Geophysical Research Abstracts
Vol. 16, EGU2014-5699, 2014
EGU General Assembly 2014

Sensitivity analysis of the waste composition and water content parameters on the biogas production models on solid waste landfills

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Landfills are commonly used as the final deposit of urban solid waste. Despite the waste is previously processed on a treatment plant, the final amount of organic matter which reaches the landfill is large however. The biodegradation of this organic matter forms a mixture of greenhouse gases (essentially Methane and Carbon-Dioxide as well as Ammonia and Hydrogen Sulfide). From the environmental point of view, solid waste landfills are therefore considered to be one of the main greenhouse gas sources.
Different mathematical models are usually applied to predict the amount of biogas produced on real landfills. The waste chemical composition and the availability of water in the solid waste appear to be the main parameters of these models.
Results obtained when performing a sensitivity analysis over the biogas production model parameters under real conditions are shown. The importance of a proper characterizacion of the waste as well as the necessity of improving the understanding of the behaviour and development of the water on the unsaturated mass of waste are emphasized.