



The FIONA campaign (EUPHORE): Formal Intercomparison of Observations of Nitrous Acid

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HONO is an important radical source; nevertheless, its chemistry in the atmosphere is not well understood. A better knowledge of HONO formation and its role as a source of OH-radicals is highly desirable for the improvement of air pollution models, many of which do not currently include HONO production mechanisms. One reason for the uncertainties in the atmospheric role of HONO is the difficulty in measuring this species.

To elucidate both aspects - chemical and instrumental issues - a campaign was carried out at EUPHORE in May 2010. It provided a large and well-mixed gas volume for the simultaneous operation of multiple instruments under nearly-real controlled conditions. The scenarios were 10 experiments accounting for typical urban and semi-rural conditions. In this line, the following topics were addressed: i) Intercomparison of techniques, ii) Study of interferences (aerosols, nitrates, NO₂, etc) iii) HONO sources (nitrophenols, vehicle emissions, ambient air, etc). The first 3 experiments were part of an open-informal intercomparison and the rest of the experiments were part of a formal blind intercomparison with an external referee. The extensive participant list included the majority of groups working in this area globally, running simultaneously 19 techniques/instruments that covered nearly the whole range of techniques capable of measuring HONO. These included Spectroscopic instruments, denuders and wet chemicals.

We present an overview of the campaign in terms of participants, instruments, logistics, definition of experiments, etc., as well as the results of selected experiments.