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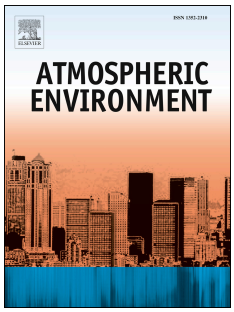

A process-based emission model of volatile organic compounds from silage sources on farms

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ACCEPTED MANUSCRIPT

A process-based emission model of volatile organic compounds from silage sources on farms

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ABSTRACT

Silage on dairy farms can emit large amounts of volatile organic compounds (VOCs), a precursor in the formation of tropospheric ozone. Because of the challenges associated with direct measurements, process-based modeling is another approach for estimating emissions of air pollutants from sources such as those from dairy farms. A process-based model for predicting VOC emissions from silage was developed and incorporated into the Integrated Farm System Model (IFSM, v. 4.3), a whole-farm simulation of crop, dairy, and beef production systems. The performance of the IFSM silage VOC emission model was evaluated using ethanol and methanol emissions measured from conventional silage piles (CSP), silage bags (SB), total mixed rations

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