



Diurnal variation of stratospheric and mesospheric ozone observed by ground-based microwave radiometry

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Knowledge on diurnal ozone variations in the middle atmosphere is of general interest for the estimation of atmospheric tides propagating throughout the whole atmosphere. Another aspect is the important area of ozone trend analysis. Does the ozone layer recover in the next decades? Expected trends are of the order of 1 percent per decade. If the diurnal ozone variation is not considered, avoided, or removed in the observational data sets then an ozone trend detection will be not possible since the amplitude of the diurnal variation of stratospheric ozone is of the same order as the decadal ozone trend. Ground-based microwave radiometry measures the diurnal ozone variation at a certain geographic location at altitudes from 25 to 65 km. Here we discuss the challenges for the measurement technique and the retrieval method. Finally we present characteristics of the diurnal ozone variation above Switzerland, continuously observed since 1994.