# Langley Calibration of Sun Photometer at Kinabalu Park (1574 M a.s.l.) using PDM Algorithm and statistical filter


## Abstract

This paper reports the use of improved Langley plot for LED-type sun photometer calibration at four wavelengths 440, 500, 670 and 870 nm. The Langley plot is improved by series filtration using Perez-Dumortier (PDM) algorithm and statistical filter. Data was collected at a mid-altitude site, Kinabalu Park, Kundasang (1,574 m a.s.l.) using a portable ASEQ, LR-1 spectrometer. It is shown that with Langley plot alone, it is impossible to correctly identify or remove atmospheric variations within the calibration measurements. These variations are dominated by cloud cover, and short-cirrus cloud. However, result findings show that PDM algorithm and statistical filter are useful tool to improve the result by filtering data contaminated by cloud loading and remove possible drifts caused by instabilities of the instrument.