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Fluxes of Nitrous Acid (HONO) above an Agricultural Field Side near Paris

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HONO is an important precursor of the OH radical, the detergent of the atmosphere. Field measurements show high diurnal HONO mixing ratios that cannot be explained by chemical models with known gas phase chemistry. Therefore, daytime sources of HONO are still under discussion. During the last decade many experimental investigation were performed to study heterogeneous production of HONO like the photo enhanced reduction of NO_2 on humic acids or photolysis of HNO_3 on surfaces. Recently, nitrite produced by bacteria, present in soil, was discussed as a source of HONO as well. In addition gas phase sources like the photolysis of nitrophenols, or the reaction of excited NO_2 are discussed. Gradient measurements show high mixing ratios of HONO even above the boundary layer. However, beside intensive investigations on the sources of HONO, it is still an open question whether heterogeneous or gas phase sources are more important in the atmosphere. Flux measurements could represent a method to find the origin of missing sources of HONO. Until now instruments are not sensitive and fast enough to do Eddy correlation measurements for HONO. Alternatively, HONO fluxes are estimated by the Aerodynamic Gradient (AGM), or Relaxed Eddy Accumulation (REA) methods. Here we present HONO fluxes estimated by AGM and the LOPAP technique (Long Path Absorption Photometer) above an agricultural field in Grignon, Paris (48°51'N, 1°58'E). Fluxes during different seasons and different types of vegetations including bare soil will be presented and compared with chemical corrected fluxes of NO, NO_2 and O_3, or other parameters.