

Implementation of perez-dumortier calibration algorithm

Abstract

To avoid the unnecessary needs to travel to high altitude for sunphotometers calibration, Perez-Dumotier calibration algorithm has been used as an objective means to select the right intensity data so that the calibration can be performed at any altitude levels. The governing theory of the algorithm was discussed in the previous chapter. This chapter presents information on how to implement the Perez-Dumotier calibration algorithm using actual field measurement. The implementation of the filtration procedure in step-by-step is discussed to render better framework of the proposed calibration algorithm. The aerosol retrieval inversion uses the extraterrestrial constant obtained from the final Langley plot to calculate retrieved AOD. The implementation example uses irradiance-matched technique by i-SMARTS radiative transfer code to derive corresponding reference AOD for validation purposes. The reliability of the technique was substantiated by radiative closure experiment to verify the promising direct solar irradiance to accurately derive the reference AOD values.