



## Ten years of Carbon Monoxide (CO) derived from SCIAMACHY's SWIR Channel

Tobias Borsdorff, Ilse Aben, Otto Hasekamp, and Jochen Landgraf  
SRON, EPS, Utrecht, Netherlands (tobias.borsdorff@gmx.de)

Ten years of SCIAMACHY Short Wave Infrared (SWIR) measurements from space provide a unique opportunity to retrieve a long term global data set of CO total columns densities. However until now, there is no official scientific SCIAMACHY CO data product covering the full time range of the mission. In particular, the radiometric calibration of the instrument is hampered by the growth of an ice layer on the detector array of channel 8 and by a considerable loss of detector pixels due to radiation damage in the later years of the mission. In this study, we use the new CO retrieval algorithm SICOR (Short Wave Infrared CO Retrieval) developed for TROPOMI on Sentinel-5P to process the SCIAMACHY spectra. The method is based on a profile scaling approach and ensures comparability of TROPOMI and SCIAMACHY retrievals. Additionally, total column averaging kernels are included in the standard output of the retrieval. To account for the effect of the ice layer an effective radiometric offset is inferred from each individual measurement together with the trace gas columns and surface reflection properties. The retrieval results are compared with chemical transport model simulations and validated by ground-based measurements.