

Tuesday, March 23 at 12:00pm (noon) Pacific Time

Riley Duren, Engineering Fellow at NASA Jet Propulsion Lab

“Measuring Methane Sources via Satellite and Aerial Survey”

Methane is a powerful greenhouse gas and a precursor for tropospheric ozone, as well as an important near-term energy source. It is a priority for climate mitigation efforts by many countries and an increasing number of subnational governments and private companies. However, there is compelling evidence of higher-than-predicted fugitive methane emissions across many sectors including energy, waste management, and agriculture. Multiple studies have exposed a long-tail distribution of methane emissions associated with relatively few sources that dominate the emissions of key sectors and regions, suggesting potential low-hanging fruit for climate action. These “super-emitters” are often stochastic, highly intermittent and distributed over large areas – complicating efforts to detect and mitigate them. Recent advances in atmospheric measurements using a variety of techniques and vantage points together with data science offer the potential to dramatically advance methane mitigation. In this talk Riley Duren will summarize findings from the first systematic surveys of methane super-emitters using remote sensing technology and provide some perspectives on future research and policy directions. He will also present case studies where collaborative efforts with facility operators and local agencies in California directly resulted in measurable mitigation. Finally, he will describe efforts to launch a constellation of climate satellites and future applications for remote monitoring technology for methane and other atmospheric carbon.

Speaker: Riley Duren



Riley Duren is a Research Scientist at the University of Arizona’s [Office for Research, Innovation, and Impact](#). He also maintains a joint appointment as an Engineering Fellow at NASA’s Jet Propulsion Laboratory. His NASA experience to date has included roles on nine earth and space science missions (with the Shuttle Radar Topography Mission and Kepler being personal favorites). From 2008 to 2019 he served as Chief Systems Engineer for JPL’s Earth Science Directorate, supporting a wide range of satellite and airborne missions, research and applied science programs. His own research applies multi-scale earth observations and the emerging discipline of science systems engineering to inform societal responses to climate change. He is Principal Investigator of the California Methane Survey and Methane Source Finder projects and Program Executive for a new public-private partnership developing a constellation of small satellites to support climate and conservation action. Read a recent UA News repost of a JPL press release regarding a paper published in *Nature* in November 2019, [A Third of California Methane Traced to a Few Super-Emitters](#).

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