

Biography

Riley Duren is Chief Executive Officer of the Carbon Mapper non-profit organization based in Pasadena, California and a Research Scientist at the University of Arizona in Tucson. He also maintains a part-time appointment as an Engineering Fellow at NASA's Jet Propulsion Laboratory, although that work is outside the scope of today's testimony. His career at NASA began with launching space shuttle science payloads from the Kennedy Space Center. He joined JPL in 1996 where he worked at the intersection of science and engineering to deliver earth observing systems and deep space telescopes including NASA's *Kepler* mission for which he served as Chief Engineer. From 2008-2019 he was the Chief Systems Engineer for JPL's Earth Science and Technology Directorate, with a broad portfolio of satellite and aircraft instruments and missions, research and analysis, applied science, and technology projects spanning NASA's earth science enterprise.

In 2008 he established a research program that extends the discipline of systems engineering to the challenge of climate change decision support. He has served as Principal Investigator for 10 research projects involving greenhouse gas observing systems and data analysis frameworks. His team combines atmospheric measurements from satellites, aircraft and surface-based observing systems, tracer transport modeling, machine learning, and big data methods to detect, quantify and attribute methane and carbon dioxide emissions. The team also applies considerable energy to engaging with and entraining end users of the data sets produced by these programs towards increasing the data's relevance, adoption and impact. His work has supported programs at NASA, the National Institute of Standards and Technology, the National Oceanographic and Atmospheric Administration, the California Air Resources Board, other state agencies, and multiple non-governmental organizations. In 2020, Mr. Duren co-founded Carbon Mapper, a new non-profit organization and public-private partnership involving leading philanthropists, the commercial satellite imaging company Planet, JPL, the State of California and two universities, with a public good mission to deploy a constellation of small satellites that will provide globally operational monitoring of methane and carbon dioxide point source emissions at facility scale to help accelerate climate mitigation action. The program also includes expanding airborne methane surveys of key regions to help prepare for and complement the satellites.

Mr. Duren's honors include two NASA Exceptional Achievement Medals, the agency's Systems Engineering Excellence Award, and seven Group Achievement awards. He has served on National Academy of Science and California Council of Science and Technology committees and was a contributing author to the Second State of the Carbon Cycle Report for the US Global Change Research Program. He received a BS degree in Electrical Engineering from Auburn University in 1991.

Selected peer-reviewed publications relevant to this hearing

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3. A. K. Ayasse, A.K. Thorpe, D. H. Cusworth, E. A. Kort, A. G. Negron, J. Heckler, G.P. Asner, **R. M. Duren**, 2022 – in review. Methane remote sensing and emission quantification of offshore shallow water oil and gas platforms in the Gulf of Mexico, *Environ. Res. Lett.*
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