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## Tropospheric OH and Cl levels deduced from non-methane hydrocarbon measurements in a marine site

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**Abstract.** In situ continuous hourly measurements of C<sub>2</sub>–C<sub>8</sub> non-methane hydrocarbons (NMHC<sub>S</sub>) have been performed from March to October 2006 at two coastal locations (natural and rural) on the island of Crete, in the Eastern Mediterranean. Well defined diel variations were observed for several short lived NMHC<sub>S</sub> (including ethene, propene, n-butane, n-pentane, n-hexane, 2-methyl-pentane). The daytime concentration of hydroxyl (OH) radicals estimated from these experimental data varied from 1.3×10<sup>6</sup> to ~4.0×10<sup>6</sup> radical cm<sup>-3</sup>, in good agreement with box-model simulations. In addition the relative variability of various hydrocarbon pairs (at least 7) was used to derive the tropospheric levels of Cl atoms. The Cl atom concentration has been estimated to range between 0.6×10<sup>4</sup> and 4.7×10<sup>4</sup> atom cm<sup>-3</sup>, in good agreement with gaseous hydrochloric acid (HCl) observations in the area. Such levels of Cl atoms can be of considerable importance for the oxidation capacity of the troposphere on a regional scale.

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