fact very modest. As a representative exercise, we have calculated the daily irradiation incident on a surface tilted to the latitude in Djelfa-Algeria ($\phi = 34.6^{\circ}$), for a winter day ($d_n = 17$) and for a summer day ($d_n = 161$), using the different correlations defined by equations (20.19–20.21). Djelfa and Madrid are relatively similar on geographical altitude and solar climate. Hence, it is reasonable to assume that the same local correlation could be applied to both places. $G_d(0) = 2778$ and 6972 Wh/m^2 for the winter and for the summer day, respectively. This radiation data has been obtained from Reference [7], by assuming that the value of the global irradiation during these days coincides with the corresponding monthly averages. Details of the calculating procedure will be given in the next section, but they are not relevant for the present discussion. The results are as follows:

$$d_n = 17 \Rightarrow B_{0d}(0) = 5177 \text{ Wh/m}^2$$
$$G_d(0) = 2778 \text{ Wh/m}^2 \Rightarrow K_{Td} = 0.537$$

Eq.	F_{Dd}	$D_d(0)$ in [Wh/m^2]	$G_d(\phi)$ in [Wh/m^2]
20.19	0.5301	1472	3946
20.20	0.5067	1408	4008
20.21	0.4351	1209	4185

$$d_n = 161 \Rightarrow B_{0d}(0) = 11\,525 \text{ Wh/m}^2$$
$$G_d(0) = 6972 \text{ Wh/m}^2 \Rightarrow K_{Td} = 0.605$$

Eq.	F_{Dd}	$D_d(0)$ in [Wh/m^2]	$G_d(\phi)$ in [Wh/m^2]
20.19	0.4034	2813	5988
20.20	0.4031	2811	5988
20.21	0.3345	2332	5940

Significant differences are observed in the estimation of the diffuse component of the horizontal irradiation. However, the noticeable key point is that these differences are significantly lessened in the estimation of the global irradiation. For example, for the winter day, differences on the diffuse component reach 22% while differences on the global radiation are lower than 6%.

Now, it is worth noting that, to a certain extent, we can cite a physical reason for the differences, considering the primary role of scattering in the diffusion of solar radiation. Equation (20.19) was derived from northern latitudes, with higher air masses than the Mediterranean region (higher air mass means higher scattering and, consequently, higher diffuse radiation content), and Madrid is a relatively high altitude site (670 m over the sea level) and its climate is essentially dry (both, higher altitude and lesser humidity