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Measurements of N₂O₅, NO₂, and O₃ east of the San Francisco Bay

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Abstract. We report in situ measurements of N₂O₅, NO₂, and O₃ in Contra Costa County, California during January 2004. Mixing ratios of N₂O₅, an intermediate compound in the atmosphere's nocturnal cleansing process, ranged up to 200pmol/mol at night. The highest N₂O₅ concentrations were correlated with low O₃ and high NO₂ concentrations. The calculated steady state lifetime for N₂O₅ ranged from 5 to 30min. The total HNO₃ produced by N₂O₅ hydrolysis over a 14h night was comparable to ambient NO₂ concentrations, and is estimated to be a factor of nine bigger than the HNO₃ produced during the day.

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