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Comment

## ***Interactive comment on “Physical injury stimulates aerobic methane emissions from terrestrial plants” by Z.-P. Wang et al.***

**Anonymous Referee #2**

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General comments:

The paper by Wang et al. examines the effect of physical injury on methane emission from several plant species collected in the grasslands of Inner Mongolia. The authors have observed enhanced methane emissions from some plant species (*Artemisia*) when they were physically injured. Apart from the fact that aerobic methane emissions from plants is a topic that is currently under much debate in the scientific community the paper is of high interest because it adds new information about possible stress factors that might be involved in the production of methane from plants. I found the manuscript to be well written and clearly presented. In particular the introduction adequately details the current state of our knowledge about aerobic methane emissions from plants and addresses interesting questions regarding climate change. Although

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the data set presented by Wang et al. is rather limited it is worthy to be published in Biogeosciences. However, a few minor details in the text and in the presentation of the data should be revised:

Specific comments:

Introduction, page 1405, line 7: For completeness the authors should include the recent papers by Nisbet et al. (Proc. R. Soc. B., 2009) and Brüggemann et al. (New Phytologist, 2009). The paper of Nisbet et al. reports about transpiration that might explain part of the observation of aerobic methane emissions from plants. Furthermore Nisbet et al. claim that they have found no evidence for a biochemical pathway of methane formation in plants. However, Brüggemann et al. provide evidence for nonmicrobial aerobic methane emission from poplar shoot cultures under low-light conditions.

Page 1411, line 24: ...had a carbon isotope signature consistent with plant pectin... should be changed into ...had a carbon isotope signature consistent with methoxyl groups of plant pectin...

Page 1419, Figure 2a: The authors should indicate that aerobic experiments were conducted in laboratory air including around 2ppm methane whereas hypoxic experiments were conducted in methane free nitrogen.

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