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Visualizing anthropogenic methane plumes from the California Methane Survey

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The 2016-2018 California Methane Survey used the airborne imaging spectrometer AVIRIS-NG to survey approximately 59,000 km² and 272,000 individual facilities and infrastructure components. Over 500 strong methane point sources spanning the waste management, agriculture, and energy sectors were detected, geolocated, and quantified. In order to facilitate communication of results with scientists, stakeholder agencies in California, private sector companies, and the public, we developed the Methane Source Finder web-based data portal. This state of the art Earth science data visualization tool allows users to discover, analyze, and download data across a range of spatial scales derived from remote-sensing, surface monitoring, and bottom-up infrastructure information. In this presentation, we will highlight our overall science findings from the California Methane Survey and provide a number of examples where observed methane plumes were used to directly guide leak detection and repair efforts. Future plans include expanding the data portal beyond California and incorporating regional scale flux inversions derived from satellite observations. Methane Source Finder supports methane research (e.g., multi-scale synthesis), enables facility-scale mitigation, and improves public awareness of greenhouse gas emissions.