

HONORING AIR QUALITY ACHIEVEMENTS



HAAGEN-SMIT *CLEAN AIR AWARDS*

Friday, May 20, 2022

Southern California Headquarters — Mary D. Nichols Campus
Riverside, California



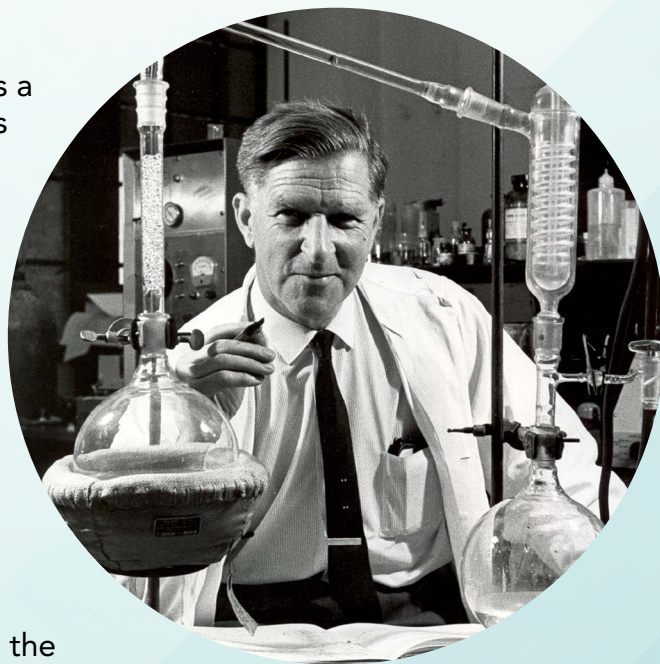
**THE HAAGEN-SMIT CLEAN AIR AWARDS
ARE GIVEN ANNUALLY TO SCIENTISTS, POLICY MAKERS,
COMMUNITY LEADERS, AND EDUCATORS
FROM CALIFORNIA AND AROUND THE WORLD
WHO HAVE MADE SIGNIFICANT LIFETIME
CONTRIBUTIONS TO THE ADVANCEMENT
OF CLEAN AIR AND CLIMATE CHANGE SCIENCE,
TECHNOLOGY, AND POLICY.**

“WE SHOULD HAVE LEARNED BY NOW THAT WE CANNOT HOPE TO CHANGE THE LAWS OF NATURE, BUT WE CAN CHANGE HUMAN INSTITUTIONS. THE ROAD IS NOT AN EASY ONE, BUT THE REWARD ... IS WORTH THE EFFORT.”

- *Dr. Arie Haagen-Smit*

Dr. Arie Haagen-Smit

Dr. Arie Haagen-Smit, a native of the Netherlands, was a leader in developing air quality standards based on his research efforts. Known by many as the “father of air pollution control,” Dr. Haagen-Smit was a graduate of the University of Utrecht and a biochemistry professor at the California Institute of Technology (Caltech) in Pasadena for 16 years before beginning his air pollution research in 1948. At Caltech, Dr. Haagen-Smit studied the physiological aspects of natural products like rubber and pineapples. This work led to studies with his colleagues investigating the flavor components of wine, onions and garlic. His training and expertise in chemistry, along with his natural curiosity, brought him to the forefront of air pollution research when he was asked by the county of Los Angeles to investigate the chemical nature of what we now call smog. Noticeably different from earlier accounts of haze and dust in London, which was caused by coal, the eye-irritating haze in Los Angeles was brown and almost odorless. Dr. Haagen-Smit applied his technique of studying plant chemistry in enclosed clear chambers exposed to sunlight to figure out what caused smog in the Los Angeles air basin.



Through a series of experiments, he concluded that most of California’s smog resulted from photochemistry – when substances in the exhaust from motor vehicles and the smokestacks of industrial facilities react with sunlight to create ozone. This breakthrough provided the scientific foundation for the development of both California’s, and the nation’s, air pollution control programs. In recognition of this contribution, Dr. Haagen-Smit received the National Medal of Science in 1973, the nation’s highest scientific honor.

He became the California Air Resources Board’s first chairman in 1968 after serving eight years as an original board member of Air Resources Board’s predecessor, the Motor Vehicle Pollution Control Board. Dr. Haagen-Smit passed away in 1977, but his legacy lives on.

Since 2001, the California Air Resources Board has annually bestowed the distinguished Haagen-Smit Clean Air Awards. The awards are given to extraordinary individuals to recognize significant career accomplishments in at least one of these air quality categories: research, environmental policy, science and technology, public education and community service. Over the years, there have been 59 acclaimed recipients. In light of the global connection between air quality and climate change, the scope of the program has now expanded to include an international focus and a focus on climate change science and mitigation.

PAST WINNERS

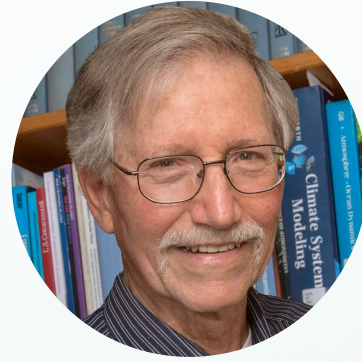
Alphabetical Order by Last Name (indicates Legacy Award)*

Stephen O. Andersen · 2019	John Froines · 2010	James Pitts · 2002
Janet Arey · 2011	Daniel Greenbaum · 2016	Kimberly Prather · 2015
Roger Atkinson · 2004	Hal Harvey · 2018	Michael Prather · 2015
David Bates · 2004	James Hansen · 2007	Veerabhadran Ramanathan · 2016
Timothy Belian · 2005	Jiming Hao · 2015	Anumita Roychowdhury · 2016
Leon Billings · 2004	David Hawkins · 2017*	Robert Sawyer · 2008
John Birks · 2019	John Holmes · 2001	Arnold Schwarzenegger · 2017*
Donald Blake · 2014	Andrea Hricko · 2012	John Seinfeld · 2003
James Boyd · 2006	Timothy Johnson · 2009	Jananne Sharpless · 2011
Tom Cackette · 2012	James Lents · 2013	Byron Sher · 2001
Junji Cao · 2019	Alan Lloyd · 2007	Kirk Smith · 2014
William Carter · 2005	Ron Loveridge · 2012	Donald Stedman · 2015
Judith Chow · 2011	Gina McCarthy · 2017*	Karl Taylor · 2019
Paul Crutzen · 2018	Mario Molina · 2017*	John Wall · 2014
William B. DeMore · 2019	Curtis Moore · 2005	Barry Wallerstein · 2018
Joan Denton · 2010	Mary Nichols · 2002	Michael Walsh · 2003
Anne Douglass · 2018	Janice E. Nolan · 2019	John Watson · 2018
Bradley Edgar · 2010	Margo Oge · 2009	Henry Waxman · 2017*
Alex Farrell · 2008	Teruyuki Ohno · 2013	Henry Wedaa · 2008
Barbara Finlayson-Pitts · 2013	Fran Pavley · 2007	V. John White · 2003
Chet France · 2016	Joyce Penner · 2016	Joy Williams · 2019
Axel Friedrich · 2006	John Peters · 2009	Arthur Winer · 2006

2020-2021 HAAGEN-SMIT CLEAN AIR AWARD RECIPIENTS



DAVID KITTELSON, PH.D.
University of Minnesota
Air Quality Science & Technology



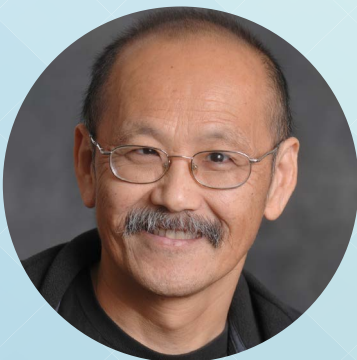
STEPHEN E. SCHWARTZ, PH.D.
Brookhaven National Laboratory
Air Quality Research



KUNSHENG LI
Beijing Ecology and Environment
Bureau, China
International Air Quality Leadership



RICHARD C. J. SOMERVILLE, PH.D.
Scripps Institution of Oceanography,
University of California San Diego
Climate Change Science



PAUL M. ONG, PH.D.
Center for Neighborhood Knowledge,
University of California Los Angeles
Air Quality Community Service
& Environmental Justice



JÜRGEN RESCH
Environmental Action Germany
(Deutsche Umwelthilfe)
Environmental Policy

David Kittelson, Ph.D.

Frank B. Rowley Distinguished Professor, Mechanical Engineering,
University of Minnesota

Air Quality Science & Technology

Professor David Kittelson is considered “the” world leader and pioneer of diesel emission research. Very early on, in the 1970s, Professor Kittelson began lecturing auto manufacturers and agencies on the human health impacts of diesel particulate pollution and the need for mitigation. His research, at the frontier of combustion engine emission studies, provided the fundamental foundational knowledge of diesel particle formation that enabled today’s current stringent regulations. He has also worked tirelessly on technologies to reduce emissions from engines while also improving performance. Professor Kittelson has been a professor at the University of Minnesota since 1980.



Kunsheng Li

Director of Vehicle Emission Management Division, Beijing Ecology
and Environment Bureau, China

International Air Quality Leadership

Mr. Kunsheng Li has worked for more than 20 years on the management of vehicle emissions in China, with a focus on Beijing. Similar to the leading role on air quality that California has played for other parts of the U.S., Beijing has led the way toward greatly improved air quality for China. Mr. Kunsheng Li steadily promoted and implemented numerous mobile source emission control measures and coordinated legislation that significantly contributed to the improvement of Beijing’s atmospheric environmental quality, with Beijing becoming China’s leading city on mobile source emissions control. He is also a senior engineer and vice chairman of the Automotive Engineering Society of China, and a member of the Oil Produce Application and Development Professional Committee of China’s Petroleum Society.

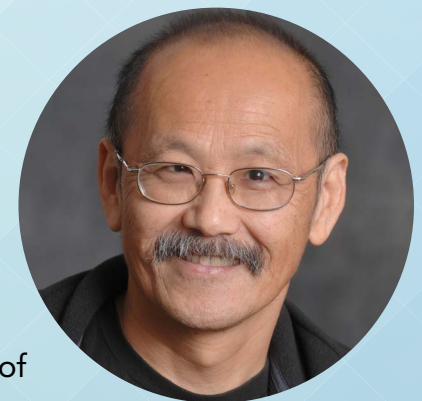


Paul M. Ong, Ph.D.

Research Professor and Director, Center for Neighborhood Knowledge,
University of California Los Angeles

Air Quality Community Service & Environmental Justice

Professor Paul M. Ong has engaged in a lifetime career of multifaceted commitment to air quality and community service. Specifically, he has worked for more than three decades as a scientist and educator on interdisciplinary social science and environmental teaching, policy-focused research, and community engagement. He is now the Director of the Center for Neighborhood Knowledge at the University of California Los Angeles that works to contribute to positive social change through information from applied research at regional and local scales. Professor Ong’s more than 100 publications addressing racial inequalities have had an outsized influence on concerns for environmental justice. Dr. Ong is also a research professor at the UCLA Luskin School of Public Affairs.



Stephen E. Schwartz, Ph.D.

Senior Scientist Emeritus, Brookhaven National Laboratory

Air Quality Research

Dr. Stephen E. Schwartz is a recognized expert in atmospheric chemistry, radiative forcing of climate change, and the response of climate to anthropogenic factors. His research specialty includes the influences of energy related emissions on climate, with a focus on the role of atmospheric aerosols. For example, Dr. Schwartz developed now widely used approaches to characterize the rate and extent of acid-forming reactions in clouds. Several of Dr. Schwartz's publications have been highly influential research milestones and have impacted important policies including the Clean Air Act. Trained as a chemist with specialization in physical chemistry, Dr. Schwartz has been on the scientific staff at Brookhaven National Laboratory since 1975.



Richard C. J. Somerville, Ph.D.

Distinguished Professor Emeritus, Scripps Institution of Oceanography, University of California San Diego

Climate Change Science

Professor Richard C. J. Somerville is an internationally recognized climate scientist and an expert on communicating clearly to the public what scientists have learned about climate change. His research has led to many important innovations in climate computer models. He has copiously published research on myriad climate science topics including geophysical fluid dynamics, thermal convection, and radiative transfer, to name just a few. Professor Somerville has worked tirelessly to advance the science of climate change and its agency as a vehicle for public policy. Besides writing and co-authoring scientific reports to shape the public dialogue, his long list of contributions includes addressing fundamental science questions, and mentoring students who have gone on to become climate leaders. Professor Somerville has worked as a professor at Scripps Institution of Oceanography at the University of California San Diego since 1979.



Jürgen Resch

Executive Director of Environmental Action Germany
(Deutsche Umwelthilfe)

Environmental Policy

Mr. Jürgen Resch has worked tirelessly to create broad alliances across nongovernmental, scientific, and industrial organizations for bringing forward available technology to reduce air pollution. Mr. Resch also has persistently championed the need for legal jurisdiction of environmental rights, regulatory legislation, and strong market surveillance — and has not hesitated to uncover fraud. For example, he took action in Germany on the automaker diesel scandal by providing solid data on real-world emissions and taking legal action to get access to relevant information. Mr. Resch is currently an Executive Director of Environmental Action Germany, one of the most active nongovernmental organizations in Germany for clean air policy.



2020-2021 HAAGEN-SMIT CLEAN AIR AWARDS SPECIAL RECOGNITION

Martin Williams, Ph.D. (1947–2020)

Former Professor, Environmental Research Group
at King's College London, UK

Posthumous Recognition for Outstanding Contributions to Air Quality

During the Clean Air Leadership Talks, CARB also will provide special posthumous recognition for the late Professor Martin Williams for his long and distinguished career in air quality. His leading work on air pollution science and policy started in the late 1970s. He became a significant presence in the field and was the guiding force in almost all major international negotiations on air pollution in recent decades.





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