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THE DEVELOPMENT OF CO2 DIAL FOR THE CALIBRATION AND VALIDATION OF GOSAT DATA

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oral presentation

abstract:

JAXA developed the ground test model of DIAL, Differential absorption Lidar, to measure the quantities of the carbon dioxide for the calibration and the validation of the data acquired by the one instrument, TANSO-FTS, aboard on the GOSAT, Greenhouse gases observing satellite. FTS is the Fourier Transform Spectrometer. In addition to using for the calibration and the validation, this DIAL system has the purpose to take the data for the study of the space-borne DIAL. Our CO2 DIAL system adopted the 1.6 micron CW laser, incoherent detection and all fiber optical circuit. The transmitted on-line and off-line signals are coaxial and have the same field of view and the same time oscillation. And the transmitted laser is modulated doubly, intensity modulation by micro wave and phase modulation. This double modulation is adopted to detect the distance between the DIAL system and the target. JAXA is now performing the test of this DIAL to confirm the accuracy of the measurement of the carbon dioxide. This ground test model can be aboard on an airplane, therefore JAXA is planning the test using an airborne as a part of the test of the ground test model. In addition the comparison with the other CO2 DIAL systems is under consideration.

Now JAXA does not have the plan to develop the space-borne LIDAR, however the space-borne LIDAR system has been under study recently, therefore JAXA intends to take the data which will be reflected in the design of the space-borne CO2 DIAL system through this test of the ground test model of DIAL.