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Interactive comment on "Tropospheric OH and Cl levels deduced from non-methane hydrocarbon measurements in a marine site" *by* C. Arsene et al.

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We want to thank Dr. Saliba for the comments to the paper.

1.Page 6337 Figure 4 (now Figure 5) is better explained in the revised version of the manuscript. a)We totally agree that reaction of Cl with ozone should be particularly important in our region but we feel that this question is out of the scope of this manuscript. b) The reaction of i-butane (n-butane) with ozone (even assuming the ozone levels existing in our area) is insignificant. Thus the variability of the ratio will be mainly dependant on OH and Cl levels. Finally we totally agree that the effect of Cl radicals could be best seen at dawn but it is clear that additional measurements are needed to prove this (products of the reactions of Cl plus alkenes) and this could be the subject of another study.

2.Page 6350 The difference between the lifetime expectancy reported in the present work and that of Ezell et al. (2002) comes from the different OH radical and Cl atom concentration used in these two works. Ezell et al. (2002) is working with Cl and OH levels, which they consider as characteristic for early morning coastal regions, [Cl] = [OH] = 1 x 105 cm-3. In our work, the estimate presented in Table 3 (Table 4 now) is based on Cl (2.3 x 104 atom cm-3) and OH (4.0 x 106 radical cm-3).

Reference Ezell, M.J., Wang, W., Ezell, A.A., Soskin, G., and Finlayson-Pitts, B.J.: Kinetics of reactions of chlorine atoms with a series of alkenes at 1 atm and 298 K: structure and reactivity, Phys. Chem. Chem. Phys., 4, 5813-5820, 2002.

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