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O_2 emission on the night side of Venus from limb observation of VIRTIS –M VEX; upper boundary of the clouds

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VIRTIS-M spectral resolution does not allow to resolve the 1.27 μm O2 airglow and thermal emission of the lower atmosphere scattered by the clouds, however from the limb observations the O2 emission may be separated from the thermal emission spatially. Up to now only one limb orbit on the night side is available for the latitude ranges from 25 to 75° N around midnight. The observed vertical distribution of the O2 emission was calculated using all pixels for the latitude range from 35 to 60°. Vertical profiles were obtained averaging within 5° of latitude and 1 km of altitude. The value of the observed emission peak and its altitude (96-98 km) depend on latitude: it is maximal at lowest latitude observed having the lowest position there. The emission rate changes from 1.7 MR for 35-40° latitude range to 0.8 MR for 55-60°. The 1.58 μm O2 emission band has been identified in the spectra. Ratio between the intensities of (0,0) O2 at 1.27 μm band and (0,1) O2 at 1.58 μm band is equal to 70-100. From limb observations it was found that near midnight the upper boundary of the clouds is around 80 km at middle latitudes and up to 85 km at low latitudes. This work is in progress now.