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Retrieval of HO2 in the Middle Atmosphere from Sub-Millimeter Limb Sounders: Balloon Smiles and Odin/SMR

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We will present the HO2 measurements performed by two limb sounder instruments operating at submillimeter wave lengths: the Balloon-borne Superconducting subMIllimeter Limb Emission Sounder (BSMILES) and the SubMillimeter Radiometer (SMR) onboard the Odin satellite. The BSMILES instrument is equipped with a 300 mm diameter offset parabolic antenna, a Superconductor-Insulator-Superconductor (SIS) receiver and an 1 GHz acousto-optic spectrometer. During the second balloon flight in September 2004, the instrument was set to observe the atmosphere in the 624-639 GHz region. The measurements contain weak lines of HO2. Retrieval of this species can be theoretically done from 30 to 50 km of altitude. The Odin satellite was launched in February 2001. The SMR instrument can be tuned to different frequency bands between 486 and 581 GHz. Some of the measured bands contain weak emission lines of HO2 that theoretically allows the retrieval of this species from 30 to 70 km.