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# *Band-shift corrections for match-up analysis*

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# Band-Shift Correction

AERONET-OC data are produced at fixed center-wavelengths not necessarily matching those of the satellite sensors of interest.

Current band-shift correction, not included in the operational processing, is applied for several sites relying on the following scheme:

$$L_{WN}(\lambda) = L_{WN}(\lambda_0) \frac{E_0(\lambda)}{E_0(\lambda_0)} \frac{f'(\lambda)}{f'(\lambda_0)} \frac{Q_n(\lambda_0)}{Q_n(\lambda)} \frac{b_b(\lambda)}{a(\lambda) + b_b(\lambda)} \frac{a(\lambda_0) + b_b(\lambda_0)}{b_b(\lambda_0)}$$

Where synthetic values at  $\lambda$  are computed from values at  $\lambda_0$

1. assuming  $\lambda$  is close to  $\lambda_0$  so that  $f'(\lambda)/Q(\lambda) \approx f'(\lambda_0)/Q(\lambda_0)$
2. determining  $a$  and  $b_b$  using empirical regional algorithms relying on  $L_{WN}(\lambda)$  ratios or alternatively from actual *in situ* measurements.