



EUROPEAN COMMISSION
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Band-shift corrections for match-up analysis

Giuseppe Zibordi

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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:

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

Where synthetic values at λ are computed from values at λ_0

1. assuming λ is close to λ_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.