

Atomic Oxygen quenching of the OH ($v = 8$ and 9) levels

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The determination of the reaction rates for the upper vibrational levels of OH have been a subject of extensive discussion for many years. The first measurements for OH ($v = 1$) were reported by Spencer and Glass (1977). Attempts to extend their values to $v = 8$ and 9 have been the source of much debate. The most recent determinations were presented by Smith et al. (2010) based on observations from the TIMED satellite, although the required atomic oxygen concentrations were in fact derived from the same OH emission observations. The OSIRIS spectrograph observations made on the Odin satellite provide direct measurements of the OH Meinel (8-3 and 9-4) bands as well as an independent measurement of the local atomic oxygen concentrations. This paper reports the atomic oxygen quenching rates that are derived from the OSIRIS observations.

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