



## **Validation of O<sub>3</sub> from SABER infrared limb radiance measurements by comparison with independent satellite measurements**

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The Sounding of the Atmosphere using Broadband Emission Radiometry (SABER) experiment was launched in December 2001 as one of four instruments comprising the Thermosphere-Ionosphere-Mesosphere Energetics and Dynamics (TIMED) satellite mission. SABER is a broadband radiometer that records vertical profiles of infrared emission by scanning the Earth's limb from the surface to approximately 350 km in tangent altitude. SABER measures limb radiance ( $\text{W m}^{-2} \text{sr}^{-1}$ ) in 10 broad spectral bands. Central to many of the SABER data products is the retrieval of O<sub>3</sub> concentration in the middle atmosphere (50-95 km). In this paper we describe the methods for its derivation from spectrally weighted broadband limb radiance measurements at 1.27- $\mu\text{m}$  (O<sub>2</sub>(a<sup>1</sup>Δ<sub>g</sub>-ground) electronic band) at daytime and 9.6- $\mu\text{m}$  (O<sub>3</sub> ro-vibrational bands) at day- and night-time; and present a validation of the retrieved O<sub>3</sub> by comparison with independent measurement from GOMOS and MIPAS.