

Resumo:

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## DOES HYDRO-RESERVOIR METHANE FIZZ OUT FROM THE TURBINE DISCHARGE WATER?

An editorial comment (Climate Change 66:1-8, 2004) surprised us by stating that at discharge methane fizzes out of the water. We present measured values, comment on their non-uniformity, and their latitude and climate dependence, and set constraints on “fizzing” and methane oxidation in the river portion downstream of the dam. We also present measured analogous upstream and reservoir values. In the downstream of the dam portion, release varied between 8193 mg CH<sub>4</sub> m<sup>-2</sup>d<sup>-1</sup> (from water 74 μM in methane), for the Serra da Mesa Reservoir; to 1.29 mg CH<sub>4</sub> m<sup>-2</sup>d<sup>-1</sup> (from water 0.035 μM in methane) for the Xingó Reservoir. At Serra da Mesa, 500m further downstream where discharged water passes 17 minutes after emerging from the discharge tunnel, emanation rate was 7696 mg CH<sub>4</sub> m<sup>-2</sup>d<sup>-1</sup> (water 68 μM in methane). The decrease in concentration is 6 μM over 17 minutes. The river depth is about 5m. If methane oxidation is disregarded, an upper limit on fizzing is calculated as being 2541 mg CH<sub>4</sub> m<sup>-2</sup>d<sup>-1</sup>. Thus we calculate that no more than 32% of the methane escapes by fizzing.

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