

## **2.060 Measurement of atmospheric carbon dioxide using unmanned aerial vehicle for profiling vertical distribution over Akita.**

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Abstract:

Atmospheric carbon dioxide (CO<sub>2</sub>) is one of extremely important anthropogenic greenhouse gases, and which have effect on global warming and future climate change. This study presents a novel CO<sub>2</sub> measurement platform that is accommodated on an unmanned aerial vehicle (UAV). In situ measurements using an onboard non-dispersive infrared (NDIR) gas analyzer were conducted from the ground surface to a 500 m altitude over Akita. Before the UAV flight, CO<sub>2</sub> standard gas injections were made for the calibration of CO<sub>2</sub> concentration during flight examinations. Although UAVs have altitude limitations in the troposphere, our platform is useful for obtaining CO<sub>2</sub> vertical profiles under boundary layer easily and inexpensively. In the presentation, we will reveal measurement results obtained in 2017 and 2018.