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Changes in atmospheric composition discerned from long-term NDACC measurements: Free tropospheric trace gases measured by infrared Fourier transform spectroscopy at Mauna Loa, Hawaii

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Total column amounts and low-resolution vertical mixing ratio profiles of a number of gases important to tropospheric chemistry and to greenhouse warming have been measured since 1995 from a site at Mauna Loa, Hawaii (19.5N, 155.6W). Annual cycles and long-term trends are shown for CH4, N2O, CO, C2H6, C2H2, HCN and formic acid. Pollution events are identified as perturbations of the background state. Upper limits are assigned to other important gases that are below the current detection limits.