

## ***Interactive comment on “Characterisation of an inlet pre-injector laser induced fluorescence instrument for the measurement of ambient hydroxyl radicals” by A. Novelli et al.***

**Anonymous Referee #2**

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The paper presents technical details and the characterisation of a newly constructed device allowing injecting a scavenger for atmospheric OH radicals prior to their measurement by FAGE technique, named IPI (Inlet Pre-Injector). The goal of such device is to detect a potential interference in the measurement of OH radicals by FAGE technique due to the generation of OH-radicals within the FAGE cell, and thus leading to an overestimation of the ambient concentration. The potential importance of such background OH has recently been demonstrated by Mao et al. using a similar device, and therefore the paper is certainly important for the community and within the scope of the present journal.

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Reviewer 1 has already given a very detailed report, and I agree in many points. In particular, I would like to see a more detailed comparison with the technical details of the IPI used by Mao et al.: what are the major differences (improvements, I guess?) compared to Mao's device? Mao et al state that they do not observe any loss of radicals within the IPI while you observe around 30%: any comments? The description of how the OH loss within the IPI has been obtained (page 829) is too short and more details such as how often and how long the OH signal has been measured with and without IPI should be given. How simple is it to remove and put back the IPI? As reviewer 1, I'm not so convinced that the background loss obtained at night can be used to correct the daytime data: that would assume that the mechanism of background OH signal is the same during night and day. Although, I'm aware that it is not possible to determine the background loss as long as its origin has not been identified. Which brings me to the last point, also raised already by reviewer 1: There have been several presentations by the same group (also during a presentation at ACM 2012) that supposed that Criegee intermediates had been identified as being at least partially responsible for generation of a background OH signal within the FAGE. In the present paper there is no word about this hypothesis. Could you comment on that?

In general, this paper being the first presentation of the IPI in a journal more focused on the measurement technique rather than on the chemistry behind, I also would have liked to see a more detailed characterization of the device in laboratory experiments prior to the description of the IPI in three field campaigns.

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Interactive comment on Atmos. Meas. Tech. Discuss., 7, 819, 2014.

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