**Diffuse/Direct Correction using SPN1 Measurements (200nm – 3600nm)**

The diffuse/direct correction is made under the assumption of

where *DR* is the “diffuse to total” ratio, *f* itself is the fraction of clear-sky and (1–*f*) is the fraction of an artificial diffuser (here clouds), *clear* indicates under clear-sky condition and *cloud* indicates under cloudy-sky condition.

Assume , we get

Rearrange we get

Let’s denote the measured *DR* from SPN1,

where and are the wavelength range of *SPN1* and is the calculated downwelling spectral irradiance from RTM. Plug Equation (1) in (2) we get

Rearrange we get

Then

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