Improvements to the radiometric calibration of TROPOMI

Antje Ludewig (1), Quintus Kleipool (1), Rolf Bartstra (1,2), Robin Landzaat (1,3), Erwin Loots (1), Emiel van der Plas (1), Nico Rozemeijer (1,3), Frank Vonk (1,3), and Pepijn Veefkind (1)

(1) KNMI (Royal Netherlands Meteorological Institute), RDSW, De Bilt, Netherlands (ludewig@knmi.nl), (2) S&T Science and Technology B.V. , Delft, The Netherlands, (3) TriOpSys B.V., Utrecht, The Netherlands

The TROPOMI L01b processor converts the raw instrument data to radiance, irradiance and special calibration data. The radiance and irradiance data is used in the L2 processors to derive global information on concentrations of trace gases and aerosols important for air quality, climate forcing, and the ozone layer. The irradiance data by itself is also used for research on the solar output.

The radiance and irradiance output is part of both the near-real time and the offline products.

In-flight monitoring and re-calibration showed that the in-flight instrument calibration can be improved with respect to the on-ground calibration key data. In-flight degradation and new instrument features need to be represented by the L01b processor's algorithms and calibration key data. The new version (v2.0.0) of the L01b processor addresses these issues as presented in the talk 'Updates to the TROPOMI L01b processor ' (Q Kleipool et al.).

In this talk we focus on features which have direct impact on the radiometric quality of both the radiance and irradiance.