What are we measuring and are we measuring for the right odorants

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Population growth, industrial, resource and agricultural expansion and community encroachment has increased complaints from local residents in terms of odour annoyance. Assessing odour is often considered to be more of an art than a science due to the complex nature of odorous emissions. Traditionally, dilution olfactometry has been used for the regulatory assessment of odour impact with other chemical and sensorial approaches been applied to identify individual odorants for odour characterisation. These assessment methodologies provide information on the discrete nature of odorous samples, whilst suitable for evaluating steady-state odour emissions these approaches may be unrepresentative when measuring emissions from highly dynamic odour sources, are not effective in replacing sensorial assessment as most only measure individual compounds and are unable to monitor unknown odorous compounds. Additionally, it is often difficult to establish direct relationship between instrumental and human perception and to detect threshold concentration less than ppt levels for some and/or critical odorous compounds.

This presentation will address odour assessment concerns in terms of sampling approaches, sampling pre-concentration and analytical system influences on our chemical and odorant outcomes. What are the analytical and operational challenges in moving from spot, semi-continuous to real-time monitoring. The presentation will use examples in waste management, environmental and agricultural operations, industrial processes and medical applications and discuss why we have moved our analytical attention to combine chemical and sensorial analysis to better understand what we are measuring and are we measuring the right odorants.