Summary Model: Submit before December 15th to:
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ABSTRACT

A PROCEDURE TO FORECAST ODOUR IMPACTS FROM AN OPERATIVE LANDFILL BASED ON DAILY DATA AS A USEFUL TOOL TO MINIMIZE THE NUISANCES ON RECEPTORS

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Summary

The prediction of the potential osmogenic effects at the border of a landfill or at some specific receptor may be of interest, if emission minimization procedures can be adopted to reduce the effect on the receptors. Although specific models were developed and are employed (not in many cases, though) to forecast the odour concentrations for the next hours, the main problem with a landfill is that the odor emissions can be caused by different sources (different kind of wastes) whose emission rates are not known or, even if they are measured, can vary in the time as a function of daily scheduled operations of landfill acceptance. For a specific landfill, a research project was carried out in order to overcome such difficulties, according to the following strategy. First, characterizing the emission source related to odour emissions without waste acceptance (i.e during night or holidays); once the specific odour emission rate (SOER) for the landfill (without waste acceptance) was known, an environmental odor forecast system based in WRF/CALMET/CALPUFF model was employed in order to generate the odour concentrations map with forecast capability of 48 hours. Then, odour emission rates for different classes of wastes were measured; finally, an algorithm was developed in order correct the forecast odour concentration field, based on the SOER from the landfill in non-operating hours, with the contribution of emission rates of different wastes scheduled to be landfilled for the next day. By knowing the types of waste that will be conferred the next day, their SOER, the schedule of wastes acceptance and using the odor impact forecast model, corrected to take into account the specific wastes to be landfilled, it would be possible to calculate, for each hour of the following working day, the concentrations at the receptors. It is therefore conceivable to adopt odor impact mitigation strategies by choosing the most suitable hours for the delivery of a specific type of waste or by planning their delivery in days with less critical weather conditions for the receptor.
The results of the research project carried out in large landfill in Southern Italy are discussed.

Indicate preference of kind of presentation

- ✙ Oral Communication
- ☐ Poster

Indicate topic of your work for the conference:

- ☐ Policy and associated regulations for odour and air quality.
- ☐ Odour/VOC measurement, monitoring&sensor technologies.
- ¤ Odour/VOC perception, impact, formation and dispersion.
- ☐ GHG emissions particulate matter and industrial emissions.
- ☐ Source characterization and odour/VOC mapping.
- ☐ Odour/VOC abatement, mitigation and neutralization.
- ☐ Odour/VOC from waste water, sewer systems and livestock.
- ☐ Air emissions and sustainable solutions for waste handling
- ☐ Community engagement, social media and citizen action.
- ☐ Other (suggest a new topic):

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