

Use of exo-atmospheric solar spectral irradiance (200 to 2400 nm)

There are many applications in optical based Earth Observation applications that the use of an exo-atmospheric solar irradiance spectrum is required, and in many cases is embedded as a default, although changeable in many models, particularly radiative transfer codes. However over the years different data sets and models have been derived and subsequently used by different research groups. This has on some occasions led to confusion within the community and sometimes the unfounded cause for debate on observed biases in resultant data products.

As an attempt to minimise this problem CEOS WGCV (endorsed by CEOS plenary 17) has recommended that where possible, use is made of a “standard spectrum” at the highest possible resolution. At present the international consensus is that this standard spectrum is a composite published by Thuiller et al. and summarised in the attached Excel spreadsheet.

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However, it is considered essential that in all relevant publications the exact spectrum used should be reported, together with any band integration used, to allow proper comparisons of results to be undertaken. It should therefore be considered when peer reviewing future publications.