# Lidar measurements of lower tropospheric temperature using an atomic filter

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The multi-purpose lidar system for survey of atmospheric structure over troposphere, stratosphere, mesosphere and low thermosphere over Kototabang (100.3E, 0.2S), Indonesia in the equatorial region has been constructed. The Rayleigh and Raman lidar are used for stratospheric and mesospheric temperature measurements and the Fe Boltzmann lidar for temperature measurements in the mesopause region. A high-spectral-resolution lidar (HSRL) with a potassium atomic absorption filter is proposed for temperature measurements in the lower troposphere. This lidar system consists of Ti:Sapphire laser as a transmitter and potassium vapor as an atomic absorption filter. We have suggested a new method for an optical reception system of the temperature measurement lidar with a potassium filter. Simulations are also performed to show the effectiveness of the method.