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Aircraft measurements of PAN ($\text{CH}_3\text{C}(\text{O})\text{OONO}_2$) and PAA ($\text{CH}_3\text{C}(\text{O})\text{OOH}$) in the tropical atmosphere

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The two trace gases peroxyacetyl nitrate (PAN, $\text{CH}_3\text{C}(\text{O})\text{OONO}_2$) and peracetic acid (PAA, $\text{CH}_3\text{C}(\text{O})\text{OOH}$) are products of reactions of the acetylperoxy radical with NO_2 and HO_2 , respectively. They are formed during the oxidation of anthropogenic and biogenic VOCs and in biomass burning. PAN represents an important source of NO_x in remote regions, while PAA is an indicator of the fate of peroxy radicals. To date, there have been very few simultaneous measurements of PAN and PAA. In this study, we present airborne measurements of PAN and PAA using a chemical ionization mass spectrometer (CIMS) in the clean troposphere above the Amazon rainforest in the framework of the CAFE Brazil measurement campaign. The absolute and relative abundances of PAN and PAA are analysed using data obtained during 20 flights performed during December 2022 until the end of January 2023.