Efficiency Ranking 2010." International Council on Clean Transportation. September 2013.

Wagner, V.; Rutherford, D. "Best Practices in Emission Control of In-use Heavy-duty Diesel Vehicles." International Council on Clean Transportation. August 2013.

Minjares, R.; Rutherford, D. An Integrated Policy Strategy for Maximizing Co-benefits of Light-Duty Dieselization in Asia. Edited by Zusman, E.; Srinivasan; A.; and Dhakal, S.; Earthscan Press. 2012.

Sharpe, B; Fung, F.; Kamakaté F.; Posada, F.; Rutherford, D. "Developing a World Class Technology Pathways Program in China." International Council on Clean Transportation. September 2011.

Economon, T.; Copeland, S.; Alonso, J.; Zeinali, M.; Rutherford, D. Design and Optimization of Future Aircraft for Assessing the Fuel Burn Trends of Commercial Aviation. 49th Aerospace Sciences Meeting of the American Institute of Aeronautics and Astronautics (AIAA). Orlando, Florida. 4 to 7 January 2011.

Rutherford, D.; Ortolano, L. Air Quality Impacts of Tokyo's On-Road Diesel Emissions Regulations. *Transportation Research D: Transport and Environment*. 2008, 4, 239-254.

Walsh, M.; Kodjak, D.; Rutherford; D. "A Model Regulatory Program For Reducing Exhaust and Evaporative Emissions From Heavy-Duty Vehicles and Engines." International Council on Clean Transportation. October 2007.

An. F.; Gordon, D.; Hui H.; Kodjak, D; Rutherford, D. "Passenger Vehicle Greenhouse Gas and Fuel Economy Standards: A Global Update." International Council on Clean Transportation. July 2007.

Liu, D.Y.; Rutherford, D.; Kinsey, M., Prather, K.A. Real-Time Monitoring of Pyrotechnically Derived Aerosol Particles in the Troposphere. *Anal. Chem*. 1997, 69, 1808-1814.

OTHER PAPERS

Zheng, S.X..; Rutherford, D. "Reducing Aircraft CO_2 Emissions: The Role of U.S. Federal, State, and Local Policies." International Council on Clean Transportation. February 2021.

Rutherford, D.; Mao, X.; Comer, B. "Potential CO_2 Reductions under the Energy Efficiency Existing Ship Index." International Council on Clean Transportation. November 2020.

Georgeff, E.; Mao, X.; Rutherford, D. "Liquid Hydrogen Refueling Infrastructure to Support a Zero Emission U.S.-China Container Shipping Corridor." International Council on Clean Transportation. October 2020.

Zhou, Y.; Rutherford, D.; Pavlenko, N.; Osipova, L.; Comer, B. "Benefits and Costs of Liquid Biofuel Use in Shipping." International Council on Clean Transportation. September 2020.

Rutherford, D. "Standards to Promote Airline Fuel Efficiency." International Council on Clean Transportation. May 8, 2020.

Mao, X,; Rutherford, D. "Refueling Assessment of a Zero-Emission Container Corridor between China and the United States: Could Hydrogen Replace Fossil Fuels?" International Council on Clean Transportation. March 3, 2020.

Rutherford, D.; Mao, X.; Osipova, L.; Comer, B. "Limiting Engine Power to Reduce CO_2 Emissions From Existing Ships." International Council on Clean Transportation. February 11, 2020.

"Data to Support CO_2 Metric System Evaluation for Future Supersonic Transport Aircraft." CAEP12_WG3-3_ESTG3_IP02, Montreal, Canada. February 5th, 2020.

Pavlenko, N.; Comer, B.; Zhou, Y.; Clark, N.; Rutherford, D. "The Climate Implications of Using LNG as a Marine Fuel." International Council on Clean Transportation. January 28th, 2020.

Kharina, A.; Rutherford, D. "Economic Incentives for Fuel Efficiency under a U.S. Aircraft CO_2 Standard." International Council on Clean Transportation, October 9th, 2019.

"Envisioning a 'Zero Climate Impact' International Aviation Pathway Towards 2050: How Governments and the Aviation Industry Can Step-Up Amidst the Climate Emergency For a Sustainable Aviation Future." A40-WP/561. Montreal, Canada. October 9th, 2019.

Comer, B.; Chen, C.; Stolz, D.; Rutherford, D. "Rotors and Bubbles: Route-based Assessment of Innovative Technologies to Improve Ship Fuel Efficiency." International Council on Clean Transportation, May 13th 2019.

"A Preliminary Review of FAA/ASCENT's Preliminary Review of ICCT's SST Analysis." CAEP/11 WG3-1 ESTG-1 IP/8. Washington, DC. May 2nd, 2019.

"Data Needs to Support CAEP's Supersonic Exploratory Study." CAEP/11 WG3-1 ESTG-1 WP/4. Washington, DC. May 2nd, 2019.

"Assessing the Need for a Long-term Climate Goal for International Aviation." CAEP/11, Montreal Canada. CAEP/11-IP/25. February 13, 2019.

"Views on a CAEP/11 nvPM Emission Standard." CAEP/11, Montreal Canada. CAEP/11-WP/73. February 5, 2019.

"Views on Future Supersonic Transport Engines and Aircraft." CAEP/11, Montreal Canada. CAEP/11-WP/74. February 5, 2019.

Rutherford, D.; Graver, B.; Chen, C. "Noise and climate impacts of an unconstrained commercial supersonic network." International Council on Clean Transportation, January 2019.

Mao, X.; Rutherford, D. "NO_X emissions from merchant vessels in coastal China: 2015 and 2030." International Council on Clean Transportation, December 2018.

Comer, B.; Chen, C.: Rutherford D. "Relating Short-term Measures to IMO's Minimum 2050 Emissions Reduction Target." International Council on Clean Transportation, October 2018.

Graver, B.; Rutherford, D. "U.S. Passenger Jets under ICAO's CO_2 Standard, 2018-2038." International Council on Clean Transportation, September 2018.

Rutherford, D. "International aviation emissions: Moving beyond a farsighted vision." EM, Air & Waste Management Association. May 2018.

Kharina, A.; McDonnell, T.; Rutherford, D. "Environmental Performance of Emerging Supersonic Transport Aircraft." International Council on Clean Transportation. July 2018.

"Distribution of Air Pollution from Oceangoing Vessels in the Greater Pearl River Delta, 2015." International Council on Clean Transportation. August 2017.

"Views on Emissions Technical and Model and Database Tasks for the CAEP/11 Work Cycle." CAEP/10, Montreal Canada. CAEP/10-WP/86. February 11, 2016.

"Views on ICAO's CO_2 Standard." CAEP/10, Montreal Canada. CAEP/10-WP/87. February 2, 2016.

"Assessment of the Cost Effectiveness of Fuel Efficiency Improvements for New Type Aircraft." CAEP/10, Montreal Canada. CAEP/10-IP/31. February 6, 2016.

Kwan, I.; Rutherford, D. "U.S. Domestic Airline Fuel Efficiency Ranking, 2014." International Council on Clean Transportation. October 2015.

"Views on ICAO's CO_2 Standard and Associated Future Work." CAEP Steering Group, Montreal, Canada. CAEP/10-SG/20141-WP/62. July 20, 2015.

Azzara, A.; Rutherford, D. "Needs and opportunities to reduce black carbon emissions from maritime shipping." International Council on Clean Transportation. March 23, 2015.

Azzara, A.; Rutherford, D. "Air pollution from marine vessels in the U.S. High Arctic in 2025." International Council on Clean Transportation. January 30, 2015.

"Recommendations on CO_2 Standard Modelling." CAEP Steering Group, Denpasar, Indonesia. CAEP/10-SG/20141-WP/55. September 16, 2014.

Wang, H.; Rutherford, D.; Desai, C. "Long-term Energy Efficiency Improvement for LNG Carriers." International Council on Clean Transportation. August 2014.

Kwan, I.; Rutherford, D.; Zeinali, M. "U.S. Domestic Airline Fuel Efficiency Ranking, 2011-2012." International Council on Clean Transportation. April 2014.

Wang, H.; Azzara, A.; Rutherford, D. "Environmental Recognition Programs for Ports." Consultant report to Environmental Defense Fund. March 2014.

Azzara, A.; Rutherford, D.; Wang, H. "Feasibility of IMO Annex VI Tier III Implementation using Selective Catalytic Reduction." International Council on Clean Transportation. March 2014.

"Recommendations for CO_2 Sample Problem Inputs." CAEP WG3, Bonn, Germany. CAEP/10-WG3-CO2-01-WP09. March 19, 2013.

"Methodologies for Assessing the Economic Reasonableness of CAEP Standards." Ninth Meeting of the ICAO Committee on Environmental Protection (CAEP/9), Montreal, Canada. CAEP/9-WP/60. February 14, 2013.

"Consideration of Flexible Compliance Mechanisms for an ICAO CO_2 Standard." CAEP/9, Montreal Canada. CAEP/9-WP/58. February 6, 2013.

"Refinement of Projected Aviation Energy Use and Related Characteristics." Consultant report to Argonne National Laboratory, October 31, 2012.

"Flexibility Mechanisms for an ICAO CO_2 standard." CAEP WG3, Montreal, Canada. CAEP/09-WG3-CO2-10-WP08. October 9, 2012.

"Coordination of Future Work on an Aircraft CO_2 Standard." CAEP Steering Group, St. Petersburg, Russia. CAEP/09-SG/20123-WP/38. July 10, 2012.

"ICSA Augmented SAR Recommendations." CAEP WG3, Paris, France. CAEP/09-WG3-CO2-9-WP15. May 8, 2012.

"Observations on Analysis of Mission Fuel Metrics." CAEP WG3, Gilbert, Arizona. CAEP/09-WG3-CO2-8-Flimsy06. February 15, 2012.

"Recommended Fuel Efficiency Metric for an ICAO Aircraft CO_2 Standard." CAEP WG3, Gilbert, Arizona. CAEP/09-WG3-CO2-8-WP08. February 14, 2012.

"Update on ICSA Work on Metrics." CAEP WG3 Cluster Metrics Workshop, Atlanta, Georgia. January 26, 2012.

"Report of the Certification Procedures ad-hoc Group." CAEP WG3, London, England. CAEP/09-WG3-CO2-7-WP15. November 9, 2011.

"Certification of a Mission Fuel-Based CO_2 Metric." CAEP WG3, London, England. CAEP/09-WG3-CO2-7-WP12. November 9, 2011.

"Projection of Aviation Energy Use and Related Characteristics." Consultant report to Argonne National Laboratory, October 31, 2011.

"An Environmentally Effective Metric System." CAEP Steering Group, Beijing, China. CAEP/09-SG/20112-WP/18. September 13, 2011.

"Report of the Certification Procedures ad-hoc Group." CAEP WG3, Hartford, Connecticut. CAEP/09-WG3-CO2-6-WP11. July 20, 2011.

"Perspectives on Systems Modeling." CAEP WG3, Hartford, Connecticut. CAEP/9-WG3-CO2-6-IP19. July 20, 2011.

"An Environmentally Effective Metric System." CAEP WG3, Hartford, Connecticut. CAEP/9-WG3-CO2-6-WP10. July 19, 2011.

"Supplemental ICSA Perspectives on the Metrics Workshops." CAEP WG3, Geneva, Switzerland. CAEP/09-WG3-CO2-5-Flimsy/3. May 26, 2011.

"Report of the Certification Procedures ad-hoc Group." CAEP WG3, Geneva, Switzerland. CAEP/09-WG3-CO2-5-WP4. May 25, 2011.

"Sensitivity Test for Importance of EO Symmetry on Correlating Parameters." CAEP WG3 Metrics Workshop, Geneva, Switzerland. May 23, 2011.

"Analysis of Technology Strategies and Notional Limit Margins for Candidate CPs." CAEP WG3 Metrics Workshop, Geneva, Switzerland. May 23, 2011.

"The Implications of MTOW Outliers for Metric Assessment." CAEP WG3 Metrics Workshop, Bonn, Germany. May 3, 2011.

"Comparison of Historical Trends of Efficiency Improvements at Various Evaluation Options." CAEP WG3 Metrics Workshop, Bonn, Germany. May 3, 2011.

"Report of the Certification Procedures ad-hoc Group." CAEP WG3, Savannah, Georgia. CAEP/09-WG3-CO2-4-WP13. March 3, 2011.

"The Purpose of a CO_2 Standard." CAEP Steering Group, Toulouse, France. CAEP/09-SG/20101-WP/23. November 9, 2010.

"Test Cycles Used in Vehicle Efficiency Standards." CAEP WG3, Geneva, Switzerland. CAEP/09-WG3-CO2-3-WP/16. September 20, 2010.

"Mass as a 'What is Transported' Term in Efficiency Standards." CAEP WG3, Geneva, Switzerland. CAEP/09-WG3-CO2-3-WP/11. September 20, 2010.

"What Is Transported (WIT) Subteam Final Report." CAEP WG3, MAPah group, August 26, 2010.

"Speed Subgroup Final Report." CAEP WG3, MAPah group, August 26, 2010.

"Comparing the Environmental Effectiveness of Candidate Metrics and Test Points." CAEP WG3, Florence, Italy. CAEP/09-WG3-WP/2-18. June 9, 2010.

"Data Needed to Support WG3 CO_2 Standard Modeling." CAEP WG3, Atlanta, Georgia. CAEP/09-WG3-WP/1-9. March 17, 2010.

"Trends in Aircraft Efficiency and Design Parameters." CAEP WG3, Atlanta, Georgia. CAEP/09-WG3-WP/1-10. March 17, 2010.

"Applicability of a CAEP/9 CO_2 Standard for New Aircraft." CAEP/8. Montreal, Canada. CAEP/8-WP/66. February 3, 2010

"Thresholds on a CAEP/9 CO_2 Standard for New Aircraft." CAEP/8. Montreal, Canada. CAEP/8-WP/67. February 3, 2010.

Rutherford, D.; Zeinali, M. "Efficiency Trends for New Commercial Jet Aircraft: 1960 to 2008." International Council on Clean Transportation. November 2009.

"Historical Efficiency Trends for Newly Delivered Aircraft." CAEP WG3, Montreal, Canada. CAEP/08-WG3-IP/7-5. September 29, 2009.

"Draft ICSA Research Priorities on Aircraft Design and a CAEP/9 CO_2 Standard." CAEP WG3, Montreal, Canada. CAEP/08-WG3-IP/7-6. September 29, 2009.

"A Critical Year." Special Section on Aviation Alternative Fuels, ICAO Journal. Vol. 64, No 4.

"Guidance on WG3 Scoping Analysis on a Potential CO_2 Standard for New Aircraft." CAEP Steering Group, Salvador, Brazil. CAEP/08-SG/20093-WP/43. June 25, 2009.

"Characterizing the CO_2 Intensity of Commercial Aircraft under a Potential Airframe Standard." CAEP WG3, London, UK. April 1, 2009.

SELECTED PRESENTATIONS

"Sustainability in The Era Of COVID-19." Aviation Week Network webinar. 7 May 2020.

"Scoping Analysis of Engine Power Limitation as an Operational Efficiency Measure." International Maritime Organization. 13 November 2019.

"Lessons Learned from 10 Years in International Environmental Policymaking." Latterell Alumni Lecture, University of Minnesota at Morris, 18 October 2019.

"Building a Policy Framework to Control Black Carbon Emissions from International Shipping." Climate and Clean Air Coalition HDDI webinar, 4 June 2019.

"Noise and Climate Impacts of Emerging Commercial Supersonic Aircraft." Aviation Noise & Emissions Symposium, Jacksonville, Florida, 3 March 2019.

"Environmental Implications of Emerging Supersonic Aircraft." National Organization to Insure a Sound Controlled Environment. 2018 Annual meeting, Los Angeles, California. 7 November 2018.

"Technology's Potential Contribution to Meeting Aviation's 2050 Climate Goals." Aviation Carbon 2018. London Heathrow, UK. 6 November 2018.

Participant, Aviation Climate Action Accelerator. Global Climate Action Summit. San Francisco, California. 14 September 2018.

Moderator: Zero Emission Trade and Transport by 2030: Cutting Edge Progress from Norway and Other International Leaders. Global Climate Action Summit, San Francisco, California. 11 September 2018.

"Appropriate Methods to Measure Marine Black Carbon Emissions." Fifth meeting of IMO's Pollution Prevention and Response Subcommittee (PPR 5). Lunchtime presentation. London, England. February 5, 2018.

"Considerations in Preparing for IMO ECA Designation." Controlling Air Pollution from Ships and Ports in the Pearl River Delta Region. Energy Foundation China, Shenzhen, China. March 30, 2017.

"Approaches to Control Port Air and Climate Pollution." Green Ports: New Front for China's War on Pollution and Climate Change Mitigation. China Environment Forum, Washington, DC. July 26, 2016.

"Long-term Potential for Increased Shipping Efficiency through the Adoption of Industry-leading Practices." Clean Cargo Working Group Fall Meeting. San Francisco, CA. November 5, 2013.

"Current Status of Diesel Exhaust Emission Control in Europe, the US, and Asia." Towards the Real Improvement of Air Quality – Challenges and Future Direction of Emission Gas Reduction System for Diesel Vehicles. United Nations University, Tokyo, Japan. May 31, 2013.

"Ready for Takeoff? The Race to Develop a Global Framework on Aviation GHGs." University of California – Davis ITS seminar. March 9, 2012.

"Historical and Projected Energy Intensity for New Aircraft, 1990 – 2050." Argonne National Laboratory. October 17, 2011.

"Status of Efforts on HD Efficiency in Other Countries/Regions." Meeting on Potential Harmonization of Heavy-Duty Fuel Economy/GHG Regulations. MLIT Headquarters, Tokyo, Japan. January 31, 2011.

"US Fuel Economy/GHG Standards for Motor Vehicles." Waseda University, January 12, 2011.

"ICCT's Aviation Program and Work on an ICAO CO_2 Standard." US EPA Mobile Source Technical Review Subcommittee. May 4, 2010.

"The Role and Design of a CO_2 Standard for New Aircraft." 2degrees Webinar. April 14, 2010.

"Emerging Policies to Control Aviation Emissions." 2009 Haagen-Smit Symposium. California Air Resources Board, June 2, 2009.

"Emerging Policies to Control the Climate Impact of Commercial Aviation." Department of Aeronautics & Astronautics, Stanford University. May 12, 2009.

"The Role of Aviation Alternative Fuels in Climate Change Mitigation." Workshop on Aviation Alternative Fuels. International Civil Aviation Organization, Montreal, Canada, February 10, 2009.

"Overview of HD Emissions and Efficiency Projects." National Traffic Safety and Environment Laboratory, Tokyo, Japan. January 7, 2009.

"An Integrated Policy Strategy for Maximizing Co-Benefits of Light-Duty Dieselization in Developing Asia." Institute for Global Environmental Strategies. Hayama, Japan, January 5, 2009.

"Passenger Vehicle Fuel Efficiency Standards in Asia: the Risks of Regulating by Weight." Better Air Quality – Asia 2008. Bangkok, Thailand, November 12, 2008.

"Aviation and Climate Change: Impacts and Mitigation." Flying in a Carbon-Constrained World: Aviation's Role in Oil Dependence and Climate Change, University of Puget Sound, April 25, 2008.

"International Best Practices in Controlling Light and Heavy-Duty Vehicle Emissions." Department of Civil Engineering, University of Hong Kong, November 7, 2007.

"Urban Transport and Climate Change: A Global Perspective." Global Warming and the City of Sao Paulo: Causes & Effects. (Sixth Municipal Conference on Cleaner Production). Sao Paulo, Brazil. August 22, 2007.

"Policy Options for Hydrogen Fuel Cell Vehicles and Infrastructure." DoE 2010-2025 Scenario Analysis for Hydrogen Fuel Cell Vehicles and Infrastructure, January 31, 2007.

"The Implications of California's Alternative Fuels Strategy for Electric Drive Technologies." Electric Utilities Environmental Conference, January 24, 2007.

"Recent Developments in the Regulation of Diesel Pollution in Japan." Regional Science Council Speaker Series, US EPA Region Nine, February 21, 2006.

"Ishihara's 'Tokyo That Can Say No': Explaining Local Influence Over Central Diesel Policy." Shorenstein APARC, January 30, 2006.

HONORS AND AWARDS

Shorenstein Asia-Pacific Research Center Takahashi Fellow (2005).

Stanford IIS/Japan Fund Graduate Fellow (2003).

Japan Economic Foundation/IIE Fulbright Graduate Fellow (2002).

Stanford Graduate Fellowship in Science and Engineering (1999 – 2001).

US EPA Science to Achieve Results (STAR) Fellowship (1999 – 2001).

Japanese National Language Proficiency Test, Level 1 Designation (1999).

National Science Foundation Graduate Research Fellowship Semifinalist (1999).

SKILLS:

Software: MS Office (Word, Excel, PowerPoint), PIANO-X.

Languages: English (native), Japanese (functionally fluent)

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