

Key technique for the new Na lidar (1): Daytime observation using a Faraday filter

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We are now developing a Faraday filter for the daytime observations with our Na temperature lidar. The filter has an ultra-narrow bandwidth of ~10pm which is 1/100 of a commercial type band pass filter to reject a blight background in a daytime observation. Upgrading the lidar enables us to picture 24 hour temperature variations which can be compared with the wind data. We measured a transmission of the filter with a special technique using a ring cw laser at 589 nm and a sodium cell for the absolute wavelength monitor. We report the results of the experiments and the new Faraday filter which is now under construction.