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Updates to the TROPOMI L01b processor

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The TROPOMI L01b processor was developed well prior to the start of the Sentinel-5 Precursor mission on the 13th of October 2017. Rather than using prototype code, the L01b processor was already employed during the on-ground calibration campaign which started in December 2014.
The processor was then used to derive self consistently all necessary calibration key data. The key data serves as an input for the processor to convert the raw input data into calibrated spectral radiances and irradiances.
The geolocation, so the calibrated and validated longitude and latitude for each measured groundpixel, is also assigned to the radiance data in the L01b processor.
As described in the Algorithm Theoretical Basis Document (http://www.tropomi.eu/document/tropomi-l01b-atbd), the processor represents an implementation of the reverse instrument model, including all newly observed features. 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 impact of features on the radiometric calibration is presented in 'Improvements to the radiometric calibration of TROPOMI' (A. Ludewig et al.).
The new version (v2.0.0) of the L01b processor addresses these issues. In this talk we present an overview of instrument features and how the processor update will address these with new algorithms and time dependent calibration key data.