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Impact of reduced aircraft emission on HOx Chemistry in the upper troposphere during BLUESKY Campaign 2020.

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Hydroxyl radicals are the most predominant daytime initiator for atmospheric oxidation processes. Due to the COVID -19 pandemic, there was a considerable reduction in emissions from industry and all means of transportation during spring 2020. The main objective of the BLUESKY campaign is to understand the effect of these reduced emissions on atmospheric composition such as trace gases, aerosols, and cloud properties. OH and HO_2 were measured with HORUS (HydrOxyl Radical measurement Unit based on fluorescence Spectroscopy), during eight research flights from the boundary layer up to 14 km. Here we present the impact of reduced aircraft emissions and the meteorological situation on the HOx Chemistry in the upper troposphere over Europe during the COVID-19 lockdown. We contrast the findings during BLUESKY with results from previous campaigns and analyze the occurrence of HOx during daytime in the outflow of electrified and non-electrified convective systems.