Optical calibration system of NIPR for aurora and airglow observations

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Calibration of optical instruments is important for accurate measurement of the absolute emission intensity of aurora and airglow. The National Institute of Polar Research (NIPR), Japan, has been operating a facility for the optical calibration which consists of three independent calibration systems to share with collaborating researchers. This paper introduces an outline of the facility and specifications of each system, calibration procedures, and examples of calibration results. With this facility, we can obtain the calibration data for the absolute sensitivity of optical instruments with an accuracy of about 2% within a wavelength range between 420 and 1050 nm. In addition, it is possible to calibrate transmission of optical filters and also relative sensitivity of optical instruments as a function of wavelengths. Current facility, upgraded in 2012, has been used by many researchers to calibrate their various optical instruments.

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