

Ground-based measurement of strato-mesospheric CO by a FTIR spectrometer over Poker Flat, Alaska

YASUKO KASAI[1]; Tsuyoshi KOSHIRO[2]; Yasuhiro Murayama[1]

[1] NICT; [2] RISH, Kyoto Univ.

Upper atmospheric CO above 24km has been observed over Poker Flat (147W, 65N, altitude 0.61 km), Alaska using ground-based solar absorption infrared spectroscopy. This is the first reported detection of stratospheric-mesospheric CO using this method from the ground. The results clearly indicate that there is a seasonal variation of the CO profile with enhanced abundances in spring while remaining low from May onwards.

The Poker Flat Research Range is one of the many measurement sites that constitute the Network for the Detection of Stratospheric Change (NDSC). The method used in this work, estimating the CO partial column abundances above the middle stratosphere, can be applied to spectra observed using FTIR spectrometry at many other NDSC sites. This suggests the availability of this established technique for detecting CO in the lower atmosphere as a new method for CO measurements in the upper atmosphere.