6.065 Measurements of nitrous acid (HONO) within the clean tropical marine boundary layer.

Early Career Scientist

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Abstract:

At ground level HONO is an important source of OH radicals - yet its sources and formation mechanism are poorly understood, in particular in the marine boundary layer environment which dominates the global surface. Measurements of HONO were conducted at ground level at the Cape Verde Atmospheric Observatory (CVAO), during November 2015. During this time, Cape Verde experiences frequent dust storms, originating from continental Africa. In addition, complementary gas-phase, particle phase and meteorological measurements were obtained. Overall low concentrations of HONO were observed (<6 ppt). However a distinct diurnal variation was observed, characterised by peak in concentration at midday and concentrations below the detection limit (<1 ppt) at night, and which varied with photolysis frequency (i.e. degree of haze). A similar diurnal trend was also observed for NO, whereas the NO_2 concentration was relatively constant. The potential for different HONO formation sources, including heterogeneous and photo-enhanced processes, at CVAO and hence in the wider tropical marine boundary layer, are explored.