Development of an aircraft instrument for in-situ measurement of CO using a vacuum ultraviolet resonance fluorescence technique

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We have been developing an aircraft instrument for in situ measurement of carbon monoxide (CO) based on a vacuum ultraviolet (VUV) resonance fluorescence technique, which combines fast response, high sensitivity, and linear response. This instrument consists of CO resonance lamp, monochrometer, fluorescence cell, and photo-multiplier tube. The CO resonance lamp is an intense light source of CO resonance line around 150-nm (4th positive band). The detection of CO is achieved by measuring resonance fluorescence intensity. The optimization of the instrumental sensitivity and the design of airborne system will be carried out in the future.