



Total peroxy nitrates and ozone production : analysis of forest fire plumes during BORTAS campaign

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The goal of this work is to investigate the connection between PNS and ozone within plumes emitted from boreal forest fires and the possible perturbation to oxidant chemistry in the troposphere. During the Aircraft campaign in Canada called BORTAS (summer 2011) were carried out several profiles from ground up to 10 km with the BAe-146 aircraft to observe the atmospheric composition inside and outside fire plumes. The BORTAS flights have been selected based on the preliminary studies of "Plume identification", selecting those effected by Boreal forest fire emissions ($\text{CO} > 200$ ppbv). The FLAMBE fire counts were used concertedly with back trajectory calculations generated by the HYbrid Single-Particle Lagrangian Integrated Trajectory (HYSPLIT) model to locate the sources of Boreal biomass burning. Profiles measured on board the BAe-146 aircraft are used to calculate the productions of PNs and O_3 within the biomass burning plume. By selecting the flights that intercept the biomass burning plume, we evaluate the ratio between the ozone production and the PNs production within the plume. Analyzing this ratio it is possible to determine whether O_3 production or PNs production is the dominant process in the biomass burning boreal plume detected during BORTAS campaign.