



Remote Sensing of Natural Gaseous Emissions using Longwave-Infrared Spectral Imagery: Successes and Challenges

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Airborne hyperspectral longwave-infrared (thermal-infrared) remote sensing has been applied to the detection and characterization of gaseous emissions from natural sources. In particular, we describe the observation of ammonia emission from a variety of features in the Salton Sea, a hypersaline endorheic lake occupying the Salton Trough spreading zone in Southern California, and also the venting and airborne transport of methane emissions from the exceptionally prolific Pacific seafloor hydrocarbon seeps off the coast of Santa Barbara, California. These measurements appear to be the first of their kind over these sites and demonstrate a novel methodology for the vicarious monitoring of gaseous emissions originating from geological horizons. The advantages and constraints of this approach will be discussed with reference to sample data properties and retrieval algorithm architectures.