

Ground-based measurements of NO₃ column abundance over Table Mountain, California.

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The nitrate radical, NO₃, which is being monitored by Meteosat/SAGE III, is an important intermediate in the transformation of NO_x to NO_y. Better characterization of the diurnal, seasonal and interannual variation of NO₃ is important in characterizing the role of NO_x-catalyzed ozone depletion in the stratosphere. In this work the nighttime variation of the NO₃ column abundance has been studied over Table Mountain, California beginning in June 2002 we collected lunar occultation data around full moon with a grating spectrograph which utilized a CCD detector. NO₃ column abundances were retrieved from lunar spectra using the differential optical absorption spectroscopy (DOAS) technique. A significant problem in the retrieval is the interference of water vapor and O₂ in the NO₃ visible absorption bands. To minimize these interferences, retrievals were carried out on both the 662 and 623 nm NO₃ bands. Comparisons between the observed nighttime temporal profiles of NO₃ and the predictions of a one-dimensional photochemical model will be discussed.