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Development of an airborne OH reactivity instrument based on the pump probe technique

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The removal of OH radicals to all sinks in the troposphere can be define by its total pseudo first order loss rates coefficient (kOH) and which is generally termed as total OH reactivity. Several techniques had been developed to measure this quantity. We have been developing an instrument for measuring OH reactivity in the troposphere by using laser flash photolysis combined with laser induced fluorescence (LFP-LIF) technique. We did laboratory experiments to demonstrate the performance of OH reactivity instrument. We observe in the first 200 msec almost no wall loss with an average kOH value for zero air decay of $\sim$0.5$\pm$0.3 sec-1 . In order to verify the accuracy of the measured decay rates, methane and propane were added to the zero air and the resultant decay rates compared with the calculated decay rates using the recommended rate constant. The experimentally measured kOH values agrees well with the calculated ones. In addition, results from the influence of humidity, O_3 and NO on the total OH reactivity measurements will be presented.