



Development and application of a Controlled Release Facility (CRF) to validate flux quantifying methodologies.

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The National Physical Laboratory, the UK's National Measurement Institute, has developed a novel facility capable of replicating the gaseous emission flux characteristics of a variety of real-world scenarios as may be found in small to medium scale industry and agriculture. The Controlled Release Facility (CRF) can be used to challenge conventional remote sensing techniques, as well as validate new Unmanned Aerial Vehicle (UAV) and distributed sensor network based methods, for source identification and flux calculation. The CRF method will be described and the results from three case studies will be discussed: The replication of an operational on-shore shale gas well using emissions of natural gas to atmosphere and measurements using Differential Absorption LIDAR (DIAL); the replication of fugitive volatile organic compounds emissions from a petrochemical unit and measurements using DIAL; and the replication of methane and carbon dioxide emissions from landfill and measurements using both fixed wing and multi-rotor UAVs.