Main processor improvements for Baseline 15

L1B processor V7.13:

- A new option was added to calculate improved Mie SR ratio and SNR values. Therefore, a new Mie peak fitting routine (Voigt function) can now be applied. This in turn required the inclusion of a new switch (EMSR instead of TOBS) to perform a more realistic correction of the Mie signal distribution for the obscuration effects caused by the smaller M2 mirror of the telescope.

- A new option was added using averaging over longer parts of an orbit to correct the detection chain offset (DCO) for atmospheric layers. If selected this improved correction is performed implicitly via the DCMZ correction. Matching AUX_RRC_1B and AUX_MRC_1B files must be provided as contained in the delivery.

- A new option was added to apply a weighted linear fit for the evaluation of the Mie response calibration. Accumulated useful signals before normalization are used as weights.

L2B processor V3.80:

- New threshold checking has been added to catch gross-errors on measurement level for the Rayleigh channel, i.e. if one of the channels A or B has a very high signal and the other does not, then we consider this an artefact that is not related to wind and flag the resulting measurement invalid.

- A climatological sanity check on reported winds has been added, to ensure unrealistic high wind results will be flagged invalid.

L2A processor V3.15:

- MLE at sub-BRC scale: The MLE is an optimization method less sensitive to signal noise compared to the Standard Correct Algorithm. Therefore 2 new datasets have been defined: SCA_MLEsub_MDS and SCA_MLEsub_PCD_ADS. They contain MLE results for BRC fractions. The horizontal resolution can be defined in the AUX_PAR_2A file.

- MLE quality flag: A quality check has been added to the MLE retrievals given at full BRC scale (i.e. not sub-BRC).

- The minimum valid BRC value has been added to the AUX_PAR_2A file. This value is defined to get sufficient number of aerosol free profiles for a robust radiometric correction of the calibration coefficients: Kray and Kmie.

- The last computation bin information has been added to the SCA_PCD_ADS datasets. It indicates the lowest matching bin between Rayleigh and Mie scale processed by SCA algorithm.