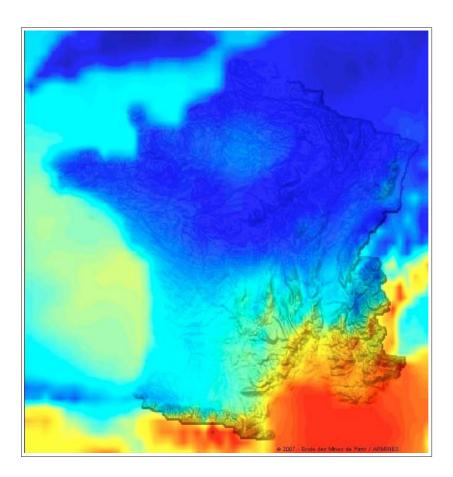




Long term HelioClim-3 global, beam and diffuse irradiance validation

Pierre Ineichen University of Geneva February 2016



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Abstract

Satellite derived solar radiation is nowadays a good alternative to ground measurements for renewable energy applications. It has the advantage to provide data with a good accuracy, the best time and space granularity, in term of real time series and average year such as TMY.

This report presents results of a long term validation in the European and Mediteranean regions of the irradiance evaluated by the HelioClim-3 scheme in hourly, daily and monthly values, and seven average products on an annual basis. The performance is also put forward with the natural interannual variability.

The main results are:

- the accuracy of the derived hourly global irradiance reaches 20% (standard deviation) with no bias, and 46% for the beam component with a 6% to 9% mean bias,
- the main improvement from version 4 to version 5 comes from the use of a new clear syk model with sub-daily aerosol data as input,
- some systematic patterns are pointed out, depending on the sky type, the site latitude, the aerosol optical depth and the ground snow cover,
- the overall annual uncertainty of the HelioClim-3 scheme is situated within one interannual variability standard deviation for the global component, and within two standard deviations for the beam irradiation,
- the overall performance for the beam component is slightly worse for version 5, but the frequency distributions are improved, particularly for high irradiance values.

Nomenclature

G_h or GHI G_{hc} B_n or DNI D_h or DIF B_{nc} G_{sat} G_{mes} I_o	global horizontal solar irradiance or irradiation clear sky global horizontal solar irradiance or irradiation normal beam (or direct) solar irradiance or irradiation diffuse horizontal solar irradiance or irradiation clear sky normal beam solar irradiance or irradiation modeled solar irradiance or irradiation measured solar irradiance or irradiation extra-atmospheric solar irradiance
К	clearness or clear sky index
K _t	global clearness index (G_h normalized by $I_o sin h$)
K _t ,	modified global clearness index
K _c	global clear sky index (G_h normalized by G_{hc})
K _d	diffuse clearness index
K _b	beam clearness index
K _{bc}	beam clear sky index (B_n normalized by B_{nc})
T _L	Linke turbidity coefficient
T _{Lam2}	Linke turbidity coefficient at air mass = 2
aod	atmospheric aerosol optical depth
W	atmospheric water vapor content or column
δ_{cda}	aerosol optical depth of a clean and dry atmosphere
δ _w	water vapor atmospheric optical depth
T _a	ambiant temperature at 2m
RH	relative humidity at 2m
h	solar elevation angle
AM	atmospheric air mass
n	cloud index
ρ	planetary albedo
ρ _q	overcast sky planetary albedo
ρ _c	clear sky planetary albedo
0	
mbd	mean bias difference
rmsd	root mean square difference
sd	standard deviation
bsd	bias standard deviation (standard deviation of the bias)
R	correlation coefficient
KSI%	second order Kolmogorov-Smirnov test

irradiation from one year to the other in the model uncertainty. To conduct a significant interannual variability analysis, a long period of data is needed. These long time series have to be as continuous as possible and with no missing data. As the majority of the ground measurements time series are not complete and as it is not possible the fill the gaps, a strategy has to be developed to circumvent the problem.

The following corrections are applied on the data: to obtain a yearly total, the data are taken month by month and added. For each month, the missing share of ground measurements is evaluated in term of a number of missing data percentage. When the gaps' length represents less than 5% of the month, a linear extrapolation is applied on the monthly values based on the normalized number of hourly values aggregated in the considered month. When more than 5% of the data are missing, the monthly value is replaced by the average of all the corresponding months of the considered time series. The missing share statistics are given in Table II.

In Lerwick, the 10% missing data for the beam component occur mainly in 2011. For the site of Madrid too many data are missing for the beam component, so that the interannual variability analysis is not significant.

Due to these corrections, the results given in the interannual variability bar charts do not correspond exactly to the hourly validation results. As the hourly comparison is restricted to validated values, some differences may also occur depending on the length of the comparison period. Nevertheless, the results are significant when considered as a general overview the tendency of a model to reproduce the data.

8. Validation results

8.1 Hourly, daily and monthly validation

The total amount of points included in the comparison and the corresponding irradiance and irradiation averages are the following:

•	700'000 hourly values	$G_h = 317$	B _n =322	D _h = 129	[W/m ²]
•	60'000 daily values	G _h = 3.73	$B_n = 3.78$	D _h = 1.51	[Wh/m ² .day]
•	2'000 monthly values	G _h = 108	B _n = 109	D _h = 44	[Wh/m².month]

The number of ground or satellite derived values differ from one site to the other, and the covered periods are not of the same length for all the sites (see Table II).

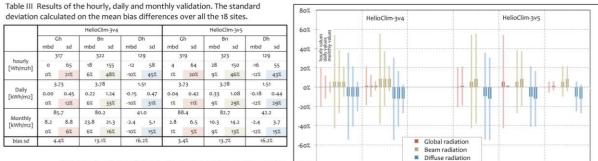


Figure 17 Corresponding graphical representration of the results.

Table III and Figure 17 give the main results of the validation (the complete results, site by site, for the two versions of HelioClim-3, component by component, in hourly, daily and monthly, absolute and relative values are given in the annex, Tables a-I, a-II and a-III). A general observation is that the hourly global irradiance is retrieved with a zero average bias and a standard deviation around 20% (65 [W/m²]), the beam component around 47% (150 [W/m²]) with a +6% to +9% bias, and the diffuse around 45% (56 [W/m²]) with a -10% bias. If the overall bias for the global irradiance is zero, it can be highly variable from one site to the other (-8% to +9%). This is highlighted by the standard deviation of the mean bias deviation *bsd*; it stays around 3.5% for the global component. For the beam component (and a fortiori for the diffuse irradiance), the bias varies from site to site, especially for northern sites (i.e. Lerwick).

8.1.1 Model-measurements difference distribution

In a general way, for the global component and both versions, the bias distribution around the 1:1 axis follows a un- or slightly skewed normal distribution, so that the standard deviation indicator is significant (see Figures 11 & 12, a-1g to a-4g and a-10g to a-13g in the annex). This is not the case for the normal beam irradiance, where bimodal (i.e. Nantes), skewed or not normal distributions can occur depending on the site. No common rule can be drawn from the Figures a-10b to a-13b in the annex, the shape of the distribution depends on the clear sky model used and the specificities of the input parameters. For some sites with sunny conditions like Almeria, Carpentras, Tamanrasset or Sede Boqer, the dispersion of the hourly bias is so high that the distribution cannot be considered as normal. In this case, the standard deviation has to be considered with precaution. Concerning the diffuse component, even if the values on the model/measurements graphs are not aligned on the 1:1 axis, the frequency of occurrence distribution is not too far from a normal distribution; this makes the standard deviation representative of the uncertainties (see Figures a-1d to a-4d and a-10d to a-13d in the annex)

8.1.2 Improvement from HelioClim-3 version 4 to version 5

The improvement between HelioClim-3 version 4 and version 5 is the use of a new clear sky model. In version 4, the used clear sky is evaluated with the ESRA model, developed by Rigollier and Geiger (Rigollier et al. 2000, Geiger et al. 2002). Validation of this model (Ineichen 2016) shows clearly an underestimation for both global an beam components. This is illustrated on Figure 18 (upper graphs) where the clearness index is represented versus the solar elevation angle for both components. The measurements are plotted in yellow dots, and the model in blue. The upper limit, representative of clear conditions, is never reached by the modelled values, especially for the beam component (see Figures a-1b to a-4b in the annex). The consequence on the irradiance modelled values is that the highest values are never reached. In HelioClim-3 v5, an adaptation of the clear sky model is done using the McClear model (Lefèvre 2013) with MACC-II aerosol sub-daily data (Kaiser et al. 2002). The improvement is illustrated on Figure 18 lower graphs, where the same parameters than for version 4 are represented. For the new version, the clear sky measurements are reached by the modelled values, except for low solar elevation angle values where a slight underestimation is visible (see Figures a-9g and a-9b in the annex).

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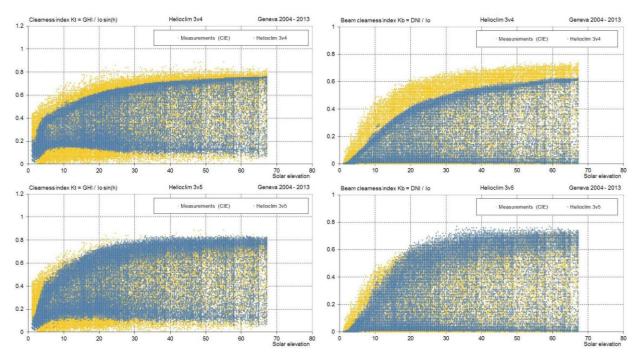


Figure 18 Global and beam clearness index (K_{r} and K_{p}) plotted versus the solar elevation angle for the two versions of helioclim-3.

8.1.3 Time resolution of the input parameters

When representing the clearness index versus the solar elevation angle, the time resolution effect of the *aod* and *w* input to the model can be pointed out. In version HelioClim-3 v4, monthly climatic values are used to evaluate the clear sky, whereas sub-daily values obtained from the MACC-II project are used in HelioClim-3 v5. This is illustrated on Figure 19 where aggregates of points are visible only on the left graph. This effect can be seen on the graphs for all the sites (see Figures a-9n in the annex), more particularly on sites where *aod* and *w* are highly variable (i.e. Lerwick and Nantes).

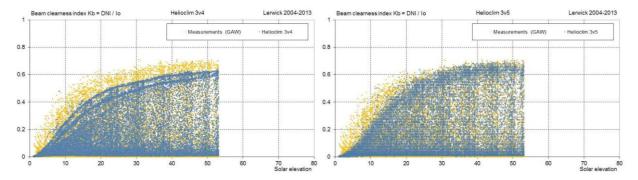


Figure 19 Beam clearness index K_b plotted versus the solar elevation angle for the two versions of helioclim-3 for the site of Lerwick.

8.1.4 Sky condition effect

The observation of the bias versus the modified clearness index K_t (or the sky type, see Figures a-5g and a-5b in the annex) shows the same general tendency for all the models and both components: a slight overestimation for cloudy conditions and an underestimation for clear skies. The highest effect is a beam component overestimation for intermediate conditions. This is illustrated on Figure 20. For clear conditions, the dispersion is due to an approximate knowledge of turbidity. In the case of inter-

mediate cloud cover, the model does not identify with enough precision the type and thickness of the clouds (see Figures a-5g and a-5b in the annex).

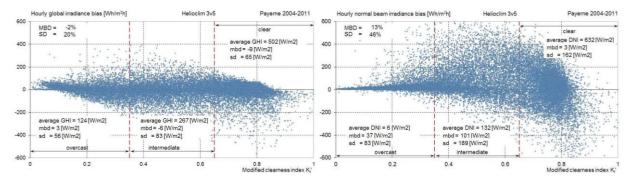


Figure 20 Model bias versus the clearness K_t (or sky conditions) for the global and beam components.

8.1.5 Snow effect

For the site of Davos, the snow cover during the winter period has a significant effect on the modeled irradiance. Indeed, if no particular attention is payed in winter, the high reflectance of the snow cover can change the determination of the ground albedo, and during the process, can be interpreted as cloudy conditions. The result is an overestimation of the irradiance for cloudy condition conditions due to the underestimation of the ground albedo. Moreover, the variability of the snow cover induces a higher dispersion of the irradiance, especially for the beam component. The effects are visible on Figure 21 where the model bias is represented versus the modified clearness index, or sky conditions, for the global and the normal beam components.

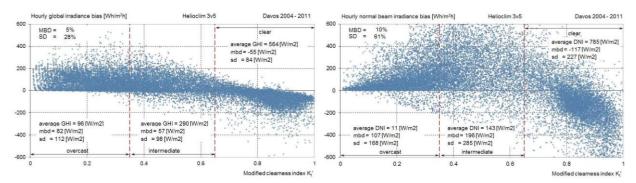


Figure 21 Model bias versus the clearness K, (or sky conditions) for the global and beam components and the site of Davos.

8.1.6 Latitude effect

Due to the angle of view of the ground surface by the satellite, the size of the image pixel increases with the latitude of the site. This means that the reflectance of the ground includes also a higher variety of ground albedo values, and cloud types and altitudes. The small view angle of the satellite with respect to the ground increases the parallax effect on the cloud position (Schutgens 2009, Marie-Joseph 2013). The result on the modeled irradiance is a higher dispersion (standard deviation) for both components as illustrated on Figure 22 where the standard deviation of the modeled values are represented against the latitude of the station.

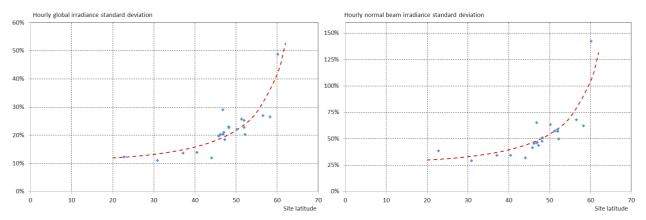


Figure 22 HelioClim-3 relative standard deviation versus the latitude of the station for the global and the normal beam irradiance.

8.1.7 Aerosol effect

The graphs on Figure 23 represent the hourly bias of the beam component versus the aerosol optical depth. A clear dependance can be pointed out for all the sites (see Figures a-6b in the annex), the model shows a negative bias for clean atmosphere condition, and going more or less to an overestimation for higher turbidity. The effect is less market for the version 5 of HelioClim-3. For the global component, as it is less sensitive to the aerosol load, the effect is smaller, even negligible.

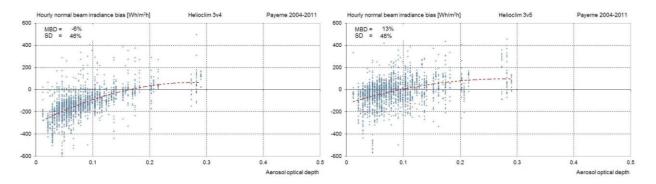


Figure 23 Model bias versus the clearness K_{r} (or sky conditions) for the beam component and the two version of HC-3.

When representing the daily model-measurements bias versus the day of the year, the general tendency is a summer/winter pattern for the beam component as it is illustrated on Figure 24 left. This effect is certainly correlated with the atmospheric turbidity; it follows the aerosol load seasonal dependency. The right graph on Figure 24 represents the monthly bias surrounded by \pm one standard deviation: the monthly modeled average and the measurements average are represented (for all the sites, see Figures a-7n and a-8n in the annex).

Figure 25 is a graphical illustration of the monthly validation. On the left graph, the monthly values of the two version of HelioClim-3 model, and on the right graph, all the average models are shown; the measurements are in red, the dashed red lines represent ± one standard deviation around the monthly value. Figures a-21n in the annex give a graphical representation for all the sites and models. For the global component, 96% of the monthly HelioClim-3 v5 modeled values are situated between the two dashed lines, 92% for version 4; for the normal beam component, 88% of the monthly HelioClim-3 v5 modeled values are situated between the two dashed lines, 84% for version 4. From these graphs, it

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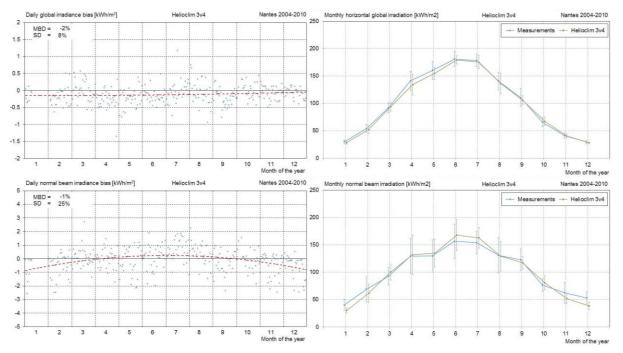


Figure 24 Left graphs: Model-measurements difference for daily normal beam irradiation values versus the day of the year. Right graphs: Monthly averaged values surrounded by ± one standard deviation for the modeled and the measured values of the global irradiation.

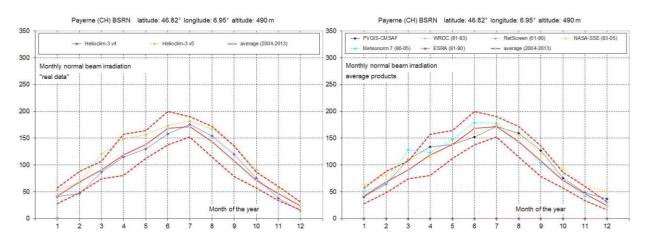


Figure 25 Comparison of the monthly values for all the models. In red, the measurements, the red dashed lines represent \pm one standard deviation.

arises that the only site where all the average modelled monthly values are apart from one standard deviation around the average monthly measured values is Sede Boqer (see annex).

8.2 Frequency distribution

The correspondence between the frequency distribution of the modeled values and the measurements is as important as a low bias and standard deviation. It is the guaranteeing of a realist representation of the solar resource by the satellite models.

The general observation is that the two versions of the models, for all the sites, present a coherent frequency distribution representation of the global irradiance level (with the exception of Davos for the snow periods, Figures a-12g and a-13g). When considering the global clearness index frequency distribu-

tion, for all non-arid climate sites, a peak of overestimation can be seen for K_t values around 0.15. The peak is slightly smoothed on version 5 values, but still present. For the beam component, the general pattern is an overestimation for very low beam or clearness index values, and an underestimation for intermediate values. For both components, as stated in section 8.1.2, the high irradiance and clearness index values are better modeled with version 5. These two effects are illustrated on Figure 26 for the site of Kassel. The Figures for all the sites are given in the annex, Figures a-14n to a-19n.

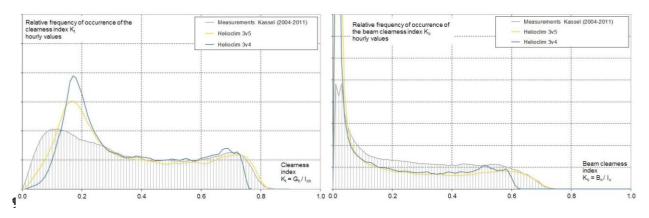


Figure 26 Frequency distribution of occurrence versus the clearness index for the site of Kassel.

8.3 Interannual variability

Beside the visual analysis of Figure a-20g and a-20b, it is interesting to compare the bias of the models with the interannual variability expressed by the standard deviation around the annual irradiation average for both the global and the beam components. The comparison results are given in Table IV. The blue columns represent the annual average for each site and the corresponding standard deviation over the reference period 2004-2010. The results are expressed as mean bias differences; if the *mbd* is less than one standard deviation *sd*, the cell background is represented in green. These *mbd* are highly variable from site to site and from model to model, even if the combined results for all sites are relatively good. On the last lines, the absolute bias and the standard deviation of the bias *bsd* is given for all models. These values express the spatial «smoothness» of the model.

From Table IV, the following points can be underlined for the global component:

- if version 4 has a lower overall mean bias, the absolute bias and the standard deviation of the bias are lower for version 5,
- considering the site by site results, half of the sites present a bias within ± one standard deviation
 of the interannual variability, 23% within ± two standard deviations, and 14% with a higher bias.
 The results are slightly better for version 5

and for the beam component:

- the average bias over all sites is relatively high, but as stated in previous sections, the clearness index distribution is better represented by version 5, especially for high values,
- version 4 gives slightly better results for all the annual indicators,
- the worst results arise for high latitude sites (size of the pixels view angles), and for dry climate sites (albedo determination difficulties, aerosol and clear sky model uncertainties),

 considering the site by site results, around half of the sites have a bias within ± one standard deviation of the interannual variability. The site to site and version to version comparison of the bias shows a high variability.

	Yearly total [kWh/m2] 2004-2010	standard deviation 2004-2010	PVGIS-CM SAF	WRDC (1981-1993)	RetScreen (1961-1990)	NASA-SSE (1983-2005)	MN 7 (1980-2000)	ESRA (1981-1990)	Satellight (1996-2000)	Helioclim-3 v4	Helioclim-3 v5	Yearly total [kWh/m2] 2004-2010	standard deviation 2004-2010	PVGIS-CM SAF	NASA-SSE (1983-2005)	MN 7 (1980-2000)	Satellight (1996-2000)	Helioclim-3 v4	Helioclim-3 v5
Sites	Yearly tot. 2004-2010	stand 2004-			Global i	rradiation,	annual m	ean bias di	fference			Yearly tota 2004-2010	standard c 2004-2010	Be	am irradia	ition, annu	al mean bi	as differen	ice
Almeria	1850	2.5%	3.2%		-8.1%	-8.1%	-3.0%		4.9%	4.8%	2.0%	2126	5.5%	7.5%	-3.8%	-11.1%	15.1%	11.8%	3.6%
Bratislava	1197	3.5%	1.4%	-0.7%	-0.6%	-2.7%	-0.1%	2.5%	-5.2%	-0.2%	1.6%	1191	7.4%	-1.3%	-4.0%	-7.5%	-11.9%	0.6%	6.9%
Cabauw	1085	2.3%	1.1%		-5.2%	-5.2%	-0.7%			-4.0%	-2.4%	908	4.7%	5-5%	2.7%	5.9%		12.7%	17.4%
Camborne	1121	3.6%	3.5%		1.5%	1.5%	-2.0%			-0.4%	1.2%	875	5.2%	20.9%	29.3%	15.8%		25.5%	31.4%
Carpentras	1587	2.1%	3.5%	-4.8%	-15.0%	-6.0%	-2.8%	-5.4%	0.4%	2.3%	2.3%	1884	4.1%	5.7%	0.4%	-10.1%	4.9%	2.9%	4.4%
Davos	1383	1.3%	-18.5%		-2.7%	-7.9%	2.1%	-2.9%	-17.5%	9.7%	5.6%	1420	8.4%	-38.5%	-8.0%	18.1%	-26.2%	25.8%	16.6%
Geneva	1282	2.3%	3.8%	-6.3%	0.1%	0.1%	-4.9%	-5.5%	-0.6%	-0.3%	5.7%	1274	3.3%	0.7%	4.3%	-9.8%	-0.9%	1.5%	19.6%
Kassel	1048	2.7%	0.6%		-5.6%	-5.6%	-5.8%	-6.6%	-5.9%	-4.7%	-1.4%	874	6.4%	-0.4%	1.0%	-7.9%	-5.1%	6.8%	17.0%
Lerwick	810	4.7%	-2.9%	-4-3%	9.2%	9.1%	-3.5%	-4.4%	-2.5%	3.4%	5-3%	580	13.3%	15.2%	55.5%	18.2%	0.8%	38.8%	46.4%
Lindenberg	1110	2.7%	0.5%	-2.9%	-2.9%	-8.9%	-3.0%	-11.5%	-3.6%	-3.5%	-3.8%	1026	9.6%	-1.0%	-8.1%	1.4%	-0.4%	2.9%	4-3%
Madrid	1697	4.9%	4.2%		-5.2%	-5.2%	-3.1%	-2.5%	1.7%	3.4%	5.2%	1798	5.2%	16.1%	10.0%	-0.8%	14.1%	16.3%	20.9%
Nantes	1271	3.4%	5.3%	-5.6%	-3.8%	-7.1%	-2.6%	-1.3%	-3.2%	-2.6%	-0.9%	1307	6.7%	2.7%	-12.1%	-9.6%	-8.8%	-3.5%	0.4%
Payerne	1278	2.2%	2.9%	-8.4%	-2.5%	0.4%	-1.8%	-8.3%	-2.8%	-5.6%	0.1%	1191	4.4%	5.5%	11.1%	5.9%	2.0%	-3.1%	14.8%
Sede Boqer	2114	1.2%	0.3%	0.5%	-6.7%	-3.9%	-4.0%			-7.1%	-5.7%	2382	3.6%		4.6%	-5.4%		-16.0%	-12.5%
Tamanrasset	2345	1.8%	-3.4%	0.8%	2.6%	-8.1%	0.9%			2.1%	2.3%	2355	4.0%		6.1%	18.1%		18.5%	19.1%
Toravere	981	3.8%	-0.7%		3.1%	3.1%	-0.1%		4.6%	2.4%	0.7%	1028	8.8%	-12.0%	8.4%	2.4%	7.2%	4.9%	2.2%
Valentia	1021	4.6%	8.6%	-3.9%	-4.8%	8.0%	-5-3%	-4.7%	-4.2%	-0.8%	0.7%	992	13.4%	2.9%	10.7%	-21.5%	-21.3%	-4.7%	0.4%
Vaulx-en-Velin	1304	4.4%	2.7%	-7.8%	-4.0%	-3.0%	-6.3%	-3.3%	0.4%	-0.5%	2.8%	1359	5.3%	-2.1%	-2.1%		-0.5%	-1.4%	8.0%
Wien	1175	2.7%	3.5%	-6.8%	-6.0%	-0.8%	1.0%	-7.0%	-1.4%	-2.1%	0.1%	1112	8.0%	-1.1%	2.9%	-3.1%	-2.5%	0.8%	8.7%
Zilani	1024	3.3%	-6.5%	-3.2%	2.5%	2.5%	-2.6%		6.0%	7.7%	1.6%	1000	9.1%	-13.0%	13.4%	-0.1%	20.5%	21.2%	5.7%
All sites	1334	2.8%	0.6%	-3.6%	-3.2%	-3.3%	-2.3%	-4.6%	-1.7%	0.2%	1.1%	1334	6.2%	0.9%	4.8%	0.0%	-0.2%	7.4%	10.7%
All sites absolute	bias		3.8%	4.0%	4.8%	5.0%	2.8%	4.9%	4.0%	3.5%	2.7%			8.5%	7.9%	9.1%	9.5%	10.8%	12.1%
Standard deviation	on of mbe		5.5%	4.6%	6.3%	6.2%	3.3%	5.5%	5.9%	4.6%	3.6%			13.7%	9.9%	12.0%	13.2%	14.9%	15.2%
	MBD	within one	standard	deviation				M	BD within t	wo standa	rd deviati	ons			MBD high	er than two	o standard	deviation	5

Table IV Results of the yearly validation and interannual variability analysis.

9. Conclusions

The first conclusion is that the quality control is a key point in any model validation. Even if the data are highly qualified by the organization in charge of the acquisition, uncertainties can remain in the data and influence the validation. The best case is when independent data such as aerosol optical depth are also available.

The conclusions of the present study are the following:

- for latitude from 20° to 60°, altitude from sea level to 1600 m and various climate, the hourly global irradiance is retrieved with a negligible bias and an average standard deviation around 20% for both versions of HelioClim-3 scheme. For the beam irradiance, the bias is around 6% to 9%, and the standard deviation around 47%,
- as expected, the main improvement from version 4 to version 5 comes from the clear sky model and the knowledge of the aerosol optical depth, better results are obtained with daily (our sub daily) turbidity instead of monthly climatic values,
- the intermediate sky conditions are more difficult to model: the type and altitude of the clouds are not easy to determine precisely,
- the snow cover has to be taken into account, especially in the alps region,
- a general pattern with the atmospheric aerosol load is visible for all sites. Even if the pattern is present for the two versions of HelioClim-3, it is less marked for the latest version. Some seasonal effects can be related to the aerosol variability during the year,

- the standard deviation is increasing with the latitude, i.e. the size of the pixels and the angle of view of the satellite,
- a peak of discrepancy in the frequency distribution is present for all the non-arid sites around $K_t = 0.15$ for both versions. On the other hand, version 5 presents a much better representation of high clearness index values,
- even if the overall results for the beam component are slightly worst for the HelioClim-3 v5, the frequency distribution are improved.

10. Acknowledgements

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					Hourly	/ values										Hourly	values										Hourly	values				
Global irradiance		۲	HelioClim-3	v4			F	lelioClim-3	v5		Beam irradiance			HelioClim-3	3v4		ronaes.	He	lioClim-3v	5		Diffuse irradiance		н	lelioClim-3	v4		Turues	н	elioClim-3	/5	
	Gh	nb	R	mbd	sd	Gh	nb	R	mbd	sd		Bn	nb	R	mbd	sd	Bn	nb	R	mbd	sd		Dh	nb	R	mbd	sd	Dh	nb	R	mbd	sd
Almeria 2004 - 2011	416	34772	0.981	5%	14%	416	34769	0.983	2%	13%	Almeria 2004 - 2011	473	34772	0.886	12%	34%	473	34769	0.904	4%	32%	Almeria 2004 - 2011	128	34772	0.800	-11%	49%	128	34769	0.841	-7%	44%
Bratislava 2004 - 2007	255	18120	0.971	0%	23%	257	17958	0.971	2%	24%	Bratislava 2004 - 2007	265	18120	0.895	-4%	48%	267	17958	0.903	2%	48%	Bratislava 2004 - 2007	113	18120	0.888	-4%	38%	114	17958	0.896	-7%	37%
Cabauw 2004 - 2013	253	36243	0.967	-4%	23%	253	36209	0.969	-3%	22%	Cabauw 2004 - 2013	217	36243	0.887	17%	57%	217	36209	0.901	14%	56%	Cabauw 2004 - 2013	138	36243	0.907	-22%	41%	138	36209	0.914	-19%	36%
Camborne 2004 - 2013	254	32920	0.971	0%	22%	254	32911	0.972	2%	22%	Camborne 2004 - 2013	204	32920	0.886	23%	63%	204	32911	0.895	30%	64%	Camborne 2004 - 2013	141	32920	0.897	-18%	41%	141	32911	0.894	-21%	41%
Carpentras 2004 - 2013	401	36075	0.985	0%	12%	400	36101	0.986	1%	11%	Carpentras 2004 - 2013	484	36075	0.882	1%	32%	483	36101	0.897	3%	30%	Carpentras 2004 - 2013	123	36075	0.851	-6%	44%	123	36101	0.857	-9%	43%
Davos 2004 - 2011	339	23924	0.933	9%	29%	339	23927	0.938	5%	28%	Davos 2004 - 2011	366	23924	0.789	17%	65%	366	23927	0.820	10%	61%	Davos 2004 - 2011	134	23924	0.748	-3%	59%	134	23927	0.779	0%	56%
Geneva 2004 - 2013	286	44421	0.975	-1%	20%	286	44389	0.976	6%	21%	Geneva 2004 - 2013	285	44421	0.915	2%	46%	285	44389	0.919	20%	47%	Geneva 2004 - 2013	121	44421	0.871	-6%	45%	121	44389	0.879	-14%	44%
Kassel 2004 - 2011	236	34177	0.964	-5%	26%	237	34162	0.966	-1%	25%	Kassel 2004 - 2011	197	34177	0.909	7%	57%	197	34162	0.916	17%	58%	Kassel 2004 - 2011	118	34177	0.900	-7%	38%	118	34162	0.909	-11%	37%
Kishinev 2004-2013	296	43100	0.971	2%	21%	297	43082	0.972	1%	21%	Kishinev 2004-2013	306	43100	0.897	7%	47%	306	43082	0.907	5%	45%	Kishinev 2004-2013	121	43100	0.862	-7%	42%	121	43082	0.870	-8%	40%
Lerwick 2004-2013	200	31517	0.864	3%	49%	200	31510	0.867	5%	49%	Lerwick 2004-2013	136	31517	0.660	46%	142%	136	31510	0.669	54%	148%	Lerwick 2004-2013	133	31517	0.824	-19%	49%	133	31510	0.814	-21%	50%
Lindenberg 2004-2010	298	10527	0.964	-5%	20%	299	10509	0.965	-4%	20%	Lindenberg 2004-2010	284	10527	0.874	2%	50%	285	10509	0.879	2%	49%	Lindenberg 2004-2010	147	10527	0.895	-14%	33%	147	10509	0.893	-15%	33%
Madrid 2004-2013	401	34445	0.982	3%	14%	404	34197	0.983	5%	14%	Madrid 2004-2013	447	34445	0.895	6%	34%	450	34197	0.914	12%	31%	Madrid 2004-2013	117	34445	0.815	4%	48%	117	34197	0.842	-3%	45%
Nantes 2004-2010	272	26956	0.978	-2%	18%	276	26519	0.978	-1%	18%	Nantes 2004-2010	270	26956	0.910	-1%	44%	273	26519	0.916	4%	43%	Nantes 2004-2010	130	26956	0.924	-9%	32%	132	26519	0.923	-12%	32%
Payerne 2004-2011	341	26119	0.962	-8%	20%	341	26093	0.964	-2%	20%	Payerne 2004-2011	329	26119	0.882	-6%	46%	329	26093	0.892	13%	46%	Payerne 2004-2011	151	26119	0.863	-14%	37%	151	26093	0.885	-21%	35%
Sede Boger 2004-2012	538	30366	0.979	-7%	11%	538	30366	0.982	-5%	10%	Sede Boger 2004-2012	622	30366	0.772	-17%	29%	622	30366	0.808	-14%	28%	Sede Boger 2004-2012	137	30366	0.638	10%	52%	137	30366	0.692	3%	49%
Skukuza 2004-2007	423	10865	0.899	8%	32%	423	10863	0.899	3%	31%	Skukuza 2004-2007	415	10865	0.670	19%	63%	415	10863	0.692	8%	60%	Skukuza 2004-2007	163	10865	0.766	-18%	47%	163	10863	0.815	-13%	42%
Tamanrasset 2004-2013	562	35657	0.978	0%	12%	562	35651	0.982	1%	11%	Tamanrasset 2004-2013	578	35657	0.749	13%	38%	579	35651	0.822	15%	33%	Tamanrasset 2004-2013	170	35657	0.680	-32%	62%	170	35651	0.796	-35%	56%
Toravere 2004 - 2013	255	37016	0.952	0%	26%	255	36989	0.957	-1%	25%	Toravere 2004 - 2013	268	37016	0.842	3%	62%	268	36989	0.865	0%	58%	Toravere 2004 - 2013	115	37016	0.859	-4%	39%	115	36989	0.871	-5%	37%
Valentia 2004-2013	219	45517	0.966	0%	25%	224	44399	0.967	2%	25%	Valentia 2004-2013	206	45517	0.887	-2%	59%	211	44399	0.899	4%	57%	Valentia 2004-2013	114	45517	0.920	-4%	33%	117	44399	0.919	-7%	33%
Vaulx-en-Velin 2004-2013	291	42612	0.974	1%	20%	294	42025	0.975	5%	20%	Vaulx-en-Velin 2004-2013	300	42612	0.914	2%	42%	303	42025	0.918	12%	43%	Vaulx-en-Velin 2004-2013	118	42612	0.879	0%	38%	119	42025	0.884	-6%	37%
Wien 2004-2013	266	41926	0.969	-4%	23%	266	41879	0.969	-1%	23%	Wien 2004-2013	245	41926	0.900	2%	51%	245	41879	0.907	11%	52%	Wien 2004-2013	127	41926	0.867	-12%	41%	127	41879	0.875	-16%	40%
Zilani 2004-2009	262	21260	0.952	9%	27%	263	21198	0.955	3%	25%	Zilani 2004-2009	245	21260	0.846	27%	68%	246	21198	0.863	12%	62%	Zilani 2004-2009	125	21260	0.825	-8%	42%	125	21198	0.862	-6%	37%
All sites	317	31753		0.0%	21%	319	31624		1.2%	20%	All sites	322	31753		6%	48%	323	31624		9%	46%	All sites	129	31753		-10%	45%	129	31624		-12%	43%
All sites absolute bias	517	51/55		3.1%	2170	315	51024		2.7%	20%	All sites absolute bias	322	31/33		9.4%	40%	323	51024		11.1%	40%	All sites absolute bias	125	51/55		10.9%	4370	129	51024		12.5%	4370
Standard dev. of the bias				4.4%											13.1%					13.7%												
Standard dev. of the bias				4.4%					3.4%		Standard dev. of the bias				13.1%					13.7%		Standard dev. of the bias				14.5%					16.2%	
					Hourly	values										Hourly	values										Hourly	values				
Standard dev. of the bias Global irradiance	Ch		HelioClim-3	v4				lelioClim-3	v5		Beam irradiance			HelioClim-3	3v4				lioClim-3v	5		Standard dev. of the bias	Dh		lelioClim-3	v4				elioClim-3	/5	
Global irradiance	Gh	nb	R	v4 mbd	sd	Gh	nb	R	v5 mbd	sd	Beam irradiance	Bn	nb	R	3v4 mbd	sd	Bn	nb	R	5 mbd	sd	Diffuse irradiance	Dh	nb	R	v4 mbd	sd	Dh	nb	R	/5 mbd	sd
Global irradiance	416	nb 34772	R 0.981	w4 mbd 19.5	sd 56.8	Gh 416	nb 34769	R 0.983	v5 mbd 7.2	54.3	Beam irradiance Almeria 2004 - 2011	473		R 0.886	8v4 mbd 55.1	sd 162.7	Bn 473	nb 34769	R 0.904	5 mbd 16.6	150.3	Diffuse irradiance	128	nb 34772	R 0.800	v4 mbd -13.7	sd 62.2	Dh 128	nb 34769	R 0.841	/5 mbd -8.7	56.7
Global irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007	416 255	nb 34772 18120	R 0.981 0.971	w4 mbd 19.5 0.7	sd 56.8 58.5	Gh 416 257	nb 34769 17958	R 0.983 0.971	v5 mbd 7.2 6.3	54.3 60.4	Beam irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007	473 265	nb 34772 18120	R 0.886 0.895	8v4 mbd 55.1 -10.4	sd 162.7 126.0	Bn 473 267	nb 34769 17958	R 0.904 0.903	5 mbd 16.6 4.9	150.3 128.5	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007	128 113	nb 34772 18120	R 0.800 0.888	v4 mbd -13.7 -4.8	sd 62.2 43.2	Dh 128 114	nb 34769 17958	R 0.841 0.896	/5 mbd -8.7 -8.5	56.7 41.8
Giobal irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013	416 255 253	nb 34772 18120 36243	R 0.981 0.971 0.967	iv4 mbd 19.5 0.7 -10.0	sd 56.8 58.5 57.5	Gh 416 257 253	nb 34769 17958 36209	R 0.983 0.971 0.969	v5 mbd 7.2 6.3 -6.8	54.3 60.4 55.7	Beam irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013	473 265 217	nb 34772 18120 36243	R 0.886 0.895 0.887	mbd 55.1 -10.4 36.9	sd 162.7 126.0 123.8	Bn 473 267 217	nb 34769 17958 36209	R 0.904 0.903 0.901	5 mbd 16.6 4.9 30.3	150.3 128.5 121.2	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013	128 113 138	nb 34772 18120 36243	R 0.800 0.888 0.907	v4 mbd -13.7 -4.8 -30.4	sd 62.2 43.2 57.0	Dh 128 114 138	nb 34769 17958 36209	R 0.841 0.896 0.914	/5 mbd -8.7 -8.5 -26.2	56.7 41.8 50.3
Global irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013	416 255 253 254	nb 34772 18120 36243 32920	R 0.981 0.971 0.967 0.971	mbd 19.5 0.7 -10.0 -0.1	sd 56.8 58.5 57.5 56.0	Gh 416 257 253 254	nb 34769 17958 36209 32911	R 0.983 0.971 0.969 0.972	v5 mbd 7.2 6.3 -6.8 4.0	54.3 60.4 55.7 55.3	Beam irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013	473 265 217 204	nb 34772 18120 36243 32920	R 0.886 0.895 0.887 0.886	mbd 55.1 -10.4 36.9 47.6	sd 162.7 126.0 123.8 129.1	Bn 473 267 217 204	nb 34769 17958 36209 32911	R 0.904 0.903 0.901 0.895	5 mbd 16.6 4.9 30.3 60.3	150.3 128.5 121.2 130.3	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013	128 113 138 141	nb 34772 18120 36243 32920	R 0.800 0.888 0.907 0.897	v4 -13.7 -4.8 -30.4 -25.1	sd 62.2 43.2 57.0 57.3	Dh 128 114 138 141	nb 34769 17958 36209 32911	R 0.841 0.896 0.914 0.894	/5 mbd -8.7 -8.5 -26.2 -29.2	56.7 41.8 50.3 57.6
Global irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013	416 255 253 254 401	nb 34772 18120 36243 32920 36075	R 0.981 0.971 0.967 0.971 0.985	mbd 19.5 0.7 -10.0 -0.1 1.8	sd 56.8 58.5 57.5 56.0 47.9	Gh 416 257 253 254 400	nb 34769 17958 36209 32911 36101	R 0.983 0.971 0.969 0.972 0.986	v5 mbd 7.2 6.3 -6.8 4.0 3.5	54.3 60.4 55.7 55.3 45.6	Beam irradiance Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013	473 265 217 204 484	nb 34772 18120 36243 32920 36075	R 0.886 0.895 0.887 0.886 0.882	mbd 55.1 -10.4 36.9 47.6 4.5	sd 162.7 126.0 123.8 129.1 153.8	Bn 473 267 217 204 483	nb 34769 17958 36209 32911 36101	R 0.904 0.903 0.901 0.895 0.897	5 mbd 16.6 4.9 30.3 60.3 12.8	150.3 128.5 121.2 130.3 145.7	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013	128 113 138 141 123	nb 34772 18120 36243 32920 36075	R 0.800 0.888 0.907 0.897 0.851	v4 -13.7 -4.8 -30.4 -25.1 -7.4	sd 62.2 43.2 57.0 57.3 54.1	Dh 128 114 138 141 123	nb 34769 17958 36209 32911 36101	R 0.841 0.896 0.914 0.894 0.857	/5 -8.7 -8.5 -26.2 -29.2 -10.8	56.7 41.8 50.3 57.6 52.2
Global irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011	416 255 253 254 401 339	nb 34772 18120 36243 32920 36075 23924	R 0.981 0.971 0.967 0.971 0.985 0.933	mbd 19.5 0.7 -10.0 -0.1 1.8 30.0	sd 56.8 58.5 57.5 56.0 47.9 98.5	Gh 416 257 253 254 400 339	nb 34769 17958 36209 32911 36101 23927	R 0.983 0.971 0.969 0.972 0.986 0.938	v5 mbd 7.2 6.3 -6.8 4.0 3.5 18.6	54.3 60.4 55.7 55.3 45.6 95.7	Beam irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011	473 265 217 204 484 366	nb 34772 18120 36243 32920 36075 23924	R 0.886 0.895 0.887 0.887 0.886 0.882 0.789	mbd 55.1 -10.4 36.9 47.6 4.5 63.8	sd 162.7 126.0 123.8 129.1 153.8 238.8	Bn 473 267 217 204 483 366	nb 34769 17958 36209 32911 36101 23927	R 0.904 0.903 0.901 0.895 0.897 0.820	5 mbd 16.6 4.9 30.3 60.3 12.8 36.2	150.3 128.5 121.2 130.3 145.7 223.4	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011	128 113 138 141 123 134	nb 34772 18120 36243 32920 36075 23924	R 0.800 0.888 0.907 0.897 0.851 0.748	v4 -13.7 -4.8 -30.4 -25.1 -7.4 -4.0	sd 62.2 43.2 57.0 57.3 54.1 79.1	Dh 128 114 138 141 123 134	nb 34769 17958 36209 32911 36101 23927	R 0.841 0.896 0.914 0.894 0.857 0.779	/5 -8.7 -8.5 -26.2 -29.2 -10.8 0.1	56.7 41.8 50.3 57.6 52.2 75.1
Global irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Geneva 2004 - 2013	416 255 253 254 401 339 286	nb 34772 18120 36243 32920 36075 23924 44421	R 0.981 0.971 0.967 0.971 0.985 0.933 0.975	w4 19.5 0.7 -10.0 -0.1 1.8 30.0 -3.0	sd 56.8 58.5 57.5 56.0 47.9 98.5 58.0	Gh 416 257 253 254 400 339 286	nb 34769 17958 36209 32911 36101 23927 44389	R 0.983 0.971 0.969 0.972 0.986 0.938 0.976	v5 mbd 7.2 6.3 -6.8 4.0 3.5 18.6 16.5	54.3 60.4 55.7 55.3 45.6 95.7 59.2	Beam irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2013	473 265 217 204 484 366 285	nb 34772 18120 36243 32920 36075	R 0.886 0.895 0.887 0.886 0.882 0.789 0.915	mbd 55.1 -10.4 36.9 47.6 4.5 63.8 4.6	sd 162.7 126.0 123.8 129.1 153.8 238.8 129.8	Bn 473 267 217 204 483 366 285	nb 34769 17958 36209 32911 36101 23927 44389	R 0.904 0.903 0.901 0.895 0.897 0.820 0.919	5 mbd 16.6 4.9 30.3 60.3 12.8 36.2 58.3	150.3 128.5 121.2 130.3 145.7 223.4 134.9	Diffuse irradiance Almeria 2004 - 2011 Bratisiava 2004 - 2013 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2013	128 113 138 141 123 134 121	nb 34772 18120 36243 32920 36075	R 0.800 0.888 0.907 0.897 0.851 0.748 0.871	v4 -13.7 -4.8 -30.4 -25.1 -7.4 -4.0 -6.8	sd 62.2 43.2 57.0 57.3 54.1 79.1 53.9	Dh 128 114 138 141 123 134 121	nb 34769 17958 36209 32911 36101 23927 44389	R 0.841 0.896 0.914 0.894 0.857 0.779 0.879	v5 mbd -8.7 -8.5 -26.2 -29.2 -10.8 0.1 -17.0	56.7 41.8 50.3 57.6 52.2 75.1 53.6
Global irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2013 Kassel 2004 - 2011	416 255 253 254 401 339 286 236	nb 34772 18120 36243 32920 36075 23924 44421 34177	R 0.981 0.971 0.967 0.971 0.985 0.933 0.975 0.964	w4 mbd 19.5 0.7 -10.0 -0.1 1.8 30.0 -3.0 -11.1	sd 56.8 58.5 57.5 56.0 47.9 98.5 58.0 61.0	Gh 416 257 253 254 400 339 286 237	nb 34769 17958 36209 32911 36101 23927 44389 34162	R 0.983 0.971 0.969 0.972 0.986 0.938 0.976 0.966	v5 mbd 7.2 6.3 -6.8 4.0 3.5 18.6 16.5 -2.9	54.3 60.4 55.7 55.3 45.6 95.7 59.2 59.2	Beam irradiance Almeria 2004 - 2011 Bratislava 2004 - 2013 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2011 Kassel 2004 - 2011	473 265 217 204 484 366 285 197	nb 34772 18120 36243 32920 36075 23924 44421 34177	R 0.886 0.895 0.887 0.886 0.882 0.789 0.915 0.909	mbd 55.1 -10.4 36.9 47.6 4.5 63.8 4.6 14.2	sd 162.7 126.0 123.8 129.1 153.8 238.8 129.8 112.8	Bn 473 267 217 204 483 366 285 197	nb 34769 17958 36209 32911 36101 23927 44389 34162	R 0.904 0.903 0.901 0.895 0.897 0.820 0.919 0.916	mbd 16.6 4.9 30.3 60.3 12.8 36.2 58.3 34.0	150.3 128.5 121.2 130.3 145.7 223.4 134.9 114.0	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2013 Kassel 2004 - 2011	128 113 138 141 123 134 121 118	nb 34772 18120 36243 32920 36075 23924 44421 34177	R 0.800 0.888 0.907 0.897 0.851 0.748 0.871 0.900	v4 mbd -13.7 -4.8 -30.4 -25.1 -7.4 -4.0 -6.8 -8.4	sd 62.2 43.2 57.0 57.3 54.1 79.1 53.9 44.3	Dh 128 114 138 141 123 134 121 118	nb 34769 17958 36209 32911 36101 23927 44389 34162	R 0.841 0.896 0.914 0.894 0.857 0.779 0.879 0.879 0.909	/5 mbd -8.7 -8.5 -26.2 -29.2 -10.8 0.1 -17.0 -12.8	56.7 41.8 50.3 57.6 52.2 75.1 53.6 43.1
Global irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Campentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2013 Kishinev 2004 - 2013 Kishinev 2004 - 2013	416 255 253 254 401 339 286 236 236 296	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100	R 0.981 0.971 0.967 0.971 0.985 0.933 0.975 0.964 0.971	mbd 19.5 0.7 -10.0 -0.1 1.8 30.0 -3.0 -11.1 5.9	sd 56.8 58.5 57.5 56.0 47.9 98.5 58.0 61.0 62.5	Gh 416 257 253 254 400 339 286 237 297	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082	R 0.983 0.971 0.969 0.972 0.986 0.938 0.976 0.966 0.972	v5 mbd 7.2 6.3 -6.8 4.0 3.5 18.6 16.5 -2.9 3.6	54.3 60.4 55.7 55.3 45.6 95.7 59.2 59.2 59.6 61.2	Beam irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2011 Kassel 2004 - 2011 Kishinev 2004 - 2013	473 265 217 204 484 366 285 197 306	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100	R 0.886 0.895 0.887 0.886 0.882 0.789 0.915 0.909 0.897	mbd 55.1 -10.4 36.9 47.6 4.5 63.8 4.6 14.2 20.1	sd 162.7 126.0 123.8 129.1 153.8 238.8 129.8 112.8 142.8	Bn 473 267 217 204 483 366 285 197 306	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082	R 0.904 0.903 0.901 0.895 0.897 0.820 0.919 0.916 0.907	5 mbd 16.6 4.9 30.3 60.3 12.8 36.2 58.3 34.0 15.1	150.3 128.5 121.2 130.3 145.7 223.4 134.9 114.0 137.4	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2013 Kassel 2004 - 2011 Kishinev 2004-2013	128 113 138 141 123 134 121 118 121	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100	R 0.800 0.888 0.907 0.897 0.851 0.748 0.871 0.900 0.862	v4 -13.7 -4.8 -30.4 -25.1 -7.4 -4.0 -6.8 -8.4 -8.1	sd 62.2 43.2 57.0 57.3 54.1 79.1 53.9 44.3 50.4	Dh 128 114 138 141 123 134 121 118 121	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082	R 0.841 0.896 0.914 0.894 0.894 0.857 0.779 0.879 0.909 0.870	/5 mbd -8.7 -8.5 -26.2 -29.2 -10.8 0.1 -17.0 -12.8 -9.7	56.7 41.8 50.3 57.6 52.2 75.1 53.6 43.1 48.6
Global irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2011 Kassel 2004 - 2011 Kishinev 2004 - 2013 Lerwick 2004 - 2013	416 255 253 254 401 339 286 236 296 200	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517	R 0.981 0.971 0.967 0.971 0.985 0.933 0.975 0.964 0.971 0.864	w4 mbd 19.5 0.7 -10.0 -0.1 1.8 30.0 -3.0 -11.1 5.9 6.8	sd 56.8 58.5 57.5 56.0 47.9 98.5 58.0 61.0 62.5 97.6	Gh 416 257 253 254 400 339 286 237 297 200	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082 31510	R 0.983 0.971 0.969 0.972 0.986 0.938 0.976 0.966 0.972 0.867	v5 mbd 7.2 6.3 -6.8 4.0 3.5 18.6 16.5 -2.9 3.6 10.2	54.3 60.4 55.7 55.3 45.6 95.7 59.2 59.6 61.2 98.4	Beam irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Gaves 2004 - 2013 Kassel 2004 - 2013 Kishinev 2004-2013 Lerwick 2004-2013	473 265 217 204 484 366 285 197 306 136	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517	R 0.886 0.895 0.887 0.886 0.882 0.789 0.915 0.909 0.897 0.660	mbd 55.1 -10.4 36.9 47.6 4.5 63.8 4.6 14.2 20.1 61.8	sd 162.7 126.0 123.8 129.1 153.8 238.8 129.8 112.8 142.8 193.0	Bn 473 267 217 204 483 366 285 197 306 136	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082 31510	R 0.904 0.903 0.901 0.895 0.897 0.820 0.919 0.916 0.907 0.669	5 mbd 16.6 4.9 30.3 60.3 12.8 36.2 58.3 34.0 15.1 72.5	150.3 128.5 121.2 130.3 145.7 223.4 134.9 114.0 137.4 200.7	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2011 Kassel 2004 - 2013 Lerwick 2004 - 2013	128 113 138 141 123 134 121 118 121 133	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517	R 0.800 0.888 0.907 0.897 0.851 0.748 0.871 0.900 0.862 0.824	v4 -13.7 -4.8 -30.4 -25.1 -7.4 -4.0 -6.8 -8.4 -8.1 -25.3	sd 62.2 43.2 57.0 57.3 54.1 79.1 53.9 44.3 50.4 65.1	Dh 128 114 138 141 123 134 121 118 121 133	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082 31510	R 0.841 0.896 0.914 0.894 0.857 0.779 0.879 0.909 0.870 0.870 0.814	/5 mbd -8.7 -8.5 -26.2 -29.2 -10.8 0.1 -17.0 -12.8 -9.7 -28.5	56.7 41.8 50.3 57.6 52.2 75.1 53.6 43.1 48.6 66.1
Global irradiance Almeria 2004 - 2011 Bratislava 2004 - 2013 Carborne 2004 - 2013 Carpentras 2004 - 2013 Gareva 2004 - 2013 Geneva 2004 - 2013 Kassel 2004 - 2013 Kishinev 2004 - 2013 Lindenberg 2004 - 2010	416 255 253 254 401 339 286 236 236 296 200 298	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527	R 0.981 0.971 0.967 0.971 0.985 0.933 0.975 0.964 0.971 0.864 0.964	w4 mbd 19.5 0.7 -10.0 -0.1 1.8 30.0 -3.0 -11.1 5.9 6.8 -13.9	sd 56.8 58.5 57.5 56.0 47.9 98.5 58.0 61.0 62.5 97.6 60.4	Gh 416 257 253 254 400 339 286 237 297 200 299	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082 31510 10509	R 0.983 0.971 0.969 0.972 0.986 0.938 0.976 0.966 0.972 0.867 0.965	v5 mbd 7.2 6.3 -6.8 4.0 3.5 18.6 16.5 -2.9 3.6 10.2 -13.4	54.3 60.4 55.7 55.3 45.6 95.7 59.2 59.6 61.2 98.4 59.3	Beam irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2013 Kashel 2004 - 2013 Lerwick 2004 - 2013 Lindenberg 2004 - 2013	473 265 217 204 484 366 285 197 306 136 284	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527	R 0.886 0.895 0.887 0.886 0.882 0.789 0.915 0.909 0.897 0.660 0.874	mbd 55.1 -10.4 36.9 47.6 4.5 63.8 4.6 14.2 20.1 61.8 4.6	sd 162.7 126.0 123.8 129.1 153.8 238.8 129.8 112.8 142.8 193.0 141.8	Bn 473 267 217 204 483 366 285 197 306 136 285	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082 31510 10509	R 0.904 0.903 0.901 0.895 0.897 0.820 0.919 0.916 0.907 0.669 0.879	5 mbd 16.6 4.9 30.3 60.3 12.8 36.2 58.3 34.0 15.1 72.5 5.4	150.3 128.5 121.2 130.3 145.7 223.4 134.9 114.0 137.4 200.7 140.6	Diffuse irradiance Almeria 2004 - 2011 Bratisiava 2004 - 2017 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Ganeva 2004 - 2011 Geneva 2004 - 2013 Kassel 2004 - 2013 Lindenberg 2004-2013	128 113 138 141 123 134 121 118 121 133 147	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527	R 0.800 0.888 0.907 0.897 0.851 0.748 0.871 0.900 0.862 0.824 0.895	v4 mbd -13.7 -30.4 -25.1 -7.4 -4.0 -6.8 -8.4 -8.1 -25.3 -21.0	sd 62.2 43.2 57.0 57.3 54.1 79.1 53.9 44.3 50.4 65.1 48.7	Dh 128 114 138 141 123 134 121 118 121 133 147	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082 31510 10509	R 0.841 0.896 0.914 0.894 0.857 0.779 0.879 0.879 0.909 0.870 0.814 0.893	r5 mbd -8.7 -8.5 -26.2 -29.2 -10.8 0.1 -17.0 -12.8 -9.7 -28.5 -22.5	56.7 41.8 50.3 57.6 52.2 75.1 53.6 43.1 48.6 66.1 48.3
Global irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Camporns 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2013 Kishinev 2004 - 2013 Lerwick 2004 - 2013 Lindenberg 2004 - 2013 Madrid 2004 - 2013	416 255 253 254 401 339 286 236 296 200 298 401	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527 34445	R 0.981 0.971 0.967 0.971 0.985 0.933 0.975 0.964 0.971 0.864 0.964 0.964	w4 mbd 19.5 0.7 -10.0 -0.1 1.8 30.0 -3.0 -11.1 5.9 6.8 -13.9 11.3	sd 56.8 58.5 57.5 56.0 47.9 98.5 58.0 61.0 62.5 97.6 60.4 55.8	Gh 416 257 253 254 400 339 286 237 297 200 299 404	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082 31510 10509 34197	R 0.983 0.971 0.969 0.972 0.986 0.938 0.976 0.966 0.972 0.867 0.965 0.983	v5 mbd 7.2 6.3 -6.8 4.0 3.5 18.6 16.5 -2.9 3.6 10.2 -13.4 20.1	54.3 60.4 55.7 55.3 45.6 95.7 59.2 59.6 61.2 98.4 59.3 54.9	Beam irradiance Almeria 2004 - 2011 Bratislava 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2013 Kassel 2004 - 2013 Lierwick 2004 - 2013 Lindenberg 2004 - 2013 Lindenberg 2004 - 2013 Madrid 2004 - 2013	473 265 217 204 484 366 285 197 306 136 284 447	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527 34445	R 0.886 0.895 0.887 0.886 0.882 0.789 0.915 0.909 0.897 0.660 0.874 0.895	mbd 55.1 -10.4 36.9 47.6 4.5 63.8 4.6 14.2 20.1 61.8 4.6 28.4	sd 162.7 126.0 123.8 129.1 153.8 238.8 129.8 112.8 142.8 193.0 141.8 152.7	Bn 473 267 217 204 483 366 285 197 306 136 285 450	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082 31510 10509 34197	R 0.904 0.903 0.901 0.895 0.897 0.820 0.919 0.916 0.907 0.669 0.879 0.914	5 mbd 16.6 4.9 30.3 60.3 12.8 36.2 58.3 34.0 15.1 72.5 5.4 55.0	150.3 128.5 121.2 130.3 145.7 223.4 134.9 114.0 137.4 200.7 140.6 140.4	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Geneva 2004 - 2013 Kassel 2004 - 2013 Lerwick 2004 - 2013 Lindenberg 2004 - 2013 Madrid 2004 - 2010	128 113 138 141 123 134 121 118 121 133 147 117	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527 34445	R 0.800 0.888 0.907 0.897 0.851 0.748 0.871 0.900 0.862 0.824 0.895 0.815	v4 mbd -13.7 -4.8 -30.4 -25.1 -7.4 -7.4 -6.8 -8.4 -8.1 -25.3 -21.0 4.4	sd 62.2 43.2 57.0 57.3 54.1 79.1 53.9 44.3 50.4 65.1 48.7 56.0	Dh 128 114 138 141 123 134 121 118 121 133 147 117	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082 31510 10509 34197	R 0.841 0.896 0.914 0.894 0.857 0.779 0.879 0.909 0.870 0.814 0.893 0.842	r5 mbd -8.7 -26.2 -29.2 -29.2 -10.8 0.1 -17.0 -12.8 -9.7 -28.5 -22.5 -3.3	56.7 41.8 50.3 57.6 52.2 75.1 53.6 43.1 48.6 66.1 48.3 52.7
Global irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2013 Kassel 2004 - 2011 Kishinev 2004 - 2013 Lindenberg 2004 - 2013 Lindenberg 2004 - 2013 Nantes 2004 - 2013	416 255 253 254 401 339 286 236 296 200 298 401 272	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527 34445 26956	R 0.981 0.971 0.967 0.971 0.985 0.933 0.975 0.964 0.971 0.864 0.964 0.971	iv4 mbd 19.5 0.7 -10.0 -0.1 1.8 30.0 -3.0 -11.1 5.9 6.8 -13.9 11.3 -6.4	sd 56.8 58.5 57.5 56.0 47.9 98.5 58.0 61.0 62.5 97.6 60.4 55.8 50.0	Gh 416 257 253 254 400 339 286 237 297 200 299 404 276	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082 31510 10509 34197 26519	R 0.983 0.971 0.969 0.972 0.986 0.938 0.976 0.966 0.972 0.867 0.965 0.983 0.978	v5 mbd 7.2 6.3 -6.8 4.0 3.5 18.6 16.5 -2.9 3.6 10.2 -13.4 20.1 -2.2	54.3 60.4 55.7 55.3 45.6 95.7 59.2 59.6 61.2 98.4 59.3 54.9 49.6	Beam irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Kassel 2004 - 2013 Kishinev 2004 - 2013 Lindenberg 2004 - 2013 Lindenberg 2004 - 2013 Madrid 2004 - 2013 Jantes 2004 - 2013	473 265 217 204 484 366 285 197 306 136 284 447 270	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527 34445 26956	R 0.886 0.895 0.886 0.895 0.887 0.886 0.887 0.915 0.909 0.897 0.660 0.874 0.895 0.910	mbd 55.1 -10.4 36.9 47.6 4.5 63.8 4.6 14.2 20.1 61.8 4.6 28.4 -1.9	sd 162.7 126.0 123.8 129.1 153.8 238.8 129.8 112.8 142.8 193.0 141.8 152.7 117.8	Bn 473 267 217 204 483 366 285 197 306 136 285 450 273	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082 31510 10509 34197 26519	R 0.904 0.903 0.901 0.895 0.897 0.820 0.919 0.916 0.907 0.669 0.879 0.914 0.916	5 mbd 16.6 4.9 30.3 60.3 12.8 36.2 58.3 34.0 15.1 72.5 5.4 55.0 10.9	150.3 128.5 121.2 130.3 145.7 223.4 134.9 114.0 137.4 200.7 140.6 140.4 118.3	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2013 Kassel 2004 - 2011 Kishinev 2004 - 2013 Lerwick 2004 - 2013 Lindenberg 2004 - 2010 Nantes 2004 - 2010	128 113 138 141 123 134 121 118 121 133 147 117 130	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527 34445 26956	R 0.800 0.888 0.907 0.851 0.748 0.871 0.900 0.862 0.824 0.895 0.815 0.924	v4 mbd -13.7 -4.8 -30.4 -25.1 -7.4 -4.0 -6.8 -8.4 -8.1 -25.3 -21.0 4.4 -12.3	sd 62.2 43.2 57.0 57.3 54.1 79.1 53.9 44.3 50.4 65.1 48.7 56.0 41.6	Dh 128 114 138 141 123 134 121 133 147 117 132	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082 31510 10509 34197 26519	R 0.841 0.896 0.914 0.894 0.857 0.779 0.879 0.909 0.870 0.814 0.893 0.842 0.923	/5 mbd -8.7 -26.2 -29.2 -10.8 0.1 -17.0 -12.8 -9.7 -28.5 -22.5 -3.3 -16.4	56.7 41.8 50.3 57.6 52.2 75.1 53.6 43.1 48.6 66.1 48.3 52.7 41.5
Global Irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Geneva 2004 - 2011 Geneva 2004 - 2013 Kassel 2004 - 2013 Lerwick 2004 - 2013 Lindenberg 2004 - 2010 Madrid 2004 - 2010 Payerne 2004 - 2011	416 255 253 254 401 339 286 236 296 200 298 401 272 341	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527 34445 26956 26119	R 0.981 0.971 0.967 0.971 0.985 0.933 0.975 0.964 0.971 0.864 0.964 0.971 0.864 0.964 0.971 0.864 0.964 0.978 0.962	mbd 19.5 0.7 -10.0 -0.1 1.8 30.0 -3.0 -11.1 5.9 6.8 -13.9 11.3 -6.4 -28.4	sd 56.8 58.5 57.5 56.0 47.9 98.5 58.0 61.0 62.5 97.6 60.4 55.8 50.0 69.5	Gh 416 257 253 254 400 339 286 237 297 200 299 404 276 341	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082 43082 31510 10509 34197 26519 26093	R 0.983 0.971 0.969 0.972 0.986 0.938 0.976 0.966 0.972 0.867 0.965 0.983 0.978 0.964	v5 mbd 7.2 6.3 -6.8 4.0 3.5 18.6 16.5 -2.9 3.6 10.2 -13.4 20.1 -2.2 -5.4	54.3 60.4 55.7 55.3 45.6 95.7 59.2 59.6 61.2 98.4 59.3 54.9 49.6 69.6	Beam irradiance Almeria 2004 - 2011 Bratislava 2004 - 2013 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2013 Kassel 2004 - 2013 Kishinev 2004-2013 Lerwick 2004-2013 Underbeirg 2004-2013 Nantes 2004-2010 Payerne 2004-2011	473 265 217 204 484 366 285 197 306 136 284 447 270 329	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527 34445 26956 26119	R 0.886 0.895 0.887 0.886 0.895 0.887 0.886 0.895 0.915 0.909 0.897 0.660 0.874 0.895 0.910 0.882	mbd 55.1 -10.4 36.9 47.6 4.5 63.8 4.6 14.2 20.1 61.8 4.6 28.4 -1.9 -19.4	sd 162.7 126.0 123.8 129.1 153.8 238.8 129.8 112.8 142.8 193.0 141.8 152.7 117.8 151.6	Bn 473 267 217 204 483 366 285 197 306 136 285 450 273 329	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082 31510 10509 34197 26519 26093	R 0.904 0.903 0.901 0.895 0.897 0.820 0.919 0.916 0.907 0.669 0.879 0.914 0.916 0.892	mbd 16.6 4.9 30.3 60.3 12.8 36.2 58.3 34.0 15.1 72.5 5.4 55.0 10.9 42.6	150.3 128.5 121.2 130.3 145.7 223.4 134.9 114.0 137.4 200.7 140.6 140.4 118.3 152.4	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2013 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Ganeva 2004 - 2011 Geneva 2004 - 2011 Kishinev 2004 - 2013 Lierwick 2004 - 2013 Lindenberg 2004 - 2010 Madrid 2004 - 2010 Payerne 2004 - 2011	128 113 138 141 123 134 121 118 121 133 147 117 130 151	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527 34445 26956 26119	R 0.800 0.888 0.907 0.851 0.748 0.871 0.900 0.862 0.824 0.895 0.815 0.924 0.863	v4 mbd -13.7 -4.8 -30.4 -25.1 -7.4 -4.0 -6.8 -8.4 -8.1 -25.3 -21.0 4.4 -12.3 -20.9	sd 62.2 43.2 57.0 57.3 54.1 79.1 53.9 44.3 50.4 65.1 48.7 56.0 41.6 56.1	Dh 128 114 138 141 123 134 121 133 147 117 132 151	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082 31510 10509 34197 26519 26093	R 0.841 0.896 0.914 0.857 0.779 0.879 0.909 0.870 0.814 0.893 0.842 0.923 0.885	/5 mbd -8.7 -26.2 -29.2 -10.8 0.1 -17.0 -12.8 -9.7 -28.5 -22.5 -3.3 -16.4 -32.3	56.7 41.8 50.3 57.6 52.2 75.1 53.6 43.1 48.6 66.1 48.3 52.7 41.5 53.5
Global irradiance Almeria 2004 - 2011 Bratislava 2004 - 2013 Cabauw 2004 - 2013 Camborne 2004 - 2013 Campentras 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2013 Kishinev 2004 - 2013 Kishinev 2004 - 2013 Linedheigr 2004 - 2010 Madrid 2004 - 2013 Nantes 2004 - 2010 Payerne 2004 - 2011 Sede Boqer 2004 - 2012	416 255 253 254 401 339 286 236 296 200 298 401 272 341 538	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527 34445 26956 26119 30366	R 0.981 0.971 0.967 0.971 0.985 0.933 0.975 0.964 0.982 0.978 0.962 0.979	mbd 19.5 0.7 -10.0 -0.1 1.8 30.0 -3.0 -11.1 5.9 6.8 -13.9 11.3 -6.4 -28.4 -35.2	sd 56.8 58.5 57.5 56.0 47.9 98.5 58.0 61.0 62.5 97.6 60.4 55.8 50.0 69.5 59.2	Gh 416 257 253 254 400 339 286 237 297 200 299 404 276 341 538	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082 31510 10509 34197 26519 26093 30366	R 0.983 0.971 0.969 0.972 0.986 0.938 0.976 0.966 0.972 0.867 0.965 0.983 0.978 0.964 0.964 0.982	v5 mbd 7,2 6,3 -6,8 4,0 3,5 18,6 16,5 -2,9 3,6 10,2 -13,4 20,1 -2,2 -5,4 -25,4	54.3 60.4 55.7 55.3 45.6 95.7 59.2 59.6 61.2 98.4 59.3 54.9 49.6 69.6 56.2	Beam irradiance Almeria 2004 - 2011 Bratislava 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Geneva 2004 - 2013 Lerwick 2004 - 2013 Lerwick 2004 - 2013 Lerwick 2004 - 2013 Judy 2014 - 2013 Judy 2014 - 2013 Judy 2004 - 2013 Judy 2004 - 2013 Judy 2004 - 2013 Judy 2004 - 2013 Payerne 2004 - 2011 Sede Boger 2004 - 2012	473 265 217 204 484 366 285 197 306 136 284 447 270 329 622	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527 34445 26956 26119 30366	R 0.886 0.895 0.887 0.886 0.897 0.915 0.909 0.897 0.660 0.874 0.895 0.910 0.882 0.772	mbd 55.1 -10.4 36.9 47.6 4.5 63.8 4.6 14.2 20.1 61.8 4.6 28.4 -1.9 -19.4 -108.5	sd 162.7 126.0 123.8 129.1 153.8 238.8 129.8 112.8 142.8 193.0 141.8 152.7 117.8 151.6 180.9	Bn 473 267 217 204 483 366 285 197 306 136 285 450 273 329 622	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082 31510 10509 34197 26519 26093 30366	R 0.904 0.903 0.901 0.895 0.897 0.820 0.919 0.916 0.907 0.669 0.879 0.914 0.916 0.892 0.808	5 mbd 16.6 4.9 30.3 60.3 12.8 36.2 58.3 34.0 15.1 72.5 5.4 5.4 55.0 10.9 42.6 -86.2	150.3 128.5 121.2 130.3 145.7 223.4 134.9 114.0 137.4 200.7 140.6 140.4 118.3 152.4 174.0	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Kishinev 2004 - 2013 Kishinev 2004 - 2013 Lerwick 2004 - 2013 Lindenberg 2004 - 2010 Madrid 2004 - 2013 Nantes 2004 - 2010 Payerne 2004 - 2011 Sede Boqer 2004 - 2012	128 113 138 141 123 134 121 118 121 133 147 117 130 151 137	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527 34445 26956 26119 30366	R 0.800 0.888 0.907 0.851 0.748 0.871 0.900 0.862 0.824 0.895 0.815 0.924 0.863 0.638	v4 mbd -13.7 -4.8 -30.4 -25.1 -7.4 -4.0 -6.8 -8.4 -8.1 -25.3 -21.0 4.4 -12.3 -20.9 13.4	sd 62.2 43.2 57.0 57.3 54.1 79.1 53.9 44.3 50.4 65.1 48.7 56.0 41.6 56.1 71.1	Dh 128 114 138 141 123 134 121 118 121 133 147 117 132 151 137	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082 31510 10509 34197 26519 26093 30366	R 0.841 0.896 0.914 0.857 0.779 0.879 0.909 0.870 0.870 0.814 0.893 0.842 0.923 0.885 0.692	r5 mbd -8.7 -8.5 -26.2 -29.2 -10.8 0.1 -17.0 -12.8 -9.7 -28.5 -22.5 -3.3 -16.4 -32.3 4.7	56.7 41.8 50.3 57.6 52.2 75.1 53.6 43.1 48.6 66.1 48.3 52.7 41.5 53.5 67.3
Global irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborw 2004 - 2013 Camborw 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2011 Kishinev 2004 - 2013 Lindenberg 2004 - 2011 Kishinev 2004 - 2013 Nantes 2004 - 2010 Payerne 2004 - 2011 Skukuza 2004 - 2007	416 255 253 254 401 339 286 236 296 200 298 401 272 341 538 423	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527 34445 26956 26119 30366 10865	R 0.981 0.971 0.967 0.973 0.985 0.933 0.975 0.964 0.971 0.864 0.972 0.964 0.971 0.864 0.972 0.978 0.979 0.899	mbd 19.5 0.7 -10.0 -0.1 1.8 30.0 -3.0 -11.1 5.9 6.8 -13.9 11.3 -6.4 -28.4 -35.2 31.9	sd 56.8 58.5 56.0 47.9 98.5 58.0 61.0 62.5 97.6 60.4 55.8 50.0 69.5 59.2 133.7	Gh 416 257 253 254 400 339 286 237 297 200 299 404 276 341 538 423	nb 34769 17958 36209 32911 23927 44389 34162 43082 31510 10509 34197 26519 26093 30366 10863	R 0.983 0.971 0.969 0.972 0.986 0.938 0.976 0.966 0.972 0.867 0.965 0.983 0.978 0.964 0.982 0.989	v5 mbd 7.2 6.3 -6.8 4.0 3.5 18.6 16.5 -2.9 3.6 10.2 -13.4 20.1 -2.2 -5.4 -25.4 12.4	54.3 60.4 55.7 55.3 45.6 95.7 59.2 59.6 61.2 98.4 59.3 54.9 49.6 69.6 56.2 131.7	Beam irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabawa 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Kassel 2004 - 2013 Lindenberg 2004-2013 Lindenberg 2004-2013 Madrid 2004-2013 Nantes 2004-2013 Sede Boger 2004-2013 Sede Boger 2004-2012 Skukuza 2004-2012	473 265 217 204 484 366 285 197 306 136 284 447 270 329 622 415	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527 34445 26956 26119 30366 10865	R 0.886 0.895 0.887 0.886 0.895 0.915 0.909 0.897 0.660 0.874 0.895 0.910 0.882 0.772 0.670	mbd 55.1 -10.4 36.9 47.6 4.5 63.8 4.6 14.2 20.1 61.8 4.6 28.4 -1.9 -19.4 -108.5 77.3	sd 162.7 126.0 123.8 129.1 153.8 129.8 112.8 142.8 193.0 141.8 152.7 117.8 151.6 180.9 260.2	Bn 473 267 217 204 483 366 285 197 306 136 285 450 273 329 622 415	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082 43082 31510 10509 34197 26519 26093 30366 10863	R 0.904 0.903 0.901 0.895 0.897 0.820 0.919 0.910 0.907 0.669 0.879 0.914 0.916 0.892 0.808 0.692	5 mbd 16.6 4.9 30.3 60.3 12.8 36.2 58.3 36.2 58.3 34.0 15.1 72.5 5.4 55.0 10.9 42.6 -86.2 31.1	150.3 128.5 121.2 130.3 145.7 223.4 134.9 114.0 137.4 200.7 140.6 140.4 118.3 152.4 174.0 250.9	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Camborne 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2011 Kishinev 2004 - 2013 Lindenberg 2004 - 2011 Kishinev 2004 - 2013 Nantes 2004 - 2010 Payerne 2004 - 2011 Sede Boger 2004 - 2012 Skukuza 2004 - 2007	128 113 138 141 123 134 121 118 121 133 147 117 130 151 137 163	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527 34445 26956 26119 30366 10865	R 0.800 0.888 0.907 0.897 0.851 0.748 0.871 0.900 0.862 0.824 0.895 0.815 0.924 0.863 0.638 0.638 0.766	v4 mbd -13.7 -4.8 -30.4 -25.1 -7.4 -6.8 -8.4 -8.1 -25.3 -21.0 4.4 -12.3 -20.9 13.4 -28.6	sd 62.2 43.2 57.0 57.3 54.1 79.1 53.9 44.3 50.4 65.1 48.7 56.0 41.6 56.1 71.1 76.1	Dh 128 114 138 141 123 134 121 118 121 133 147 117 132 151 137 163	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082 31510 10509 34197 26519 26093 30366 10863	R 0.841 0.896 0.914 0.857 0.779 0.879 0.879 0.870 0.814 0.893 0.842 0.893 0.842 0.923 0.845 0.692 0.815	nbd -8.7 -26.2 -29.2 -10.8 0.1 -17.0 -12.8 -9.7 -28.5 -22.5 -3.3 -16.4 -32.3 4.7 -21.9	56.7 41.8 50.3 57.6 52.2 75.1 53.6 43.1 48.6 66.1 48.3 52.7 41.5 53.5 67.3 68.7
Global Irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Kassel 2004 - 2013 Lindenberg 2004 - 2013 Lindenberg 2004 - 2013 Madrid 2004 - 2013 Nantes 2004 - 2010 Payerne 2004 - 2010 Payerne 2004 - 2010 Sede Boqer 2004 - 2010 Tamanrasset 2004 - 2007 Tamanrasset 2004 - 2013	416 255 253 254 401 339 286 236 296 200 298 401 272 341 538 423 562	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527 34445 26956 26119 30366 10865 35657	R 0.981 0.971 0.967 0.971 0.985 0.933 0.975 0.964 0.971 0.864 0.964 0.964 0.964 0.964 0.964 0.964 0.964 0.964 0.964 0.964 0.964 0.964 0.978	mbd 19.5 0.7 -10.0 -0.1 1.8 30.0 -3.0 -11.1 5.9 6.8 -13.9 11.3 -6.4 -28.4 -35.2 31.9 -0.5	sd 56.8 58.5 57.6 98.5 58.0 61.0 62.5 97.6 60.4 55.8 50.0 69.5 59.2 133.7 69.0	Gh 416 257 253 254 400 339 286 237 297 200 299 404 276 341 538 423 562	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082 31510 10509 34197 26509 30366 10863 30366	R 0.983 0.971 0.969 0.972 0.986 0.976 0.966 0.972 0.867 0.965 0.983 0.976 0.965 0.983 0.976 0.964 0.982 0.982	w5 mbd 7.2 6.3 -6.8 4.0 3.5 18.6 16.5 -2.9 3.6 10.2 -13.4 20.1 -2.2 -5.4 -25.4 12.4 3.9	54.3 60.4 55.7 55.3 45.6 95.7 59.2 59.6 61.2 98.4 59.3 54.9 49.6 69.6 56.2 131.7 62.7	Beam irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Davos 2004 - 2013 Beave 2004 - 2013 Kassel 2004 - 2013 Kishinev 2004 - 2013 Lindenberg 2004 - 2013 Nather 2004 - 2013 Nather 2004 - 2013 Sede Boger 2004 - 2013 Sede Boger 2004 - 2011 Sekukura 2004 - 2007 Tamanrasset 2004 - 2013	473 265 217 204 484 366 285 197 306 136 284 447 270 329 622 415 578	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527 34456 26519 30366 10865 35657	R 0.886 0.895 0.887 0.887 0.887 0.887 0.882 0.909 0.897 0.660 0.874 0.895 0.882 0.772 0.670 0.749	mbd 55.1 -10.4 36.9 47.6 4.5 63.8 4.6 14.2 20.1 61.8 4.6 28.4 -1.9 -108.5 77.3 76.6	sd 162.7 126.0 123.8 129.1 153.8 238.8 129.8 112.8 142.8 193.0 141.8 152.7 117.8 151.6 180.9 260.2 222.7	Bn 473 267 217 204 483 366 285 197 306 136 285 450 273 329 622 415 579	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082 31510 10509 34197 26519 26593 30366 10863 35651	R 0.904 0.903 0.901 0.895 0.820 0.919 0.916 0.907 0.669 0.879 0.914 0.916 0.807 0.669 0.879 0.914 0.916 0.892 0.808 0.692 0.822	5 mbd 16.6 4.9 30.3 60.3 12.8 36.2 58.3 34.0 15.1 72.5 5.4 55.0 10.9 42.6 -86.2 31.1 89.6	150.3 128.5 121.2 130.3 145.7 223.4 134.9 114.0 137.4 200.7 140.6 140.4 118.3 152.4 174.0 250.9 193.0	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Camborne 2004 - 2013 Camborne 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Kassel 2004 - 2013 Lenwick 2004 - 2013 Lenwick 2004 - 2013 Madrid 2004 - 2010 Payerne 2004 - 2010 Payerne 2004 - 2010 Sede Boqer 2004 - 2012 Skukuza 2004 - 2007 Tamanrasset 2004 - 2013	128 113 138 141 123 134 121 118 121 133 147 117 130 151 137 163 170	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527 34445 26956 26119 30366 10865 35657	R 0.800 0.888 0.907 0.897 0.851 0.748 0.871 0.900 0.862 0.824 0.895 0.815 0.924 0.845 0.924 0.863 0.638 0.638 0.766 0.680	v4 mbd -13.7 -4.8 -30.4 -25.1 -7.4 -4.0 -6.8 -8.4 -8.1 -25.3 -21.0 4.4 -12.3 -20.0 4.4 -12.3 -21.0 4.4 -22.5 -21.0 -25.1 -25.1 -25.1 -25.1 -25.1 -25.1 -25.1 -25.1 -25.1 -25.1 -25.1 -25.1 -25.1 -25.1 -25.1 -25.1 -25.1 -25.3 -25.3 -21.0 4.4 -25.3 -21.0 -25.3 -21.0 -25.3 -21.0 -25.3 -21.0 -25.3 -21.0 -25.3 -21.0 -25.3 -21.0 -25.3 -21.0 -25.3 -21.0 -25.3 -21.0 -25.3 -21.0 -25.3 -21.0 -25.3 -21.0 -25.3 -21.0 -25.3 -21.0 -25.3 -21.0 -25.4 -25.3 -21.0 -25.3 -21.0 -25.3 -21.0 -25.3 -25.3 -21.0 -25.3 -25.3 -25.3 -25.3 -25.3 -25.3 -25.3 -25.3 -25.3 -25.3 -25.3 -25.3 -25.3 -25.5 -25.4 -25.3 -25.5	sd 62.2 43.2 57.0 57.3 54.1 79.1 53.9 44.3 50.4 65.1 48.7 56.0 41.6 56.1 71.1 76.1 105.0	Dh 128 114 138 141 123 134 121 133 147 117 132 151 137 163 170	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082 31510 10509 34197 26519 26093 30366 10863 35651	R 0.841 0.896 0.914 0.894 0.879 0.779 0.879 0.879 0.870 0.814 0.893 0.842 0.923 0.885 0.692 0.815 0.692	r5 mbd -8.7 -26.2 -29.2 -10.8 0.1 -17.0 -12.8 -9.7 -28.5 -22.5 -3.3 -16.4 -32.3 4.7 -21.9 -59.1	56.7 41.8 50.3 57.6 52.2 75.1 53.6 43.1 48.6 66.1 48.3 52.7 41.5 53.5 67.3 68.7 94.8
Global irradiance Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Geneva 2004 - 2013 Kishinev 2004 - 2013 Kishinev 2004 - 2013 Lerwick 2004 - 2013 Lindenberg 2004 - 2013 Marties 2004 - 2010 Payerne 2004 - 2012 Skukuza 2004 - 2007 Tamarraset 2004 - 2013 Toravere 2004 - 2013	416 255 253 254 401 339 286 236 296 200 298 401 272 341 538 423 562 255	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527 34445 26956 26119 30366 35657 37016	R 0.981 0.971 0.967 0.971 0.985 0.933 0.975 0.964 0.982 0.978 0.962 0.978 0.978 0.978 0.978 0.978	mbd 19.5 0.7 -10.0 -0.1 1.8 30.0 -3.0 -11.1 5.9 6.8 -13.9 11.3 -6.4 -28.4 -28.4 -35.2 31.9 -0.5 0.5	sd 56.8 58.5 57.5 56.0 47.9 98.5 58.0 61.0 62.5 97.6 60.4 55.8 50.0 69.5 59.2 133.7 69.0 67.5	Gh 416 257 253 254 400 339 286 237 297 200 299 404 276 341 538 423 562 255	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082 31510 10509 34197 26519 26093 30066 10863 35651 36989	R 0.983 0.971 0.969 0.972 0.986 0.976 0.966 0.976 0.966 0.976 0.965 0.983 0.965 0.983 0.978 0.964 0.982 0.899 0.982 0.957	v5 mbd 7.2 6.3 -6.8 4.0 3.5 18.6 16.5 -2.9 3.6 10.2 -13.4 20.1 -2.2 -5.4 12.4 3.9 -3.2	54.3 60.4 55.7 55.3 45.6 95.7 59.2 59.6 61.2 98.4 59.3 54.9 49.6 69.6 56.2 131.7 62.7 64.1	Beam irradiance Almeria 2004 - 2011 Bratislava 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Geneva 2004 - 2013 Lerwick 2004 - 2013 Lerwick 2004 - 2013 Lerwick 2004 - 2013 Judardia 2004 - 2013 Judardia 2004 - 2013 Judardia 2004 - 2013 Payerne 2004 - 2011 Sede Boger 2004 - 2012 Skukura 2004 - 2013 Torravere 2004 - 2013	473 265 217 204 484 366 285 197 306 136 284 447 270 329 622 415 578 268	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527 34445 26956 26119 30366 10865 35657 37016	R 0.886 0.895 0.887 0.886 0.895 0.887 0.886 0.895 0.915 0.909 0.897 0.660 0.874 0.895 0.910 0.882 0.772 0.670 0.749 0.842	mbd 55.1 -10.4 36.9 47.6 45.5 63.8 4.6 14.2 20.1 61.8 4.6 28.4 -1.9 -19.4 -10.8.5 77.3 76.6 7.8	sd 162.7 126.0 123.8 129.1 153.8 238.8 129.8 142.8 142.8 193.0 141.8 152.7 117.8 151.6 180.9 260.2 222.7 166.9	Bn 473 267 217 204 483 366 285 197 306 136 285 197 306 136 285 450 273 329 622 415 579 268	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082 31510 10509 34197 26519 26093 30366 10863 35651 36989	R 0.904 0.903 0.901 0.895 0.897 0.820 0.919 0.916 0.907 0.669 0.879 0.914 0.914 0.914 0.914 0.912 0.808 0.692 0.822 0.865	5 mbd 16.6 4.9 30.3 60.3 12.8 36.2 58.3 34.0 15.1 72.5 5.4 5.4 55.0 10.9 42.6 -86.2 31.1 89.6 -0.2	150.3 128.5 121.2 130.3 145.7 223.4 134.9 114.0 137.4 200.7 140.6 140.4 118.3 152.4 174.0 250.9 193.0 154.8	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Camborne 2004 - 2013 Camporns 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2013 Kishinev 2004 - 2013 Linemberg 2004 - 2013 Linemberg 2004 - 2010 Madrid 2004 - 2013 Nantes 2004 - 2010 Payerne 2004 - 2011 Sede Boqer 2004 - 2012 Skukura 2004 - 2012 Skukura 2004 - 2013 Toravere 2004 - 2013	128 113 138 141 123 134 121 118 121 133 147 117 130 151 137 163 170 115	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527 34445 26956 26119 30366 10865 35657 37016	R 0.800 0.888 0.907 0.897 0.851 0.748 0.871 0.900 0.862 0.824 0.895 0.815 0.924 0.838 0.638 0.638 0.766 0.680 0.859	v4 mbd -13.7 -4.8 -30.4 -25.1 -7.4 -4.0 -6.8 -8.4 -8.1 -25.3 -21.0 4.4 -12.3 -20.9 13.4 -28.6 -54.3 -5.0	sd 62.2 43.2 57.0 57.3 54.1 79.1 53.9 44.3 50.4 65.1 48.7 56.0 41.6 56.1 71.1 76.1 105.0 44.6	Dh 128 114 138 141 123 134 121 133 147 117 132 151 137 163 170 115	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082 31510 10509 34197 26519 26593 30366 10863 35651 36989	R 0.841 0.896 0.914 0.854 0.879 0.879 0.879 0.870 0.870 0.814 0.893 0.842 0.842 0.842 0.692 0.815 0.692 0.815 0.796 0.871	/5 mbd -8.7 -26.2 -29.2 -10.8 0.1 -17.0 -12.8 -9.7 -28.5 -22.5 -3.3 -16.4 -32.3 4.7 -21.9 -59.1 -59.1 -5.7	56.7 41.8 50.3 57.6 52.2 75.1 53.6 43.1 48.6 66.1 48.3 52.7 41.5 53.5 67.3 68.7 94.8 42.6
Global irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Camborne 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Kassel 2004 - 2011 Kishinev 2004 - 2013 Lindenberg 2004 - 2013 Nantes 2004 - 2013 Nantes 2004 - 2012 Skukuza 2004 - 2007 Tamanraset 2004 - 2013 Valentia 2004 - 2013 Valentia 2004 - 2013 Valentia 2004 - 2013	416 255 253 254 401 339 286 236 296 200 298 401 272 341 538 423 562 255 219	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 34445 26956 26119 303665 10865 10865 35657 37016	R 0.981 0.971 0.967 0.971 0.985 0.933 0.975 0.964 0.971 0.864 0.964 0.978 0.962 0.979 0.878 0.978 0.978 0.978 0.952 0.966	mbd 19.5 0.7 -10.0 -0.1 1.8 30.0 -3.0 -11.1 5.9 6.8 -13.9 11.3 -6.4 -28.4 -35.2 31.9 -0.5 1.0	sd 56.8 58.5 57.5 56.0 47.9 98.5 58.0 61.0 62.5 97.6 60.4 55.8 50.0 69.5 59.2 133.7 69.0 67.5 55.3	Gh 416 257 253 254 400 339 286 237 297 200 299 404 276 341 538 423 562 255 224	nb 34769 17958 36209 32911 36101 23927 44389 34162 31510 10509 34197 26519 26093 30366 10863 30366 10863 35651 36989 44399	R 0.983 0.971 0.969 0.972 0.986 0.938 0.976 0.966 0.972 0.965 0.965 0.983 0.978 0.964 0.982 0.982 0.982 0.9957 0.967	mbd 7.2 6.3 -6.8 4.0 3.5 18.6 16.5 -2.9 3.6 10.2 -13.4 20.1 -2.2 -5.4 -25.4 12.4 3.9 -3.2 4.6	54.3 60.4 55.7 55.3 45.6 95.7 59.2 59.6 61.2 98.4 59.3 54.9 49.6 69.6 56.2 131.7 62.7 64.1 55.9	Beam irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabawa 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Kassel 2004 - 2013 Lerwick 2004 - 2013 Lerwick 2004 - 2013 Lindenberg 2004 - 2013 Madrid 2004 - 2013 Nantes 2004 - 2011 Sede Boger 2004 - 2011 Sede Boger 2004 - 2013 Tamarnasset 2004 - 2013 Valentia 2004 - 2013 Valentia 2004 - 2013	473 265 217 204 484 366 285 197 306 136 284 447 270 329 622 415 578 268 206	nb 34772 18120 36243 36275 23924 44421 34177 43100 31517 34445 26956 26119 30366 10865 35657 37016 45517	R 0.886 0.895 0.887 0.887 0.895 0.915 0.909 0.897 0.682 0.789 0.897 0.682 0.772 0.772 0.749 0.842 0.887	mbd 55.1 -10.4 36.9 47.6 4.5 63.8 4.6 20.1 61.8 4.6 28.4 -1.9 -19.4 -108.5 77.3 76.6 7.8 -4.1	sd 162.7 126.0 123.8 129.1 153.8 238.8 238.8 129.8 112.8 142.8 193.0 141.8 152.7 117.8 151.6 180.9 260.2 222.7 166.9 121.1	Bn 473 267 217 204 483 366 285 197 306 136 285 450 273 329 622 415 579 268 211	nb 34769 17958 36209 32911 23927 44389 34162 43082 31510 10509 34197 26519 26093 30366 108651 366989 44399	R 0.904 0.903 0.901 0.895 0.897 0.820 0.919 0.916 0.907 0.669 0.879 0.914 0.916 0.892 0.802 0.802 0.802 0.802 0.802 0.802 0.802 0.802 0.802 0.822 0.865 0.899	5 mbd 16.6 4.9 30.3 60.3 12.8 36.2 58.3 34.0 15.1 72.5 5.4 55.0 10.9 42.6 -86.2 31.1 89.6 -0.2 7.5	150.3 128.5 121.2 130.3 145.7 223.4 134.9 114.0 137.4 200.7 140.6 140.4 118.3 152.4 174.0 250.9 193.0 154.8 121.5	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Camborne 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Kassel 2004 - 2011 Kishinev 2004-2013 Lerwick 2004-2013 Lindenberg 2004-2013 Nantes 2004-2010 Payerne 2004-2011 Skukuza 2004-2012 Skukuza 2004-2013 Valentia 2004-2013 Valentia 2004-2013	128 113 138 141 123 134 121 133 147 117 130 151 137 163 170 115 114	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527 34445 26956 26119 303665 10865 35657 37016 45517	R 0.800 0.888 0.907 0.851 0.748 0.851 0.748 0.871 0.900 0.862 0.862 0.865 0.815 0.924 0.863 0.683 0.686 0.680 0.859 0.920	v4 mbd -13.7 -4.8 -30.4 -25.1 -7.4 -4.0 -6.8 -8.4 -8.1 -25.3 -21.0 4.4 -12.3 -20.9 13.4 -28.6 -54.3 -5.0 -4.8	sd 62.2 43.2 57.0 57.3 54.1 79.1 53.9 44.3 50.4 65.1 48.7 56.0 41.6 56.1 71.1 76.1 105.0 44.6 38.3	Dh 128 114 138 141 123 134 121 133 147 117 132 151 137 163 170 115 117	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082 31510 00509 34197 26519 26093 30366 10863 35651 36989 44399	R 0.841 0.896 0.914 0.857 0.857 0.879 0.879 0.870 0.870 0.870 0.870 0.842 0.893 0.842 0.893 0.842 0.923 0.845 0.692 0.871 0.796 0.871 0.919	Mbd -8.7 -8.5 -26.2 -29.2 -10.8 0.1 -17.0 -12.8 -9.7 -28.5 -3.3 -16.4 -32.3 4.7 -259.1 -5.7 -8.7	56.7 41.8 50.3 57.6 52.2 75.1 53.6 43.1 48.6 66.1 48.3 52.7 41.5 53.5 67.3 68.7 94.8 42.6 38.5
Global Irradiance Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Camborne 2004 - 2013 Campentra 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Cassel 2004 - 2013 Lindenberg 2004 - 2013 Lindenberg 2004 - 2013 Nantes 2004 - 2010 Payerne 2004 - 2013 Nantes 2004 - 2011 Sede Boqer 2004 - 2013 Nantes 2004 - 2013 Toravere 2004 - 2013 Valentia 2004 - 2013 Valuk-en-Velin 2004 - 2013 Valuk-en-Velin 2004 - 2013	416 255 253 254 401 339 286 236 296 200 298 401 272 341 538 423 562 255 219 291	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527 34455 26956 26119 30366 10865 35657 37016 45517 42612	R 0.981 0.971 0.967 0.971 0.985 0.933 0.975 0.964 0.964 0.962 0.979 0.889 0.978 0.956 0.974	w4 mbd 19.5 0.7 -10.0 -0.1 1.8 30.0 -3.0 -11.1 5.9 6.8 -13.9 11.3 -6.4 -28.4 -35.2 31.9 -0.5 1.0 3.0	sd 568 58.5 57.5 56.0 47.9 98.5 58.0 61.0 62.5 97.6 60.4 55.8 50.0 69.5 59.2 133.7 69.0 67.5 55.3 57.3	Gh 416 257 254 400 339 286 237 297 200 299 404 276 341 538 423 525 224 294	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082 31510 10509 34197 26519 30366 10863 30366 10863 35651 36989 44399 42025	R 0.983 0.971 0.969 0.972 0.986 0.938 0.976 0.966 0.965 0.965 0.965 0.965 0.968 0.964 0.964 0.964 0.982 0.964 0.982 0.964 0.982 0.957	wbd 7.2 6.3 -6.8 4.0 3.5 18.6 16.5 10.2 -13.4 20.1 -2.2 -5.4 -2.2 -3.4 20.1 -2.2 -3.4 12.4 3.9 -3.2 4.6 14.9	54.3 60.4 55.7 55.3 45.6 95.7 59.2 59.6 61.2 98.4 59.3 54.9 49.6 69.6 56.2 131.7 62.7 64.1 55.9 57.9	Beam irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Kassel 2004 - 2013 Kassel 2004 - 2013 Indenberg 2004 - 2013 Lindenberg 2004 - 2013 Madrid 2004 - 2013 Sede Boger 2004 - 2011 Sede Boger 2004 - 2012 Skukuz 2004 - 2007 Tamanraset 2004 - 2013 Valentia 2004 - 2013 Valutv.en-Velin 2004 - 2013	473 265 217 204 484 366 285 197 306 136 284 447 270 329 622 415 578 268 206 300	nb 34772 18120 36243 36075 23924 44421 34177 43100 31517 10527 34445 26956 26119 30366 10865 35657 37016 45517 42612	R 0.886 0.895 0.886 0.895 0.886 0.897 0.660 0.874 0.895 0.670 0.749 0.882 0.772 0.670 0.749 0.887 0.914	wid mbd 55.1 -10.4 36.9 47.6 4.5 63.8 4.6 20.1 61.8 4.6 28.4 -108.5 77.3 76.6 7.8 -4.1 6.1	sd 162.7 126.0 123.8 129.1 153.8 238.8 129.8 112.8 142.8 193.0 141.8 152.7 117.8 151.6 180.9 260.2 222.7 166.9 121.1 124.9	Bn 473 267 217 204 483 366 285 197 306 136 285 450 273 329 622 415 579 268 211 303	nb 34769 17958 36209 32911 36101 23927 44389 34162 31510 10509 34147 26619 26093 30366 10863 35651 36989 442025	R 0.904 0.903 0.901 0.897 0.820 0.919 0.916 0.907 0.6879 0.914 0.916 0.879 0.888 0.692 0.882 0.808 0.692 0.822 0.865 0.899 0.918	5 mbd 16.6 4.9 30.3 60.3 12.8 36.2 58.3 34.0 15.1 72.5 5.4 55.0 42.6 -86.2 31.1 89.6 -7.5 37.3	150.3 128.5 121.2 130.3 145.7 223.4 134.9 114.0 137.4 200.7 140.6 140.4 118.3 152.4 174.0 250.9 193.0 154.8 121.5 129.1	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Camborne 2004 - 2013 Camporne 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Cassel 2004 - 2011 Kishinev 2004 - 2013 Lindenberg 2004 - 2013 Nantes 2004 - 2013 Nantes 2004 - 2013 Nantes 2004 - 2013 Sede Boqer 2004 - 2013 Toravere 2004 - 2013 Valentia 2004 - 2013 Valentia 2004 - 2013 Valentia 2004 - 2013 Valentia 2004 - 2013	128 113 138 141 123 134 121 118 121 133 147 117 130 151 151 151 151 151 115 114 118	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527 34445 26956 26119 30366 108657 35657 35016 45517 42612	R 0.800 0.888 0.907 0.851 0.748 0.851 0.748 0.871 0.900 0.862 0.824 0.824 0.815 0.815 0.924 0.863 0.638 0.766 0.638 0.766 0.859 0.829 0.829 0.920 0.879	v4 mbd -13.7 -4.8 -30.4 -25.1 -7.4 -6.8 -8.4 -8.4 -8.4 -25.3 -21.0 4.4 -12.3 -20.9 13.4 -28.6 -54.3 -5.0 -4.8 0.5	sd 62.2 43.2 57.0 57.3 54.1 79.1 53.9 44.3 50.4 65.1 48.7 56.0 41.6 56.1 71.1 76.1 105.0 44.6 38.3 44.6	Dh 128 114 138 141 123 134 121 133 141 133 141 133 141 133 141 133 147 117 137 163 170 115 117 119	nb 34769 17958 36201 32911 36101 23927 44389 34162 31510 10509 34197 26693 30366 10863 35651 36989 44309 42025	R 0.841 0.896 0.914 0.857 0.779 0.879 0.909 0.870 0.870 0.842 0.842 0.842 0.923 0.845 0.692 0.815 0.796 0.871 0.871 0.871 0.871	/5 mbd -8.7 -26.2 -29.2 -10.8 0.1 -17.0 -12.8 -9.7 -28.5 -22.5 -3.3 -16.4 -32.3 4.7 -21.9 -59.1 -5.7 -8.7 -7.0	56.7 41.8 50.3 57.6 52.2 75.1 53.6 43.1 48.6 66.1 48.3 52.7 41.5 53.5 67.3 68.7 94.8 42.6 38.5 44.2
Global Irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Geneva 2004 - 2013 Kassel 2004 - 2011 Kishinev 2004 - 2013 Lindenberg 2004 - 2013 Madrid 2004 - 2013 Nantes 2004 - 2013 Nantes 2004 - 2013 Sede Boqer 2004 - 2013 Valente 2004 - 2013 Toravere 2004 - 2013 Valente 2004 - 2013 Valente 2004 - 2013 Valente 2004 - 2013 Valente 2004 - 2013 Wien 2004 - 2013 Wien 2004 - 2013	416 255 253 254 401 296 200 298 401 272 341 538 423 562 255 219 291 266	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527 34445 26956 26119 30366 10865 35657 37016 45517 42612 41926	R 0.981 0.971 0.967 0.971 0.985 0.975 0.964 0.971 0.864 0.964 0.964 0.964 0.964 0.964 0.964 0.962 0.978 0.962 0.978 0.978 0.952 0.9662 0.974 0.9652	w4 mbd 19.5 0.7 -0.1 1.8 30.0 -11.1 5.9 6.8 -3.0 -11.9 -13.9 -13.9 -13.9 -13.9 -13.9 -13.9 -13.9 -0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	sd 56.8 58.5 57.5 56.0 47.9 98.5 58.0 61.0 62.5 97.6 60.4 55.8 50.0 69.5 59.2 133.7 69.0 67.5 55.3 57.3 60.3	Gh 416 253 253 254 400 339 286 237 237 200 299 404 266	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082 31510 10509 34197 26519 26093 30366 10863 35651 36989 44399 42025 41879	R 0.983 0.971 0.969 0.972 0.986 0.938 0.976 0.965 0.965 0.965 0.965 0.983 0.964 0.982 0.982 0.982 0.982 0.982 0.982 0.982 0.982 0.982	v5 mbd 7.2 6.3 -6.8 4.0 3.5 18.6 16.5 -2.9 3.6 10.2 3.6 10.2 -3.4 20.1 -2.2 -5.4 12.4 3.9 -3.2 4.6 3.9 -3.2 4.7 12.4 3.9 -3.2 -1.7	54.3 60.4 55.7 55.3 45.6 95.7 59.2 59.6 61.2 98.4 59.3 54.9 49.6 69.6 56.2 131.7 62.7 64.1 55.9 57.9 60.9	Beam irradiance Almeria 2004 - 2011 Bratislava 2004 - 2013 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Kassel 2004 - 2013 Kishinev 2004 - 2013 Lerwick 2004 - 2013 Lerwick 2004 - 2013 Madrid 2004 - 2013 Nantes 2004 - 2011 Sede Boger 2004 - 2013 Sede Boger 2004 - 2013 Tamanrasset 2004 - 2013 Toravere 2004 - 2013 Valentia 2004 - 2013 Wien 2004 - 2013	232 265 217 204 484 366 285 197 306 136 284 447 270 329 622 415 578 268 206 300 245	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527 34445 26516 30366 10865 35657 37016 45517 42612 41926	R 0.886 0.895 0.886 0.895 0.886 0.915 0.915 0.9397 0.660 0.897 0.660 0.874 0.895 0.910 0.820 0.772 0.670 0.749 0.847 0.914 0.900	wid mbd 55.1 -10.4 36.9 47.6 47.6 47.6 47.6 42 20.1 61.8 4.6 28.4 -1.9 -19.4 -108.5 76.6 7.8 -6.1 5.5	sd 162.7 126.0 123.8 129.1 153.8 238.8 129.8 112.8 141.8 152.7 117.8 151.6 180.9 260.2 222.7 166.9 260.2 222.7 162.9 121.1 124.9 125.4	Bn 473 267 217 204 483 366 285 450 136 285 450 273 329 622 415 579 622 415 579 268 221 303 245	nb 34769 17958 36209 36101 23927 44389 34162 31510 10509 34197 26503 30366 10863 35651 3699 42025 41879	R 0.904 0.903 0.895 0.897 0.820 0.919 0.916 0.907 0.669 0.879 0.914 0.915 0.882 0.882 0.882 0.882 0.882 0.882 0.892 0.882 0.892 0.882 0.892 0.892 0.892 0.892 0.892 0.892 0.892 0.893 0.9907	5 mbd 16.6 4.9 30.3 60.3 12.8 36.2 58.3 34.0 15.1 72.5 5.4 55.0 10.9 42.6 -0.2 7.5 89.6 -0.2 7.3 26.6	150.3 128.5 121.2 130.3 145.7 223.4 134.9 114.0 137.4 200.7 140.6 140.4 118.3 152.4 174.0 250.9 193.0 154.8 121.5 129.1 127.3	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2013 Carborne 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Kassel 2004 - 2013 Kassel 2004 - 2013 Lenwick 2004 - 2013 Lenwick 2004 - 2013 Lenwick 2004 - 2013 Madrid 2004 - 2013 Nantes 2004 - 2013 Sede Boqer 2004 - 2013 Valvent-Velin 2004 - 2013 Valvent-Velin 2004 - 2013 Wien 2004 - 2013 Wien 2004 - 2013	128 113 138 141 123 134 121 133 147 117 130 151 137 163 170 115 114 118 127	nb 34772 18120 36243 32920 36075 23924 44421 34177 10527 34445 26956 26119 30366 10865 35657 37016 45517 42612 41926	R 0.800 0.888 0.907 0.851 0.748 0.871 0.900 0.862 0.824 0.895 0.815 0.924 0.863 0.638 0.638 0.638 0.638 0.638 0.6680 0.859 0.920 0.879	v4 mbd. -13.7 -4.8 -30.4 -25.1 -7.4 -4.0 -6.8 -8.4 -8.1 -25.3 -21.0 4.4 -12.3 -20.9 13.4 -12.3 -20.9 13.4 -28.6 -54.3 -5.0 -4.8 0.5 -15.2	sd 62.2 57.0 57.3 54.1 79.1 53.9 44.3 50.4 65.1 48.7 56.0 41.6 56.1 48.7 56.0 41.6 56.1 105.0 44.6 38.3 44.6 51.9	Dh 128 114 138 141 123 134 121 133 147 117 132 151 137 163 170 115 117 119 127	nb 34769 17958 36201 36101 23927 44389 34162 31510 10509 34197 26503 30366 10863 35551 3699 44399 42025 41879	R 0.841 0.896 0.914 0.857 0.779 0.879 0.879 0.870 0.814 0.893 0.842 0.842 0.845 0.692 0.815 0.692 0.815 0.796 0.815 0.919 0.884 0.885	mbd -8.7 -8.5 -26.2 -10.8 0.1 -17.0 -29.2 -28.5 -28.5 -3.3 -16.4 -32.3 4.7 -29.1 -5.7 -8.7 -7.0 -20.0	56.7 41.8 50.3 57.6 52.2 75.1 53.6 43.1 48.6 66.1 48.3 52.7 41.5 53.5 67.3 68.7 94.8 42.6 38.5 44.2 51.1
Global irradiance Almeria 2004 - 2011 Bratislava 2004 - 2013 Cabauw 2004 - 2013 Camborne 2004 - 2013 Camborne 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Kishinev 2004 - 2013 Kishinev 2004 - 2013 Lerwick 2004 - 2013 Nantes 2004 - 2010 Madrid 2004 - 2010 Madrid 2004 - 2010 Madrid 2004 - 2010 Sede Boqer 2004 - 2013 Sede Boqer 2004 - 2013 Sede Boqer 2004 - 2013 Valentia 2004 - 2013 Zilani 2004 - 2013 Zilani 2004 - 2013	416 255 253 254 401 339 286 236 296 200 298 401 272 341 538 423 562 255 219 291 266 262	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527 34445 26956 26119 30366 26119 30365 35657 37016 45517 42612 41926 21260	R 0.981 0.971 0.967 0.971 0.985 0.933 0.975 0.964 0.964 0.962 0.979 0.889 0.978 0.956 0.974	w4 mbd 19.5 0.7 -0.0 -0.1 18 30.0 -11.1 5.9 6.8 -13.9 11.3 -6.4 -28.4 -35.2 0.5 0.0 -9.3 22.7	sd 56.8 58.5 57.5 58.0 47.9 98.5 58.0 61.0 62.5 97.6 60.4 55.8 50.0 60.4 55.2 133.7 69.0 67.5 55.3 60.3 70.8	Gh 416 417 257 253 254 400 339 286 237 200 286 237 200 299 404 276 341 538 423 562 225 224 266 263	nb 34769 17958 36209 32911 36101 23927 44382 34162 43082 31510 10509 34197 26519 26519 26093 30366 10863 35651 36989 44302 44879 21198	R 0.983 0.971 0.969 0.972 0.986 0.938 0.976 0.966 0.965 0.965 0.965 0.965 0.968 0.964 0.964 0.964 0.982 0.964 0.982 0.964 0.982 0.957	v5 mbd 7.2 6.3 -6.8 4.0 3.5 18.6 10.5 -2.9 3.6 10.2 -13.4 20.1 10.2 -13.4 20.1 10.2 -5.4 -2.2 -5.4 -2.2, 4.6 3.9 -3.2 4.9 -1.7 8.4	54.3 60.4 55.7 55.3 45.6 95.7 59.2 59.6 61.2 98.4 59.3 54.9 49.6 69.6 56.2 131.7 62.7 64.1 55.9 57.9 60.9 66.7	Beam irradiance Almeria 2004 - 2011 Bratislava 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2013 Lerwick 2004 - 2013 Lerwick 2004 - 2013 Lerwick 2004 - 2013 Payerne 2004 - 2013 Sede Boqer 2004 - 2011 Sede Boqer 2004 - 2013 Torravere 2004 - 2013 Valuren-Velin 2004 - 2013 Valuren-Velin 2004 - 2013 Valure 2004 - 2013 Zilani 2004 - 2003	273 265 217 204 484 366 285 197 306 136 285 285 197 306 136 284 447 270 329 622 415 578 266 300 245 245	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527 34445 26956 26119 30366 26119 30366 108655 35657 37016 45517 42612 41926 21260	R 0.886 0.895 0.886 0.895 0.886 0.897 0.660 0.874 0.895 0.670 0.749 0.882 0.772 0.670 0.749 0.887 0.914	ky4 mbd 55.1 36.9 47.6 4.5 63.8 4.6 14.2 20.1 61.8 4.6 -1.9.4 -1.9.4 -1.9.4 -1.9.5 76.6 7.8 -4.1 5.5 66.5	sd 162.7 125.0 123.8 129.1 153.8 129.8 112.8 142.8 193.0 141.8 152.7 117.8 151.6 150.2 260.2 222.7 166.9 260.2 222.7 166.9 2121.1 124.9 125.4 167.9	Bn 473 267 217 204 483 366 285 197 306 285 450 273 329 285 450 273 329 268 415 579 268 211 303 245 246	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082 31510 10509 34197 26519 26093 30366 303665 10863 35651 36989 44399 241879 21198	R 0.904 0.903 0.901 0.897 0.820 0.919 0.916 0.907 0.6879 0.914 0.916 0.879 0.888 0.692 0.888 0.692 0.822 0.865 0.899 0.918	5 mbd 16.6 4.9 30.3 60.3 12.8 36.2 58.3 34.0 15.1 72.5 5.4 55.0 10.9 42.6 -86.2 31.1 89.6 -0.2 7.5 26.6 30.5	150.3 128.5 121.2 130.3 145.7 223.4 134.9 114.0 137.4 200.7 140.6 140.4 118.3 152.4 174.0 250.9 193.0 154.8 121.5	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2013 Carbours 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2013 Kishinev 2004 - 2013 Lerwick 2004 - 2013 Lindenberg 2004 - 2013 Nantes 2004 - 2013 Nantes 2004 - 2013 Sede Boqer 2004 - 2013 Sede Boqer 2004 - 2013 Sede Boqer 2004 - 2013 Valentia 2004 - 2013 Valentia 2004 - 2013 Valentia 2004 - 2013 Zilani 2004 - 2013 Zilani 2004 - 2013	128 113 138 141 123 134 121 133 147 117 130 151 137 163 170 115 114 118 127 125	nb 34772 18120 36243 36243 23920 36075 23924 44421 34177 10527 34445 26119 30366 10865 35557 37016 45517 445517 41926 21260	R 0.800 0.888 0.907 0.851 0.748 0.851 0.748 0.871 0.900 0.862 0.824 0.824 0.815 0.815 0.924 0.863 0.638 0.766 0.638 0.766 0.859 0.829 0.829 0.820	v4 mbd -13.7 -4.8 -30.4 -25.1 -7.4 -4.0 -6.8 -8.4 -25.3 -21.0 -25.3 -21.0 -21.3 -20.9 13.4 -28.6 -54.3 -5.0 -4.8 -55.2 -15.2 -10.5	sd 62.2 43.2 57.0 57.3 54.1 53.9 44.3 50.4 45.1 48.7 56.0 41.6 56.1 71.1 76.1 105.0 44.6 51.9 52.1	Dh 128 114 138 141 123 134 121 133 134 121 133 137 163 170 115 117 117 119 127 125	nb 34769 17958 36209 32911 36101 23927 44382 34162 43082 31510 10509 364197 26519 26093 303651 36889 44399 44399 24025 41879 21198	R 0.841 0.896 0.914 0.857 0.779 0.879 0.909 0.870 0.870 0.842 0.842 0.842 0.923 0.845 0.692 0.815 0.796 0.871 0.871 0.871 0.871	/5 mbd -8.7 -8.5 -26.2 -29.2 -10.8 0.1 -17.0 -12.8 -9.7 -28.5 -3.3 -3.16.4 -32.3 4.7 -21.9 -5.7 -8.7 -8.7 -7.0 -20.0 -7.1	56.7 41.8 50.3 57.6 52.2 75.1 53.6 43.1 48.6 66.1 48.3 52.7 41.5 53.5 67.3 68.7 94.8 42.6 42.6 44.2 51.1 46.8
Global irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Camborne 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Lindenberg 2004 - 2013 Lindenberg 2004 - 2013 Nantes 2004 - 2013 Nantes 2004 - 2013 Skukuza 2004 - 2012 Skukuza 2004 - 2013 Valentia 2004 - 2014 Valentia 2004 - 2014 Valentia 2004 - 2014 Valentia 2004 - 2014 V	416 255 253 254 401 296 200 298 401 272 341 538 423 562 255 219 291 266	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527 34445 26956 26119 30366 10865 35657 37016 45517 42612 41926	R 0.981 0.971 0.967 0.971 0.985 0.975 0.964 0.971 0.864 0.964 0.964 0.964 0.964 0.964 0.964 0.962 0.978 0.962 0.978 0.978 0.952 0.9662 0.974 0.9652	v4 mbd 19.5 -0.7 -10.0 -3.0 -3.0 -11.1 5.9 -13.9 -13.9 -13.9 -13.9 -6.4 -28.4 -35.2 31.9 -0.5 0.5 1.0 3.0 0.5 1.0 3.0 -0.5 -0.5 -0.5 -0.5 -0.5 -0.5 -0.5 -0	sd 56.8 58.5 57.5 56.0 47.9 98.5 58.0 61.0 62.5 97.6 60.4 55.8 50.0 69.5 59.2 133.7 69.0 67.5 55.3 57.3 60.3	Gh 416 253 253 254 400 339 286 200 297 200 297 200 299 404 57 341 58 423 562 224 294 266	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082 31510 10509 34197 26519 26093 30366 10863 35651 36989 44399 42025 41879	R 0.983 0.971 0.969 0.972 0.986 0.938 0.976 0.965 0.965 0.965 0.965 0.983 0.964 0.982 0.982 0.982 0.982 0.982 0.982 0.982 0.982 0.982	v5 mbd 7.2 6.3 -6.8 4.0 3.5 18.6 16.5 -2.9 3.6 10.2 -13.4 20.1 -2.2 -3.4 20.1 -13.4 20.1 -2.2 -5.4 -2.2 -5.4 -2.2 -5.4 -2.2 -5.4 3.9 -3.2 4.6 3.9 -3.2 -3.2 4.6 3.3 -5.3 -6.3 -5.4 -2.9 -5.4 -2.9 -1.4 -2.4 -2.4 -2.4 -2.4 -2.4 -2.4 -2.4 -2	54.3 60.4 55.7 55.3 45.6 95.7 59.2 59.6 61.2 98.4 59.3 54.9 49.6 69.6 56.2 131.7 62.7 64.1 55.9 57.9 60.9	Beam irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabawa 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Maximitaria 2004 - 2013 Lerwick 2004 - 2013 Lindenberg 2004 - 2013 Madrid 2004 - 2013 Nantes 2004 - 2010 Madrid 2004 - 2013 Sede Boger 2004 - 2012 Skukuza 2004 - 2013 Torrawer 2004 - 2013 Valentia 2004 - 2013 Valentia 2004 - 2013 Valentia 2004 - 2013 Zilani 2004 - 2013 Zilani 2004 - 2013	232 265 217 204 484 366 285 197 306 136 284 447 270 329 622 415 578 268 206 300 245	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527 34445 26516 30366 10865 35657 37016 45517 42612 41926	R 0.886 0.895 0.886 0.895 0.886 0.915 0.915 0.9397 0.660 0.897 0.660 0.874 0.895 0.910 0.820 0.772 0.670 0.749 0.847 0.914 0.900	kv4 mbd 55.1 4.6 4.6 14.2 20.1 4.6 14.2 20.1 1.1 6.1.8 4.6 7.7.3 76.6 7.8 -4.1 5.5 18.0	sd 162.7 126.0 123.8 129.1 153.8 238.8 129.8 112.8 142.8 193.0 141.8 152.7 117.8 151.6 180.9 260.2 222.7 166.9 260.2 222.7 162.9 121.1 124.9 125.4	Bn 473 267 217 204 483 366 285 450 136 285 450 273 329 622 415 579 622 415 579 268 221 303 245	nb 34769 17958 36209 36101 23927 44389 34162 31510 10509 34197 26503 30366 10863 35651 3699 42025 41879	R 0.904 0.903 0.895 0.897 0.820 0.919 0.916 0.907 0.669 0.879 0.914 0.915 0.882 0.882 0.882 0.882 0.882 0.882 0.892 0.882 0.892 0.882 0.892 0.892 0.892 0.892 0.892 0.892 0.892 0.893 0.9907	5 mbd 16.6 4,9 30.3 12.8 36.2 58.3 34.0 15.1 72.5 5.4 55.0 10.9 42.6 -86.2 31.1 89.6 -0.2 7.5 37.3 37.3 26.6 30.5 28.3	150.3 128.5 121.2 130.3 145.7 223.4 134.9 114.0 137.4 200.7 140.6 140.4 118.3 152.4 174.0 250.9 193.0 154.8 121.5 129.1 129.1 127.3	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2013 Carboura 2004 - 2013 Carboura 2004 - 2013 Carboura 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Undenberg 2004 - 2013 Kishinev 2004 - 2013 Lindenberg 2004 - 2013 Nantes 2004 - 2010 Madrid 2004 - 2013 Nantes 2004 - 2013 Skukuza 2004 - 2012 Skukuza 2004 - 2013 Valentia 2004 - 2014	128 113 138 141 123 134 121 133 147 117 130 151 137 163 170 115 114 118 127	nb 34772 18120 36243 32920 36075 23924 44421 34177 10527 34445 26956 26119 30366 10865 35657 37016 45517 42612 41926	R 0.800 0.888 0.907 0.851 0.748 0.871 0.900 0.862 0.824 0.895 0.815 0.924 0.863 0.638 0.638 0.638 0.638 0.638 0.6680 0.859 0.920 0.879	v4 mbd -13.7 -4.8 -30.4 -25.1 -7.4 -4.0 -6.8 -8.4 -8.1 -25.3 -21.0 -21.0 -21.0 -23.0 -20.9 13.4 -28.6 -54.3 -5.0 -4.8 -5.0 -4.8 -5.0 -13.4 -13.7	sd 62.2 57.0 57.3 54.1 79.1 53.9 44.3 50.4 65.1 48.7 56.0 41.6 56.1 48.7 56.0 41.6 56.1 105.0 44.6 38.3 44.6 51.9	Dh 128 114 138 141 123 134 121 133 147 117 132 151 137 163 170 115 117 119 127	nb 34769 17958 36201 36101 23927 44389 34162 31510 10509 34197 26503 30366 10863 35551 3699 44399 42025 41879	R 0.841 0.896 0.914 0.857 0.779 0.879 0.879 0.870 0.814 0.893 0.842 0.842 0.845 0.692 0.815 0.692 0.815 0.796 0.815 0.919 0.884 0.885	5 mbd -8.7 -26.2 -29.2 -29.2 -20.2 -29.2 -10.8 -17.0 -12.8 -9.7 -22.5 -3.3 -16.4 -32.3 -4.7 -21.9 -5.7 -8.5 -5.7 -8.7 -7.0 -20.0 -20.0 -2.5 -7.1 -15.8	56.7 41.8 50.3 57.6 52.2 75.1 53.6 43.1 48.6 66.1 48.3 52.7 41.5 53.5 67.3 68.7 94.8 42.6 38.5 44.2 51.1
Global irradiance Almeria 2004 - 2011 Bratislava 2004 - 2013 Cabauw 2004 - 2013 Camborne 2004 - 2013 Campetras 2004 - 2013 Geneva 2004 - 2013 Geneva 2004 - 2013 Kishinev 2004 - 2013 Lerwick 2004 - 2013 Larwick 2004 - 2013 Madrid 2004 - 2013 Nantes 2004 - 2013 Sede Boqer 2004 - 2013 Sede Boqer 2004 - 2013 Sede Boqer 2004 - 2013 Yalenta 2004 - 2013 Yalenta 2004 - 2013 Yalaven - Velin 2004 - 2013 Zilani 2004 - 2013 Zilani 2004 - 2013 Zilani 2004 - 2013	416 255 253 254 401 339 286 236 296 200 298 401 272 341 538 423 562 255 219 291 266 262	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527 34445 26956 26119 30366 26119 30365 35657 37016 45517 42612 41926 21260	R 0.981 0.971 0.967 0.971 0.985 0.975 0.964 0.971 0.864 0.964 0.964 0.964 0.964 0.964 0.964 0.962 0.978 0.962 0.978 0.978 0.952 0.9662 0.974 0.9652	w4 mbd 19.5 0.7 -0.0 -0.1 18 30.0 -11.1 5.9 6.8 -13.9 11.3 -6.4 -28.4 -35.2 0.5 0.0 -9.3 22.7	sd 56.8 58.5 57.5 58.0 47.9 98.5 58.0 61.0 62.5 97.6 60.4 55.8 50.0 60.4 55.2 133.7 69.0 67.5 55.3 60.3 70.8	Gh 416 417 257 253 254 400 339 286 237 200 286 237 200 299 404 276 341 538 423 562 225 224 266 263	nb 34769 17958 36209 32911 36101 23927 44382 34162 43082 31510 10509 34197 26519 26519 26093 30366 10863 35651 36989 44302 44879 21198	R 0.983 0.971 0.969 0.972 0.986 0.938 0.976 0.965 0.965 0.965 0.965 0.983 0.964 0.982 0.982 0.982 0.982 0.982 0.982 0.982 0.982 0.982	v5 mbd 7.2 6.3 -6.8 4.0 3.5 18.6 10.5 -2.9 3.6 10.2 -13.4 20.1 10.2 -13.4 20.1 10.2 -5.4 -2.2 -5.4 -2.2, 4.6 3.9 -3.2 4.9 -1.7 8.4	54.3 60.4 55.7 55.3 45.6 95.7 59.2 59.6 61.2 98.4 59.3 54.9 49.6 69.6 56.2 131.7 62.7 64.1 55.9 57.9 60.9 66.7	Beam irradiance Almeria 2004 - 2011 Bratislava 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2013 Lerwick 2004 - 2013 Lerwick 2004 - 2013 Lerwick 2004 - 2013 Payerne 2004 - 2013 Sede Boqer 2004 - 2011 Sede Boqer 2004 - 2013 Torravere 2004 - 2013 Valuren-Velin 2004 - 2013 Valuren-Velin 2004 - 2013 Valure 2004 - 2013 Zilani 2004 - 2003	273 265 217 204 484 366 285 197 306 136 285 285 197 306 136 284 447 270 329 622 415 578 266 300 245 245	nb 34772 18120 36243 32920 36075 23924 44421 34177 43100 31517 10527 34445 26956 26119 30366 26119 30366 108655 35657 37016 45517 42612 41926 21260	R 0.886 0.895 0.886 0.895 0.886 0.915 0.915 0.9397 0.660 0.897 0.660 0.874 0.895 0.910 0.820 0.772 0.670 0.749 0.847 0.914 0.900	ky4 mbd 55.1 36.9 47.6 4.5 63.8 4.6 14.2 20.1 61.8 4.6 -1.9.4 -1.9.4 -1.9.5 76.6 7.8 -4.1 5.5 66.5	sd 162.7 125.0 123.8 129.1 153.8 129.8 112.8 142.8 193.0 141.8 152.7 117.8 151.6 150.2 260.2 222.7 166.9 260.2 222.7 166.9 2121.1 124.9 125.4 167.9	Bn 473 267 217 204 483 366 285 197 306 285 450 273 329 285 450 273 329 268 415 579 268 211 303 245 246	nb 34769 17958 36209 32911 36101 23927 44389 34162 43082 31510 10509 34197 26519 26093 30366 303665 10863 35651 36989 44399 241879 21198	R 0.904 0.903 0.895 0.897 0.820 0.919 0.916 0.907 0.669 0.879 0.914 0.914 0.912 0.882 0.882 0.882 0.882 0.882 0.892 0.822 0.823 0.894 0.918 0.907	5 mbd 16.6 4.9 30.3 60.3 12.8 36.2 58.3 34.0 15.1 72.5 5.4 55.0 10.9 42.6 -86.2 31.1 89.6 -0.2 7.5 26.6 30.5	150.3 128.5 121.2 130.3 145.7 223.4 134.9 114.0 137.4 200.7 140.6 140.4 118.3 152.4 174.0 250.9 193.0 154.8 121.5	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2013 Carbours 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2013 Kishinev 2004 - 2013 Lerwick 2004 - 2013 Lindenberg 2004 - 2013 Nantes 2004 - 2013 Nantes 2004 - 2013 Sede Boqer 2004 - 2013 Sede Boqer 2004 - 2013 Sede Boqer 2004 - 2013 Valentia 2004 - 2013 Valentia 2004 - 2013 Valentia 2004 - 2013 Zilani 2004 - 2013 Zilani 2004 - 2013	128 113 138 141 123 134 121 133 147 117 130 151 137 163 170 115 114 118 127 125	nb 34772 18120 36243 36243 23920 36075 23924 44421 34177 10527 34445 26119 30366 10865 35557 37016 45517 445517 41926 21260	R 0.800 0.888 0.907 0.851 0.748 0.871 0.900 0.862 0.824 0.895 0.815 0.924 0.863 0.638 0.638 0.638 0.638 0.638 0.6680 0.859 0.920 0.879	v4 mbd -13.7 -4.8 -30.4 -25.1 -7.4 -4.0 -6.8 -8.4 -25.3 -21.0 -25.3 -21.0 -21.3 -20.9 13.4 -28.6 -54.3 -5.0 -4.8 -55.2 -15.2 -10.5	sd 62.2 43.2 57.0 57.3 54.1 53.9 44.3 50.4 45.1 48.7 56.0 41.6 56.1 71.1 76.1 105.0 44.6 51.9 52.1	Dh 128 114 138 141 123 134 121 133 134 121 133 137 163 170 115 117 117 119 127 125	nb 34769 17958 36209 32911 36101 23927 44382 34162 43082 31510 10509 364197 26519 26093 303651 36863 35651 36889 44399 24025 41879 21198	R 0.841 0.896 0.914 0.857 0.779 0.879 0.879 0.870 0.814 0.893 0.842 0.842 0.845 0.692 0.815 0.692 0.815 0.796 0.815 0.919 0.884 0.885	/5 mbd -8.7 -8.5 -26.2 -29.2 -10.8 0.1 -17.0 -12.8 -9.7 -28.5 -3.3 -3.16.4 -32.3 4.7 -21.9 -5.7 -8.7 -8.7 -7.0 -20.0 -7.1	56.7 41.8 50.3 57.6 52.2 75.1 53.6 43.1 48.6 66.1 48.3 52.7 41.5 53.5 67.3 68.7 94.8 42.6 38.5 44.2 51.1 46.8

Table a-ISite by site, for the two helioclim-3 versions, hourly global, normal beam and diffuse irradiance validation results expressed in relative and absolute values. The absolute values
are given in [Wh/m²h].

For all sites, the overall values, the absolute mean bias and the standard deviation of the bias are given.

					Daily	values										Daily	values										Daily	values				
Global irradiance	<u> </u>		HelioClim-3	3v4	Duny			HelioClim-3	v5		Beam irradiance			HelioClim-3	v4	bung	andes	н	lelioClim-3	v5		Diffuse irradiance			HelioClim	-3v4	buny		ł	lelioClim-3	3v5	
	Gh	nb	R	mbd	sd	Gh	nb	R	mbd	sd		Bn	nb	R	mbd	sd	Bn	nb	R	mbd	sd		Dh	nb	R	mbd	sd	Dh	nb	R	mbd	sd
Almeria 2004 - 2011	5.04	2872	0.993	5%	7%	5.04	2872	0.995	2%	6%	Almeria 2004 - 2011	5.73	2872	0.937	12%	24%	5.73	2872	0.960	4%	20%	Almeria 2004 - 2011	1.55	2872	0.893	-11%	34%	1.55	2872	0.918	-7%	30%
Bratislava 2004 - 2007	3.26	1417	0.994	0%	12%	3.26	1417	0.994	2%	12%	Bratislava 2004 - 2007	3.38	1417	0.972	-4%	29%	3.38	1417	0.981	2%	23%	Bratislava 2004 - 2007	1.45	1417	0.969	-4%	26%	1.45	1417	0.975	-7%	24%
Cabauw 2004 - 2013	2.89	3168	0.990	-4%	12%	2.89	3168	0.991	-3%	11%	Cabauw 2004 - 2013	2.48	3168	0.946	17%	37%	2.48	3168	0.963	14%	31%	Cabauw 2004 - 2013	1.58	3168	0.956	-22%	29%	1.58	3168	0.968	-19%	25%
Camborne 2004 - 2013	2.99	2793	0.992	0%	11%	2.99	2792	0.993	2%	11%	Camborne 2004 - 2013	2.40	2793	0.948	23%	41%	2.40	2792	0.957	30%	38%	Camborne 2004 - 2013	1.66	2793	0.961	-18%	26%	1.66	2792	0.962	-21%	26%
Carpentras 2004 - 2013	4.47	3229	0.996	1%	6%	4.47	3229	0.996	1%	6%	Carpentras 2004 - 2013	5,40	3229	0.962	3%	19%	5.40	3229	0.962	3%	19%	Carpentras 2004 - 2013	1.37	3229	0.900	-9%	31%	1.37	3229	0.900	-9%	31%
Davos 2004 - 2011	3.08	2618	0.972	9%	20%	3.08	2618	0.975	5%	19%	Davos 2004 - 2011	3.31	2617	0.885	17%	49%	3.31	2617	0.907	10%	44%	Davos 2004 - 2011	1.21	2617	0.892	-3%	41%	1.21	2617	0.904	0%	39%
Geneva 2004 - 2013	3.52	3609	0.991	-1%	9%	3.52	3609	0.991	6%	10%	Geneva 2004 - 2013	3.51	3609	0.956	2%	28%	3.51	3609	0.965	20%	25%	Geneva 2004 - 2013	1.49	3609	0.883	-6%	30%	1.49	3609	0.913	-14%	28%
Kassel 2004 - 2011	2.83	2855	0.990	-5%	13%	2.83	2855	0.991	-1%	12%	Kassel 2004 - 2011	2.36	2855	0.963	7%	34%	2.36	2855	0.970	17%	31%	Kassel 2004 - 2011	1.41	2855	0.959	-7%	25%	1.41	2855	0.969	-11%	24%
Kishiney 2004-2013	3.56	3591	0.988	2%	11%	3.56	3591	0.989	1%	11%	Kishinev 2004-2013	3.67	3591	0.945	7%	29%	3.67	3591	0.958	5%	26%	Kishiney 2004-2013	1.45	3591	0.904	-7%	28%	1.45	3591	0.915	-8%	26%
Lerwick 2004-2013	2.63	2393	0.937	3%	34%	2.63	2393	0.938	5%	34%	Lerwick 2004-2013	1.79	2393	0.788	46%	101%	1.79	2393	0.794	54%	103%	Lerwick 2004-2013	1.76	2393	0.943	-19%	31%	1.76	2393	0.941	-21%	32%
Lindenberg 2004-2010	3.29	952	0.995	-5%	10%	3.29	952	0.996	-4%	10%	Lindenberg 2004-2010	3.14	952	0.968	2%	33%	3.14	952	0.971	2%	31%	Lindenberg 2004-2010	1.62	952	0.982	-14%	23%	1.62	952	0.983	-15%	23%
Madrid 2004-2013	4.47	3083	0.993	3%	8%	4.47	3083	0.994	5%	7%	Madrid 2004-2013	4.99	3083	0.943	6%	25%	4.99	3083	0.963	12%	20%	Madrid 2004-2013	1.30	3083	0.877	4%	36%	1.30	3083	0.907	-3%	32%
Nantes 2004-2010	3.48	2106	0.996	-2%	8%	3.47	2106	0.997	-1%	8%	Nantes 2004-2010	3.45	2106	0.972	-1%	25%	3.44	2106	0.980	4%	21%	Nantes 2004-2010	1.66	2106	0.978	-9%	20%	1.66	2106	0.981	-12%	20%
Payerne 2004-2011	3.63	2448	0.991	-8%	11%	3.63	2448	0.992	-2%	11%	Payerne 2004-2011	3.51	2448	0.961	-6%	30%	3.51	2448	0.968	13%	27%	Paverne 2004-2011	1.61	2448	0.952	-14%	26%	1.61	2448	0.969	-21%	23%
Sede Boger 2004-2012	5.69	2866	0.994	-7%	7%	5.69	2866	0.996	-5%	6%	Sede Boger 2004-2012	6.59	2866	0.939	-17%	21%	6.59	2866	0.962	-14%	18%	Sede Boger 2004-2012	1.45	2866	0.800	10%	42%	1.45	2866	0.832	3%	39%
Skukuza 2004-2007	4.94	932	0.973	8%	22%	4.94	932	0.973	3%	22%	Skukuza 2004-2007	4.84	932	0.909	19%	45%	4.84	932	0.914	8%	43%	Skukuza 2004-2007	1.90	932	0.957	-18%	30%	1.90	932	0.966	-13%	27%
Tamanrasset 2004-2013	6.22	3223	0.982	0%	8%	6.22	3223	0.988	1%	7%	Tamanrasset 2004-2013	6.40	3223	0.818	13%	32%	6.40	3223	0.893	15%	25%	Tamanrasset 2004-2013	1.88	3223	0.745	-32%	48%	1.88	3223	0.855	-35%	42%
Toravere 2004 - 2013	3.20	2950	0.986	0%	14%	3.20	2950	0.989	-1%	13%	Toravere 2004 - 2013	3.36	2950	0.935	3%	39%	3.36	2950	0.955	0%	32%	Toravere 2004 - 2013	1.44	2950	0.951	-4%	23%	1.44	2950	0.958	-5%	21%
Valentia 2004-2013	2.76	3610	0.987	0%	13%	2.76	3610	0.988	2%	12%	Valentia 2004-2013	2.60	3610	0.945	-2%	34%	2.60	3610	0.959	4%	30%	Valentia 2004-2013	1.44	3610	0.953	-4%	22%	1.44	3610	0.956	-7%	21%
Vaulx-en-Velin 2004-2013	3.45	3589	0.989	1%	10%	3.45	3589	0.990	5%	10%	Vaulx-en-Velin 2004-2013	3.56	3589	0.964	2%	26%	3.55	3589	0.972	12%	21%	Vaulx-en-Velin 2004-2013	1.44	3589	0.898	0%	27%	1.40	3589	0.921	-6%	25%
Wien 2004-2013	3.31	3368	0.990	-4%	11%	3.31	3368	0.989	-1%	11%	Wien 2004-2013	3.05	3368	0.957	2%	30%	3.05	3368	0.967	11%	26%	Wien 2004-2013	1.58	3368	0.925	-12%	26%	1.58	3368	0.937	-16%	25%
Zilani 2004-2009	3.11	1794	0.985	10%	19%	3.12	1784	0.989	3%	15%	Zilani 2004-2009	2.90	1794	0.939	30%	48%	2.92	1784	0.954	12%	39%	Zilani 2004-2009	1.48	1794	0.959	-8%	29%	1.49	1784	0.971	-6%	24%
			0.505					0.565						0.555					0.554						0.555					0.571		
All sites	3.73	2704		0.0%	12%	3.73	2704		1.2%	11%	All sites	3.78	2704		6%	33%	3.78	2703		9%	29%	All sites	1.51	2704		-10%	31%	1.51	2703		-12%	29%
All sites absolute bias				3.1%					2.7%		All sites absolute bias				9.5%					11.1%		All sites absolute bias				11.0%					12.5%	
Standard dev. of the bias				4.3%					3.3%		Standard dev. of the bias				13.0%					13.5%		Standard dev. of the bias				14.4%					16.1%	
					Daily	values										Daily	values										Daily	values				
Global irradiance			HelioClim-3					HelioClim-3			Beam irradiance			HelioClim-3					elioClim-3			Diffuse irradiance			HelioClim		,			lelioClim-3		
	Gh	nb	R	mbd	sd	Gh	nb	R	mbd	sd		Bn	nb	R	mbd	sd	Bn	nb	R	mbd	sd		Dh	nb	R	mbd	sd	Dh	nb	R	mbd	sd
Almeria 2004 - 2011	5.04	nb 2872	R 0.993	mbd 0.24	sd 0.37	Gh 5.04	nb 2872	R 0.995	mbd 0.09	0.33	Almeria 2004 - 2011	5.73	2872	R 0.937	mbd 0.67	sd 1.38	Bn 5.73	nb 2872	R 0.960	mbd 0.20	1.15	Almeria 2004 - 2011	1.55	nb 2872	R 0.893	mbd -0.17	sd 0.52	Dh 1.55	nb 2872	R 0.918	mbd -0.11	0.47
Almeria 2004 - 2011 Bratislava 2004 - 2007	5.04 3.26	nb 2872 1417	R 0.993 0.994	mbd 0.24 0.01	sd 0.37 0.39	Gh 5.04 3.26	nb 2872 1417	R 0.995 0.994	mbd 0.09 0.08	0.33 0.39	Almeria 2004 - 2011 Bratislava 2004 - 2007	5.73 3.38		R 0.937 0.972	mbd 0.67 -0.13	sd 1.38 0.97	Bn 5.73 3.38	nb 2872 1417	R 0.960 0.981	mbd 0.20 0.06	1.15 0.79	Almeria 2004 - 2011 Bratislava 2004 - 2007	1.55 1.45	nb	R 0.893 0.969	mbd -0.17 -0.06	sd 0.52 0.37	Dh 1.55 1.45	nb 2872 1417	R 0.918 0.975	mbd -0.11 -0.11	0.47 0.35
Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013	5.04 3.26 2.89	nb 2872 1417 3168	R 0.993 0.994 0.990	mbd 0.24 0.01 -0.11	sd 0.37 0.39 0.35	Gh 5.04 3.26 2.89	nb 2872 1417 3168	R 0.995 0.994 0.991	mbd 0.09 0.08 -0.08	0.33 0.39 0.33	Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013	5.73 3.38 2.48	2872 1417 3168	R 0.937 0.972 0.946	mbd 0.67 -0.13 0.42	sd 1.38 0.97 0.91	Bn 5.73 3.38 2.48	nb 2872 1417 3168	R 0.960 0.981 0.963	mbd 0.20 0.06 0.35	1.15 0.79 0.77	Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013	1.55 1.45 1.58	nb 2872 1417 3168	R 0.893 0.969 0.956	mbd -0.17 -0.06 -0.35	sd 0.52 0.37 0.46	Dh 1.55 1.45 1.58	nb 2872 1417 3168	R 0.918 0.975 0.968	mbd -0.11 -0.11 -0.30	0.47 0.35 0.39
Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013	5.04 3.26 2.89 2.99	nb 2872 1417 3168 2793	R 0.993 0.994 0.990 0.992	mbd 0.24 0.01 -0.11 0.00	sd 0.37 0.39 0.35 0.34	Gh 5.04 3.26 2.89 2.99	nb 2872 1417 3168 2792	R 0.995 0.994 0.991 0.993	mbd 0.09 0.08 -0.08 0.05	0.33 0.39 0.33 0.33	Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013	5.73 3.38 2.48 2.40	2872 1417 3168 2793	R 0.937 0.972 0.946 0.948	mbd 0.67 -0.13 0.42 0.56	sd 1.38 0.97 0.91 0.98	Bn 5.73 3.38 2.48 2.40	nb 2872 1417 3168 2792	R 0.960 0.981 0.963 0.957	mbd 0.20 0.06 0.35 0.71	1.15 0.79 0.77 0.91	Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013	1.55 1.45 1.58 1.66	nb 2872 1417 3168 2793	R 0.893 0.969 0.956 0.961	mbd -0.17 -0.06 -0.35 -0.30	sd 0.52 0.37 0.46 0.43	Dh 1.55 1.45 1.58 1.66	nb 2872 1417 3168 2792	R 0.918 0.975 0.968 0.962	mbd -0.11 -0.11 -0.30 -0.34	0.47 0.35 0.39 0.44
Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013	5.04 3.26 2.89 2.99 4.47	nb 2872 1417 3168 2793 3229	R 0.993 0.994 0.990 0.992 0.996	mbd 0.24 0.01 -0.11	sd 0.37 0.39 0.35 0.34 0.25	Gh 5.04 3.26 2.89 2.99 4.47	nb 2872 1417 3168	R 0.995 0.994 0.991	mbd 0.09 0.08 -0.08	0.33 0.39 0.33	Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpontras 2004 - 2013	5.73 3.38 2.48 2.40 5.40	2872 1417 3168	R 0.937 0.972 0.946	mbd 0.67 -0.13 0.42 0.56 0.14	sd 1.38 0.97 0.91 0.98 1.03	Bn 5.73 3.38 2.48	nb 2872 1417 3168	R 0.960 0.981 0.963 0.957 0.962	mbd 0.20 0.06 0.35	1.15 0.79 0.77	Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013	1.55 1.45 1.58	nb 2872 1417 3168	R 0.893 0.969 0.956 0.961 0.900	mbd -0.17 -0.06 -0.35 -0.30 -0.12	sd 0.52 0.37 0.46	Dh 1.55 1.45 1.58 1.66 1.37	nb 2872 1417 3168	R 0.918 0.975 0.968 0.962 0.900	mbd -0.11 -0.11 -0.30 -0.34 -0.12	0.47 0.35 0.39 0.44 0.42
Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013	5.04 3.26 2.89 2.99 4.47 3.08	nb 2872 1417 3168 2793	R 0.993 0.994 0.990 0.992 0.996 0.972	mbd 0.24 0.01 -0.11 0.00	sd 0.37 0.39 0.35 0.34	Gh 5.04 3.26 2.89 2.99 4.47 3.08	nb 2872 1417 3168 2792	R 0.995 0.994 0.991 0.993	mbd 0.09 0.08 -0.08 0.05	0.33 0.39 0.33 0.33	Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013	5.73 3.38 2.48 2.40 5.40 3.31	2872 1417 3168 2793	R 0.937 0.972 0.946 0.948 0.962 0.885	mbd 0.67 -0.13 0.42 0.56	sd 1.38 0.97 0.91 0.98	Bn 5.73 3.38 2.48 2.40	nb 2872 1417 3168 2792	R 0.960 0.981 0.963 0.957 0.962 0.907	mbd 0.20 0.06 0.35 0.71	1.15 0.79 0.77 0.91	Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013	1.55 1.45 1.58 1.66	nb 2872 1417 3168 2793	R 0.893 0.969 0.956 0.961 0.900 0.892	mbd -0.17 -0.06 -0.35 -0.30	sd 0.52 0.37 0.46 0.43	Dh 1.55 1.45 1.58 1.66	nb 2872 1417 3168 2792	R 0.918 0.975 0.968 0.962 0.900 0.904	mbd -0.11 -0.11 -0.30 -0.34	0.47 0.35 0.39 0.44
Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2013	5.04 3.26 2.89 2.99 4.47 3.08 3.52	nb 2872 1417 3168 2793 3229 2618 3609	R 0.993 0.994 0.990 0.992 0.996 0.972 0.991	mbd 0.24 0.01 -0.11 0.00 0.04 0.27 -0.04	sd 0.37 0.39 0.35 0.34 0.25 0.62 0.33	Gh 5.04 3.26 2.89 2.99 4.47 3.08 3.52	nb 2872 1417 3168 2792 3229 2618 3609	R 0.995 0.994 0.991 0.993 0.996 0.975 0.991	mbd 0.09 0.08 -0.08 0.05 0.04 0.17 0.20	0.33 0.39 0.33 0.33 0.25 0.57 0.34	Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2013	5.73 3.38 2.48 2.40 5.40 3.31 3.51	2872 1417 3168 2793 3229 2617 3609	R 0.937 0.972 0.946 0.948 0.962 0.885 0.956	mbd 0.67 -0.13 0.42 0.56 0.14 0.58 0.06	sd 1.38 0.97 0.91 0.98 1.03 1.62 0.97	Bn 5.73 3.38 2.48 2.40 5.40 3.31 3.51	nb 2872 1417 3168 2792 3229 2617 3609	R 0.960 0.981 0.963 0.957 0.962 0.907 0.965	mbd 0.20 0.06 0.35 0.71 0.14 0.32 0.72	1.15 0.79 0.77 0.91 1.03 1.46 0.87	Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Dawos 2004 - 2011 Geneva 2004 - 2013	1.55 1.45 1.58 1.66 1.37 1.21 1.49	nb 2872 1417 3168 2793 3229 2617 3609	R 0.893 0.969 0.956 0.961 0.900 0.892 0.883	mbd -0.17 -0.06 -0.35 -0.30 -0.12 -0.04 -0.08	sd 0.52 0.37 0.46 0.43 0.42 0.50 0.44	Dh 1.55 1.45 1.58 1.66 1.37 1.21 1.49	nb 2872 1417 3168 2792 3229 2617 3609	R 0.918 0.975 0.968 0.962 0.900 0.904 0.913	mbd -0.11 -0.11 -0.30 -0.34 -0.12 0.00 -0.21	0.47 0.35 0.39 0.44 0.42 0.47 0.42
Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2013 Kassel 2004 - 2011	5.04 3.26 2.89 2.99 4.47 3.08 3.52 2.83	nb 2872 1417 3168 2793 3229 2618 3609 2855	R 0.993 0.994 0.990 0.992 0.996 0.972 0.991 0.990	mbd 0.24 0.01 -0.11 0.00 0.04 0.27 -0.04 -0.13	sd 0.37 0.39 0.35 0.34 0.25 0.62 0.33 0.37	Gh 5.04 3.26 2.89 2.99 4.47 3.08 3.52 2.83	nb 2872 1417 3168 2792 3229 2618 3609 2855	R 0.995 0.994 0.991 0.993 0.996 0.975 0.991 0.991	mbd 0.09 0.08 -0.08 0.05 0.04 0.17 0.20 -0.03	0.33 0.39 0.33 0.25 0.57 0.34 0.35	Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2011 Kassel 2004 - 2011	5.73 3.38 2.48 2.40 5.40 3.31 3.51 2.36	2872 1417 3168 2793 3229 2617 3609 2855	R 0.937 0.972 0.946 0.948 0.962 0.885 0.956 0.956	mbd 0.67 -0.13 0.42 0.56 0.14 0.58 0.06 0.17	sd 1.38 0.97 0.91 0.98 1.03 1.62 0.97 0.80	Bn 5.73 3.38 2.48 2.40 5.40 3.31 3.51 2.36	nb 2872 1417 3168 2792 3229 2617 3609 2855	R 0.960 0.981 0.963 0.957 0.962 0.907 0.965 0.970	mbd 0.20 0.06 0.35 0.71 0.14 0.32 0.72 0.41	1.15 0.79 0.77 0.91 1.03 1.46 0.87 0.73	Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2013 Kassel 2004 - 2011	1.55 1.45 1.58 1.66 1.37 1.21 1.49 1.41	nb 2872 1417 3168 2793 3229 2617 3609 2855	R 0.893 0.969 0.956 0.961 0.900 0.892 0.883 0.959	mbd -0.17 -0.06 -0.35 -0.30 -0.12 -0.04 -0.08 -0.10	sd 0.52 0.37 0.46 0.43 0.42 0.50 0.44 0.36	Dh 1.55 1.45 1.58 1.66 1.37 1.21 1.49 1.41	nb 2872 1417 3168 2792 3229 2617 3609 2855	R 0.918 0.975 0.968 0.962 0.900 0.904 0.913 0.969	mbd -0.11 -0.30 -0.34 -0.12 0.00 -0.21 -0.15	0.47 0.35 0.39 0.44 0.42 0.47 0.42 0.42 0.34
Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2013 Kissinev 2004 - 2011	5.04 3.26 2.89 2.99 4.47 3.08 3.52 2.83 3.56	nb 2872 1417 3168 2793 3229 2618 3609 2855 3591	R 0.993 0.994 0.990 0.992 0.996 0.972 0.991 0.990 0.988	mbd 0.24 0.01 -0.11 0.00 0.04 0.27 -0.04 -0.13 0.07	sd 0.37 0.39 0.35 0.34 0.25 0.62 0.33 0.37 0.39	Gh 5.04 3.26 2.89 2.99 4.47 3.08 3.52 2.83 3.56	nb 2872 1417 3168 2792 3229 2618 3609 2855 3591	R 0.995 0.994 0.991 0.993 0.996 0.975 0.991 0.991 0.989	mbd 0.09 0.08 -0.08 0.05 0.04 0.17 0.20 -0.03 0.04	0.33 0.39 0.33 0.25 0.57 0.34 0.35 0.38	Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2011 Kishinev 2004 - 2011 Kishinev 2004 - 2013	5.73 3.38 2.48 2.40 5.40 3.31 3.51 2.36 3.67	2872 1417 3168 2793 3229 2617 3609 2855 3591	R 0.937 0.972 0.946 0.948 0.962 0.885 0.956 0.963 0.945	mbd 0.67 -0.13 0.42 0.56 0.14 0.58 0.06 0.17 0.24	sd 1.38 0.97 0.91 0.98 1.03 1.62 0.97 0.80 1.08	Bn 5.73 3.38 2.48 2.40 5.40 3.31 3.51 2.36 3.67	nb 2872 1417 3168 2792 3229 2617 3609 2855 3591	R 0.960 0.981 0.963 0.957 0.962 0.907 0.965 0.970 0.958	mbd 0.20 0.06 0.35 0.71 0.14 0.32 0.72 0.41 0.18	1.15 0.79 0.77 0.91 1.03 1.46 0.87 0.73 0.95	Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2013 Kishinev 2004 - 2011	1.55 1.45 1.58 1.66 1.37 1.21 1.49	nb 2872 1417 3168 2793 3229 2617 3609 2855 3591	R 0.893 0.969 0.956 0.961 0.900 0.892 0.883 0.959 0.904	mbd -0.17 -0.06 -0.35 -0.30 -0.12 -0.04 -0.08 -0.10 -0.10	sd 0.52 0.37 0.46 0.43 0.42 0.50 0.44 0.36 0.40	Dh 1.55 1.45 1.58 1.66 1.37 1.21 1.49 1.41 1.45	nb 2872 1417 3168 2792 3229 2617 3609 2855 3591	R 0.918 0.975 0.968 0.962 0.900 0.904 0.913 0.969 0.915	mbd -0.11 -0.11 -0.30 -0.34 -0.12 0.00 -0.21 -0.15 -0.12	0.47 0.35 0.39 0.44 0.42 0.47 0.42 0.34 0.38
Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Carpontra 2004 - 2013 Carpontra 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2011 Kassel 2004 - 2011 Lerwick 2004 - 2013	5.04 3.26 2.89 2.99 4.47 3.08 3.52 2.83 3.56 2.63	nb 2872 1417 3168 2793 3229 2618 3609 2855 3591 2393	R 0.993 0.994 0.990 0.992 0.996 0.972 0.991 0.990 0.988 0.937	mbd 0.24 0.01 -0.11 0.00 0.04 0.27 -0.04 -0.13 0.07 0.09	sd 0.37 0.39 0.35 0.34 0.25 0.62 0.33 0.37 0.39 0.90	Gh 5.04 3.26 2.89 2.99 4.47 3.08 3.52 2.83 3.56 2.63	nb 2872 1417 3168 2792 3229 2618 3609 2855 3591 2393	R 0.995 0.994 0.991 0.993 0.996 0.975 0.991 0.991 0.989 0.938	mbd 0.09 0.08 -0.08 0.05 0.04 0.17 0.20 -0.03 0.04 0.13	0.33 0.39 0.33 0.25 0.57 0.34 0.35 0.38 0.90	Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2011 Geneva 2004 - 2013 Kassel 2004 - 2013 Lerwick 2004-2013 Lerwick 2004-2013	5.73 3.38 2.48 2.40 5.40 3.31 3.51 2.36 3.67 1.79	2872 1417 3168 2793 3229 2617 3609 2855 3591 2393	R 0.937 0.972 0.946 0.948 0.962 0.885 0.956 0.956 0.963 0.945 0.788	mbd 0.67 -0.13 0.42 0.56 0.14 0.58 0.06 0.17 0.24 0.81	sd 1.38 0.97 0.91 0.98 1.03 1.62 0.97 0.80 1.08 1.80	Bn 5.73 3.38 2.48 2.40 5.40 3.31 3.51 2.36 3.67 1.79	nb 2872 1417 3168 2792 3229 2617 3609 2855 3591 2393	R 0.960 0.981 0.963 0.957 0.962 0.907 0.965 0.970 0.958 0.794	mbd 0.20 0.06 0.35 0.71 0.14 0.32 0.72 0.41 0.18 0.96	1.15 0.79 0.77 0.91 1.03 1.46 0.87 0.73 0.95 1.84	Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2013 Kassel 2004 - 2013 Kishinev 2004-2013 Lerwick 2004-2013	1.55 1.45 1.58 1.66 1.37 1.21 1.49 1.41 1.45 1.76	nb 2872 1417 3168 2793 3229 2617 3609 2855 3591 2393	R 0.893 0.969 0.956 0.961 0.900 0.892 0.883 0.959 0.904 0.943	mbd -0.17 -0.06 -0.35 -0.30 -0.12 -0.04 -0.08 -0.10 -0.10 -0.33	sd 0.52 0.37 0.46 0.43 0.42 0.50 0.44 0.36 0.40 0.54	Dh 1.55 1.45 1.58 1.66 1.37 1.21 1.49 1.41 1.45 1.76	nb 2872 1417 3168 2792 3229 2617 3609 2855 3591 2393	R 0.918 0.975 0.968 0.962 0.900 0.904 0.913 0.969 0.915 0.941	mbd -0.11 -0.11 -0.30 -0.34 -0.12 0.00 -0.21 -0.15 -0.12 -0.15 -0.12 -0.37	0.47 0.35 0.39 0.44 0.42 0.47 0.42 0.34 0.38 0.55
Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Carborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2011 Kishinev 2004 - 2013 Lindenberg 2004-2013	5.04 3.26 2.89 2.99 4.47 3.08 3.52 2.83 3.56 2.63 3.29	nb 2872 1417 3168 2793 3229 2618 3609 2855 3591 2393 952	R 0.993 0.994 0.990 0.992 0.996 0.972 0.991 0.990 0.988 0.937 0.995	mbd 0.24 0.01 -0.11 0.00 0.04 0.27 -0.04 -0.13 0.07 0.09 -0.15	sd 0.37 0.39 0.35 0.34 0.25 0.62 0.33 0.37 0.39 0.90 0.34	Gh 5.04 3.26 2.89 2.99 4.47 3.08 3.52 2.83 3.56 2.63 3.29	nb 2872 1417 3168 2792 3229 2618 3609 2855 3591 2393 952	R 0.995 0.994 0.993 0.993 0.996 0.975 0.991 0.991 0.993 0.993	mbd 0.09 0.08 -0.08 0.05 0.04 0.17 0.20 -0.03 0.04 0.13 -0.15	0.33 0.39 0.33 0.25 0.57 0.34 0.35 0.38 0.90 0.33	Almeria 2004 - 2011 Bratislava 2004 - 2013 Carborne 2004 - 2013 Carportras 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2013 Kassiel 2004 - 2013 Kishinev 2004-2013 Lindenberg 2004-2013	5.73 3.38 2.48 2.40 5.40 3.31 3.51 2.36 3.67 1.79 3.14	2872 1417 3168 2793 3229 2617 3609 2855 3591 2393 952	R 0.937 0.972 0.946 0.948 0.962 0.885 0.956 0.963 0.945 0.788 0.968	mbd 0.67 -0.13 0.42 0.56 0.14 0.58 0.06 0.17 0.24 0.81 0.05	sd 1.38 0.97 0.91 0.98 1.03 1.62 0.97 0.80 1.08 1.80 1.02	Bn 5.73 3.38 2.48 2.40 5.40 3.31 3.51 2.36 3.67 1.79 3.14	nb 2872 1417 3168 2792 3229 2617 3609 2855 3591 2393 952	R 0.960 0.981 0.963 0.957 0.962 0.907 0.965 0.970 0.958 0.794 0.971	mbd 0.20 0.06 0.35 0.71 0.14 0.32 0.72 0.41 0.18 0.96 0.06	1.15 0.79 0.77 0.91 1.03 1.46 0.87 0.73 0.95 1.84 0.96	Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2011 Geneva 2004 - 2011 Kishinev 2004-2013 Lindenberg 2004-2010	1.55 1.45 1.58 1.66 1.37 1.21 1.49 1.41 1.45 1.76 1.62	nb 2872 1417 3168 2793 3229 2617 3609 2855 3591 2393 952	R 0.893 0.969 0.956 0.961 0.900 0.892 0.883 0.959 0.904 0.943 0.982	mbd -0.17 -0.06 -0.35 -0.30 -0.12 -0.04 -0.08 -0.10 -0.10 -0.33 -0.23	sd 0.52 0.37 0.46 0.43 0.42 0.50 0.44 0.36 0.40 0.54 0.37	Dh 1.55 1.45 1.58 1.66 1.37 1.21 1.49 1.41 1.45 1.76 1.62	nb 2872 1417 3168 2792 3229 2617 3609 2855 3591 2393 952	R 0.918 0.975 0.968 0.962 0.900 0.904 0.913 0.969 0.915 0.941 0.983	mbd -0.11 -0.11 -0.30 -0.34 -0.12 0.00 -0.21 -0.15 -0.12 -0.37 -0.25	0.47 0.35 0.39 0.44 0.42 0.47 0.42 0.34 0.38 0.55 0.37
Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Carpontra 2004 - 2013 Carpontra 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2011 Kassel 2004 - 2011 Lerwick 2004 - 2013	5.04 3.26 2.89 2.99 4.47 3.08 3.52 2.83 3.56 2.63	nb 2872 1417 3168 2793 3229 2618 3609 2855 3591 2393	R 0.993 0.994 0.990 0.992 0.996 0.972 0.991 0.990 0.988 0.937	mbd 0.24 0.01 -0.11 0.00 0.04 0.27 -0.04 -0.13 0.07 0.09	sd 0.37 0.39 0.35 0.34 0.25 0.62 0.33 0.37 0.39 0.90	Gh 5.04 3.26 2.89 2.99 4.47 3.08 3.52 2.83 3.56 2.63	nb 2872 1417 3168 2792 3229 2618 3609 2855 3591 2393	R 0.995 0.994 0.991 0.993 0.996 0.975 0.991 0.991 0.989 0.938	mbd 0.09 0.08 -0.08 0.05 0.04 0.17 0.20 -0.03 0.04 0.13	0.33 0.39 0.33 0.25 0.57 0.34 0.35 0.38 0.90	Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Carborne 2004 - 2013 Carportras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2011 Kishinev 2004 - 2013 Lerwick 2004 - 2013 Lindenberg 2004 - 2010 Madrid 2004 - 2013	5.73 3.38 2.48 2.40 5.40 3.31 3.51 2.36 3.67 1.79	2872 1417 3168 2793 3229 2617 3609 2855 3591 2393	R 0.937 0.972 0.946 0.948 0.962 0.885 0.956 0.956 0.963 0.945 0.788	mbd 0.67 -0.13 0.42 0.56 0.14 0.58 0.06 0.17 0.24 0.81	sd 1.38 0.97 0.91 0.98 1.03 1.62 0.97 0.80 1.08 1.80	Bn 5.73 3.38 2.48 2.40 5.40 3.31 3.51 2.36 3.67 1.79	nb 2872 1417 3168 2792 3229 2617 3609 2855 3591 2393	R 0.960 0.981 0.963 0.957 0.962 0.907 0.965 0.970 0.958 0.794	mbd 0.20 0.06 0.35 0.71 0.14 0.32 0.72 0.41 0.18 0.96	1.15 0.79 0.77 0.91 1.03 1.46 0.87 0.73 0.95 1.84	Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2013 Kassel 2004 - 2013 Kishinev 2004-2013 Lerwick 2004-2013	1.55 1.45 1.58 1.66 1.37 1.21 1.49 1.41 1.45 1.76	nb 2872 1417 3168 2793 3229 2617 3609 2855 3591 2393	R 0.893 0.969 0.956 0.961 0.900 0.892 0.883 0.959 0.904 0.943	mbd -0.17 -0.06 -0.35 -0.30 -0.12 -0.04 -0.08 -0.10 -0.10 -0.33	sd 0.52 0.37 0.46 0.43 0.42 0.50 0.44 0.36 0.40 0.54	Dh 1.55 1.45 1.58 1.66 1.37 1.21 1.49 1.41 1.45 1.76	nb 2872 1417 3168 2792 3229 2617 3609 2855 3591 2393	R 0.918 0.975 0.968 0.962 0.900 0.904 0.913 0.969 0.915 0.941 0.983 0.907	mbd -0.11 -0.11 -0.30 -0.34 -0.12 0.00 -0.21 -0.15 -0.12 -0.15 -0.12 -0.37	0.47 0.35 0.39 0.44 0.42 0.47 0.42 0.34 0.38 0.55 0.37 0.42
Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Carborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2011 Kishinev 2004 - 2013 Lindenberg 2004-2013	5.04 3.26 2.89 2.99 4.47 3.08 3.52 2.83 3.56 2.63 3.29	nb 2872 1417 3168 2793 3229 2618 3609 2855 3591 2393 952	R 0.993 0.994 0.990 0.992 0.996 0.972 0.991 0.990 0.988 0.937 0.995	mbd 0.24 0.01 -0.11 0.00 0.04 0.27 -0.04 -0.13 0.07 0.09 -0.15	sd 0.37 0.39 0.35 0.34 0.25 0.62 0.33 0.37 0.39 0.90 0.34	Gh 5.04 3.26 2.89 2.99 4.47 3.08 3.52 2.83 3.56 2.63 3.29	nb 2872 1417 3168 2792 3229 2618 3609 2855 3591 2393 952	R 0.995 0.994 0.993 0.993 0.996 0.975 0.991 0.991 0.993 0.993	mbd 0.09 0.08 -0.08 0.05 0.04 0.17 0.20 -0.03 0.04 0.13 -0.15	0.33 0.39 0.33 0.25 0.57 0.34 0.35 0.38 0.90 0.33	Almeria 2004 - 2011 Bratislava 2004 - 2013 Carborne 2004 - 2013 Carportras 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2013 Kassiel 2004 - 2013 Kishinev 2004-2013 Lindenberg 2004-2013	5.73 3.38 2.48 2.40 5.40 3.31 3.51 2.36 3.67 1.79 3.14	2872 1417 3168 2793 3229 2617 3609 2855 3591 2393 952	R 0.937 0.972 0.946 0.948 0.962 0.885 0.956 0.963 0.945 0.788 0.968	mbd 0.67 -0.13 0.42 0.56 0.14 0.58 0.06 0.17 0.24 0.81 0.05	sd 1.38 0.97 0.91 0.98 1.03 1.62 0.97 0.80 1.08 1.80 1.02	Bn 5.73 3.38 2.48 2.40 5.40 3.31 3.51 2.36 3.67 1.79 3.14	nb 2872 1417 3168 2792 3229 2617 3609 2855 3591 2393 952	R 0.960 0.981 0.963 0.957 0.962 0.907 0.965 0.970 0.958 0.794 0.971	mbd 0.20 0.06 0.35 0.71 0.14 0.32 0.72 0.41 0.18 0.96 0.06	1.15 0.79 0.77 0.91 1.03 1.46 0.87 0.73 0.95 1.84 0.96	Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2011 Geneva 2004 - 2011 Kishinev 2004-2013 Lindenberg 2004-2010	1.55 1.45 1.58 1.66 1.37 1.21 1.49 1.41 1.45 1.76 1.62	nb 2872 1417 3168 2793 3229 2617 3609 2855 3591 2393 952	R 0.893 0.969 0.956 0.961 0.900 0.892 0.883 0.959 0.904 0.943 0.982 0.877 0.978	mbd -0.17 -0.06 -0.35 -0.30 -0.12 -0.04 -0.08 -0.10 -0.10 -0.33 -0.23	sd 0.52 0.37 0.46 0.43 0.42 0.50 0.44 0.36 0.40 0.54 0.37	Dh 1.55 1.45 1.58 1.66 1.37 1.21 1.49 1.41 1.45 1.76 1.62	nb 2872 1417 3168 2792 3229 2617 3609 2855 3591 2393 952	R 0.918 0.975 0.968 0.962 0.900 0.904 0.913 0.969 0.915 0.941 0.983	mbd -0.11 -0.11 -0.30 -0.34 -0.12 0.00 -0.21 -0.15 -0.12 -0.37 -0.25	0.47 0.35 0.39 0.44 0.42 0.47 0.42 0.34 0.38 0.55 0.37
Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauv 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2013 Kassel 2004 - 2011 Kishinev 2004 - 2013 Lerwick 2004-2013 Lindenberg 2004 - 2010 Madrid 2004-2013	5.04 3.26 2.89 2.99 4.47 3.08 3.52 2.83 3.56 2.63 3.29 4.47 3.48 3.63	nb 2872 1417 3168 2793 3229 2618 3609 2855 3591 2393 952 3083	R 0.993 0.994 0.990 0.992 0.996 0.972 0.991 0.990 0.988 0.937 0.995 0.993	mbd 0.24 0.01 -0.11 0.00 0.04 0.27 -0.04 -0.13 0.07 0.09 -0.15 0.13	sd 0.37 0.39 0.35 0.34 0.25 0.62 0.33 0.37 0.39 0.90 0.34 0.35	Gh 5.04 3.26 2.89 2.99 4.47 3.08 3.52 2.83 3.56 2.63 3.29 4.47	nb 2872 1417 3168 2792 3229 2618 3609 2855 3591 2393 952 3083	R 0.995 0.994 0.993 0.993 0.996 0.975 0.991 0.991 0.993 0.994	mbd 0.09 0.08 -0.08 0.05 0.04 0.17 0.20 -0.03 0.04 0.13 -0.15 0.22	0.33 0.39 0.33 0.33 0.25 0.57 0.34 0.35 0.38 0.90 0.33 0.32	Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Carborne 2004 - 2013 Carportras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2011 Kishinev 2004 - 2013 Lerwick 2004 - 2013 Lindenberg 2004 - 2010 Madrid 2004 - 2013	5.73 3.38 2.48 2.40 5.40 3.31 3.51 2.36 3.67 1.79 3.14 4.99 3.45 3.51	2872 1417 3168 2793 3229 2617 3609 2855 3591 2393 952 3083	R 0.937 0.972 0.946 0.948 0.962 0.885 0.956 0.963 0.945 0.788 0.968 0.943 0.972 0.961	mbd 0.67 -0.13 0.42 0.56 0.14 0.58 0.06 0.17 0.24 0.81 0.05 0.31	sd 1.38 0.97 0.91 0.98 1.03 1.62 0.97 0.80 1.08 1.80 1.02 1.27	Bn 5.73 3.38 2.48 2.40 5.40 3.31 3.51 2.36 3.67 1.79 3.14 4.99	nb 2872 1417 3168 2792 3229 2617 3609 2855 3591 2393 952 3083	R 0.960 0.981 0.963 0.957 0.962 0.907 0.965 0.970 0.958 0.794 0.971 0.963 0.980 0.980	mbd 0.20 0.06 0.35 0.71 0.14 0.32 0.72 0.41 0.18 0.96 0.06 0.61	1.15 0.79 0.77 0.91 1.03 1.46 0.87 0.73 0.95 1.84 0.96 0.99	Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2013 Kassel 2004 - 2013 Lerwick 2004-2013 Lindenberg 2004-2010 Madrid 2004-2013	1.55 1.45 1.58 1.66 1.37 1.21 1.49 1.41 1.45 1.76 1.62 1.30	nb 2872 1417 3168 2793 3229 2617 3609 2855 3591 2393 952 3083	R 0.893 0.969 0.956 0.961 0.900 0.892 0.883 0.959 0.904 0.943 0.982 0.877 0.978 0.952	mbd -0.17 -0.06 -0.35 -0.30 -0.12 -0.04 -0.08 -0.10 -0.10 -0.33 -0.23 -0.23 -0.16 -0.22	sd 0.52 0.37 0.46 0.43 0.42 0.50 0.44 0.36 0.40 0.54 0.37 0.47	Dh 1.55 1.45 1.58 1.66 1.37 1.21 1.49 1.41 1.45 1.76 1.62 1.30 1.66 1.61	nb 2872 1417 3168 2792 3229 2617 3609 2855 3591 2393 952 3083	R 0.918 0.975 0.968 0.962 0.900 0.904 0.913 0.969 0.915 0.941 0.983 0.907 0.981 0.969	mbd -0.11 -0.11 -0.30 -0.34 -0.12 0.00 -0.21 -0.15 -0.12 -0.37 -0.25 -0.04	0.47 0.35 0.39 0.44 0.42 0.47 0.42 0.34 0.38 0.55 0.37 0.42 0.33 0.38
Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2011 Kassel 2004 - 2011 Linkinev 2004 - 2013 Lindenberg 2004 - 2010 Madrid 2004 - 2013 Nantes 2004 - 2010	5.04 3.26 2.89 2.99 4.47 3.08 3.52 2.83 3.56 2.63 3.29 4.47 3.48	nb 2872 1417 3168 2793 3229 2618 3609 2855 3591 2393 952 3083 2106	R 0.993 0.994 0.990 0.992 0.996 0.972 0.991 0.990 0.988 0.937 0.995 0.993 0.996	mbd 0.24 0.01 -0.11 0.00 0.04 0.27 -0.04 -0.13 0.07 0.09 -0.15 0.13 -0.08	sd 0.37 0.39 0.35 0.34 0.25 0.62 0.33 0.37 0.39 0.90 0.34 0.35 0.29	Gh 5.04 3.26 2.89 4.47 3.08 3.52 2.83 3.56 2.63 3.29 4.47 3.47	nb 2872 1417 3168 2792 3229 2618 3609 2855 3591 2393 952 3083 2106	R 0.995 0.994 0.991 0.993 0.996 0.975 0.991 0.992 0.993 0.996 0.975 0.991 0.993 0.994 0.995 0.995 0.996 0.996 0.996 0.996 0.994 0.997	mbd 0.09 0.08 -0.08 0.05 0.04 0.17 0.20 -0.03 0.04 0.13 -0.15 0.22 -0.03	0.33 0.39 0.33 0.33 0.25 0.57 0.34 0.35 0.38 0.90 0.33 0.32 0.27	Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Kassel 2004 - 2013 Kassel 2004 - 2013 Lerwick 2004-2013 Lerwick 2004-2013 Lindenberg 2004-2010 Madrid 2004-2013 Nantes 2004-2010	5.73 3.38 2.48 2.40 5.40 3.31 3.51 2.36 3.67 1.79 3.14 4.99 3.45	2872 1417 3168 2793 3229 2617 3609 2855 3591 2393 952 3083 2106	R 0.937 0.972 0.946 0.948 0.962 0.885 0.956 0.963 0.945 0.788 0.968 0.943 0.972	mbd 0.67 -0.13 0.42 0.56 0.14 0.58 0.06 0.17 0.24 0.81 0.05 0.31 -0.02	sd 1.38 0.97 0.91 0.98 1.03 1.62 0.97 0.80 1.08 1.80 1.02 1.27 0.87	Bn 5.73 3.38 2.48 2.40 5.40 3.31 3.51 2.36 3.67 1.79 3.14 4.99 3.44	nb 2872 1417 3168 2792 3229 2617 3609 2855 3591 2393 952 3083 2106	R 0.960 0.981 0.963 0.957 0.962 0.907 0.965 0.970 0.958 0.794 0.971 0.963 0.980	mbd 0.20 0.06 0.35 0.71 0.14 0.32 0.72 0.41 0.18 0.96 0.06 0.61 0.14	1.15 0.79 0.77 0.91 1.03 1.46 0.87 0.73 0.95 1.84 0.96 0.99 0.72	Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Camborne 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Kassel 2004 - 2013 Kassel 2004 - 2013 Lerwick 2004 - 2013 Lindenberg 2004 - 2013 Nantes 2004 - 2013 Nantes 2004 - 2013	1.55 1.45 1.58 1.66 1.37 1.21 1.49 1.41 1.45 1.76 1.62 1.30 1.66	nb 2872 1417 3168 2793 3229 2617 3609 2855 3591 2393 952 3083 2106	R 0.893 0.969 0.956 0.961 0.900 0.892 0.883 0.959 0.904 0.943 0.982 0.877 0.978	mbd -0.17 -0.06 -0.35 -0.30 -0.12 -0.04 -0.08 -0.10 -0.10 -0.33 -0.23 -0.23 -0.5 -0.16	sd 0.52 0.37 0.46 0.43 0.42 0.50 0.44 0.36 0.40 0.54 0.37 0.47 0.34	Dh 1.55 1.45 1.58 1.66 1.37 1.21 1.49 1.41 1.45 1.76 1.62 1.30 1.66	nb 2872 1417 3168 2792 3229 2617 3609 2855 3591 2393 952 3083 2106	R 0.918 0.975 0.968 0.962 0.900 0.904 0.913 0.969 0.915 0.941 0.983 0.907 0.981	mbd -0.11 -0.11 -0.30 -0.34 -0.12 0.00 -0.21 -0.15 -0.12 -0.37 -0.25 -0.04 -0.21	0.47 0.35 0.39 0.44 0.42 0.47 0.42 0.34 0.38 0.55 0.37 0.42 0.33
Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Geneva 2004 - 2011 Geneva 2004 - 2011 Kishinev 2004 - 2013 Lindenberg 2004 - 2013 Lindenberg 2004 - 2010 Madrid 2004 - 2010 Payerne 2004 - 2011	5.04 3.26 2.89 2.99 4.47 3.08 3.52 2.83 3.56 2.63 3.29 4.47 3.48 3.63	nb 2872 1417 3168 2793 3229 2618 3609 2855 3591 2393 952 3083 2106 2448	R 0.993 0.994 0.990 0.992 0.996 0.972 0.991 0.990 0.988 0.937 0.995 0.993 0.996	mbd 0.24 0.01 -0.11 0.00 0.04 0.27 -0.04 -0.13 0.07 0.09 -0.15 0.13 -0.08 -0.30	sd 0.37 0.39 0.35 0.34 0.25 0.62 0.33 0.37 0.39 0.90 0.34 0.35 0.29 0.39	Gh 5.04 3.26 2.89 4.47 3.08 3.52 2.83 3.56 2.63 3.29 4.47 3.47 3.63	nb 2872 1417 3168 2792 3229 2618 3609 2855 3591 2393 952 3083 2106 2448	R 0.995 0.994 0.991 0.993 0.996 0.975 0.991 0.992	mbd 0.09 0.08 -0.08 0.05 0.04 0.17 0.20 -0.03 0.04 0.13 -0.15 0.22 -0.03 -0.06	0.33 0.39 0.33 0.25 0.57 0.34 0.35 0.38 0.90 0.33 0.32 0.27 0.40	Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2011 Kishiney 2004 - 2013 Lerwick 2004 - 2013 Lindenberg 2004 - 2013 Madrid 2004 - 2013 Nantes 2004 - 2010 Payerne 2004 - 2011	5.73 3.38 2.48 2.40 5.40 3.31 3.51 2.36 3.67 1.79 3.14 4.99 3.45 3.51	2872 1417 3168 2793 3229 2617 3609 2855 3591 2393 952 3083 2106 2448	R 0.937 0.972 0.946 0.948 0.962 0.885 0.956 0.963 0.945 0.788 0.968 0.943 0.972 0.961	mbd 0.67 -0.13 0.42 0.56 0.14 0.58 0.06 0.17 0.24 0.81 0.05 0.31 -0.02 -0.21	sd 1.38 0.97 0.91 0.98 1.03 1.62 0.97 0.80 1.08 1.80 1.02 1.27 0.87 1.06	Bn 5.73 3.38 2.48 2.40 5.40 3.31 3.51 2.36 3.67 1.79 3.14 4.99 3.44 3.51	nb 2872 1417 3168 2792 3229 2617 3609 2855 3591 2393 952 3083 2106 2448	R 0.960 0.981 0.963 0.957 0.962 0.907 0.965 0.970 0.958 0.794 0.971 0.963 0.980 0.980	mbd 0.20 0.06 0.35 0.71 0.14 0.32 0.72 0.41 0.18 0.96 0.06 0.61 0.14 0.45	1.15 0.79 0.77 0.91 1.03 1.46 0.87 0.73 0.95 1.84 0.96 0.99 0.72 0.95	Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2011 Kishinev 2004 - 2013 Lindenberg 2004-2013 Lindenberg 2004-2010 Madrid 2004-2010 Payerne 2004-2011	1.55 1.45 1.58 1.66 1.37 1.21 1.49 1.41 1.45 1.76 1.62 1.30 1.66 1.61	nb 2872 1417 3168 2793 3229 2617 3609 2855 3591 2393 952 3083 2106 2448	R 0.893 0.969 0.956 0.961 0.900 0.892 0.883 0.959 0.904 0.943 0.982 0.877 0.978 0.952	mbd -0.17 -0.06 -0.35 -0.30 -0.12 -0.04 -0.08 -0.10 -0.10 -0.33 -0.23 -0.23 -0.16 -0.22	sd 0.52 0.37 0.46 0.43 0.42 0.50 0.44 0.36 0.40 0.54 0.37 0.47 0.34 0.42	Dh 1.55 1.45 1.58 1.66 1.37 1.21 1.49 1.41 1.45 1.76 1.62 1.30 1.66 1.61	nb 2872 1417 3168 2792 3229 2617 3609 2855 3591 2393 952 3083 2106 2448	R 0.918 0.975 0.968 0.962 0.900 0.904 0.913 0.969 0.915 0.941 0.983 0.907 0.981 0.969	mbd -0.11 -0.11 -0.30 -0.34 -0.12 0.00 -0.21 -0.15 -0.12 -0.37 -0.25 -0.04 -0.21 -0.34	0.47 0.35 0.39 0.44 0.42 0.47 0.42 0.34 0.38 0.55 0.37 0.42 0.33 0.38
Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Geneva 2004 - 2011 Geneva 2004 - 2013 Kassel 2004 - 2013 Lindenberg 2004-2013 Lindenberg 2004-2013 Lindenberg 2004-2010 Madrid 2004-2010 Payerne 2004-2011 Sede Boqer 2004-2012	5.04 3.26 2.89 2.99 4.47 3.08 3.52 2.83 3.56 2.63 3.29 4.47 3.48 3.63 5.69	nb 2872 1417 3168 2793 3229 2618 3609 2855 3591 2393 952 3083 2106 2448 2866	R 0.993 0.994 0.990 0.992 0.996 0.972 0.991 0.998 0.937 0.995 0.993 0.996	mbd 0.24 0.01 -0.11 0.00 0.04 0.27 -0.04 -0.13 0.07 0.09 -0.15 0.13 -0.08 -0.30 -0.37	sd 0.37 0.39 0.35 0.34 0.25 0.62 0.33 0.37 0.39 0.90 0.34 0.35 0.29 0.39 0.39	Gh 5.04 3.26 2.89 2.99 4.47 3.08 3.52 2.83 3.56 2.63 3.29 4.47 3.47 3.63 5.69	nb 2872 1417 3168 2792 3229 2618 3609 2855 3591 2393 952 3083 2106 2448 2866	R 0.995 0.994 0.993 0.996 0.975 0.991 0.996 0.975 0.991 0.996 0.997 0.996 0.997 0.992 0.996	mbd 0.09 0.08 -0.08 0.05 0.04 0.17 0.20 -0.03 0.04 0.13 -0.15 0.22 -0.03 -0.20 -0.03 -0.20 -0.03 -0.04 0.15 0.22 -0.03 -0.05 -0.22 -0.03 -0.05 -0.22 -0.03 -0.22 -0.03 -0.22 -0.03 -0.25 -	0.33 0.39 0.33 0.25 0.57 0.34 0.35 0.38 0.90 0.33 0.32 0.27 0.40 0.33	Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2013 Kashel 2004 - 2013 Lindenberg 2004-2013 Lindenberg 2004-2013 Nantes 2004-2010 Payerne 2004-2011 Sede Boqer 2004-2012	5.73 3.38 2.48 2.40 5.40 3.31 3.51 2.36 3.67 1.79 3.14 4.99 3.45 3.51 6.59	2872 1417 3168 2793 3229 2617 3609 2855 3591 2393 952 3083 2106 2448 2866	R 0.937 0.972 0.946 0.948 0.962 0.885 0.956 0.963 0.945 0.968 0.943 0.943 0.972 0.961 0.939	mbd 0.67 -0.13 0.42 0.56 0.14 0.58 0.06 0.17 0.24 0.81 0.05 0.31 -0.02 -0.21 -1.15	sd 1.38 0.97 0.91 0.98 1.03 1.62 0.97 0.80 1.08 1.80 1.02 1.27 0.87 1.06 1.40	Bn 5.73 3.38 2.48 2.40 5.40 3.31 3.51 2.36 3.67 1.79 3.14 4.99 3.44 3.51 6.59	nb 2872 1417 3168 2792 3229 2617 3609 2855 3591 2393 952 3083 2106 2448 2866	R 0.960 0.981 0.963 0.957 0.962 0.907 0.965 0.970 0.958 0.794 0.971 0.963 0.971 0.963 0.980 0.968 0.962	mbd 0.20 0.06 0.35 0.71 0.14 0.32 0.72 0.41 0.18 0.96 0.06 0.61 0.14 0.45 -0.91	1.15 0.79 0.77 0.91 1.03 1.46 0.87 0.73 0.95 1.84 0.96 0.99 0.72 0.95 1.17	Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2011 Geneva 2004 - 2013 Kishinev 2004 - 2013 Lindenberg 2004-2013 Lindenberg 2004-2013 Nantes 2004-2010 Payerne 2004-2011 Sede Boqer 2004-2012	1.55 1.45 1.58 1.66 1.37 1.21 1.49 1.41 1.45 1.76 1.62 1.30 1.66 1.61 1.45	nb 2872 1417 3168 2793 3229 2617 3609 2855 3591 2393 952 3083 2106 2448 2866	R 0.893 0.969 0.956 0.961 0.900 0.892 0.883 0.959 0.904 0.943 0.982 0.877 0.978 0.952 0.800	mbd -0.17 -0.06 -0.35 -0.30 -0.12 -0.04 -0.08 -0.10 -0.10 -0.33 -0.23 0.05 -0.16 -0.22 0.14	sd 0.52 0.37 0.46 0.43 0.42 0.50 0.44 0.36 0.40 0.54 0.37 0.47 0.34 0.42 0.61	Dh 1.55 1.45 1.58 1.66 1.37 1.21 1.49 1.41 1.45 1.76 1.62 1.30 1.66 1.61 1.45	nb 2872 1417 3168 2792 3229 2617 3609 2855 3591 2393 952 3083 2106 2448 2866	R 0.918 0.975 0.968 0.962 0.900 0.904 0.913 0.969 0.915 0.941 0.983 0.907 0.981 0.969 0.832	mbd -0.11 -0.11 -0.30 -0.34 -0.12 -0.15 -0.12 -0.37 -0.25 -0.04 -0.21 -0.34 0.05	0.47 0.35 0.39 0.44 0.42 0.47 0.42 0.34 0.38 0.55 0.37 0.42 0.33 0.38 0.56
Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Kassel 2004 - 2011 Kishinev 2004 - 2013 Lindenberg 2004 - 2010 Madrid 2004 - 2010 Payerne 2004 - 2010 Payerne 2004 - 2010 Skukuza 2004 - 2007	5.04 3.26 2.89 2.99 4.47 3.08 3.52 2.83 3.56 2.63 3.29 4.47 3.48 3.63 5.69 4.94	nb 2872 1417 3168 2793 3229 2618 3609 2855 3591 2393 952 3083 2106 2448 2866 932	R 0.993 0.994 0.990 0.992 0.996 0.972 0.991 0.990 0.988 0.937 0.995 0.995 0.996 0.997 0.995 0.996 0.997 0.996 0.997 0.995 0.996 0.991 0.994 0.973	mbd 0.24 0.01 -0.11 0.00 0.04 0.27 -0.04 -0.13 0.07 0.09 -0.15 0.13 -0.08 -0.30 -0.37 0.37	sd 0.37 0.39 0.35 0.34 0.25 0.62 0.33 0.37 0.39 0.30 0.34 0.35 0.29 0.39 0.38 1.11	Gh 5.04 3.26 2.89 2.99 4.47 3.08 3.52 2.83 3.56 2.63 3.29 4.47 3.47 3.63 5.69 4.94	nb 2872 1417 3168 2792 3229 2618 3609 2855 3591 2393 952 3083 2106 2448 2866 932	R 0.995 0.994 0.993 0.996 0.975 0.991 0.996 0.975 0.991 0.989 0.938 0.996 0.997 0.992 0.996 0.973	mbd 0.09 0.08 -0.08 0.05 0.04 0.17 0.20 -0.03 0.04 0.13 -0.15 0.22 -0.03 -0.03 -0.22 -0.03 -0.06 -0.27 0.14	0.33 0.39 0.33 0.25 0.57 0.34 0.35 0.38 0.90 0.33 0.32 0.27 0.40 0.33 1.10	Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Camborne 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Kassel 2004 - 2013 Kassel 2004 - 2013 Lerwick 2004-2013 Lerwick 2004-2013 Lindenberg 2004-2010 Madrid 2004-2013 Nantes 2004-2010 Payerne 2004-2011 Sede Boger 2004-2012 Skukuza 2004-2007	5.73 3.38 2.48 2.40 3.31 3.51 2.36 3.67 1.79 3.14 4.99 3.45 3.51 6.59 4.84	2872 1417 3168 2793 3229 2617 3609 2855 3591 2393 952 3083 2106 2448 2866 932	R 0.937 0.972 0.946 0.946 0.952 0.885 0.956 0.945 0.948 0.945 0.943 0.972 0.961 0.939 0.909	mbd 0.67 -0.13 0.42 0.56 0.14 0.58 0.06 0.17 0.24 0.81 0.05 0.31 -0.02 -0.21 -1.15 0.90	sd 1.38 0.97 0.91 0.98 1.03 1.62 0.97 0.80 1.08 1.80 1.02 1.27 0.87 1.06 1.40 2.19	Bn 5.73 3.38 2.48 2.40 5.40 3.31 3.51 2.36 3.67 1.79 3.14 4.99 3.44 3.51 6.59 4.84	nb 2872 1417 3168 2792 3229 2617 3609 2855 3591 2393 952 3083 2106 2448 2866 932	R 0.960 0.981 0.963 0.957 0.962 0.907 0.965 0.970 0.955 0.794 0.971 0.963 0.971 0.963 0.980 0.968 0.962 0.914	mbd 0.20 0.06 0.35 0.71 0.14 0.32 0.72 0.41 0.18 0.96 0.06 0.61 0.14 0.45 -0.91 0.36	1.15 0.79 0.77 0.91 1.03 1.46 0.87 0.73 0.95 1.84 0.96 0.99 0.72 0.95 1.17 2.08	Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Camborne 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Kassel 2004 - 2013 Kishinev 2004 - 2013 Lerwick 2004 - 2013 Lindenberg 2004 - 2013 Nantes 2004 - 2010 Payerne 2004 - 2010 Payerne 2004 - 2011 Skukuza 2004 - 2012 Skukuza 2004 - 2007	1.55 1.45 1.58 1.66 1.37 1.21 1.49 1.41 1.45 1.76 1.62 1.30 1.66 1.61 1.45 1.90	nb 2872 1417 3168 2793 3229 2617 3609 2855 3591 2393 952 3083 2106 2448 2866 932	R 0.893 0.969 0.956 0.961 0.900 0.892 0.883 0.959 0.943 0.978 0.978 0.978 0.952 0.800 0.957	mbd -0.17 -0.06 -0.35 -0.30 -0.12 -0.04 -0.08 -0.10 -0.10 -0.10 -0.33 -0.23 -0.23 -0.16 -0.22 -0.14 -0.33	sd 0.52 0.37 0.46 0.43 0.42 0.50 0.44 0.36 0.40 0.54 0.37 0.37 0.34 0.42 0.61 0.57	Dh 1.55 1.45 1.58 1.66 1.37 1.21 1.49 1.41 1.45 1.76 1.62 1.30 1.66 1.61 1.45 1.90	nb 2872 1417 3168 2792 3229 2617 3609 2855 3591 2393 952 3083 2106 2448 2866 932	R 0.918 0.975 0.968 0.962 0.900 0.904 0.913 0.969 0.915 0.941 0.983 0.907 0.981 0.969 0.832 0.966	mbd -0.11 -0.11 -0.30 -0.34 -0.12 -0.15 -0.12 -0.15 -0.12 -0.37 -0.25 -0.04 -0.21 -0.34 0.05 -0.26	0.47 0.35 0.39 0.44 0.42 0.47 0.42 0.34 0.38 0.55 0.37 0.42 0.33 0.38 0.56 0.50
Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Carpontra 2004 - 2013 Carpontra 2004 - 2013 Gareava 2004 - 2011 Geneva 2004 - 2011 Kassel 2004 - 2013 Lerwick 2004 - 2013 Lindenberg 2004 - 2013 Madrid 2004 - 2010 Payerne 2004 - 2010 Payerne 2004 - 2010 Payerne 2004 - 2017 Tamanrasset 2004 - 2007 Tamanrasset 2004 - 2013	5.04 3.26 2.89 2.99 4.47 3.08 3.52 2.83 3.56 2.63 3.29 4.47 3.48 3.63 5.69 4.94 6.22	nb 2872 1417 3168 2793 3229 2618 3609 2855 3591 2393 952 3083 2106 2448 2866 932 3223	R 0.993 0.994 0.990 0.992 0.996 0.972 0.991 0.990 0.988 0.937 0.995 0.993 0.994 0.995 0.993 0.994 0.993 0.994 0.993 0.994 0.994 0.994	mbd 0.24 0.01 -0.11 0.00 0.04 0.27 -0.04 -0.13 0.07 0.09 -0.15 0.13 -0.08 -0.30 -0.37 0.37 -0.01	sd 0.37 0.39 0.35 0.34 0.25 0.62 0.33 0.37 0.39 0.90 0.34 0.35 0.29 0.39 0.38 1.11 0.51	Gh 5.04 3.26 2.99 2.99 4.47 3.08 3.52 2.83 3.56 2.63 3.29 4.47 3.63 5.69 4.94 6.22	nb 2872 1417 3168 2792 3229 2618 3609 2855 3591 2393 952 3083 2106 2448 2866 932 3223	R 0.995 0.994 0.991 0.993 0.996 0.975 0.991 0.991 0.989 0.938 0.996 0.994 0.997 0.992 0.996 0.973 0.988	mbd 0.09 0.08 -0.08 0.05 0.04 0.17 0.20 -0.03 0.04 0.13 -0.15 0.22 -0.03 -0.06 -0.27 0.14 0.04	0.33 0.39 0.33 0.25 0.57 0.34 0.35 0.38 0.30 0.33 0.32 0.27 0.40 0.33 1.10 0.41	Almeria 2004 - 2011 Bratislava 2004 - 2013 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Garpentras 2004 - 2013 Geneva 2004 - 2011 Geneva 2004 - 2013 Kishiney 2004 - 2013 Lerwick 2004 - 2013 Lindenberg 2004 - 2013 Madrid 2004 - 2013 Nantes 2004 - 2011 Sede Boqer 2004 - 2012 Skukuza 2004 - 2007 Tamanrasset 2004 - 2013	5.73 3.38 2.48 2.40 5.40 3.31 3.51 2.36 3.67 1.79 3.14 4.99 3.45 3.51 6.59 4.84 6.40	2872 1417 3168 2793 3229 2617 3609 2855 3591 2393 952 3083 2106 2448 2866 932 3223	R 0.937 0.946 0.946 0.946 0.962 0.856 0.963 0.945 0.788 0.968 0.943 0.972 0.943 0.972 0.939 0.909 0.818	mbd 0.67 -0.13 0.42 0.56 0.14 0.58 0.06 0.17 0.24 0.81 0.05 0.31 -0.02 -0.21 -1.15 0.90 0.85	sd 1.38 0.97 0.91 0.98 1.03 1.62 0.97 0.80 1.08 1.08 1.02 1.27 0.87 1.06 1.40 2.19 2.07	Bn 5.73 3.38 2.48 2.40 5.40 3.31 3.51 2.36 3.67 1.79 3.14 4.99 3.44 3.51 6.59 4.84 6.40	nb 2872 1417 3168 2792 3229 2617 3609 2855 3591 2393 952 3083 2106 2448 2866 932 3223	R 0.960 0.981 0.963 0.957 0.965 0.970 0.965 0.970 0.958 0.794 0.971 0.963 0.980 0.968 0.968 0.968 0.962 0.914 0.893	mbd 0.20 0.06 0.35 0.71 0.14 0.32 0.72 0.41 0.18 0.96 0.06 0.61 0.14 0.45 -0.91 0.36 0.99	1.15 0.79 0.77 0.91 1.03 1.46 0.87 0.73 0.95 1.84 0.96 0.99 0.72 0.95 1.17 2.08 1.60	Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2013 Kassel 2004 - 2013 Lindenberg 2004-2013 Lindenberg 2004-2013 Madrid 2004-2013 Nantes 2004-2010 Payerne 2004-2011 Sede Boqer 2004-2012 Skukuza 2004-2007 Tamanrasset 2004-2013	1.55 1.45 1.58 1.66 1.37 1.21 1.49 1.41 1.45 1.76 1.62 1.30 1.66 1.61 1.45 1.90 1.88	nb 2872 1417 3168 2793 3229 2617 3609 2855 3591 2395 3083 2106 2448 2866 932 3223	R 0.893 0.969 0.956 0.900 0.892 0.883 0.959 0.904 0.943 0.942 0.882 0.954 0.954 0.954 0.954 0.952 0.800 0.957 0.745	mbd -0.17 -0.06 -0.35 -0.30 -0.12 -0.04 -0.08 -0.10 -0.10 -0.33 -0.23 -0.23 -0.05 -0.16 -0.22 -0.14 -0.33 -0.60	sd 0.52 0.37 0.46 0.43 0.42 0.50 0.44 0.36 0.40 0.54 0.37 0.47 0.34 0.42 0.61 0.57 0.90	Dh 1.55 1.45 1.58 1.66 1.37 1.21 1.49 1.41 1.45 1.76 1.62 1.30 1.66 1.61 1.45 1.90 1.88	nb 2872 1417 3168 2792 3229 2617 3609 2855 3591 2393 952 3083 2106 2448 2866 932 3223	R 0.918 0.975 0.968 0.962 0.904 0.913 0.969 0.915 0.941 0.983 0.907 0.981 0.969 0.832 0.966 0.855	mbd -0.11 -0.11 -0.30 -0.34 -0.12 -0.12 -0.15 -0.12 -0.37 -0.25 -0.04 -0.21 -0.34 -0.21 -0.34 -0.5 -0.26 -0.65	0.47 0.35 0.39 0.44 0.42 0.47 0.42 0.34 0.38 0.35 0.37 0.42 0.33 0.38 0.56 0.50 0.78
Almeria 2004 - 2011 Almeria 2004 - 2017 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Gareava 2004 - 2011 Geneva 2004 - 2013 Kassel 2004 - 2013 Lindenberg 2004-2013 Lindenberg 2004-2010 Madrid 2004-2010 Payerne 2004-2010 Payerne 2004-2011 Sede Boqer 2004-2012 Skukuza 2004-2007 Tamanraset 2004-2013 Toravere 2004 - 2013	5.04 3.26 2.89 2.99 4.47 3.08 3.52 2.83 3.56 2.63 3.29 4.47 3.48 3.63 5.69 4.94 6.22 3.20	nb 2872 1417 3168 2793 3229 2618 3609 2855 3591 2393 952 3083 2106 2448 2866 932 3223 2950	R 0.993 0.994 0.990 0.992 0.996 0.972 0.991 0.990 0.988 0.937 0.995 0.993 0.995 0.993 0.994 0.995 0.993 0.994 0.973 0.982 0.986	mbd 0.24 0.01 -0.11 0.00 0.04 -0.13 0.07 0.09 -0.15 0.13 -0.08 -0.30 -0.37 0.37 -0.01 0.01	sd 0.37 0.39 0.35 0.34 0.25 0.62 0.33 0.37 0.39 0.90 0.34 0.35 0.29 0.39 0.38 1.11 0.51 0.45	Gh 5.04 3.26 2.99 4.47 3.08 3.52 2.83 3.56 2.63 3.29 4.47 3.63 5.69 4.94 6.22 3.20	nb 2872 1417 3168 2792 3229 2618 3609 2855 3591 2393 952 3083 2106 2448 2866 932 3223 2250	R 0.995 0.994 0.991 0.996 0.975 0.991 0.989 0.995 0.991 0.995 0.991 0.988 0.996 0.997 0.992 0.988 0.988 0.988	mbd 0.09 0.08 -0.08 0.05 0.04 0.17 0.20 -0.03 0.04 0.13 -0.15 0.22 -0.03 -0.03 -0.06 -0.27 0.14 0.04 -0.04	0.33 0.39 0.33 0.25 0.57 0.34 0.35 0.38 0.30 0.33 0.32 0.27 0.40 0.33 1.10 0.41 0.40	Almeria 2004 - 2011 Bratislava 2004 - 2013 Carborne 2004 - 2013 Carborne 2004 - 2013 Carportras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2013 Kishinev 2004 - 2013 Lindenberg 2004-2013 Lindenberg 2004-2010 Madrid 2004-2013 Nantes 2004-2010 Payerne 2004-2011 Sede Boger 2004-2012 Skukura 2004-2007 Tamanraset 2004-2013 Toravere 2004 - 2013	5.73 3.38 2.48 2.40 5.40 3.31 3.51 2.36 3.67 1.79 3.14 4.99 3.45 3.51 6.59 4.84 6.40 3.36	2872 1417 3168 2793 3229 2617 3609 2855 3591 2393 952 3083 2106 2448 2866 932 3223 2950	R 0.937 0.972 0.946 0.948 0.962 0.855 0.955 0.953 0.945 0.788 0.968 0.943 0.972 0.968 0.943 0.972 0.961 0.939 0.909 0.818 0.935	mbd 0.67 -0.13 0.42 0.56 0.14 0.58 0.06 0.17 0.24 0.81 0.05 0.31 -0.05 0.31 -0.21 -1.15 0.90 0.85 0.10	sd 1.38 0.97 0.91 0.98 1.03 1.62 0.97 0.80 1.08 1.02 1.27 0.87 1.06 1.40 2.19 2.07 1.29	Bn 5.73 3.38 2.48 2.40 5.40 3.31 3.51 2.36 3.67 1.79 3.14 4.99 3.44 3.51 6.59 4.84 6.40 3.36	nb 2872 1417 3168 2792 3229 2617 3609 2855 3591 2393 952 3083 2106 2448 2866 932 3223 2950	R 0.960 0.981 0.963 0.957 0.962 0.907 0.965 0.970 0.958 0.794 0.971 0.963 0.963 0.963 0.963 0.962 0.914 0.893 0.955	mbd 0.20 0.06 0.35 0.71 0.14 0.32 0.72 0.41 0.18 0.96 0.06 0.61 0.14 0.45 -0.91 0.36 0.99 0.00	1.15 0.79 0.77 0.91 1.03 1.46 0.87 0.73 0.95 1.84 0.96 0.99 0.72 0.95 1.17 2.08 1.60 1.08	Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2011 Kishinev 2004 - 2013 Lindenberg 2004 - 2013 Lindenberg 2004 - 2010 Madrid 2004 - 2010 Payerne 2004 - 2011 Sede Boger 2004 - 2012 Skukura 2004 - 2013 Toravere 2004 - 2013	1.55 1.45 1.45 1.58 1.66 1.37 1.21 1.49 1.41 1.45 1.76 1.62 1.30 1.66 1.61 1.45 1.90 1.88 1.44	nb 2872 1417 3168 2793 3229 2617 3609 2855 3591 2393 952 3083 2106 2486 2486 932 3223 2250	R 0.893 0.969 0.956 0.961 0.900 0.892 0.882 0.959 0.904 0.943 0.982 0.877 0.978 0.952 0.800 0.957 0.745 0.951	mbd -0.17 -0.06 -0.35 -0.30 -0.12 -0.04 -0.08 -0.10 -0.10 -0.10 -0.33 -0.23 -0.16 -0.22 0.14 -0.33 -0.60 -0.06	sd 0.52 0.37 0.46 0.43 0.42 0.50 0.44 0.36 0.44 0.36 0.40 0.54 0.37 0.47 0.34 0.42 0.61 0.57 0.90 0.33	Dh 1.55 1.45 1.58 1.66 1.37 1.21 1.49 1.41 1.45 1.76 1.62 1.30 1.66 1.61 1.45 1.90 1.88 1.44	nb 2872 1417 3168 2792 3229 2617 3609 2855 3591 2393 952 3083 2106 2448 2866 932 3223 2950	R 0.918 0.975 0.968 0.962 0.900 0.904 0.913 0.969 0.915 0.941 0.983 0.907 0.981 0.966 0.855 0.958	mbd -0.11 -0.13 -0.30 -0.32 -0.12 0.00 -0.21 -0.15 -0.12 -0.37 -0.25 -0.04 -0.21 -0.34 -0.25 -0.26 -0.65 -0.07	0.47 0.35 0.39 0.44 0.42 0.47 0.42 0.34 0.38 0.55 0.37 0.42 0.33 0.38 0.56 0.50 0.78 0.31
Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Camborne 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Kassel 2004 - 2011 Kishinev 2004 - 2013 Lindenberg 2004 - 2013 Nantes 2004 - 2013 Nantes 2004 - 2013 Nantes 2004 - 2013 Skukuza 2004 - 2012 Skukuza 2004 - 2013 Valentia 2004 - 2013	5.04 3.26 2.89 2.99 4.47 3.08 3.52 2.83 3.56 2.63 3.29 4.47 3.48 3.63 5.69 4.94 6.22 3.20 2.76	nb 2872 1417 3168 2793 3229 2618 3609 2855 3591 2393 952 3083 2106 2448 2866 932 3223 2950 3610	R 0.993 0.994 0.990 0.996 0.972 0.996 0.972 0.991 0.993 0.995 0.995 0.995 0.995 0.993 0.995 0.993 0.995 0.993 0.995 0.993 0.994 0.995 0.996 0.986 0.987	mbd 0.24 0.01 -0.11 0.00 0.04 0.27 -0.04 -0.13 0.07 0.09 -0.15 0.13 -0.08 -0.30 -0.37 0.37 -0.01 0.01	sd 0.37 0.39 0.35 0.34 0.25 0.62 0.33 0.37 0.39 0.39 0.39 0.39 0.34 0.35 0.29 0.39 0.39 0.34 0.35 0.29 0.39 0.35 0.35 0.35 0.35 0.35 0.35 0.35 0.35	Gh 5.04 3.26 2.89 2.99 4.47 3.08 3.52 2.83 3.56 2.63 3.29 4.47 3.63 5.69 4.94 6.22 3.20 2.76	nb 2872 1417 3168 2792 2618 3609 2855 3591 2393 952 3083 2106 2448 2866 932 2448 2866 932 3223 3223 3250 3610	R 0.995 0.994 0.991 0.996 0.975 0.991 0.989 0.995 0.991 0.992 0.996 0.973 0.988 0.988	mbd 0.09 0.08 -0.08 0.05 0.04 0.17 0.20 -0.03 0.04 0.13 -0.15 0.22 -0.03 -0.05 -0.27 0.14 0.04 -0.04 0.06	0.33 0.39 0.33 0.25 0.57 0.34 0.35 0.38 0.90 0.33 0.32 0.27 0.40 0.33 1.10 0.41 0.40 0.34	Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Camborne 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Kassel 2004 - 2013 Kassel 2004 - 2013 Lindenberg 2004-2013 Lindenberg 2004-2013 Nantes 2004-2010 Madrid 2004-2013 Nantes 2004-2011 Sede Boger 2004-2012 Skukuza 2004-2013 Tamanrasset 2004-2013 Tamanrasset 2004-2013 Valentia 2004-2013	5.73 3.38 2.48 2.40 5.40 3.31 3.51 2.36 3.67 1.79 3.14 4.99 3.45 3.51 6.59 4.84 6.40 3.36 2.60	2872 1417 3168 2793 3229 2617 3609 2855 3591 2393 952 3083 2106 2448 2866 2448 2866 932 3223 2950 3610	R 0.937 0.972 0.946 0.946 0.962 0.885 0.963 0.945 0.963 0.945 0.968 0.943 0.972 0.961 0.939 0.909 0.818 0.935 0.945	mbd 0.67 -0.13 0.42 0.56 0.14 0.58 0.06 0.17 0.24 0.81 0.05 0.31 -0.02 -0.21 -1.15 0.90 0.85 0.10 -0.05	sd 1.38 0.97 0.91 0.98 1.03 1.62 0.97 0.80 1.08 1.80 1.02 1.27 0.87 1.06 1.40 2.19 2.07 1.29 0.88	Bn 5.73 3.38 2.48 2.40 5.40 3.31 3.51 2.36 3.67 1.79 3.14 4.99 3.44 3.51 6.59 4.84 6.40 3.36 2.60	nb 2872 1417 3168 2792 2617 3609 2855 3591 2393 952 3083 2106 2448 2866 932 3223 2950 3610	R 0.960 0.981 0.963 0.957 0.962 0.970 0.965 0.970 0.958 0.794 0.971 0.963 0.963 0.968 0.968 0.962 0.914 0.893 0.955 0.959	mbd 0.20 0.06 0.35 0.71 0.14 0.32 0.72 0.41 0.18 0.96 0.06 0.61 0.14 0.45 -0.91 0.36 0.99 0.00 0.09	1.15 0.79 0.77 0.91 1.03 1.46 0.87 0.73 0.95 1.84 0.96 0.99 0.72 0.95 1.17 2.08 1.60 1.08 0.79	Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Camborne 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Kassel 2004 - 2013 Kishinev 2004 - 2013 Lerwick 2004 - 2013 Lindenberg 2004 - 2013 Nantes 2004 - 2013 Nantes 2004 - 2013 Skukuza 2004 - 2013 Valentia 2004 - 2013	1.55 1.45 1.58 1.66 1.37 1.21 1.49 1.41 1.45 1.76 1.62 1.30 1.66 1.61 1.45 1.90 1.88 1.44 1.44	nb 2872 1417 3168 2793 3229 2617 3609 2855 3591 2393 952 3083 2106 2448 2866 932 3223 2950 3610	R 0.893 0.969 0.956 0.961 0.900 0.892 0.883 0.959 0.904 0.943 0.952 0.800 0.952 0.800 0.951 0.951	mbd -0.17 -0.06 -0.35 -0.30 -0.12 -0.04 -0.08 -0.10 -0.10 -0.33 -0.23 -0.23 -0.23 -0.22 -0.16 -0.22 -0.14 -0.33 -0.60 -0.06	sd 0.52 0.46 0.43 0.42 0.50 0.44 0.36 0.40 0.54 0.37 0.47 0.34 0.42 0.61 0.57 0.90 0.33 0.31	Dh 1.55 1.45 1.58 1.66 1.37 1.21 1.49 1.41 1.45 1.76 1.62 1.30 1.66 1.61 1.45 1.90 1.88 1.44 1.44	nb 2872 1417 3168 2792 2617 3609 2855 3591 2393 952 3083 2106 2448 2866 932 2248 2448 2866 932 3223 3223 3250 3610	R 0.918 0.975 0.968 0.902 0.904 0.913 0.969 0.915 0.941 0.983 0.907 0.981 0.969 0.832 0.969 0.832 0.955 0.958	mbd -0.11 -0.11 -0.30 -0.34 -0.12 -0.12 -0.12 -0.15 -0.12 -0.15 -0.12 -0.37 -0.25 -0.04 -0.21 -0.34 -0.25 -0.26 -0.26 -0.26 -0.27 -0.31	0.47 0.35 0.39 0.44 0.42 0.47 0.42 0.34 0.38 0.55 0.37 0.42 0.33 0.38 0.55 0.37 0.42 0.33 0.56 0.56 0.78 0.31
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Almeria 2004 - 2011 Aratislava 2004 - 2017 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Gareva 2004 - 2011 Geneva 2004 - 2011 Geneva 2004 - 2013 Lindenberg 2004 - 2013 Lindenberg 2004 - 2013 Madrid 2004 - 2013 Payerne 2004 - 2011 Sede Boqer 2004 - 2012 Skukuza 2004 - 2007 Tamanraset 2004 - 2013 Toravere 2004 - 2013 Valtentia 2004 - 2013 Valutentia 2004 - 2013 Wien 2004 - 2013	5.04 3.26 2.89 2.99 4.47 3.08 3.52 2.83 3.56 2.63 3.29 4.47 3.48 3.63 5.69 4.94 6.22 3.20 2.76 3.45 3.31	nb 2872 1417 3168 2793 3229 2618 3609 2855 3591 2393 952 3223 2950 3610 3223 3589 3368	R 0.993 0.994 0.992 0.996 0.972 0.991 0.995 0.993 0.995 0.993 0.995 0.993 0.995 0.993 0.995 0.993 0.995 0.991 0.994 0.973 0.882 0.986 0.986 0.987 0.989 0.990	mbd 0.24 0.01 -0.11 0.00 0.04 0.27 -0.04 -0.04 -0.15 0.07 0.09 -0.15 0.13 -0.08 -0.30 -0.37 -0.37 -0.37 -0.01 0.01 0.01 0.04 -0.12	sd 0.37 0.39 0.35 0.34 0.25 0.62 0.33 0.37 0.39 0.90 0.34 0.35 0.29 0.38 1.11 0.51 0.51 0.35 0.36	Gh 5.04 3.26 2.89 2.99 4.47 3.08 3.52 2.83 3.56 2.63 3.52 3.56 2.63 3.56 3.56 3.56 3.63 5.69 4.94 6.22 3.20 2.76 3.45 3.31	nb 2872 1417 3168 2792 3229 2618 3609 2855 3591 2393 952 3083 2106 2448 2866 932 3223 2952 3023 2123 2950 3610 3589 3368	R 0.995 0.994 0.993 0.993 0.996 0.975 0.991 0.989 0.938 0.996 0.997 0.996 0.997 0.996 0.997 0.996 0.973 0.988 0.990 0.988 0.990 0.988	mbd 0.09 0.08 -0.08 0.05 0.04 0.17 0.20 -0.03 0.04 0.13 -0.15 0.22 -0.03 -0.06 -0.27 0.14 0.04 -0.04 -0.04 -0.04 -0.04 -0.05	0.33 0.39 0.33 0.25 0.57 0.34 0.35 0.38 0.30 0.33 0.32 0.27 0.40 0.33 1.10 0.41 0.41 0.41 0.33 0.33 0.33 0.33 0.33	Almeria 2004 - 2011 Bratislava 2004 - 2013 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Geneva 2004 - 2011 Geneva 2004 - 2013 Kishine 2004-2013 Lerwick 2004-2013 Lindenberg 2004-2013 Madrid 2004-2013 Nantes 2004-2011 Sede Boger 2004-2011 Sede Boger 2004-2011 Stukuza 2004-2007 Tamanraset 2004-2013 Toravere 2004 - 2013 Valemia 2004-2013 Wien 2004-2013	5.73 5.73 3.38 2.48 2.40 5.40 3.51 2.36 3.67 1.79 3.14 4.99 3.45 3.51 6.59 4.84 6.40 3.36 2.60 3.56 3.05	2872 1417 3168 2793 3229 2617 3609 2855 3591 2393 952 3083 2106 2448 2866 932 3223 2950 3610 3589 3368	R 0.937 0.972 0.946 0.948 0.962 0.885 0.963 0.943 0.943 0.943 0.943 0.943 0.972 0.968 0.943 0.972 0.909 0.818 0.935 0.944 0.957	mbd 0.67 -0.13 0.42 0.56 0.14 0.58 0.06 0.17 0.24 0.81 0.05 0.31 -0.21 -1.15 0.90 0.85 0.07 0.07	sd 1.38 0.97 0.98 1.03 1.62 0.97 0.98 1.03 1.62 0.80 1.08 1.80 1.22 0.87 1.06 1.40 2.19 2.07 0.88 0.92 0.98 0.98 0.98 0.98 0.98 0.99 0.98 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.87 0.80 0.87 0.80 0.87 0.80 0.87 0.80 0.87 0.87 0.80 0.87 0.87 0.87 0.87 0.87 0.87 0.86 0.98 0.98 0.98 0.98 0.98 0.98 0.80 0.87 0.86 0.99 0.99 0.98 0.99 0.98 0.98 0.99 0.87 0.80 0.99	Bn 5.73 3.38 2.48 2.40 5.40 5.40 5.40 5.40 5.40 5.40 5.40 5	nb 2872 1417 3168 2792 3229 2617 3609 2855 3591 2393 952 3083 2106 2448 2866 932 3223 2950 3610 3589 3368	R 0.960 0.981 0.963 0.957 0.962 0.907 0.965 0.970 0.958 0.794 0.971 0.963 0.971 0.963 0.968 0.962 0.968 0.962 0.914 0.893 0.955 0.955 0.972 0.957	mbd 0.20 0.06 0.35 0.71 0.14 0.32 0.72 0.41 0.18 0.96 0.06 0.61 0.18 0.96 0.06 0.61 0.45 -0.91 0.36 0.99 0.00 0.09 0.04 4 0.33	1.15 0.79 0.77 0.91 1.03 1.46 0.87 0.73 0.95 1.84 0.96 0.99 0.72 0.95 1.17 2.08 1.60 1.08 1.60 1.08 0.79 0.76 0.79	Almeria 2004 - 2011 Partislava 2004 - 2017 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2013 Kassel 2004 - 2013 Lindenberg 2004-2013 Lindenberg 2004-2013 Lindenberg 2004-2010 Madrid 2004-2013 Nantes 2004-2011 Sede Boger 2004-2011 Sede Boger 2004-2012 Skukuza 2004-2013 Toravere 2004 - 2013 Toravere 2004 - 2013 Valkentia 2004-2013 Walten 2004-2013 Walten 2004-2013	1.55 1.45 1.58 1.66 1.37 1.21 1.49 1.41 1.45 1.62 1.30 1.66 1.61 1.45 1.90 1.88 1.44 1.44 1.44 1.58	nb 2872 1417 3168 2793 2617 3609 2855 3591 2393 952 3083 2106 2448 2866 932 3223 2448 2866 932 3223 2950 3610 3589	R 0.893 0.969 0.956 0.900 0.892 0.833 0.959 0.943 0.943 0.952 0.800 0.957 0.745 0.951 0.953 0.898 0.925	mbd -0.17 -0.06 -0.30 -0.12 -0.04 -0.08 -0.10 -0.10 -0.10 -0.10 -0.33 -0.22 0.16 -0.22 0.16 -0.22 0.16 -0.33 -0.60 -0.06 -0.06 -0.06 -0.01 -0.19	sd 0.52 0.37 0.46 0.43 0.43 0.40 0.50 0.44 0.36 0.40 0.54 0.37 0.47 0.34 0.47 0.34 0.47 0.34 0.57 0.90 0.33 0.31 0.37	Dh 155 1.45 1.66 1.37 1.41 1.45 1.61 1.30 1.62 1.30 1.61 1.62 1.61 1.62 1.63 1.64 1.65 1.90 1.88 1.44 1.40 1.58	nb 2872 1417 3168 2792 3229 2617 3609 2855 3591 2393 952 3083 2106 2448 2866 932 3223 2950 3610 3589 3368	R 0.918 0.975 0.968 0.962 0.900 0.904 0.913 0.915 0.941 0.983 0.907 0.981 0.966 0.855 0.981 0.966 0.855 0.958 0.958 0.921 0.937	mbd -0.11 -0.11 -0.30 -0.34 -0.12 -0.15 -0.12 -0.15 -0.12 -0.37 -0.25 -0.04 -0.21 -0.34 -0.21 -0.34 -0.25 -0.65 -0.07 -0.08 -0.25	0.47 0.35 0.39 0.44 0.42 0.47 0.42 0.34 0.38 0.55 0.37 0.42 0.33 0.38 0.56 0.50 0.78 0.50 0.78 0.31 0.31 0.35 0.40
Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Geneva 2004 - 2011 Geneva 2004 - 2011 Kishinev 2004 - 2013 Lindenberg 2004-2013 Lindenberg 2004-2013 Nantes 2004 - 2013 Payerne 2004 - 2010 Payerne 2004 - 2011 Sede Boqer 2004 - 2012 Skukuza 2004 - 2007 Tamanraset 2004 - 2013 Toravere 2004 - 2013 Valtent - Velin 2004 - 2013 Valten - Velin 2004 - 2013 Zilani 2004 - 2013	5.04 3.26 2.89 2.99 4.47 3.08 3.52 2.83 3.56 2.63 3.29 4.47 3.48 3.63 5.69 4.94 6.22 3.20 2.76 3.45 3.31 3.11	nb 2872 1417 3168 3609 2229 2618 3609 2855 3591 2106 2448 2866 932 3223 2950 3688 3794	R 0.993 0.994 0.992 0.996 0.972 0.991 0.995 0.993 0.995 0.993 0.995 0.993 0.995 0.993 0.995 0.993 0.995 0.991 0.994 0.973 0.882 0.986 0.987 0.989 0.990	mbd 0.24 0.01 -0.11 0.024 0.01 -0.11 0.027 -0.04 -0.13 0.09 -0.15 0.30 -0.30 -0.37 0.37 0.01 0.01 0.021 0.030	sd 0.37 0.39 0.35 0.34 0.25 0.62 0.62 0.62 0.62 0.33 0.37 0.39 0.30 0.34 0.35 0.29 0.34 0.35 0.29 0.34 0.35 0.36 0.34 0.35 0.34 0.35 0.36 0.35 0.36 0.35 0.37 0.39 0.55 0.34 0.55 0.55 0.55 0.55 0.55 0.55 0.55 0.5	Gh 5.04 3.26 2.89 2.97 3.62 2.83 3.52 2.83 3.52 2.83 3.52 2.83 3.52 2.83 3.52 2.83 3.52 2.83 3.52 2.83 3.52 2.83 3.52 3.52 3.53 3.54 3.31 3.12	nb 2872 1417 3168 2792 3229 2618 3699 2855 3591 2393 952 3083 2106 2448 2866 932 3223 2950 3610 3589 3368 1784	R 0.995 0.994 0.993 0.993 0.996 0.975 0.991 0.989 0.938 0.996 0.997 0.996 0.997 0.996 0.997 0.996 0.973 0.988 0.990 0.988 0.990 0.988	mbd 0.09 0.08 0.05 0.04 0.17 0.20 -0.03 0.04 0.13 -0.15 0.22 -0.03 -0.06 -0.27 0.14 0.04 -0.04 0.04 0.17 -0.02 0.10	0.33 0.39 0.33 0.25 0.57 0.34 0.35 0.38 0.30 0.33 0.32 0.27 0.40 0.33 1.10 0.41 0.41 0.41 0.33 0.33 0.33 0.37 0.48	Almeria 2004 - 2011 Bratislava 2004 - 2013 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Geneva 2004 - 2011 Geneva 2004 - 2013 Kishinev 2004 - 2013 Lindenberg 2004-2013 Lindenberg 2004-2013 Nantes 2004-2010 Payerne 2004-2011 Sede Boger 2004-2011 Skukuza 2004-2007 Tamanrasset 2004-2013 Toravere 2004 - 2013 Valuenta 2004-2013 Valuenta 2004-2013 Wien 2004-2013 Wien 2004-2013	5.73 3.38 2.48 2.40 5.40 3.31 2.36 3.67 1.79 3.14 4.99 3.14 4.99 3.45 3.51 6.59 4.84 6.40 3.36 3.36 3.36 3.36 3.36 3.36 3.36 3.3	2872 1417 3168 2793 3229 2617 2855 3591 2393 952 2066 2448 2866 932 2106 2448 2866 932 3223 3253 368 3610 3589 3368 1794	R 0.937 0.972 0.946 0.948 0.962 0.885 0.963 0.943 0.943 0.943 0.943 0.943 0.972 0.968 0.943 0.972 0.909 0.818 0.935 0.944 0.957	mbd 0.67 -0.13 0.42 0.56 0.14 0.58 0.14 0.58 0.14 0.24 0.017 0.24 0.03 0.31 -0.02 0.31 -0.02 1.15 0.90 0.85 0.10 0.85 0.10 0.24 0.24 0.24 0.56 0.05 0.24 0.24 0.56 0.24 0.24 0.56 0.24 0.24 0.24 0.56 0.25 0.24 0.25 0.25 0.24 0.25 0.24 0.25 0.24 0.25 0.25 0.24 0.24 0.25 0.25 0.24 0.24 0.25 0.25 0.24 0.25 0.25 0.25 0.25 0.24 0.25 0.24 0.25 0.24 0.24 0.25 0.24 0.24 0.24 0.24 0.24 0.24 0.24 0.24	sd 1.38 0.97 0.91 1.03 1.62 0.97 0.80 1.62 0.97 0.80 1.62 1.62 1.62 1.62 1.62 1.62 1.62 1.62	Bn 5.73 3.38 2.48 2.40 5.40 3.31 3.51 2.36 3.67 3.14 4.99 3.44 3.51 3.14 4.99 3.44 4.99 3.44 4.355 3.05 2.92	nb 2872 1417 3168 2792 3229 2617 3609 2855 3591 2393 952 3083 2106 2448 2866 2448 2866 2448 2866 332 3223 2950 3610 3589 3368 1784	R 0.960 0.981 0.963 0.957 0.962 0.907 0.965 0.970 0.958 0.794 0.971 0.963 0.971 0.963 0.968 0.962 0.968 0.962 0.914 0.893 0.955 0.955 0.972 0.957	mbd 0.20 0.06 0.35 0.71 0.14 0.32 0.72 0.41 0.18 0.96 0.06 0.61 0.36 0.99 0.00 0.44 0.33 0.36	1.15 0.79 0.77 0.91 1.03 1.46 0.87 0.95 1.84 0.96 0.99 0.72 0.95 1.13	Almeria 2004 - 2011 Partislava 2004 - 2017 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2013 Kassel 2004 - 2013 Lindenberg 2004-2013 Lindenberg 2004-2013 Madrid 2004-2013 Nantes 2004-2011 Sede Boger 2004-2012 Skukuza 2004-2017 Tamanrasset 2004-2013 Toravere 2004 - 2013 Toravere 2004 - 2013 Valientia 2004-2013 Wien 2004-2013 Wien 2004-2013 Zilani 2004-2013	1.55 1.45 1.58 1.66 1.37 1.21 1.49 1.41 1.45 1.76 1.62 1.30 1.66 1.61 1.45 1.90 1.88 1.44 1.44 1.44 1.44 1.48	nb 2872 1417 3168 2293 2617 3609 2855 3591 2393 952 3083 2106 932 32448 2866 932 3593 3688 1794	R 0.893 0.969 0.956 0.900 0.892 0.833 0.959 0.943 0.943 0.952 0.800 0.957 0.745 0.951 0.953 0.898 0.925	mbd -0.17 -0.06 -0.35 -0.30 -0.12 -0.04 -0.04 -0.04 -0.04 -0.10 -0.10 -0.10 -0.10 -0.10 -0.33 -0.22 0.14 -0.22 0.16 -0.22 0.16 -0.22 0.16 -0.06 -0.06 -0.05 -0.16 -0.22 0.16 -0.16 -0.22 0.16 -0.16 -0.10 -0.16 -0.22 -0.16 -0.22 -0.16 -0.22 -0.16 -0.22 -0.16 -0.22 -0.16 -0.22 -0.10 -0	sd 0.52 0.37 0.46 0.43 0.42 0.50 0.50 0.50 0.44 0.36 0.44 0.36 0.47 0.37 0.47 0.34 0.61 0.57 0.90 0.33 0.31 0.42 0.42	Dh 1.55 1.45 1.45 1.58 1.66 1.67 1.21 1.49 1.41 1.45 1.62 1.30 1.66 1.61 1.62 1.30 1.66 1.61 1.45 1.90 1.88 1.44 1.44 1.45	nb 2872 1417 3168 2792 3229 2617 3609 2855 3591 2393 952 3083 2106 2448 2866 932 3223 2950 3610 3589 3368 1784	R 0.918 0.975 0.968 0.962 0.900 0.904 0.913 0.915 0.941 0.983 0.907 0.981 0.966 0.855 0.981 0.966 0.855 0.958 0.958 0.958	mbd -0.11 -0.13 -0.34 -0.12 -0.15 -0.12 -0.37 -0.21 -0.34 -0.21 -0.37 -0.26 -0.65 -0.07 -0.165 -0.08 -0.25 -0.08	0.47 0.35 0.39 0.44 0.42 0.47 0.42 0.34 0.38 0.55 0.37 0.42 0.33 0.38 0.56 0.50 0.78 0.56 0.50 0.78 0.31 0.35 0.40 0.36
Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Carpentras 2004 - 2013 Lassel 2004 - 2013 Lassel 2004 - 2013 Lindenberg 2004 - 2013 Lindenberg 2004 - 2013 Nantes 2004 - 2013 Nantes 2004 - 2013 Nantes 2004 - 2013 Skukuza 2004 - 2013 Skukuza 2004 - 2013 Valenta 2004 - 2013 V	5.04 3.26 2.89 2.99 4.47 3.08 3.52 2.83 3.56 2.63 3.29 4.47 3.48 3.63 5.69 4.94 6.22 3.20 2.76 3.45 3.31 3.11	nb 2872 1417 3168 3609 2229 2618 3609 2855 3591 2106 2393 952 3083 2106 932 2856 932 3223 2950 3688 3794	R 0.993 0.994 0.992 0.996 0.972 0.991 0.995 0.993 0.995 0.993 0.995 0.993 0.995 0.993 0.995 0.993 0.995 0.991 0.994 0.973 0.882 0.986 0.987 0.989 0.990	mbd 0.24 0.01 -0.11 0.00 0.04 0.27 -0.04 0.27 -0.03 0.07 0.09 -0.15 0.07 0.08 -0.30 -0.31 0.01 0.01 0.01 0.01 0.02	sd 0.37 0.39 0.35 0.34 0.25 0.62 0.62 0.62 0.62 0.33 0.37 0.39 0.30 0.34 0.35 0.29 0.34 0.35 0.29 0.34 0.35 0.36 0.34 0.35 0.36 0.36 0.35 0.36 0.35 0.36 0.37 0.39 0.55 0.34 0.55 0.55 0.55 0.55 0.55 0.55 0.55 0.5	Gh 5.04 3.26 2.89 2.97 3.62 2.83 3.52 2.83 3.52 2.83 3.52 2.83 3.52 2.83 3.52 2.83 3.52 2.83 3.52 2.83 3.52 2.83 3.52 3.52 3.53 3.54 3.31 3.12	nb 2872 1417 3168 2792 3229 2618 3699 2855 3591 2393 952 3083 2106 2448 2866 932 3223 2950 3610 3589 3368 1784	R 0.995 0.994 0.993 0.993 0.996 0.975 0.991 0.989 0.938 0.996 0.997 0.996 0.997 0.996 0.997 0.996 0.973 0.988 0.990 0.988 0.990 0.988	mbd 0.09 0.08 -0.08 0.05 0.04 0.17 0.20 0.03 0.04 0.13 -0.03 0.22 -0.03 0.22 -0.03 0.22 -0.04 0.22 -0.05 0.24 -0.06 0.27 0.14 0.04 -0.05 0.04 0.04 0.06 0.17 0.04 0.04 0.06 0.17 0.02 0.04 0.04	0.33 0.39 0.33 0.25 0.57 0.34 0.35 0.38 0.30 0.33 0.32 0.27 0.40 0.33 1.10 0.41 0.41 0.41 0.33 0.33 0.33 0.37 0.48	Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Kassel 2004 - 2013 Kassel 2004 - 2013 Lerwick 2004-2013 Lerwick 2004-2013 Lindenberg 2004-2013 Nantes 2004-2010 Payerne 2004-2011 Sede Boger 2004-2012 Skukuza 2004-2017 Tamanrasset 2004-2013 Valernia 2004-2013 Valerni	5.73 3.38 2.48 2.40 5.40 3.31 2.36 3.67 1.79 3.14 4.99 3.14 4.99 3.45 3.51 6.59 4.84 6.40 3.36 3.36 3.36 3.36 3.36 3.36 3.36 3.3	2872 1417 3168 2793 3229 2617 2855 3591 2393 952 2066 2448 2866 932 2106 2448 2866 932 3223 3253 368 3610 3589 3368 1794	R 0.937 0.972 0.946 0.948 0.962 0.885 0.963 0.943 0.943 0.943 0.943 0.943 0.972 0.968 0.943 0.972 0.909 0.818 0.935 0.944 0.957	mbd 0.67 -0.13 0.42 0.56 0.14 0.58 0.14 0.58 0.14 0.58 0.17 0.24 0.81 0.02 -0.21 -1.15 0.90 0.85 0.10 -0.05 0.07 0.07 0.07 0.07 0.07	sd 1.38 0.97 0.91 1.03 1.62 0.97 0.80 1.62 0.97 0.80 1.62 1.62 1.62 1.62 1.62 1.62 1.62 1.62	Bn 5.73 3.38 2.48 2.40 5.40 3.31 3.51 2.36 3.67 3.14 4.99 3.44 3.51 3.14 4.99 3.44 4.99 3.44 4.355 3.05 2.92	nb 2872 1417 3168 2792 3229 2617 3609 2855 3591 2393 952 3083 2106 2448 2866 2448 2866 2448 2866 332 3223 2950 3610 3589 3368 1784	R 0.960 0.981 0.963 0.957 0.962 0.907 0.965 0.970 0.958 0.794 0.971 0.963 0.971 0.963 0.968 0.962 0.968 0.962 0.914 0.893 0.955 0.955 0.972 0.957	mbd 0.20 0.06 0.35 0.71 0.14 0.32 0.72 0.74 0.75 0.76 0.77 0.14 0.32 0.76 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.76 0.79 0.00 0.99 0.00 0.33 0.36 0.33	1.15 0.79 0.77 0.91 1.03 1.46 0.87 0.95 1.84 0.96 0.99 0.72 0.95 1.13	Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Camborne 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Bravos 2004 - 2013 Kassel 2004 - 2013 Lindeberg 2004-2013 Lindeberg 2004-2013 Nantes 2004-2010 Payerne 2004-2010 Payerne 2004-2011 Skukuza 2004-2010 Tamanrasset 2004-2012 Skukuza 2004-2017 Tamanrasset 2004-2013 Valentia 2004-2013 Valentia 2004-2013 Valentia 2004-2013 Valentia 2004-2013 Valentia 2004-2013 Valentia 2004-2013 Zilani 2004-2013	1.55 1.45 1.58 1.66 1.37 1.21 1.49 1.41 1.45 1.76 1.62 1.30 1.66 1.61 1.45 1.90 1.88 1.44 1.44 1.44 1.44 1.48	nb 2872 1417 3168 2293 2617 3609 2855 3591 2393 952 3083 2106 932 32448 2866 932 3593 3688 1794	R 0.893 0.969 0.956 0.900 0.892 0.833 0.959 0.943 0.943 0.952 0.800 0.957 0.745 0.951 0.953 0.898 0.925	mbd -0.17 -0.06 -0.35 -0.30 -0.12 -0.04 -0.08 -0.10 -0.13 -0.23 -0.05 -0.16 -0.22 -0.14 -0.33 -0.22 -0.14 -0.33 -0.60 -0.06 -0.06 -0.06 -0.06 -0.01 -0.12 -0.12 -0.12 -0.12 -0.12 -0.12 -0.12 -0.12 -0.12 -0.14 -0.15 -0.12 -0.15 -0.12 -0.13 -0.23 -0.23 -0.12 -0.22 -0.14 -0.22 -0.12 -0.12 -0.14 -0.22 -0.14 -0.22 -0.12 -0.12 -0.14 -0.22 -0.14 -0.22 -0.12 -0.12 -0.12 -0.14 -0.22 -0.14 -0.22 -0.14 -0.22 -0.12 -0.12 -0.12 -0.12 -0.14 -0.22 -0.12 -0	sd 0.52 0.37 0.46 0.43 0.42 0.50 0.50 0.50 0.44 0.36 0.44 0.36 0.47 0.37 0.47 0.34 0.61 0.57 0.90 0.33 0.31 0.42 0.42	Dh 1.55 1.45 1.45 1.58 1.66 1.67 1.21 1.49 1.41 1.45 1.62 1.30 1.66 1.61 1.62 1.30 1.66 1.61 1.45 1.90 1.88 1.44 1.44 1.45	nb 2872 1417 3168 2792 3229 2617 3609 2855 3591 2393 952 3083 2106 2448 2866 932 3223 2950 3610 3589 3368 1784	R 0.918 0.975 0.968 0.962 0.900 0.904 0.913 0.915 0.941 0.983 0.907 0.981 0.966 0.855 0.981 0.966 0.855 0.958 0.958 0.958	mbd -0.11 -0.11 -0.34 -0.34 -0.12 -0.34 -0.21 -0.15 -0.12 -0.37 -0.25 -0.04 -0.21 -0.37 -0.25 -0.04 -0.25 -0.04 -0.26 -0.26 -0.05 -0.07 -0.11 -0.08 -0.08 -0.08	0.47 0.35 0.39 0.44 0.42 0.47 0.42 0.34 0.34 0.34 0.35 0.37 0.42 0.33 0.38 0.56 0.50 0.78 0.31 0.35 0.40 0.36

Table a-IISite by site, for the two helioclim-3 versions, daily global, normal beam and diffuse irradiation validation results expressed in relative and absolute values. The absolute values
are given in [kWh/m²h day].

For all sites, the overall values, the absolute mean bias and the standard deviation of the bias are given.

					Month	lv values										Month	v values										Monthle	v values				
Global irradiance	<u> </u>		HelioClim-3	844	WORth	ly values		HelioClim-3	8v5		Beam irradiance	<u> </u>		HelioClim-	3v4	WOIIth	y values	н	elioClim-3	v5		Diffuse irradiance		,	HelioClim-3	tv/I	WORth	y values	ŀ	lelioClim-3	8v5	
	Gh	nb	R	mbd	sd	Gh	nb	R	mbd	sd		Bn	nb	R	mbd	sd	Bn	nb	R	mbd	sd		Dh	nb	R	mbd	sd	Dh	nb	R	mbd	sd
Almeria 2004 - 2011	152.3	95	0.999	5%	3%	152.3	95	0.999	2%	2%	Almeria 2004 - 2011	173.3	95	0.986	12%	9%	173.3	95	0.991	4%	7%	Almeria 2004 - 2011	46.9	95	0.985	-11%	11%	46.9	95	0.987	-7%	10%
Bratislava 2004 - 2007	98.2	47	0.999	0%	5%	98.2	47	0.999	2%	5%	Bratislava 2004 - 2007	102.0	47	0.994	-4%	10%	102.0	47	0.996	2%	9%	Bratislava 2004 - 2007	43.7	47	0.995	-4%	10%	43.7	47	0.996	-7%	11%
Cabauw 2004 - 2013	85.6	107	0.996	-4%	7%	85.6	107	0.997	-3%	6%	Cabauw 2004 - 2013	73.5	107	0.983	17%	16%	73.5	107	0.986	14%	14%	Cabauw 2004 - 2013	46.8	107	0.996	-22%	18%	46.8	107	0.997	-19%	16%
Camborne 2004 - 2013	85.3	98	0.999	0%	4%	85.3	98	0.999	2%	4%	Camborne 2004 - 2013	68.4	98	0.984	23%	23%	68.4	98	0.984	30%	22%	Camborne 2004 - 2013	47.4	98	0.997	-18%	14%	47.4	98	0.996	-21%	15%
Carpentras 2004 - 2013	123.6	117	0.999	1%	2%	123.6	117	0.999	1%	2%	Carpentras 2004 - 2013	149.2	117	0.981	3%	8%	149.2	117	0.981	3%	8%	Carpentras 2004 - 2013	37.9	117	0.964	-9%	12%	37.9	117	0.964	-9%	12%
Davos 2004 - 2011	85.4	95	0.994	9%	11%	85.4	95	0.996	5%	8%	Davos 2004 - 2011	92.1	95	0.923	17%	29%	92.1	95	0.942	10%	22%	Davos 2004 - 2011	33.7	95	0.963	-3%	22%	33.7	95	0.964	0%	21%
Geneva 2004 - 2013	106.8	119	0.999	-1%	3%	106.8	119	0.999	6%	3%	Geneva 2004 - 2013	106.4	119	0.990	2%	8%	106.4	119	0.987	20%	9%	Geneva 2004 - 2013	45.1	119	0.979	-6%	11%	45.1	119	0.978	-14%	13%
Kassel 2004 - 2011	85.1	95	0.998	-5%	7%	85.1	95	0.998	-1%	6%	Kassel 2004 - 2011	70.9	95	0.992	7%	11%	70.9	95	0.991	17%	12%	Kassel 2004 - 2011	42.4	95	0.995	-7%	12%	42.4	95	0.995	-11%	14%
Kishinev 2004-2013	107.4	119	0.997	2%	5%	107.4	119	0.998	1%	4%	Kishinev 2004-2013	110.7	119	0.987	7%	10%	110.7	119	0.981	5%	11%	Kishinev 2004-2013	43.9	119	0.989	-7%	10%	43.9	119	0.982	-8%	11%
Lerwick 2004-2013	65.7	96	0.993	3%	12%	65.7	96	0.994	5%	12%	Lerwick 2004-2013	44.5	96	0.942	46%	53%	44.5	96	0.947	54%	53%	Lerwick 2004-2013	43.8	96	0.996	-19%	16%	43.8	96	0.996	-21%	18%
Lindenberg 2004-2010	89.7	35	0.999	-5%	4%	89.7	35	0.999	-4%	5%	Lindenberg 2004-2010	85.4	35	0.993	2%	14%	85.4	35	0.988	2%	16%	Lindenberg 2004-2010	44.3	35	0.997	-14%	12%	44.3	35	0.996	-15%	14%
Madrid 2004-2013	125.5	110	0.998	3%	4%	125.5	110	0.998	5%	4%	Madrid 2004-2013	139.9	110	0.975	6%	12%	139.9	110	0.983	12%	9%	Madrid 2004-2013	36.5	110	0.956	4%	15%	36.5	110	0.964	-3%	13%
Nantes 2004-2010	103.1	71	0.999	-2%	3%	103.0	71	1.000	-1%	3%	Nantes 2004-2010	102.4	71	0.992	-1%	10%	102.1	71	0.995	4%	8%	Nantes 2004-2010	49.2	71	0.997	-9%	10%	49.2	71	0.997	-12%	10%
Payerne 2004-2011	101.1	88	0.997	-8%	6%	101.1	88	0.999	-2%	4%	Payerne 2004-2011	97.7	88	0.990	-6%	10%	97.7	88	0.990	13%	12%	Payerne 2004-2011	44.9	88	0.993	-14%	10%	44.9	88	0.991	-21%	13%
Sede Boger 2004-2012	163.3	100	0.997	-7%	4%	163.3	100	0.999	-5%	4%	Sede Boger 2004-2012	188.8	100	0.986	-17%	8%	188.8	100	0.989	-14%	8%	Sede Boger 2004-2012	41.5	100	0.932	10%	19%	41.5	100	0.913	3%	21%
Skukuza 2004-2007	127.8	36	0.998	8%	6%	127.8	36	0.998	3%	6%	Skukuza 2004-2007	125.3	36	0.987	19%	17%	125.3	36	0.990	8%	13%	Skukuza 2004-2007	49.1	36	0.993	-18%	16%	49.1	36	0.996	-13%	12%
Tamanrasset 2004-2013	187.3	107	0.994	0%	4%	187.3	107	0.996	1%	3%	Tamanrasset 2004-2013	192.8	107	0.867	13%	20%	192.8	107	0.935	15%	14%	Tamanrasset 2004-2013	56.7	107	0.853	-32%	30%	56.7	107	0.941	-35%	25%
Toravere 2004 - 2013	86.5	109	0.993	0%	10%	86.5	109	0.995	-1%	8%	Toravere 2004 - 2013	90.9	109	0.966	3%	22%	90.9	109	0.978	0%	16%	Toravere 2004 - 2013	39.0	109	0.993	-4%	9%	39.0	109	0.994	-5%	8%
Valentia 2004-2013	83.7	119	0.997	0%	6%	83.6	119	0.999	2%	5%	Valentia 2004-2013	78.9	119	0.969	-2%	18%	78.8	119	0.982	4%	15%	Valentia 2004-2013	43.8	119	0.997	-4%	8%	43.7	119	0.997	-7%	9%
Vaulx-en-Velin 2004-2013	104.0	119	0.996	1%	6%	104.0	119	0.997	5%	4%	Vaulx-en-Velin 2004-2013	107.3	119	0.986	2%	10%	107.0	119	0.988	12%	8%	Vaulx-en-Velin 2004-2013	42.2	119	0.978	0%	10%	42.1	119	0.975	-6%	13%
Wien 2004-2013	99.5	112	0.998	-4%	4%	99.5	112	0.998	-1%	5%	Wien 2004-2013	91.7	112	0.988	2%	10%	91.7	112	0.986	11%	11%	Wien 2004-2013	47.5	112	0.989	-12%	12%	47.5	112	0.988	-16%	14%
Zilani 2004-2009	85.7	65	0.997	10%	10%	88.4	63	0.997	3%	7%	Zilani 2004-2009	80.2	65	0.987	30%	27%	82.7	63	0.987	12%	17%	Zilani 2004-2009	41.0	65	0.995	-8%	12%	42.2	63	0.997	-6%	9%
All sites	107.7	95		0.0%	6%	107.7	95		1.2%	5%	All sites	109.1	95		5.8%	16%	109.2	95		8.8%	13%	All sites	43.7	OF		-9.7%	15%	43.8	95		-12.2%	15%
All sites absolute bias	107.7	95		3.1%	0%	107.7	95		2.7%	3%	All sites absolute bias	109.1	95		9.6%	10%	109.2	95		11.1%	15%	All sites absolute bias	45.7	95		-9.7%	13%	43.0	95		-12.2%	13%
Standard dev. of the bias				4.3%					3.3%		Standard dev. of the bias				12.8%					13.5%		Standard dev. of the bias				14.5%					16.1%	
standard dev. of the blas										I	Standard dev. of the bias																				10.170	
																				201010		Standard dev. of the blas										
					Month	ly values										Month	y values										Monthl	y values				
Global irradiance			HelioClim-3	3v4		Í		HelioClim-3			Beam irradiance		ah	HelioClim-	51-4		Ĺ		elioClim-3	v5		Diffuse irradiance	Dh.		HelioClim-3			Í		elioClim-3		
	Gh	nb	R	3v4 mbd	sd	Gh	nb	R	mbd	sd		Bn	nb	R	mbd	sd	Bn	nb	R	v5 mbd	sd	Diffuse irradiance	Dh	nb	R	mbd	sd	Dh	nb	R	mbd	sd
Almeria 2004 - 2011	152.3	nb 95	R 0.999	3v4 mbd 7.13	sd 4.17	Gh 152.3	nb 95	R 0.999	mbd 2.65	3.29	Almeria 2004 - 2011	173.3	95	R 0.986	mbd 20.18	sd 14.96	Bn 173.3	nb 95	R 0.991	v5 mbd 6.09	12.35	Diffuse irradiance Almeria 2004 - 2011	46.9	nb 95	R 0.985	mbd -5.02	sd 5.35	Dh 46.9	nb 95	R 0.987	mbd -3.20	4.74
Almeria 2004 - 2011 Bratislava 2004 - 2007	152.3 98.2	nb 95 47	R 0.999 0.999	8v4 mbd 7.13 0.29	sd 4.17 4.63	Gh 152.3 98.2	nb 95 47	R 0.999 0.999	mbd 2.65 2.40	3.29 4.61	Almeria 2004 - 2011 Bratislava 2004 - 2007	173.3 102.0	95 47	R 0.986 0.994	mbd 20.18 -3.99	sd 14.96 10.13	Bn 173.3 102.0	nb 95 47	R 0.991 0.996	v5 mbd 6.09 1.89	12.35 9.15	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007	46.9 43.7	nb 95 47	R 0.985 0.995	mbd -5.02 -1.86	sd 5.35 4.44	Dh 46.9 43.7	nb 95 47	R 0.987 0.996	mbd -3.20 -3.24	4.74 4.75
Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013	152.3 98.2 85.6	nb 95 47 107	R 0.999 0.999 0.996	3v4 mbd 7.13 0.29 -3.38	sd 4.17 4.63 6.20	Gh 152.3 98.2 85.6	nb 95 47 107	R 0.999 0.999 0.997	mbd 2.65 2.40 -2.29	3.29 4.61 5.45	Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013	173.3 102.0 73.5	95 47 107	R 0.986 0.994 0.983	mbd 20.18 -3.99 12.49	sd 14.96 10.13 11.58	Bn 173.3 102.0 73.5	nb 95 47 107	R 0.991 0.996 0.986	v5 mbd 6.09 1.89 10.24	12.35 9.15 10.26	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013	46.9 43.7 46.8	nb 95 47 107	R 0.985 0.995 0.996	mbd -5.02 -1.86 -10.29	sd 5.35 4.44 8.32	Dh 46.9 43.7 46.8	nb 95 47 107	R 0.987 0.996 0.997	mbd -3.20 -3.24 -8.87	4.74 4.75 7.31
Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013	152.3 98.2 85.6 85.3	nb 95 47 107 98	R 0.999 0.999 0.996 0.999	3v4 mbd 7.13 0.29 -3.38 -0.02	sd 4.17 4.63 6.20 3.35	Gh 152.3 98.2 85.6 85.3	nb 95 47 107 98	R 0.999 0.999 0.997 0.999	mbd 2.65 2.40 -2.29 1.34	3.29 4.61 5.45 3.32	Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013	173.3 102.0 73.5 68.4	95 47 107 98	R 0.986 0.994 0.983 0.984	mbd 20.18 -3.99 12.49 16.01	sd 14.96 10.13 11.58 15.94	Bn 173.3 102.0 73.5 68.4	nb 95 47 107 98	R 0.991 0.996 0.986 0.984	v5 mbd 6.09 1.89 10.24 20.23	12.35 9.15 10.26 15.02	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013	46.9 43.7 46.8 47.4	nb 95 47 107 98	R 0.985 0.995 0.996 0.997	mbd -5.02 -1.86 -10.29 -8.43	sd 5.35 4.44 8.32 6.52	Dh 46.9 43.7 46.8 47.4	nb 95 47 107 98	R 0.987 0.996 0.997 0.996	mbd -3.20 -3.24 -8.87 -9.79	4.74 4.75 7.31 7.00
Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013	152.3 98.2 85.6 85.3 123.6	nb 95 47 107 98 117	R 0.999 0.999 0.996 0.999 0.999	mbd 7.13 0.29 -3.38 -0.02 1.08	sd 4.17 4.63 6.20 3.35 2.46	Gh 152.3 98.2 85.6 85.3 123.6	nb 95 47 107 98 117	R 0.999 0.999 0.997 0.999 0.999	mbd 2.65 2.40 -2.29 1.34 1.08	3.29 4.61 5.45 3.32 2.46	Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpontras 2004 - 2013	173.3 102.0 73.5 68.4 149.2	95 47 107 98 117	R 0.986 0.994 0.983 0.984 0.981	mbd 20.18 -3.99 12.49 16.01 3.94	sd 14.96 10.13 11.58 15.94 12.27	Bn 173.3 102.0 73.5 68.4 149.2	nb 95 47 107 98 117	R 0.991 0.996 0.986 0.984 0.981	v5 mbd 6.09 1.89 10.24 20.23 3.94	12.35 9.15 10.26 15.02 12.27	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013	46.9 43.7 46.8 47.4 37.9	nb 95 47 107 98 117	R 0.985 0.995 0.996 0.997 0.964	mbd -5.02 -1.86 -10.29 -8.43 -3.35	sd 5.35 4.44 8.32 6.52 4.66	Dh 46.9 43.7 46.8 47.4 37.9	nb 95 47 107 98 117	R 0.987 0.996 0.997 0.996 0.964	mbd -3.20 -3.24 -8.87 -9.79 -3.35	4.74 4.75 7.31 7.00 4.66
Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011	152.3 98.2 85.6 85.3 123.6 85.4	nb 95 47 107 98 117 95	R 0.999 0.999 0.996 0.999 0.999 0.999	mbd 7.13 0.29 -3.38 -0.02 1.08 7.57	sd 4.17 4.63 6.20 3.35 2.46 9.11	Gh 152.3 98.2 85.6 85.3 123.6 85.4	nb 95 47 107 98 117 95	R 0.999 0.999 0.997 0.999 0.999 0.999 0.996	mbd 2.65 2.40 -2.29 1.34 1.08 4.69	3.29 4.61 5.45 3.32 2.46 6.44	Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011	173.3 102.0 73.5 68.4 149.2 92.1	95 47 107 98 117 95	R 0.986 0.994 0.983 0.984 0.981 0.923	mbd 20.18 -3.99 12.49 16.01 3.94 16.07	sd 14.96 10.13 11.58 15.94 12.27 27.09	Bn 173.3 102.0 73.5 68.4 149.2 92.1	nb 95 47 107 98 117 95	R 0.991 0.996 0.986 0.984 0.981 0.942	v5 mbd 6.09 1.89 10.24 20.23 3.94 9.11	12.35 9.15 10.26 15.02 12.27 20.50	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011	46.9 43.7 46.8 47.4 37.9 33.7	nb 95 47 107 98 117 95	R 0.985 0.995 0.996 0.997 0.964 0.963	mbd -5.02 -1.86 -10.29 -8.43 -3.35 -1.02	sd 5.35 4.44 8.32 6.52 4.66 7.39	Dh 46.9 43.7 46.8 47.4 37.9 33.7	nb 95 47 107 98 117 95	R 0.987 0.996 0.997 0.996 0.964 0.964	mbd -3.20 -3.24 -8.87 -9.79 -3.35 0.03	4.74 4.75 7.31 7.00 4.66 6.96
Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2013	152.3 98.2 85.6 85.3 123.6 85.4 106.8	nb 95 47 107 98 117 95 119	R 0.999 0.999 0.996 0.999 0.999 0.999 0.994 0.999	mbd 7.13 0.29 -3.38 -0.02 1.08 7.57 -1.11	sd 4.17 4.63 6.20 3.35 2.46 9.11 3.19	Gh 152.3 98.2 85.6 85.3 123.6 85.4 106.8	nb 95 47 107 98 117 95 119	R 0.999 0.999 0.997 0.999 0.999 0.999 0.996 0.999	mbd 2.65 2.40 -2.29 1.34 1.08 4.69 6.15	3.29 4.61 5.45 3.32 2.46 6.44 3.27	Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2013	173.3 102.0 73.5 68.4 149.2 92.1 106.4	95 47 107 98 117 95 119	R 0.986 0.994 0.983 0.984 0.981 0.923 0.923	mbd 20.18 -3.99 12.49 16.01 3.94 16.07 1.71	sd 14.96 10.13 11.58 15.94 12.27 27.09 8.40	Bn 173.3 102.0 73.5 68.4 149.2 92.1 106.4	nb 95 47 107 98 117 95 119	R 0.991 0.996 0.986 0.984 0.981 0.942 0.987	v5 mbd 6.09 1.89 10.24 20.23 3.94 9.11 21.74	12.35 9.15 10.26 15.02 12.27 20.50 9.98	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2013	46.9 43.7 46.8 47.4 37.9 33.7 45.1	nb 95 47 107 98 117 95 119	R 0.985 0.995 0.996 0.997 0.964 0.963 0.979	mbd -5.02 -1.86 -10.29 -8.43 -3.35 -1.02 -2.53	sd 5.35 4.44 8.32 6.52 4.66 7.39 4.81	Dh 46.9 43.7 46.8 47.4 37.9 33.7 45.1	nb 95 47 107 98 117 95 119	R 0.987 0.996 0.997 0.996 0.964 0.964 0.964	mbd -3.20 -3.24 -8.87 -9.79 -3.35 0.03 -6.36	4.74 4.75 7.31 7.00 4.66 6.96 5.98
Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Carporne 2004 - 2013 Carportras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2013 Kassel 2004 - 2011	152.3 98.2 85.6 85.3 123.6 85.4 106.8 85.1	nb 95 47 107 98 117 95 119 95	R 0.999 0.999 0.996 0.999 0.999 0.999 0.994 0.999 0.998	mbd 7.13 0.29 -3.38 -0.02 1.08 7.57 -1.11 -3.99	sd 4.17 4.63 6.20 3.35 2.46 9.11 3.19 6.36	Gh 152.3 98.2 85.6 85.3 123.6 85.4 106.8 85.1	nb 95 47 107 98 117 95 119 95	R 0.999 0.999 0.997 0.999 0.999 0.999 0.996 0.999 0.998	mbd 2.65 2.40 -2.29 1.34 1.08 4.69 6.15 -1.03	3.29 4.61 5.45 3.32 2.46 6.44 3.27 4.77	Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carportras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2013 Kassel 2004 - 2011	173.3 102.0 73.5 68.4 149.2 92.1 106.4 70.9	95 47 107 98 117 95 119 95	R 0.986 0.994 0.983 0.984 0.981 0.923 0.990 0.992	mbd 20.18 -3.99 12.49 16.01 3.94 16.07 1.71 5.12	sd 14.96 10.13 11.58 15.94 12.27 27.09 8.40 7.48	Bn 173.3 102.0 73.5 68.4 149.2 92.1 106.4 70.9	nb 95 47 107 98 117 95 119 95	R 0.991 0.996 0.986 0.984 0.981 0.942 0.987 0.991	v5 mbd 6.09 1.89 10.24 20.23 3.94 9.11 21.74 12.23	12.35 9.15 10.26 15.02 12.27 20.50 9.98 8.58	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2013 Kassel 2004 - 2011	46.9 43.7 46.8 47.4 37.9 33.7 45.1 42.4	nb 95 47 107 98 117 95 119 95	R 0.985 0.995 0.996 0.997 0.964 0.963 0.979 0.995	mbd -5.02 -1.86 -10.29 -8.43 -3.35 -1.02 -2.53 -3.03	sd 5.35 4.44 8.32 6.52 4.66 7.39 4.81 5.13	Dh 46.9 43.7 46.8 47.4 37.9 33.7 45.1 42.4	nb 95 47 107 98 117 95 119 95	R 0.987 0.996 0.997 0.996 0.964 0.964 0.978 0.995	mbd -3.20 -3.24 -8.87 -9.79 -3.35 0.03 -6.36 -4.60	4.74 4.75 7.31 7.00 4.66 6.96 5.98 5.95
Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2013 Kassel 2004 - 2011 Kishinev 2004-2013	152.3 98.2 85.6 85.3 123.6 85.4 106.8 85.1 107.4	nb 95 47 107 98 117 95 119 95 119	R 0.999 0.996 0.999 0.996 0.999 0.999 0.999 0.994 0.999 0.998 0.997	mbd 7.13 0.29 -3.38 -0.02 1.08 7.57 -1.11 -3.99 2.15	sd 4.17 4.63 6.20 3.35 2.46 9.11 3.19 6.36 5.00	Gh 152.3 98.2 85.6 85.3 123.6 85.4 106.8 85.4 106.8 85.1 107.4	nb 95 47 107 98 117 95 119 95 119	R 0.999 0.999 0.997 0.999 0.999 0.999 0.996 0.998 0.998	mbd 2.65 2.40 -2.29 1.34 1.08 4.69 6.15 -1.03 1.31	3.29 4.61 5.45 3.32 2.46 6.44 3.27 4.77 4.64	Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2011 Kishinev 2004 - 2013	173.3 102.0 73.5 68.4 149.2 92.1 106.4 70.9 110.7	95 47 107 98 117 95 119 95 119	R 0.986 0.994 0.983 0.984 0.981 0.923 0.990 0.992 0.992	mbd 20.18 -3.99 12.49 16.01 3.94 16.07 1.71 5.12 7.26	sd 14.96 10.13 11.58 15.94 12.27 27.09 8.40 7.48 11.30	Bn 173.3 102.0 73.5 68.4 149.2 92.1 106.4 70.9 110.7	nb 95 47 107 98 117 95 119 95 119	R 0.991 0.996 0.986 0.984 0.981 0.942 0.987 0.991 0.981	v5 mbd 6.09 1.89 10.24 20.23 3.94 9.11 21.74 12.23 5.48	12.35 9.15 10.26 15.02 12.27 20.50 9.98 8.58 12.16	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2013 Kishinev 2004 - 2013	46.9 43.7 46.8 47.4 37.9 33.7 45.1 42.4 43.9	nb 95 47 107 98 117 95 119	R 0.985 0.995 0.996 0.997 0.964 0.963 0.979 0.995 0.989	mbd -5.02 -1.86 -10.29 -8.43 -3.35 -1.02 -2.53 -3.03 -2.93	sd 5.35 4.44 8.32 6.52 4.66 7.39 4.81 5.13 4.49	Dh 46.9 43.7 46.8 47.4 37.9 33.7 45.1 42.4 43.9	nb 95 47 107 98 117 95 119 95 119	R 0.987 0.996 0.997 0.996 0.964 0.964 0.978 0.978 0.995 0.982	mbd -3.20 -3.24 -8.87 -9.79 -3.35 0.03 -6.36 -4.60 -3.52	4.74 4.75 7.31 7.00 4.66 6.96 5.98 5.95 4.85
Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Genewa 2004 - 2011 Kassel 2004 - 2011 Lerwick 2004 - 2013 Lerwick 2004 - 2013	152.3 98.2 85.6 85.3 123.6 85.4 106.8 85.1 107.4 65.7	nb 95 47 107 98 117 95 119 95 119 96	R 0.999 0.999 0.996 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.999	mbd 7.13 0.29 -3.38 -0.02 1.08 7.57 -1.11 -3.99	sd 4.17 4.63 6.20 3.35 2.46 9.11 3.19 6.36 5.00 7.93	Gh 152.3 98.2 85.6 85.3 123.6 85.4 106.8 85.1 107.4 65.7	nb 95 47 107 98 117 95 119 95 119 95	R 0.999 0.997 0.999 0.999 0.999 0.996 0.998 0.998 0.998 0.994	mbd 2.65 2.40 -2.29 1.34 1.08 4.69 6.15 -1.03 1.31 3.35	3.29 4.61 5.45 3.32 2.46 6.44 3.27 4.77 4.64 7.72	Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2013 Kassel 2004 - 2013 Kishiney 2004-2013 Lerwick 2004-2013	173.3 102.0 73.5 68.4 149.2 92.1 106.4 70.9 110.7 44.5	95 47 107 98 117 95 119 95 119 95	R 0.986 0.994 0.983 0.984 0.981 0.923 0.990 0.992 0.987 0.942	mbd 20.18 -3.99 12.49 16.01 3.94 16.07 1.71 5.12 7.26 20.30	sd 14.96 10.13 11.58 15.94 12.27 27.09 8.40 7.48 11.30 23.66	Bn 173.3 102.0 73.5 68.4 149.2 92.1 106.4 70.9 110.7 44.5	nb 95 47 107 98 117 95 119 95 119 95	R 0.991 0.996 0.986 0.984 0.981 0.942 0.987 0.991 0.981 0.947	v5 mbd 6.09 1.89 10.24 20.23 3.94 9.11 21.74 12.23 5.48 23.81	12.35 9.15 10.26 15.02 12.27 20.50 9.98 8.58 12.16 23.48	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2013 Kassel 2004 - 2013 Lerwick 2004-2013	46.9 43.7 46.8 47.4 37.9 33.7 45.1 42.4 43.9 43.8	nb 95 47 107 98 117 95 119 95 119 95	R 0.985 0.995 0.996 0.997 0.964 0.963 0.979 0.995 0.989 0.996	mbd -5.02 -1.86 -10.29 -8.43 -3.35 -1.02 -2.53 -3.03 -2.93 -8.30	sd 5.35 4.44 8.32 6.52 4.66 7.39 4.81 5.13 4.49 7.07	Dh 46.9 43.7 46.8 47.4 37.9 33.7 45.1 42.4 43.9 43.8	nb 95 47 107 98 117 95 119 95 119 95	R 0.987 0.996 0.997 0.996 0.964 0.964 0.978 0.995 0.982 0.996	mbd -3.20 -3.24 -8.87 -9.79 -3.35 0.03 -6.36 -4.60 -3.52 -9.34	4.74 4.75 7.31 7.00 4.66 6.96 5.98 5.95 4.85 7.67
Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Carborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2011 Kishinev 2004 - 2013 Lindenberg 2004-2013	152.3 98.2 85.6 85.3 123.6 85.4 106.8 85.1 107.4 65.7 89.7	nb 95 47 107 98 117 95 119 95 119 96 35	R 0.999 0.996 0.999 0.999 0.999 0.999 0.999 0.994 0.999 0.998 0.993 0.999	mbd 7.13 0.29 -3.38 -0.02 1.08 7.57 -1.11 -3.99 2.15 2.24 -4.18	sd 4.17 4.63 6.20 3.35 2.46 9.11 3.19 6.36 5.00 7.93 3.92	Gh 152.3 98.2 85.6 85.3 123.6 85.4 106.8 85.1 107.4 65.7 89.7	nb 95 47 107 98 117 95 119 95 119 96 35	R 0.999 0.999 0.997 0.999 0.999 0.999 0.999 0.996 0.998 0.994 0.999	mbd 2.65 2.40 -2.29 1.34 1.08 4.69 6.15 -1.03 1.31 3.35 -4.01	3.29 4.61 5.45 3.32 2.46 6.44 3.27 4.77 4.64 7.72 4.22	Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2013 Kishinev 2004 - 2013 Lindenberg 2004-2013 Lindenberg 2004-2010	173.3 102.0 73.5 68.4 149.2 92.1 106.4 70.9 110.7 44.5 85.4	95 47 107 98 117 95 119 95 119 96 35	R 0.986 0.994 0.983 0.984 0.981 0.923 0.990 0.992 0.987 0.993	mbd 20.18 -3.99 12.49 16.01 3.94 16.07 1.71 5.12 7.26 20.30 1.38	sd 14.96 10.13 11.58 15.94 12.27 27.09 8.40 7.48 11.30 23.66 11.87	Bn 173.3 102.0 73.5 68.4 149.2 92.1 106.4 70.9 110.7 44.5 85.4	nb 95 47 107 98 117 95 119 95 119 96 35	R 0.991 0.996 0.986 0.984 0.981 0.942 0.987 0.991 0.981 0.947 0.988	v5 mbd 6.09 1.89 10.24 20.23 3.94 9.11 21.74 12.23 5.48 23.81 1.61	12.35 9.15 10.26 15.02 12.27 20.50 9.98 8.58 12.16 23.48 13.93	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Jowos 2004 - 2011 Geneva 2004 - 2011 Kishinev 2004-2013 Lindenberg 2004-2010	46.9 43.7 46.8 47.4 37.9 33.7 45.1 42.4 43.9 43.8 44.3	nb 95 47 107 98 117 95 119 95 119 96 35	R 0.985 0.995 0.996 0.997 0.964 0.963 0.979 0.995 0.989 0.996 0.997	mbd -5.02 -1.86 -10.29 -8.43 -3.35 -1.02 -2.53 -3.03 -2.93 -8.30 -6.33	sd 5.35 4.44 8.32 6.52 4.66 7.39 4.81 5.13 4.49 7.07 5.50	Dh 46.9 43.7 46.8 47.4 37.9 33.7 45.1 42.4 43.9 43.8 44.3	nb 95 47 107 98 117 95 119 95 119 96 35	R 0.987 0.996 0.997 0.996 0.964 0.964 0.978 0.995 0.982 0.996 0.996	mbd -3.20 -3.24 -8.87 -9.79 -3.35 0.03 -6.36 -4.60 -3.52 -9.34 -6.75	4.74 4.75 7.31 7.00 4.66 6.96 5.98 5.95 4.85 7.67 6.05
Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabaux 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2013 Kassel 2004 - 2011 Kishinev 2004 - 2013 Lerwick 2004 - 2013 Lindenberg 2004 - 2010 Madrid 2004 - 2013	152.3 98.2 85.6 85.3 123.6 85.4 106.8 85.1 107.4 65.7 89.7 125.5	nb 95 47 107 98 117 95 119 95 119 96 35 110	R 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.994 0.999 0.998 0.993 0.999 0.993 0.998	mbd 7.13 0.29 -3.38 -0.02 1.08 7.57 -1.11 -3.99 2.15 2.24 -4.18 3.53	sd 4.17 4.63 6.20 3.35 2.46 9.11 3.19 6.36 5.00 7.93 3.92 4.72	Gh 152.3 98.2 85.6 85.3 123.6 85.4 106.8 85.1 107.4 65.7 89.7 125.5	nb 95 47 107 98 117 95 119 95 119 96 35 110	R 0.999 0.999 0.997 0.999 0.999 0.999 0.998 0.998 0.999 0.998 0.998 0.998 0.998	mbd 2.65 2.40 -2.29 1.34 1.08 4.69 6.15 -1.03 1.31 3.35 -4.01 6.24	3.29 4.61 5.45 3.32 2.46 6.44 3.27 4.77 4.64 7.72 4.22 4.68	Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Carportras 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2011 Kishinev 2004 - 2011 Kishinev 2004 - 2013 Lerwick 2004 - 2013 Lindenberg 2004 - 2010 Madrid 2004 - 2013	173.3 102.0 73.5 68.4 149.2 92.1 106.4 70.9 110.7 44.5 85.4 139.9	95 47 107 98 117 95 119 95 119 96 35 110	R 0.986 0.994 0.983 0.984 0.981 0.923 0.990 0.992 0.987 0.942 0.993 0.975	mbd 20.18 -3.99 12.49 16.01 3.94 16.07 1.71 5.12 7.26 20.30 1.38 8.91	sd 14.96 10.13 11.58 15.94 12.27 27.09 8.40 7.48 11.30 23.66 11.87 16.37	Bn 173.3 102.0 73.5 68.4 149.2 92.1 106.4 70.9 110.7 44.5 85.4 139.9	nb 95 47 107 98 117 95 119 95 119 96 35 110	R 0.991 0.996 0.986 0.984 0.981 0.942 0.987 0.991 0.981 0.947 0.988 0.983	v5 mbd 6.09 10.24 20.23 3.94 9.11 21.74 12.23 5.48 23.81 1.61 17.11	12.35 9.15 10.26 15.02 12.27 20.50 9.98 8.58 12.16 23.48 13.93 12.65	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2013 Kishinev 2004 - 2013 Lerwick 2004 - 2013 Lindenberg 2004 - 2010 Madrid 2004 - 2013	46.9 43.7 46.8 47.4 37.9 33.7 45.1 42.4 43.9 43.8 44.3 36.5	nb 95 47 107 98 117 95 119 95 119 96 35 110	R 0.985 0.995 0.996 0.997 0.964 0.979 0.995 0.995 0.989 0.996 0.997 0.956	mbd -5.02 -1.86 -10.29 -8.43 -3.35 -1.02 -2.53 -3.03 -2.93 -8.30 -6.33 1.36	sd 5.35 4.44 8.32 6.52 4.66 7.39 4.81 5.13 4.49 7.07 5.50 5.34	Dh 46.9 43.7 46.8 47.4 37.9 33.7 45.1 42.4 43.9 43.8 44.3 36.5	nb 95 47 107 98 117 95 119 95 119 96 35 110	R 0.987 0.996 0.997 0.996 0.964 0.964 0.978 0.995 0.982 0.996 0.996 0.996	mbd -3.20 -3.24 -8.87 -9.79 -3.35 0.03 -6.36 -4.60 -3.52 -9.34 -6.75 -1.03	4.74 4.75 7.31 7.00 4.66 6.96 5.98 5.95 4.85 7.67 6.05 4.89
Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Camborne 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2013 Kassel 2004 - 2011 Kishinev 2004 - 2013 Lerwick 2004 - 2013 Lindenberg 2004 - 2010 Madrid 2004 - 2013 Nantes 2004 - 2010	152.3 98.2 85.6 85.3 123.6 85.4 106.8 85.1 107.4 65.7 89.7 125.5 103.1	nb 95 47 107 98 117 95 119 95 119 96 35 110 71	R 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.998 0.999 0.993 0.999 0.998 0.999	mbd 7.13 0.29 -3.38 -0.02 1.08 7.57 -1.11 -3.99 2.15 2.24 -4.18 3.53 -2.42	sd 4.17 4.63 6.20 3.35 2.46 9.11 3.19 6.36 5.00 7.93 3.92 4.72 3.14	Gh 152.3 98.2 85.6 85.3 123.6 85.4 106.8 85.1 107.4 65.7 89.7 125.5 103.0	nb 95 47 107 98 117 95 119 95 119 96 35 110 71	R 0.999 0.999 0.997 0.999 0.999 0.999 0.999 0.999 0.998 0.994 0.999 0.998 0.998 0.998 0.998 0.998 0.998 0.998	mbd 2.65 2.40 -2.29 1.34 1.08 4.69 6.15 -1.03 1.31 3.35 -4.01 6.24 -0.84	3.29 4.61 5.45 3.32 2.46 6.44 3.27 4.77 4.64 7.72 4.22 4.68 2.66	Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Campenras 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Kassel 2004 - 2013 Kishinev 2004 - 2013 Lerwick 2004-2013 Lindenberg 2004-2010 Madrid 2004-2013 Nantes 2004-2010	173.3 102.0 73.5 68.4 149.2 92.1 106.4 70.9 110.7 44.5 85.4 139.9 102.4	95 47 107 98 117 95 119 95 119 96 35 110 71	R 0.986 0.994 0.983 0.984 0.983 0.984 0.983 0.984 0.992 0.992 0.993 0.975 0.992	mbd 20.18 -3.99 12.49 16.01 3.94 16.07 1.71 5.12 7.26 20.30 1.38 8.91 -0.74	sd 14.96 10.13 11.58 15.94 12.27 27.09 8.40 7.48 11.30 23.66 11.87 16.37 10.15	Bn 173.3 102.0 73.5 68.4 149.2 92.1 106.4 70.9 110.7 44.5 85.4 139.9 102.1	nb 95 47 107 98 117 95 119 95 119 96 35 110 71	R 0.991 0.996 0.986 0.984 0.981 0.942 0.987 0.991 0.981 0.947 0.988 0.983 0.995	v5 mbd 6.09 10.24 20.23 3.94 9.11 21.74 12.23 5.48 23.81 1.61 17.11 4.09	12.35 9.15 10.26 15.02 12.27 20.50 9.98 8.58 12.16 23.48 13.93 12.65 8.39	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpontras 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2013 Kassel 2004 - 2013 Lerwick 2004-2013 Lindenberg 2004-2013 Nantes 2004-2010	46.9 43.7 46.8 47.4 37.9 33.7 45.1 42.4 43.9 43.8 44.3 36.5 49.2	nb 95 47 107 98 117 95 119 95 119 96 35 110 71	R 0.985 0.995 0.996 0.997 0.964 0.963 0.979 0.995 0.995 0.996 0.997 0.995 0.996 0.997 0.996 0.997 0.956 0.997	mbd -5.02 -1.86 -10.29 -8.43 -3.35 -1.02 -2.53 -3.03 -2.93 -8.30 -6.33 1.36 -4.65	sd 5.35 4.44 8.32 6.52 4.66 7.39 4.81 5.13 4.49 7.07 5.50 5.34 4.72	Dh 46.9 43.7 46.8 47.4 37.9 33.7 45.1 42.4 43.9 43.8 44.3 36.5 49.2	nb 95 47 107 98 117 95 119 95 119 96 35 110 71	R 0.987 0.996 0.997 0.996 0.964 0.964 0.978 0.995 0.982 0.996 0.996 0.996 0.964 0.997	mbd -3.20 -3.24 -8.87 -9.79 -3.35 0.03 -6.36 -4.60 -3.52 -9.34 -6.75 -1.03 -6.14	4.74 4.75 7.31 7.00 4.66 6.96 5.98 5.95 4.85 7.67 6.05 4.89 5.04
Almeria 2004 - 2011 Bratislava 2004 - 2013 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2011 Kishinev 2004 - 2013 Lindenberg 2004 - 2013 Lindenberg 2004 - 2010 Madrid 2004 - 2010 Payerne 2004 - 2011	152.3 98.2 85.6 85.3 123.6 85.4 106.8 85.1 107.4 65.7 89.7 125.5 103.1 101.1	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88	R 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.998 0.999 0.998 0.999 0.998 0.999 0.999 0.999 0.999 0.999	mbd 7.13 0.29 -3.38 -0.02 1.08 7.57 -1.11 -3.99 2.15 2.24 -4.18 3.53 -2.42 -8.43	sd 4.17 4.63 6.20 3.35 2.46 9.11 3.19 6.36 5.00 7.93 3.92 4.72 3.14 5.79	Gh 152.3 98.2 85.6 85.3 123.6 85.4 106.8 85.1 107.4 65.7 89.7 125.5 103.0 101.1	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88	R 0.999 0.999 0.997 0.999 0.999 0.999 0.999 0.998 0.998 0.999 0.998 0.999 0.998 0.999 0.998 0.999 0.998 0.999	mbd 2.65 2.40 -2.29 1.34 1.08 4.69 6.15 -1.03 1.31 3.35 -4.01 6.24 -0.84 -1.61	3.29 4.61 5.45 3.32 2.46 6.44 3.27 4.77 4.64 7.72 4.64 7.72 4.68 2.66 4.20	Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2013 Kishine 2004 - 2013 Lerwick 2004 - 2013 Lindenberg 2004-2013 Madrid 2004 - 2010 Payerne 2004-2011	173.3 102.0 73.5 68.4 149.2 92.1 106.4 70.9 110.7 44.5 85.4 139.9 102.4 97.7	95 47 107 98 117 95 119 95 119 96 35 110 71 88	R 0.986 0.994 0.983 0.984 0.983 0.984 0.983 0.984 0.984 0.985 0.990 0.992 0.992 0.993 0.975 0.992 0.992	mbd 20.18 -3.99 12.49 16.01 3.94 16.07 1.71 5.12 7.26 20.30 1.38 8.91 -0.74 -5.75	sd 14.96 10.13 11.58 15.94 12.27 27.09 8.40 7.48 11.30 23.66 11.87 16.37 10.15 9.94	Bn 173.3 102.0 73.5 68.4 149.2 92.1 106.4 70.9 110.7 44.5 85.4 139.9 102.1 97.7	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88	R 0.991 0.996 0.986 0.984 0.981 0.942 0.987 0.991 0.981 0.947 0.988 0.983 0.995 0.990	v5 mbd 6.09 1.89 10.24 20.23 3.94 9.11 21.74 12.23 5.48 23.81 1.61 17.11 4.09 12.63	12.35 9.15 10.26 15.02 12.27 20.50 9.98 8.58 12.16 23.48 13.93 12.65 8.39 11.24	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2013 Kassel 2004 - 2011 Kishinev 2004-2013 Lerwick 2004-2013 Lindenberg 2004-2010 Madrid 2004-2010 Payerne 2004-2011	46.9 43.7 46.8 47.4 37.9 33.7 45.1 42.4 43.9 43.8 44.3 36.5 49.2 44.9	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88	R 0.985 0.995 0.996 0.997 0.964 0.979 0.995 0.995 0.996 0.997 0.995 0.995 0.996 0.997 0.996 0.997 0.956 0.997 0.993	mbd -5.02 -1.86 -10.29 -8.43 -3.35 -1.02 -2.53 -3.03 -2.93 -8.30 -6.33 1.36 -4.65 -6.19	sd 5.35 4.44 8.32 6.52 4.66 7.39 4.81 5.13 4.49 7.07 5.50 5.34 4.72 4.68	Dh 46.9 43.7 46.8 47.4 37.9 33.7 45.1 42.4 43.9 43.8 44.3 36.5 49.2 44.9	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88	R 0.987 0.996 0.997 0.996 0.964 0.978 0.995 0.982 0.996 0.996 0.996 0.996 0.997 0.991	mbd -3.20 -3.24 -8.87 -9.79 -3.35 0.03 -6.36 -4.60 -3.52 -9.34 -6.75 -1.03 -6.14 -9.58	4.74 4.75 7.31 7.00 4.66 6.96 5.98 5.95 4.85 7.67 6.05 4.89 5.04 6.01
Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Geneva 2004 - 2011 Geneva 2004 - 2011 Kishinev 2004-2013 Lindenberg 2004-2013 Lindenberg 2004-2010 Madrid 2004-2010 Payerne 2004-2011 Sede Boqer 2004-2012	152.3 98.2 85.6 85.3 123.6 85.4 106.8 85.1 107.4 65.7 89.7 125.5 103.1 101.1 163.3	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100	R 0.999 0.999 0.999 0.999 0.999 0.999 0.994 0.999 0.998 0.999 0.998 0.999 0.998 0.999 0.997 0.997	mbd 7.13 0.29 -3.38 -0.02 1.08 7.57 -1.11 -3.99 2.15 2.24 -4.18 3.53 -2.42 -8.43 -10.68	sd 4.17 4.63 6.20 3.35 2.46 9.11 3.19 6.36 5.00 7.93 3.92 4.72 3.14 5.79 6.90	Gh 152.3 98.2 85.6 85.3 123.6 85.4 106.8 85.1 107.4 65.7 89.7 125.5 103.0 101.1 163.3	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100	R 0.999 0.997 0.999 0.999 0.999 0.996 0.999 0.998 0.998 0.998 0.998 0.999 0.998 0.999 0.999	mbd 2.65 2.40 -2.29 1.34 1.08 4.69 6.15 -1.03 1.31 3.35 -4.01 6.24 -0.84 -1.61 -7.70	3.29 4.61 5.45 3.32 2.46 6.44 3.27 4.77 4.64 7.72 4.64 7.72 4.68 2.66 4.20 5.88	Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2013 Kassel 2004 - 2013 Lindenberg 2004-2013 Lindenberg 2004-2013 Nantes 2004-2010 Payerne 2004-2011 Sede Boqer 2004-2012	173.3 102.0 73.5 68.4 149.2 92.1 106.4 70.9 110.7 44.5 85.4 139.9 102.4 97.7 188.8	95 47 107 98 117 95 119 95 119 96 35 110 71 88 100	R 0.986 0.994 0.983 0.984 0.983 0.984 0.923 0.990 0.992 0.987 0.942 0.993 0.975 0.992 0.993 0.975 0.992 0.993	mbd 20.18 -3.99 12.49 16.01 3.94 16.07 1.71 5.12 7.26 20.30 1.38 8.91 -0.74 -5.75 -32.94	sd 14.96 10.13 11.58 15.94 12.27 27.09 8.40 7.48 11.30 23.66 11.87 16.37 10.15 9.94 14.93	Bn 173.3 102.0 73.5 68.4 149.2 92.1 106.4 70.9 110.7 44.5 85.4 139.9 102.1 97.7 188.8	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100	R 0.991 0.996 0.986 0.984 0.981 0.942 0.987 0.991 0.981 0.981 0.947 0.988 0.983 0.995 0.990 0.989	v5 mbd 6.09 1.89 10.24 20.23 3.94 9.11 21.74 12.23 5.48 23.81 1.61 17.11 4.09 12.63 -26.17	12.35 9.15 10.26 15.02 12.27 20.50 9.98 8.58 12.16 23.48 13.93 12.65 8.39 11.24 15.92	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Geneva 2004 - 2013 Kishinev 2004 - 2013 Lerwick 2004 - 2013 Lindenberg 2004 - 2013 Madrid 2004 - 2013 Nantes 2004 - 2011 Sede Boger 2004 - 2012	46.9 43.7 46.8 47.4 37.9 33.7 45.1 42.4 43.9 43.8 44.3 36.5 49.2 44.9 41.5	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100	R 0.985 0.995 0.996 0.997 0.964 0.979 0.995 0.995 0.995 0.995 0.995 0.995 0.995 0.995 0.995 0.995 0.995 0.995 0.995 0.995 0.995 0.995 0.995 0.997 0.993 0.932	mbd -5.02 -1.86 -10.29 -8.43 -3.35 -1.02 -2.53 -3.03 -2.93 -8.30 -6.33 1.36 -6.33 1.36 -4.65 -6.19 4.06	sd 5.35 4.44 8.32 6.52 4.66 7.39 4.81 5.13 4.49 7.07 5.50 5.34 4.72 4.68 7.77	Dh 46.9 43.7 46.8 47.4 37.9 33.7 45.1 42.4 43.9 43.8 44.3 36.5 49.2 44.9 41.5	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100	R 0.987 0.996 0.997 0.996 0.964 0.978 0.995 0.982 0.996 0.996 0.996 0.996 0.996 0.997 0.991 0.913	mbd -3.20 -3.24 -8.87 -9.79 -3.35 0.03 -6.36 -4.60 -3.52 -9.34 -6.75 -1.03 -6.14 -9.58 1.41	4.74 4.75 7.31 7.00 4.66 6.96 5.98 5.95 4.85 7.67 6.05 4.89 5.04 6.01 8.83
Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Camborne 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Kassel 2004 - 2011 Kishinev 2004 - 2013 Lindenberg 2004 - 2010 Madrid 2004 - 2010 Payerne 2004 - 2010 Payerne 2004 - 2010 Skukuza 2004 - 2012 Skukuza 2004 - 2007	152.3 98.2 85.6 85.3 123.6 85.4 106.8 85.1 107.4 65.7 89.7 125.5 103.1 101.1 163.3 127.8	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36	R 0.999 0.999 0.999 0.999 0.999 0.999 0.994 0.999 0.998 0.999 0.993 0.993 0.999 0.998 0.999 0.997 0.998	mbd 7.13 0.29 -3.38 -0.02 1.08 7.57 -1.11 -3.99 2.15 2.24 -4.18 3.53 -2.42 -8.43 -10.68 9.64	sd 4.17 4.63 6.20 3.35 2.46 9.11 3.19 6.36 5.00 7.93 3.92 4.72 3.14 5.79 6.90 8.22	Gh 152.3 98.2 85.6 85.3 123.6 85.4 106.8 85.1 107.4 65.7 89.7 125.5 103.0 101.1 163.3 127.8	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36	R 0.999 0.997 0.999 0.996 0.999 0.998 0.998 0.998 0.999 0.998 0.999 0.998 0.998 0.999 0.998	mbd 2.65 2.40 -2.29 1.34 1.08 4.69 6.15 -1.03 1.31 3.35 -4.01 6.24 -0.84 -1.61 -7.70 3.75	3.29 4.61 5.45 3.32 2.46 6.44 3.27 4.77 4.64 7.72 4.64 2.66 4.20 5.88 8.05	Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Camborne 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Kassel 2004 - 2013 Kassel 2004 - 2013 Lindenkorg 2004-2013 Lindenkorg 2004-2010 Madrid 2004-2013 Nantes 2004-2010 Payerne 2004-2011 Sede Boger 2004-2012 Skukuza 2004-2007	173.3 102.0 73.5 68.4 149.2 92.1 106.4 70.9 110.7 44.5 85.4 139.9 102.4 97.7 188.8 125.3	95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36	R 0.986 0.994 0.983 0.984 0.923 0.990 0.992 0.987 0.942 0.995 0.995 0.992	mbd 20.18 -3.99 12.49 16.01 3.94 16.07 1.71 5.12 7.26 20.30 1.38 8.91 -0.74 -5.75 -32.94 23.32	sd 14.96 10.13 11.58 15.94 12.27 27.09 8.40 7.48 11.30 23.66 11.87 16.37 10.15 9.94 14.93 20.74	Bn 173.3 102.0 73.5 68.4 149.2 92.1 106.4 70.9 110.7 44.5 85.4 139.9 102.1 97.7 188.8 125.3	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36	R 0.991 0.996 0.986 0.984 0.981 0.942 0.987 0.991 0.981 0.983 0.983 0.983 0.995 0.990 0.989 0.990	v5 mbd 6.09 1.89 10.24 20.23 3.94 9.11 21.74 12.23 5.48 23.81 1.61 17.11 4.09 12.63 -26.17 9.40	12.35 9.15 10.26 15.02 12.27 20.50 9.98 8.58 12.16 23.48 13.93 12.65 8.39 11.24 15.92 16.79	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2011 Kishinev 2004 - 2013 Lerwick 2004 - 2013 Lindenberg 2004 - 2013 Nantes 2004 - 2013 Nantes 2004 - 2013 Skukuza 2004 - 2012 Skukuza 2004 - 2007	46.9 43.7 46.8 47.4 37.9 33.7 45.1 42.4 43.9 43.8 44.3 36.5 49.2 44.9 41.5 49.1	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36	R 0.985 0.995 0.996 0.997 0.964 0.995 0.995 0.995 0.995 0.996 0.997 0.995 0.996 0.997 0.995 0.996 0.997 0.993 0.932 0.993	mbd -5.02 -1.86 -10.29 -8.43 -3.35 -1.02 -2.53 -3.03 -2.93 -8.30 -6.33 1.36 -4.65 -6.19 4.06 -8.62	sd 5.35 4.44 8.32 6.52 4.66 7.39 4.81 5.13 4.49 7.07 5.50 5.34 4.72 4.68 7.77 7.80	Dh 46.9 43.7 46.8 47.4 37.9 33.7 45.1 42.4 43.9 43.8 44.3 36.5 49.2 44.9 41.5 49.1	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36	R 0.987 0.996 0.997 0.964 0.978 0.995 0.982 0.996 0.996 0.996 0.996 0.996 0.996 0.996 0.996 0.996 0.991 0.913 0.996	mbd -3.20 -3.24 -8.87 -9.79 -3.35 0.03 -6.36 -4.60 -3.52 -9.34 -6.75 -1.03 -6.14 -9.58 1.41 -6.62	4.74 4.75 7.31 7.00 4.66 6.96 5.98 5.95 4.85 7.67 6.05 4.89 5.04 6.01 8.83 5.82
Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Carpontra 2004 - 2013 Carpontra 2004 - 2013 Gareava 2004 - 2011 Geneva 2004 - 2011 Kassel 2004 - 2013 Lerwick 2004 - 2013 Lindenberg 2004 - 2013 Madrid 2004 - 2010 Payerne 2004 - 2010 Payerne 2004 - 2010 Payerne 2004 - 2017 Tamanrasset 2004 - 2007 Tamanrasset 2004 - 2013	152.3 98.2 85.6 85.3 123.6 85.4 106.8 85.1 107.4 65.7 89.7 125.5 103.1 101.1 163.3 127.8 187.3	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36 107	R 0.999 0.999 0.996 0.999 0.999 0.999 0.999 0.994 0.993 0.993 0.993 0.993 0.993 0.993 0.993 0.993 0.993 0.993 0.993 0.994 0.997 0.997 0.997 0.997 0.994	mbd 7.13 0.29 -3.38 -0.02 1.08 7.57 -1.11 -3.99 2.15 2.24 -4.18 3.53 -2.42 -4.18 3.53 -2.43 -10.68 9.64 -0.15	sd 4.17 4.63 6.20 3.35 2.46 9.11 3.19 6.36 5.00 7.93 3.92 4.72 3.14 5.79 6.90 8.22 8.08	Gh 152.3 98.2 85.6 85.3 123.6 85.4 106.8 85.1 107.4 65.7 89.7 125.5 103.0 101.1 163.3 127.8 187.3	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36 107	R 0.999 0.997 0.997 0.997 0.999 0.999 0.999 0.998 0.994 0.999 0.998 0.999 0.998 0.998 0.999 0.998 0.998 0.999 0.998 0.999 0.999 0.998 0.999 0.998 0.999	mbd 2.65 2.40 -2.29 1.34 1.08 4.69 6.15 -1.03 1.31 3.35 -4.01 6.24 -0.84 -1.61 -7.70 3.75 1.29	3.29 4.61 5.45 3.32 2.46 6.44 3.27 4.64 7.72 4.64 7.72 4.64 2.66 4.20 5.88 8.05 6.53	Almeria 2004 - 2011 Bratislava 2004 - 2013 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Geneva 2004 - 2011 Geneva 2004 - 2013 Kishiney 2004-2013 Lerwick 2004-2013 Lindenberg 2004-2013 Madrid 2004-2013 Nantes 2004-2010 Payerne 2004-2011 Sede Boqer 2004-2012 Skukuza 2004-2007 Tamanrasset 2004-2013	173.3 102.0 73.5 68.4 149.2 92.1 106.4 70.9 110.7 44.5 85.4 139.9 102.4 97.7 188.8 125.3 192.8	95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36 107	R 0.986 0.994 0.983 0.984 0.983 0.984 0.981 0.992 0.992 0.993 0.975 0.992 0.992 0.993 0.975 0.992 0.986 0.9867	mbd 20.18 -3.99 12.49 16.01 3.94 16.07 1.71 5.12 7.26 20.30 1.38 8.91 -0.74 -5.75 -32.94 23.32 25.52	sd 14.96 10.13 11.58 15.94 12.27 27.09 8.40 7.48 11.30 23.66 11.87 16.37 10.15 9.94 14.93 20.74 39.24	Bn 173.3 102.0 73.5 68.4 149.2 92.1 106.4 70.9 110.7 44.5 85.4 139.9 102.1 97.7 188.8 125.3 192.8	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36 107	R 0.991 0.996 0.986 0.984 0.981 0.942 0.987 0.991 0.981 0.947 0.988 0.947 0.988 0.995 0.990 0.989 0.990	v5 mbd 6.09 1.89 10.24 20.23 3.94 9.11 21.74 12.23 5.48 23.81 1.61 17.11 4.09 12.63 -26.17 9.40 29.85	12.35 9.15 10.26 15.02 12.27 20.50 9.98 8.58 12.16 23.48 13.93 12.65 8.39 11.24 15.92 16.79 26.75	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Kassel 2004 - 2013 Kassel 2004 - 2013 Lindenberg 2004-2013 Lindenberg 2004-2013 Nantes 2004-2013 Sede Boger 2004-2013 Skukuza 2004-2017 Skukuza 2004-2017	46.9 43.7 46.8 47.4 37.9 33.7 45.1 42.4 43.9 43.8 44.3 36.5 49.2 44.9 41.5 49.1 56.7	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36 107	R 0.985 0.995 0.996 0.997 0.964 0.955 0.995 0.995 0.996 0.997 0.996 0.997 0.996 0.997 0.996 0.997 0.996 0.997 0.996 0.997 0.996 0.997 0.993 0.853	mbd -5.02 -1.86 -10.29 -8.43 -3.35 -1.02 -2.53 -3.03 -2.93 -8.30 -6.33 1.36 -4.65 -6.19 4.06 -8.62 -18.08	sd 5.35 4.44 8.32 6.52 4.66 7.39 4.81 5.13 4.49 7.07 5.50 5.34 4.72 4.68 7.77 7.80 17.14	Dh 46.9 43.7 46.8 47.4 37.9 33.7 45.1 42.4 43.9 43.8 44.3 36.5 49.2 41.5 49.1 56.7	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36 107	R 0.987 0.996 0.997 0.996 0.964 0.978 0.995 0.982 0.996 0.996 0.996 0.996 0.996 0.996 0.996 0.996 0.996 0.991 0.913 0.996 0.941	mbd -3.20 -3.24 -8.87 -9.79 -3.35 0.03 -6.36 -4.60 -3.52 -9.34 -6.75 -1.03 -6.14 -9.58 1.41 -6.62 -19.69	4.74 4.75 7.31 7.00 4.66 6.96 5.98 5.95 4.85 7.67 6.05 4.89 5.04 6.01 8.83 5.82 14.02
Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Geneva 2004 - 2011 Geneva 2004 - 2013 Kassel 2004 - 2013 Lindenberg 2004-2013 Lindenberg 2004-2010 Madrid 2004-2010 Payerne 2004-2010 Payerne 2004-2011 Sede Boger 2004-2012 Skukuza 2004-2007 Tamanraset 2004-2013 Toravere 2004 - 2013	152.3 98.2 85.6 85.3 123.6 85.4 106.8 85.1 107.4 65.7 89.7 125.5 103.1 101.1 163.3 127.8 187.3 86.5	nb 95 47 107 98 117 95 119 95 119 95 119 95 119 35 110 71 88 100 36 107 109	R 0.999 0.999 0.996 0.996 0.997 0.998 0.999 0.998 0.999 0.999 0.998 0.999 0.998 0.999 0.998 0.999 0.998 0.999 0.998 0.999 0.998 0.999 0.997 0.997 0.998 0.997 0.998 0.997 0.998 0.997 0.997 0.998 0.997 0.997 0.998 0.994 0.993	mbd 7.13 0.29 -3.38 -0.02 1.08 7.57 -1.11 -3.99 2.15 2.24 -4.18 3.53 -2.42 -8.43 -0.66 9.64 -0.15 0.16	sd 4.17 4.63 6.20 3.35 2.46 9.11 3.19 6.36 5.00 7.93 3.92 4.72 3.14 5.79 6.90 8.22 8.08 8.37	Gh 152.3 98.2 85.6 85.3 123.6 85.4 106.8 85.4 106.8 85.1 107.4 65.7 89.7 125.5 103.0 101.1 163.3 127.8 187.3 86.5	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36 107 109	R 0.999 0.997 0.997 0.998 0.999 0.998 0.998 0.998 0.999 0.994 0.999 0.998 0.998 0.999 0.998 0.998 0.999 0.998 0.998 0.998 0.998 0.998 0.995	mbd 2.65 2.40 -2.29 1.34 1.08 4.69 6.15 -1.03 1.31 6.24 -0.84 -1.61 -7.70 3.75 1.29 -1.10	3.29 4.61 5.45 3.32 2.46 6.44 3.27 4.64 7.72 4.64 7.72 4.64 7.72 4.68 2.66 4.20 5.88 8.05 6.53 6.61	Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2013 Kishinev 2004 - 2013 Lindenberg 2004 - 2013 Lindenberg 2004 - 2010 Madrid 2004 - 2013 Nantes 2004 - 2010 Payerne 2004 - 2011 Sede Boger 2004 - 2012 Slaukuza 2004 - 2007 Tamanraset 2004 - 2013	173.3 102.0 73.5 68.4 149.2 92.1 106.4 70.9 110.7 44.5 85.4 139.9 102.4 97.7 188.8 125.3 192.8 90.9	95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36 107 109	R 0.986 0.994 0.983 0.984 0.981 0.992 0.992 0.993 0.993 0.993 0.975 0.992 0.993 0.975 0.992 0.986 0.986 0.987 0.986 0.9867 0.9866	mbd 20.18 -3.99 12.49 16.01 3.94 16.07 1.71 5.12 7.26 20.30 1.38 8.91 -0.74 -5.75 -32.94 23.32 25.52 2.64	sd 14.96 10.13 11.58 15.94 12.27 27.09 8.40 7.48 11.30 23.66 11.87 16.37 10.15 9.94 14.93 20.74 39.24 19.96	Bn 173.3 102.0 73.5 68.4 149.2 92.1 106.4 70.9 110.7 44.5 85.4 139.9 102.1 97.7 188.8 125.3 192.8 90.9	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36 107 109	R 0.991 0.986 0.984 0.981 0.942 0.987 0.991 0.981 0.947 0.988 0.983 0.995 0.990 0.989 0.990 0.935 0.978	v5 mbd 6.09 1.89 10.24 20.23 3.94 9.11 21.74 12.23 5.48 23.81 1.61 17.11 4.09 12.63 -26.17 9.40 29.85 -0.06	12.35 9.15 10.26 15.02 12.27 20.50 9.98 8.58 12.16 23.48 13.93 12.65 8.39 11.24 15.92 16.79 26.75 14.48	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2007 Cabauw 2004 - 2013 Camborne 2004 - 2013 Garpentras 2004 - 2013 Geneva 2004 - 2013 Kishinev 2004 - 2013 Lerwick 2004 - 2013 Lindenberg 2004 - 2013 Madrid 2004 - 2013 Nantes 2004 - 2010 Payerne 2004 - 2011 Sede Boqer 2004 - 2012 Skukuz 2004 - 2013 Toravere 2004 - 2013	46.9 43.7 46.8 47.4 37.9 33.7 45.1 42.4 43.9 43.8 44.3 36.5 49.2 44.9 41.5 49.1 56.7 39.0	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36 107 109	R 0.985 0.995 0.996 0.997 0.964 0.955 0.995 0.995 0.996 0.997 0.996 0.997 0.996 0.997 0.956 0.993 0.932 0.993 0.853 0.993	mbd -5.02 -1.86 -10.29 -8.43 -3.35 -1.02 -2.53 -3.03 -2.93 -8.30 -6.33 1.36 -4.65 -6.19 4.06 -8.62 -18.08 -1.71	sd 5.35 4.44 8.32 6.52 4.66 7.39 4.81 5.13 4.49 7.07 5.50 5.34 4.72 4.68 7.77 7.80 17.14 3.34	Dh 46.9 43.7 46.8 47.4 37.9 33.7 45.1 42.4 43.9 43.8 44.3 36.5 49.2 44.9 41.5 49.1 56.7 39.0	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36 107 109	R 0.987 0.996 0.997 0.996 0.964 0.978 0.995 0.982 0.996 0.964 0.995 0.982 0.996 0.964 0.996 0.996 0.996 0.913 0.996 0.941	mbd -3.20 -3.24 -8.87 -9.79 -3.35 0.03 -6.36 -4.60 -3.52 -9.34 -6.75 -1.03 -6.14 -9.58 1.41 -9.58 1.41 -4.62 -19.69 -1.93	4.74 4.75 7.31 7.00 4.66 6.96 5.98 5.95 4.85 7.67 6.05 4.89 5.04 6.01 8.83 5.82 14.02 3.09
Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Camborne 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Kassel 2004 - 2011 Kishinev 2004 - 2013 Lindenberg 2004 - 2013 Nantes 2004 - 2013 Nantes 2004 - 2013 Nantes 2004 - 2013 Skukuza 2004 - 2012 Skukuza 2004 - 2013 Valentia 2004 - 2013	152.3 98.2 85.6 85.3 123.6 85.4 106.8 85.1 107.4 65.7 89.7 125.5 103.1 101.1 163.3 127.8 187.3 86.5 83.7	nb 95 47 107 98 117 95 119 96 35 110 71 88 100 36 107 109 119	R 0.999 0.999 0.996 0.996 0.997 0.998 0.999 0.998 0.999 0.999 0.998 0.999 0.998 0.999 0.998 0.999 0.997 0.997 0.994 0.994 0.995 0.997 0.994 0.994 0.994 0.994 0.994 0.994 0.994 0.993 0.994	mbd 7.13 0.29 -3.38 -0.02 1.08 7.57 -1.11 -3.99 2.15 2.24 -4.18 3.53 -2.42 -8.43 -10.68 9.64 -0.15 0.16 0.38	sd 4.17 4.63 6.20 3.35 2.46 9.11 3.19 6.36 5.00 7.93 3.92 4.72 3.14 5.79 6.90 8.22 8.08 8.37 5.19	Gh 152.3 98.2 85.6 85.3 123.6 85.4 106.8 85.1 107.4 65.7 89.7 125.5 103.0 101.1 163.3 127.8 187.3 86.5 83.6	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36 107 109 119	R 0.999 0.997 0.997 0.997 0.998 0.998 0.998 0.998 0.998 0.999 0.998 0.998 0.998 0.999 0.998 0.999 0.999 0.998 0.998 0.999 0.999 0.999 0.999 0.999 0.995 0.995	mbd 2.65 2.40 -2.29 1.34 4.69 6.15 -1.03 1.31 3.35 -4.01 6.24 -0.84 -1.61 -7.70 3.75 1.29 -1.10 1.73	3.29 4.61 5.45 3.32 2.46 6.44 3.27 4.77 4.64 4.22 4.68 2.66 4.20 5.88 8.05 6.53 6.61 4.20	Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Camborne 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Kassel 2004 - 2013 Kassel 2004 - 2013 Lindenberg 2004-2010 Madrid 2004-2013 Nantes 2004-2010 Payerne 2004-2010 Payerne 2004-2011 Skukuza 2004-2012 Skukuza 2004-2013 Tamanrasset 2004-2013 Valentia 2004-2013	173.3 102.0 73.5 68.4 149.2 92.1 106.4 70.9 110.7 44.5 85.4 139.9 102.4 97.7 188.8 125.8 192.8 90.9 78.9	95 47 107 98 117 95 119 95 119 96 35 110 71 88 80 36 107 109 119	R 0.986 0.994 0.983 0.984 0.923 0.990 0.992 0.987 0.992 0.987 0.992 0.993 0.996 0.966 0.969	mbd 20.18 -3.99 12.49 16.07 1.71 5.12 7.26 20.30 1.38 8.91 -0.74 -5.75 -32.94 23.52 25.52 25.52 2.64 -1.56	sd 14.96 10.13 11.58 15.94 12.27 27.09 8.40 7.48 11.30 23.66 11.87 16.37 10.15 9.94 14.93 20.74 19.96 14.19	Bn 173.3 102.0 73.5 68.4 149.2 92.1 106.4 70.9 110.7 44.5 85.4 139.9 102.1 97.7 188.8 125.3 90.9 78.8	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36 107 109 119	R 0.991 0.996 0.986 0.984 0.981 0.942 0.987 0.991 0.947 0.947 0.947 0.988 0.983 0.995 0.990 0.989 0.990 0.935 0.978 0.978	v5 mbd 6.09 10.24 20.23 3.94 9.11 21.74 12.23 5.48 23.81 1.61 17.11 4.09 12.63 -26.17 9.40 29.85 -0.06 2.81	12.35 9.15 10.26 15.02 12.27 20.50 9.98 8.58 12.16 23.48 13.93 12.65 8.39 11.24 15.92 16.79 26.75 14.48 11.88	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Kishinev 2004 - 2013 Lerwick 2004 - 2013 Lindenberg 2004 - 2013 Nantes 2004 - 2010 Madrid 2004 - 2013 Nantes 2004 - 2011 Skukuza 2004 - 2012 Skukuza 2004 - 2013 Valentia 2004 - 2013 Valentia 2004 - 2013	46.9 43.7 46.8 47.4 37.9 33.7 45.1 42.4 43.9 43.8 44.3 36.5 49.2 44.9 41.5 56.7 39.0 43.8	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36 107 109 119	R 0.985 0.995 0.996 0.997 0.964 0.997 0.995 0.995 0.989 0.995 0.997 0.956 0.997 0.956 0.997 0.933 0.932 0.933 0.853 0.853	mbd -5.02 -1.86 -10.29 -8.43 -3.35 -1.02 -2.53 -3.03 -2.93 -8.30 -6.33 1.36 -6.19 4.06 -8.62 -18.08 -1.71 -1.85	sd 5.35 4.44 8.32 6.52 4.66 7.39 4.81 5.13 4.49 7.07 5.50 5.34 4.72 4.68 7.77 7.80 17.14 3.34 3.50	Dh 46.9 47.4 37.9 33.7 45.1 42.4 43.9 43.8 44.3 36.5 49.2 44.9 41.5 49.1 56.7 39.0 43.7	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36 107 109 119	R 0.987 0.996 0.997 0.996 0.997 0.996 0.964 0.978 0.995 0.982 0.996 0.996 0.996 0.996 0.996 0.996 0.996 0.991 0.913 0.994 0.994 0.997	mbd -3.20 -3.24 -8.87 -9.79 -3.35 0.03 -6.36 -4.60 -3.52 -9.34 -6.75 -1.03 -6.14 -9.58 1.41 -6.62 -1.9.69 -1.93 -3.23	4.74 4.75 7.31 7.00 4.66 6.96 5.98 5.95 4.85 7.67 6.05 4.89 5.04 6.01 8.83 5.82 14.02 3.09 3.81
Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Carborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2011 Kassel 2004 - 2011 Lindenberg 2004 - 2013 Lindenberg 2004 - 2013 Nantes 2004 - 2013 Nantes 2004 - 2013 Nantes 2004 - 2013 Sede Boqer 2004 - 2013 Toravere 2004 - 2013 Valentia 2004 - 2013 Valentia 2004 - 2013	152.3 98.2 85.6 85.3 123.6 85.4 106.8 85.1 107.4 65.7 125.5 103.1 101.1 163.3 127.8 187.3 86.5 83.7 104.0	nb 95 47 107 98 117 95 119 95 119 95 35 110 71 88 100 36 107 109 119	R 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.993 0.993 0.993 0.993 0.993 0.993 0.993 0.993 0.993 0.994 0.993 0.993 0.994 0.997 0.998 0.994 0.994 0.997 0.997 0.997 0.997 0.997	mbd 7.13 0.29 -3.38 0.02 1.08 7.57 -1.11 -3.98 2.15 2.15 2.15 2.24 -4.18 3.53 -1.068 9.64 -0.15 0.16 0.38 1.07	sd 4.17 4.63 6.20 3.35 2.46 9.11 3.19 6.36 5.00 7.93 3.92 4.72 3.14 5.79 6.90 8.22 8.08 8.37 5.19 6.25	Gh 152.3 98.2 85.6 85.3 123.6 85.4 106.8 85.1 107.4 65.7 89.7 125.5 103.0 101.1 163.3 127.8 187.3 86.5 83.6 104.0	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36 107 109 119	R 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.998 0.994 0.999 0.998 0.998 0.998 0.998 0.999 0.998 0.999 0.999 0.999 0.999 0.999 0.995 0.997	mbd 2.65 2.40 -2.29 1.34 1.08 4.69 6.15 -1.03 1.31 3.35 -4.01 6.24 -0.84 -1.61 -7.70 3.75 1.29 -1.10 1.73 5.27	3.29 4.61 5.45 3.32 2.46 6.44 3.27 4.77 4.64 7.72 4.64 7.72 4.68 2.66 4.20 5.88 8.05 6.53 6.61 4.20 4.43	Almeria 2004 - 2011 Bratislava 2004 - 2013 Carbauva 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Geneva 2004 - 2011 Kassel 2004 - 2011 Kishiney 2004-2013 Lerwick 2004-2013 Lindenberg 2004-2013 Nantes 2004-2010 Payerne 2004-2010 Payerne 2004-2011 Skukuza 2004-2007 Tamanrasset 2004-2013 Valentia 2004-2013 Valentia 2004-2013 Valentia 2004-2013	173.3 102.0 73.5 68.4 149.2 92.1 106.4 70.9 110.7 44.5 85.4 139.9 102.4 97.7 188.8 125.3 192.8 90.9 78.9 107.3	95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 71 88 100 36 107 109 119	R 0.986 0.994 0.983 0.984 0.983 0.984 0.981 0.923 0.990 0.992 0.983 0.992 0.993 0.975 0.992 0.986 0.986 0.967 0.966 0.969 0.969	mbd 20.18 -3.99 12.09 16.01 3.94 16.07 1.71 5.12 7.26 20.30 1.38 8.91 -0.74 -5.75 -32.94 23.32 2.64 -1.56 2.18	sd 14.96 10.13 11.58 15.94 12.27 27.09 8.40 7.48 11.30 23.66 11.87 16.37 10.15 9.94 14.93 20.74 39.24 14.93 20.74 39.96 14.19 10.82	Bn 173.3 102.0 73.5 68.4 149.2 92.1 106.4 70.9 110.7 44.5 85.4 139.9 102.1 97.7 188.8 125.3 90.9 78.8 107.0	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36 107 109 119	R 0.991 0.996 0.986 0.987 0.981 0.981 0.981 0.981 0.981 0.981 0.981 0.981 0.981 0.981 0.981 0.981 0.982 0.983 0.995 0.990 0.935 0.978 0.982 0.988	v5 mbd 6.09 1.89 10.24 20.23 3.94 9.11 21.74 12.23 5.48 23.81 1.61 17.11 4.09 12.63 -26.17 9.40 29.85 -0.06 2.81 13.16	12.35 9.15 10.26 15.02 12.27 20.50 9.98 8.58 12.16 23.48 13.93 12.65 8.39 11.24 15.92 16.79 26.75 14.48 11.88 8.89	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2013 Cabauw 2004 - 2013 Caborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Carpentras 2004 - 2013 Lenvick 2004 - 2013 Lindenberg 2004 - 2013 Lindenberg 2004 - 2013 Nantes 2004 - 2013 Nantes 2004 - 2013 Nantes 2004 - 2013 Sede Boqer 2004 - 2013 Toravere 2004 - 2013 Vaulx-en-Velin 2004 - 2013 Vaulx-en-Velin 2004 - 2013	46.9 43.7 46.8 47.4 37.9 33.7 45.1 42.4 43.9 43.8 44.3 36.5 49.2 44.9 41.5 49.2 44.9 41.5 56.7 39.0 43.8 42.2	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36 107 109 119	R 0.985 0.995 0.996 0.997 0.964 0.995 0.995 0.995 0.996 0.997 0.996 0.997 0.996 0.997 0.993 0.993 0.993 0.997 0.993 0.997	mbd -5.02 -1.86 -10.29 -8.43 -3.35 -1.02 -2.53 -3.03 -2.93 -8.30 -6.33 1.36 -4.65 -6.19 4.06 -8.62 -18.06 -1.71 -1.85 0.17	sd 5.35 4.44 8.32 6.52 4.66 7.39 4.81 5.13 4.49 7.07 5.50 5.34 4.72 4.68 7.77 7.80 17.14 3.34 3.50 4.40	Dh 46.9 43.7 46.8 47.4 37.9 33.7 45.1 42.4 43.9 43.8 44.3 36.5 49.2 44.9 41.5 49.1 56.7 39.0 43.7 42.1	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36 107 109 119	R 0.987 0.996 0.997 0.996 0.964 0.978 0.995 0.982 0.996 0.996 0.996 0.996 0.996 0.996 0.996 0.991 0.913 0.994 0.997 0.941	mbd -3.20 -3.24 -8.87 -9.79 -3.35 0.03 -6.36 -4.60 -3.52 -9.34 -6.75 -1.03 -6.14 -9.58 1.41 -6.62 -19.69 -1.93 -3.23 -3.23 -3.24	4.74 4.75 7.31 7.00 4.66 5.98 5.95 4.85 7.67 6.05 4.89 5.04 6.01 8.83 5.82 14.02 3.09 3.81 5.28
Almeria 2004 - 2011 Aratislava 2004 - 2017 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Gareva 2004 - 2011 Geneva 2004 - 2011 Geneva 2004 - 2013 Lindenberg 2004 - 2013 Lindenberg 2004 - 2013 Madrid 2004 - 2013 Payerne 2004 - 2011 Sede Boqer 2004 - 2012 Skukuza 2004 - 2007 Tamanraset 2004 - 2013 Toravere 2004 - 2013 Valtentia 2004 - 2013 Valutentia 2004 - 2013 Wien 2004 - 2013	152.3 98.2 85.6 85.3 123.6 85.4 106.8 85.1 107.4 65.7 89.7 125.5 103.1 101.1 163.3 127.8 187.3 86.5 83.7 104.0 99.5	nb 95 47 107 98 117 95 119 95 119 96 335 1100 36 100 36 100 36 107 119 119 119 110 36 100 36 100 310 100 31110 31110	R 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.993 0.993 0.993 0.993 0.993 0.993 0.993 0.997 0.993 0.993 0.994 0.998 0.998 0.998	wheat mbdd 7.13 0.29 -3.38 -0.02 1.08 7.57 1.11 -3.99 2.15 2.24 -8.43 -0.15 0.64 -0.15 0.16 0.38	sd 4.17 4.63 6.20 3.35 2.46 9.11 3.19 6.36 5.00 7.93 3.92 4.72 3.14 5.79 8.22 8.08 8.37 5.19 6.25 4.22	Gh 152.3 98.2 85.6 85.3 123.6 85.4 106.8 85.4 107.4 65.7 89.7 125.5 103.0 101.1 163.3 127.8 187.3 86.5 83.6 104.0 99.5	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36 107 109 119 119	R 0.999 0.999 0.999 0.999 0.999 0.999 0.998 0.999 0.998 0.999 0.998 0.999 0.998 0.998 0.999 0.997 0.998	mbd 2.65 2.40 -2.29 1.34 1.08 4.69 6.15 -1.03 1.31 3.35 -4.01 6.24 -0.84 -1.61 -7.70 3.75 1.29 -1.10 1.73 5.27 -0.62	3.29 4.61 5.45 3.32 2.46 6.44 3.27 4.77 4.64 7.72 4.22 4.68 2.66 4.20 5.88 8.05 6.53 6.61 4.20 4.43 4.75	Almeria 2004 - 2011 Bratislava 2004 - 2013 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Geneva 2004 - 2011 Geneva 2004 - 2013 Kishine 2 2004 - 2013 Lindenberg 2004-2013 Lindenberg 2004-2010 Madrid 2004-2010 Payerne 2004-2011 Sede Boger 2004-2011 Skukuza 2004-2007 Tamanraset 2004-2013 Toravere 2004 - 2013 Valemia 2004-2013 Wien 2004-2013	173.3 102.0 73.5 68.4 149.2 92.1 106.4 70.9 110.7 44.5 85.4 139.9 102.4 97.7 188.8 125.3 192.8 90.9 78.9 107.3 91.7	95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36 100 36 100 36 109 119 119	R 0.986 0.994 0.983 0.984 0.983 0.984 0.983 0.994 0.983 0.994 0.983 0.992 0.992 0.993 0.975 0.992 0.993 0.975 0.992 0.993 0.975 0.992 0.986 0.986 0.969 0.966 0.968 0.988	mbd 20.18 -3.99 12.49 16.01 3.94 16.07 1.71 5.12 7.26 20.30 1.38 8.91 -0.74 -5.75 -32.94 23.32 25.52 2.64 -1.56 2.18 2.07	sd 14.96 10.13 11.58 15.94 12.27 27.09 8.40 23.66 11.87 16.37 10.15 9.94 14.93 20.74 39.24 19.96 10.82 9.26	Bn 173.3 102.0 73.5 68.4 149.2 92.1 106.4 70.9 110.7 44.5 85.4 139.9 102.1 97.7 188.8 125.3 192.8 90.9 78.8 107.0 91.7	nb 95 47 107 98 117 95 119 95 119 96 35 1100 36 1007 109 119 100 36 107 109 119 119 119 110 36 107 109 119 112	R 0.991 0.996 0.986 0.984 0.981 0.942 0.987 0.991 0.947 0.988 0.947 0.947 0.947 0.948 0.947 0.948 0.949 0.990 0.935 0.990 0.935 0.978 0.988 0.988 0.988	v5 mbd 6.09 1.89 10.24 20.23 3.34 9.11 12.23 5.48 23.81 17.11 4.09 12.63 1.61 17.11 4.09 12.63 2.84 29.85 -0.06 2.81 3.3.16 9.95	12.35 9.15 10.26 15.02 9.98 8.58 12.16 23.48 13.93 12.65 8.39 11.24 15.92 16.79 26.75 14.48 11.88 8.89 9.83	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Geneva 2004 - 2013 Kassel 2004 - 2013 Kassel 2004 - 2013 Lindenberg 2004-2013 Lindenberg 2004-2013 Madrid 2004-2013 Nantes 2004-2011 Sede Boger 2004-2011 Sede Boger 2004-2012 Skukuza 2004-2013 Toravers 2004 - 2013 Valkenia 2004-2013 Valkenia 2004-2013 Valkenia 2004-2013 Wien 2004-2013 Wien 2004-2013	46.9 43.7 46.8 47.4 37.9 33.7 45.1 42.4 43.9 43.8 44.3 36.5 49.2 44.9 41.5 49.1 56.7 39.0 43.8 42.2 47.5	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36 107 109 119	R 0.985 0.995 0.996 0.997 0.964 0.979 0.989 0.996 0.997 0.956 0.993 0.932 0.993 0.853 0.997 0.978	mbd -5.02 -1.86 -10.29 -8.43 -3.35 -1.02 -2.53 -3.03 -2.93 -8.30 -6.33 1.36 -6.19 4.06 -8.62 -18.08 -1.71 -1.85 0.17 -5.70	sd 5.35 4.44 8.32 6.52 4.66 7.39 4.81 5.13 4.49 7.07 5.50 5.34 4.72 4.68 7.77 7.80 17.14 3.34 3.50 4.40 5.82	Dh 46.9 43.7 46.8 47.4 37.9 33.7 45.1 42.4 43.9 43.8 44.3 36.5 49.2 44.5 49.1 56.7 39.0 43.7 42.1 47.5	nb 95 47 107 98 117 95 119 96 35 110 71 88 100 36 107 109 119 119 112	R 0.987 0.996 0.997 0.996 0.996 0.997 0.998 0.996 0.996 0.996 0.996 0.996 0.996 0.996 0.996 0.996 0.996 0.996 0.996 0.996 0.991 0.913 0.996 0.941 0.997 0.975 0.988	mbd -3.20 -3.24 -8.87 -9.79 -3.35 0.03 -6.36 -4.60 -3.52 -9.34 -6.75 -1.03 -6.14 -9.58 1.41 -6.62 -19.69 -1.93 -3.23 -2.48 -2.48 -7.47	4.74 4.75 7.31 7.00 4.66 6.96 5.98 5.95 4.85 7.67 6.05 4.89 5.04 6.01 8.83 5.82 14.02 3.09 3.81 5.28 6.45
Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2011 Geneva 2004 - 2011 Kishinev 2004 - 2013 Lindenberg 2004 - 2013 Lindenberg 2004 - 2013 Nantes 2004 - 2010 Payerne 2004 - 2011 Sede Boqer 2004 - 2012 Skukuza 2004 - 2007 Tamanraset 2004 - 2013 Toravere 2004 - 2013 Valkenta 2004 - 2013 Valkenev-Veila 2004 - 2013 Zilani 2004 - 2013 Zilani 2004 - 2013	152.3 98.2 85.6 85.3 123.6 85.4 106.8 85.1 107.4 65.7 89.7 125.5 103.1 101.1 163.3 127.8 187.3 86.5 83.7 104.0 99.5 85.7	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36 107 109 119 119 110 71 101 36 107 109 119 112 65	R 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.993 0.993 0.993 0.993 0.993 0.993 0.993 0.993 0.993 0.994 0.993 0.993 0.994 0.997 0.998 0.994 0.994 0.997 0.997 0.997 0.997 0.997	mbd 7.13 0.29 -0.02 1.08 -0.02 1.08 2.15 2.24 3.53 -2.44.8 3.53 -2.42 -8.43 -0.15 0.16 0.38 0.16 0.350	sd 4.17 4.63 6.20 3.35 2.46 5.00 9.11 3.19 6.36 5.00 7.93 3.92 4.72 3.14 5.79 8.22 8.08 8.37 5.19 6.25 4.22 8.78	Gh 152.3 98.2 85.6 85.3 103.6 85.4 106.8 85.4 106.8 85.4 107.4 65.7 103.0 101.1 103.3 127.8 183.3 127.8 183.3 127.8 83.6 5 83.6 5 83.6 5 83.6 5 83.6 5 83.6 5 83.6 83.6 83.6 83.6 83.6 83.6 83.6 83.6	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36 107 109 119 110 35 110 71 103 104 36 107 109 119 112 63	R 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.998 0.994 0.999 0.998 0.998 0.998 0.998 0.999 0.998 0.999 0.999 0.999 0.999 0.999 0.995 0.997	mbd 2.65 2.40 -2.29 1.34 1.08 4.69 6.15 -1.03 1.31 3.35 -4.01 6.24 -0.84 -1.61 -7.70 3.75 1.29 -1.10 1.73 5.27 -0.62 2.81	3.29 4.61 5.45 3.32 2.46 6.44 3.27 4.77 4.64 7.72 4.22 4.68 2.66 4.20 5.88 8.05 6.53 6.61 4.20 4.43 4.75 6.52	Almeria 2004 - 2011 Bratislava 2004 - 2013 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Geneva 2004 - 2011 Geneva 2004 - 2013 Kishinev 2004 - 2013 Lindenberg 2004-2013 Lindenberg 2004-2013 Nantes 2004 - 2011 Sede Boger 2004-2011 Skukuza 2004-2007 Tamanrasset 2004-2013 Toravere 2004 - 2013 Valuenta 2004-2013 Valuenta 2004-2013 Wien 2004-2013 Zilani 2004-2013	173.3 102.0 73.5 68.4 149.2 92.1 106.4 70.9 110.7,4 44.5 85.4 139.9 102.4 97.7 188.8 125.3 192.8 90.9 78.9 107.3 91.7 80.2	95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36 107 109 119 119 112 65	R 0.986 0.994 0.983 0.984 0.983 0.984 0.981 0.923 0.990 0.992 0.983 0.992 0.993 0.975 0.992 0.986 0.986 0.967 0.966 0.969 0.969	mbd 20.18 -3.99 12.49 16.01 3.94 16.07 1.71 5.12 7.26 20.30 1.38 -0.74 -5.75 -32.94 25.52 2.64 -1.56 2.18 2.07 23.76	sd 14.96 10.13 11.58 15.94 12.27 8.40 7.48 11.30 23.66 23.66 11.87 16.37 10.15 9.94 14.93 20.74 9.924 19.96 21.32	Bn 173.3 102.0 73.5 68.4 149.2 92.1 106.4 70.9 110.7 44.5 85.4 139.9 102.1 97.7 188.8 125.3 192.8 90.9 78.8 90.9 91.7 82.7	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 138 100 36 107 109 119 111 119 110 711 110 111 112 63	R 0.991 0.996 0.986 0.987 0.981 0.981 0.981 0.981 0.981 0.981 0.981 0.981 0.981 0.981 0.981 0.981 0.982 0.983 0.995 0.990 0.935 0.978 0.982 0.988	v5 mbd 6.09 10.24 20.23 3.94 21.74 12.23 9.41 12.174 12.23 5.48 23.81 1.61 17.11 4.09 12.63 -26.17 9.40 2.9.85 -0.06 2.81 13.16 9.95 10.27	12.35 9.15 10.26 15.02 12.27 20.50 9.98 8.58 12.16 23.48 13.93 12.65 8.39 11.24 15.92 26.75 14.48 11.88 9.83 14.22	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2013 Kishinev 2004 - 2013 Lerwick 2004 - 2013 Lindenberg 2004 - 2013 Martie 2004 - 2013 Nantes 2004 - 2013 Stakuza 2004 - 2017 Stakuza 2004 - 2017 Stakuza 2004 - 2013 Valuren-Velin 2004 - 2013 Valuren-Velin 2004 - 2013 Valuren-Velin 2004 - 2013 Valuren-Velin 2004 - 2013 Zilani 2004 - 2013 Zilani 2004 - 2013	46.9 43.7 46.8 47.4 37.9 33.7 45.1 42.4 43.9 43.8 44.3 36.5 49.2 44.9 41.5 49.2 44.9 41.5 56.7 39.0 41.5 56.7 39.0 43.8 42.2 47.5 41.0	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36 107 109 119 911 92 110 71 110 71 110 71 119 9119 112 65	R 0.985 0.995 0.996 0.997 0.964 0.995 0.995 0.995 0.996 0.997 0.996 0.997 0.996 0.997 0.993 0.993 0.993 0.997 0.993 0.997	mbd -5.02 -1.86 -10.29 -8.43 -3.35 -1.02 -2.53 -3.03 -2.93 -8.30 -6.33 -3.03 -6.33 -1.36 -4.65 -6.19 4.06 -8.62 -18.08 -1.71 -1.85 0.17 -5.70 -3.42	sd 5.35 4.44 8.32 6.52 4.66 5.7 3 4.81 5.13 4.49 7.07 5.50 5.50 5.54 4.72 4.68 4.77 7.80 17.14 3.34 3.50 17.14 5.82 5.12	Dh 46.9 43.7 46.8 47.4 37.9 33.7 45.1 42.4 43.9 43.8 36.5 49.2 44.9 36.5 49.2 44.9 1,5 6.7 39.0 43.7 42.1 47.5 42.2	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 119 96 35 110 71 118 88 100 36 107 109 119 119 119 119 119 119 119 119 119 112 63	R 0.987 0.996 0.997 0.996 0.964 0.978 0.995 0.982 0.996 0.996 0.996 0.996 0.996 0.996 0.996 0.991 0.913 0.994 0.994 0.997 0.975	mbd -3.20 -3.24 -8.87 -9.79 -3.35 0.03 -6.36 -4.60 -3.52 -9.34 -6.75 -1.03 -6.14 -9.58 1.41 -6.62 -19.69 -1.93 -3.23 -2.48 -7.47 -2.39	4.74 4.75 7.31 7.00 4.66 6.96 5.98 5.95 4.85 7.67 6.05 4.89 5.04 6.01 8.83 5.82 14.02 3.09 3.81 5.28 6.45 3.74
Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Camborne 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Cassel 2004 - 2011 Kassel 2004 - 2013 Lindenberg 2004 - 2013 Nantes 2004 - 2010 Payerne 2004 - 2010 Payerne 2004 - 2010 Payerne 2004 - 2010 Skukuza 2004 - 2017 Tamanrasset 2004 - 2013 Valentia 2004 - 2013 Valentia 2004 - 2013 Valentia 2004 - 2013 Vialentia 2004 - 2014 Vialentia 2004 - 2014 Vialentia 2004 - 2014 Vialentia 20	152.3 98.2 85.6 85.3 123.6 85.4 106.8 85.1 107.4 65.7 89.7 125.5 103.1 101.1 163.3 127.8 187.3 86.5 83.7 104.0 99.5	nb 95 47 107 98 117 95 119 95 119 96 335 1100 36 100 36 100 36 107 119 119 119 110 36 100 36 100 310 100 31110 31110	R 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.993 0.993 0.993 0.993 0.993 0.993 0.993 0.997 0.993 0.993 0.993 0.996 0.998	whet mbd 7.13 0.29 -3.38 -0.02 1.08 7.57 -1.11 -3.99 2.15 2.12 -4.18 3.53 -2.42 -4.18 9.64 -0.15 0.16 0.38 1.07 -3.50	sd 4.17 4.63 6.20 3.35 2.46 9.11 3.19 6.36 5.00 7.93 3.92 4.72 3.14 5.79 8.22 8.08 8.37 5.19 6.25 4.22	Gh 152.3 98.2 85.6 85.3 123.6 85.4 106.8 85.4 107.4 65.7 89.7 125.5 103.0 101.1 163.3 127.8 187.3 86.5 83.6 104.0 99.5	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36 107 109 119 119	R 0.999 0.999 0.999 0.999 0.999 0.999 0.998 0.999 0.998 0.999 0.998 0.999 0.998 0.998 0.999 0.997 0.998	mbd 2.65 2.40 -2.29 1.34 1.08 4.69 6.15 -1.03 1.31 6.24 -0.84 -0.84 -0.84 -1.61 -7.70 3.75 1.29 -1.10 1.73 5.27 -1.10 1.73 5.27 -2.81 1.26	3.29 4.61 5.45 3.32 2.46 6.44 3.27 4.77 4.64 7.72 4.22 4.68 2.66 4.20 5.88 8.05 6.53 6.61 4.20 4.43 4.75	Almeria 2004 - 2011 Bratislava 2004 - 2013 Carborne 2004 - 2013 Carpertras 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Kassel 2004 - 2013 Kassel 2004 - 2013 Lindenberg 2004-2010 Madrid 2004-2013 Nantes 2004-2010 Payerne 2004-2010 Payerne 2004-2011 Skukuza 2004-2017 Tamanrasset 2004-2012 Skukuza 2004-2017 Tamanrasset 2004-2013 Valentia 2004-2013 Vale	173.3 102.0 73.5 68.4 149.2 92.1 106.4 70.9 110.7 44.5 85.4 139.9 102.4 97.7 188.8 125.3 192.8 90.9 78.9 107.3 91.7	95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36 100 36 100 36 109 119 119	R 0.986 0.994 0.983 0.984 0.983 0.984 0.983 0.994 0.983 0.994 0.983 0.992 0.992 0.993 0.975 0.992 0.993 0.975 0.992 0.993 0.975 0.992 0.986 0.986 0.969 0.966 0.968 0.988	mbd 20.18 -3.99 12.49 16.01 3.94 16.07 1.71 7.26 20.30 1.38 8.91 -0.74 -5.75 -32.94 23.32 2.64 -1.56 2.18 2.52 2.64 -1.56 2.18	sd 14.96 10.13 11.58 15.94 12.27 27.09 8.40 23.66 11.87 16.37 10.15 9.94 14.93 20.74 39.24 19.96 10.82 9.26	Bn 173.3 102.0 73.5 68.4 149.2 92.1 106.4 70.9 110.7 44.5 85.4 139.9 102.1 97.7 188.8 125.3 192.8 90.9 78.8 107.0 91.7	nb 95 47 107 98 117 95 119 95 119 96 35 1100 36 1007 109 119 100 36 107 109 119 119 119 110 36 107 109 119 112	R 0.991 0.996 0.986 0.984 0.981 0.942 0.987 0.991 0.947 0.988 0.947 0.947 0.947 0.948 0.947 0.948 0.949 0.990 0.935 0.990 0.935 0.978 0.988 0.988 0.988	v5 mbd 6.09 1.89 10.24 20.23 3.94 2.11 2.1.74 12.23 5.48 1.61 17.11 4.09 22.83 1.61 17.11 2.63 -26.17 9.40 2.9.85 -0.06 2.81 13.16 9.95 10.27 9.56	12.35 9.15 10.26 15.02 9.98 8.58 12.16 23.48 13.93 12.65 8.39 11.24 15.92 16.79 26.75 14.48 11.88 8.89 9.83	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2013 Lerwick 2004 - 2013 Lerwick 2004 - 2013 Lindenberg 2004 - 2013 Nartes 2004 - 2013 Nartes 2004 - 2013 Sede Boger 2004 - 2013 Stukuza 2004 - 2013 Tarmarrasset 2004 - 2013 Valentia 2004 - 2013	46.9 43.7 46.8 47.4 37.9 33.7 45.1 42.4 43.9 43.8 44.3 36.5 49.2 44.9 41.5 49.1 56.7 39.0 43.8 42.2 47.5	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36 107 109 119	R 0.985 0.995 0.996 0.997 0.964 0.979 0.989 0.996 0.997 0.956 0.993 0.932 0.993 0.853 0.997 0.978	mbd -5.02 -1.86 -10.29 -8.43 -3.35 -1.02 -2.53 -3.03 -2.93 -3.03 -2.93 -3.03 -6.33 1.36 -6.19 4.06 -8.62 -18.06 -8.62 -1.85 0.17 -1.85 0.17 -3.42 -3.42 -3.42 -3.42 -3.42	sd 5.35 4.44 8.32 6.52 4.66 7.39 4.81 5.13 4.49 7.07 5.50 5.34 4.72 4.68 7.77 7.80 17.14 3.34 3.50 4.40 5.82	Dh 46.9 43.7 46.8 47.4 37.9 33.7 45.1 42.4 43.9 43.8 44.3 36.5 49.2 44.5 49.1 56.7 39.0 43.7 42.1 47.5	nb 95 47 107 98 117 95 119 96 35 110 71 88 100 36 107 109 119 119 112	R 0.987 0.996 0.997 0.996 0.996 0.997 0.998 0.996 0.996 0.996 0.996 0.996 0.996 0.996 0.996 0.996 0.996 0.996 0.996 0.996 0.991 0.913 0.996 0.941 0.997 0.975 0.988	mbd -3.20 -3.24 -8.87 -9.79 -3.35 -6.36 -4.60 -3.52 -9.34 -6.75 -1.03 -6.17 -9.58 1.41 -6.62 -1.93 -3.23 -2.48 -1.93 -3.23 -2.48 -2.49 -2.48 -2.49 -2.48 -2.49 -2.48 -2.49 -2.49 -2.48 -2.49 -2.	4.74 4.75 7.31 7.00 4.66 6.96 5.98 5.95 4.85 7.67 6.05 4.89 5.04 6.01 8.83 5.82 14.02 3.09 3.81 5.28 6.45
Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Geneva 2004 - 2011 Geneva 2004 - 2011 Kishinev 2004 - 2013 Lindenberg 2004-2013 Lindenberg 2004-2010 Madrid 2004-2013 Nantes 2004-2010 Payerne 2004-2011 Sede Boqer 2004-2012 Skukuza 2004-2007 Tamanraset 2004-2013 Valentia 2004-2013 Valentia 2004-2013 Valentia 2004-2013 Valentia 2004-2013 Valentia 2004-2013 Zilani 2004-2013	152.3 98.2 85.6 85.3 123.6 85.4 106.8 85.1 107.4 65.7 89.7 125.5 103.1 101.1 163.3 127.8 187.3 86.5 83.7 104.0 99.5 85.7	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36 107 109 119 119 110 71 101 36 107 109 119 112 65	R 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.999 0.993 0.993 0.993 0.993 0.993 0.993 0.993 0.997 0.993 0.993 0.993 0.996 0.998	mbd 7.13 0.29 -0.02 1.08 -0.02 1.08 2.15 2.24 3.53 -2.44.8 3.53 -2.42 -8.43 -0.15 0.16 0.38 0.16 0.38 0.107 -3.50	sd 4.17 4.63 6.20 3.35 2.46 5.00 9.11 3.19 6.36 5.00 7.93 3.92 4.72 3.14 5.79 8.22 8.08 8.37 5.19 6.25 4.22 8.78	Gh 152.3 98.2 85.6 85.3 103.6 85.4 106.8 85.4 106.8 85.4 107.4 65.7 103.0 101.1 103.3 127.8 183.3 127.8 183.3 127.8 83.6 5 83.6 5 83.6 5 83.6 5 83.6 5 83.6 5 83.6 83.6 83.6 83.6 83.6 83.6 83.6 83.6	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36 107 109 119 110 35 110 71 103 104 36 107 109 119 112 63	R 0.999 0.999 0.999 0.999 0.999 0.999 0.998 0.999 0.998 0.999 0.998 0.999 0.998 0.998 0.999 0.997 0.998	mbd 2.65 2.40 -2.29 1.34 1.08 4.69 6.15 -1.03 1.31 3.35 -4.01 6.24 -0.84 -1.61 -7.70 3.75 1.29 -1.10 1.73 5.27 -0.62 2.81	3.29 4.61 5.45 3.32 2.46 6.44 3.27 4.77 4.64 7.72 4.22 4.68 2.66 4.20 5.88 8.05 6.53 6.61 4.20 4.43 4.75 6.52	Almeria 2004 - 2011 Bratislava 2004 - 2013 Cabauw 2004 - 2013 Carpentras 2004 - 2013 Carpentras 2004 - 2013 Geneva 2004 - 2011 Geneva 2004 - 2013 Kishinev 2004 - 2013 Lindenberg 2004-2013 Lindenberg 2004-2013 Nantes 2004 - 2011 Sede Boger 2004-2011 Skukuza 2004-2007 Tamanrasset 2004-2013 Toravere 2004 - 2013 Valuenta 2004-2013 Valuenta 2004-2013 Wien 2004-2013 Zilani 2004-2013	173.3 102.0 73.5 68.4 149.2 92.1 106.4 70.9 110.7,4 44.5 85.4 139.9 102.4 97.7 188.8 125.3 192.8 90.9 78.9 107.3 91.7 80.2	95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36 107 109 119 119 112 65	R 0.986 0.994 0.983 0.984 0.983 0.984 0.983 0.994 0.983 0.994 0.983 0.992 0.992 0.993 0.975 0.992 0.993 0.975 0.992 0.993 0.975 0.992 0.986 0.986 0.969 0.966 0.968 0.988	mbd 20.18 -3.99 12.49 16.01 3.94 16.07 1.71 5.12 7.26 20.30 1.38 -0.74 -5.75 -32.94 25.52 2.64 -1.56 2.18 2.07 23.76	sd 14.96 10.13 11.58 15.94 12.27 8.40 7.48 11.30 23.66 23.66 11.87 16.37 10.15 9.94 14.93 20.74 9.924 19.96 21.32	Bn 173.3 102.0 73.5 68.4 149.2 92.1 106.4 70.9 110.7 44.5 85.4 139.9 102.1 97.7 188.8 125.3 192.8 90.9 78.8 90.9 91.7 82.7	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 138 100 36 107 109 119 111 119 110 711 110 111 112 63	R 0.991 0.996 0.986 0.984 0.981 0.942 0.987 0.991 0.947 0.988 0.947 0.947 0.947 0.948 0.947 0.948 0.949 0.990 0.935 0.990 0.935 0.978 0.988 0.988 0.988 0.988	v5 mbd 6.09 10.24 20.23 3.94 21.74 12.23 9.41 12.174 12.23 5.48 23.81 1.61 17.11 4.09 12.63 -26.17 9.40 2.9.85 -0.06 2.81 13.16 9.95 10.27	12.35 9.15 10.26 15.02 12.27 20.50 9.98 8.58 12.16 23.48 13.93 12.65 8.39 11.24 15.92 26.75 14.48 11.88 8.89 9.83 14.22	Diffuse irradiance Almeria 2004 - 2011 Bratislava 2004 - 2017 Cabauw 2004 - 2013 Camborne 2004 - 2013 Carpentras 2004 - 2013 Davos 2004 - 2013 Geneva 2004 - 2013 Kishinev 2004 - 2013 Lerwick 2004 - 2013 Lindenberg 2004 - 2013 Martie 2004 - 2013 Nantes 2004 - 2013 Stakuza 2004 - 2017 Stakuza 2004 - 2017 Stakuza 2004 - 2013 Valuren-Velin 2004 - 2013 Valuren-Velin 2004 - 2013 Valuren-Velin 2004 - 2013 Valuren-Velin 2004 - 2013 Zilani 2004 - 2013 Zilani 2004 - 2013	46.9 43.7 46.8 47.4 37.9 33.7 45.1 42.4 43.9 43.8 44.3 36.5 49.2 44.9 41.5 49.2 44.9 41.5 56.7 39.0 41.5 56.7 39.0 43.8 42.2 47.5 41.0	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 88 100 36 107 109 119 911 92 110 71 110 71 110 71 119 9119 112 65	R 0.985 0.995 0.996 0.997 0.964 0.979 0.989 0.996 0.997 0.956 0.993 0.932 0.993 0.853 0.997 0.978	mbd -5.02 -1.86 -10.29 -8.43 -3.35 -1.02 -2.53 -3.03 -2.93 -8.30 -6.33 -3.03 -6.33 -1.36 -4.65 -6.19 4.06 -8.62 -18.08 -1.71 -1.85 0.17 -5.70 -3.42	sd 5.35 4.44 8.32 6.52 4.66 5.7 3 4.81 5.13 4.49 7.07 5.50 5.50 5.54 4.72 4.68 4.77 7.80 17.14 3.34 3.50 17.14 5.82 5.12	Dh 46.9 43.7 46.8 47.4 37.9 33.7 45.1 42.4 43.9 43.8 36.5 49.2 44.9 36.5 49.2 44.9 1,5 6.7 39.0 43.7 42.1 47.5 42.2	nb 95 47 107 98 117 95 119 95 119 96 35 110 71 119 96 35 110 71 118 88 100 36 107 109 119 119 119 119 119 119 119 119 119 112 63	R 0.987 0.996 0.997 0.996 0.996 0.997 0.998 0.996 0.996 0.996 0.996 0.996 0.996 0.996 0.996 0.996 0.996 0.996 0.996 0.996 0.991 0.913 0.996 0.941 0.997 0.975 0.988	mbd -3.20 -3.24 -8.87 -9.79 -3.35 0.03 -6.36 -4.60 -3.52 -9.34 -6.75 -1.03 -6.14 -9.58 1.41 -6.62 -19.69 -1.93 -3.23 -2.48 -7.47 -2.39	4.74 4.75 7.31 7.00 4.66 6.96 5.98 5.95 4.85 7.67 6.05 4.89 5.04 6.01 8.83 5.82 14.02 3.09 3.81 5.28 6.45 3.74

 Table a-III
 Site by site, for the two helioclim-3 versions, monthly global, normal beam and diffuse irradiation validation results expressed in relative and absolute values. The absolute values are given in [kWh/m²h day].

For all sites, the overall values, the absolute mean bias and the standard deviation of the bias are given.