Evaluation of TROPOMI Tropospheric NO2 VCDs over China

Kai Qin, Qin He, and Jincheng Shi
China University of Mining & Technology, Xuzhou, China (qinkai@cumt.edu.cn)

The Tropospheric Monitoring Instrument (TROPOMI) with a higher spatial resolution is a push broom UVIS spectrometer carried on the S5P satellite which was launched on October 13th, 2017. But compared to the widely used OMI and GOME-2, TROPOMI NO2 products have not been extensively used in China. To evaluate the TROPOMI NO2 products, we present a comparison between TROPOMI NO2 products and MAX-DOAS observations in Xuzhou, eastern China from April 2018 to September 2019. We find a high correlation, but a clear underestimation. We find that solar zenith angle, viewing zenith angle, the cloud fraction and wind speed will affect the evaluation results. We examine the retrievals of TROPOMI tropospheric NO2 over China, contrasting them with the retrievals of OMI. We find that TROPOMI has better ability to resolve small scale plumes and distinguish the distribution of NO2 concentration on a city scale. Our goal is to support the application of TROPOMI for NO2 observations and deriving emissions from urban or industrial facilities over China.