



Development of an instrument for airborne RO₂ measurements in the troposphere

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Peroxy radicals (RO₂), produced by the reaction of OH radicals with volatile organic compounds. (VOCs), are important in the respect of recycling OH and terminating the radical chain by formation of organic peroxides. RO₂ also play a vital role in the photochemical production of tropospheric ozone. The importance of RO₂ radicals in atmospheric chemistry motivated us to develop an instrument to measure RO₂ throughout the vertical profile of the troposphere with broad range of pressure and temperature conditions. We based the RO₂ detection on the conversion of RO₂ with NO and CO to HO₂ and subsequently to OH, which is detected by Laser Induced Fluorescence (LIF). We present model calculations showing the most suitable parameters to detect most reliable RO₂ for ground and aircraft based platforms. Results from laboratory experiments to demonstrate the performance of the RO₂ instrument will be presented.