



New retrieval algorithm for the HDO/H₂O ratio from SCIAMACHY measurements

Katja Weigel, Max Reuter, Oliver Schneising, Stefan Noel, and John P. Burrows

University of Bremen, Institute of Environmental Physics (IUP), Bremen, Germany (weigel@iup.physik.uni-bremen.de)

Water vapor isotope ratios are important as temperature proxies and provide information about the hydrological cycle. Global satellite measurements of the HDO/H₂O ratio (δD) can improve our understanding of the corresponding processes and are also valuable to assess the quality of models. Measurements from the SCanning Imaging Absorption spectrometer for Atmospheric CHartographY (SCIAMACHY) on-board Envisat allow to retrieve δD using nadir measurements in the shortwave-infrared wavelength region. Measurements in this wavelength range are sensitive down to the earth surface. The BESD (Bremen Optimal Estimation differential optical absorption spectroscopy (DOAS)) retrieval algorithm developed for CO₂ was adopted to retrieve δD using a micro-window ranging from 2354.23 nm to 2374.25 nm. Measurements are available from 2002 to 2012 but this wavelength range is affected by several instrumental issues. Here, we present results of the δD retrieval and investigate the possible length of the time series. The quality and stability of the retrieved data set is assessed.