



Intraseasonal oscillations in stratospheric ozone above Bern, Switzerland

S. Studer, K. Hocke, and N. Kämpfer

Institute of Applied Physics and Oeschger Centre for Climate Change Research, University of Bern, Bern, Switzerland
(simone.studer@iap.unibe.ch)

Understanding the ozone variability in the extratropics is crucial for the evaluation of ozone trends, as well as the development of reliable chemistry climate models. At the University of Bern, Switzerland, the ground-based millimeter-wave ozone spectrometer GROMOS measures ozone profiles in the altitude range of 20 to 65 km in the frame of NDACC (Network for the Detection of Atmospheric Composition Change). We analyze whether some of the observed stratospheric ozone variations above Bern can be explained in the wake of intraseasonal oscillations (ISOs). The dataset is band-pass filtered to focus on the intraseasonal band of 10 to 60 days. We derive mean characteristics of ISOs of stratospheric ozone and find evidence for a dominant oscillation period of about 20 days in the lower and middle stratosphere during winter time. The interannual variability of ISOs and their relationship to sudden stratospheric warmings are also studied. The interannual variability is possibly due to influences of planetary wave forcing and the quasi-biennial oscillation (QBO) on the meridional Brewer-Dobson circulation of the middle atmosphere. In a further step, the interannual variability of intraseasonal tropospheric and stratospheric oscillations are compared, where the MJO (Madden-Julian oscillation) and NAO (North-Atlantic oscillation) indices are taken as proxies for tropospheric disturbances.