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Information sheet meteo data

Insolation data for any chosen point worldwide

Very accurate insolation data is essential for planning and review of solar plants. meteocontrol provides you with quarter-hourly[1], hourly, daily, monthly or annual values for almost any chosen point worldwide with the utmost precision.

The temporal availability of our data depends upon the corresponding weather satellite. Thus, the starting point of our time series varies from continent to continent.

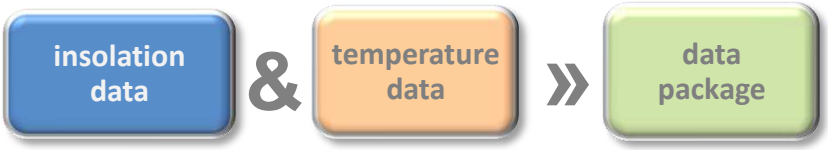
Europe: *1995 – today*
Africa: *1994 – today*
America: *2000 – today*
Asia: *1999 – today*
Other regions: availability will be provided upon request

Depending on the specific site, meteocontrol generates the requested data in cooperation with scientists of *Universität Oldenburg* (sites within Europe) or in collaboration with specialists from *Ciemat* (sites outside of Europe) without utilization of statistical procedures that depend on random values. Basis are always highly resolved satellite images originating from the corresponding weather-satellites.

State-of-the-art scientific models (Heliosat-Method) allow for already defining diffuse insolation through the insolation model itself. meteocontrol is therefore able to provide exact values of diffuse and direct insolation as well as horizontal insolation data. If needed, we do also calculate the insolation on any given module plane or values of direct normal insolation (DNI).

As we provide insolation data on the point, we just need the exact geographic coordinates of your site. Alternatively you can send us the corresponding address or postal code.

Insolation data combined with temperature data for precise site analyses



Sometimes reliable temperature data is necessary to evaluate a certain site in detail. For this purpose we offer high quality temperature data. The values are created for any given point worldwide using NCEP reanalysis (CFSR / CFSV2).

[1] *Quarter-hourly values are not available for any chosen point worldwide. Please get in contact with us for further information*

Proven Reliability

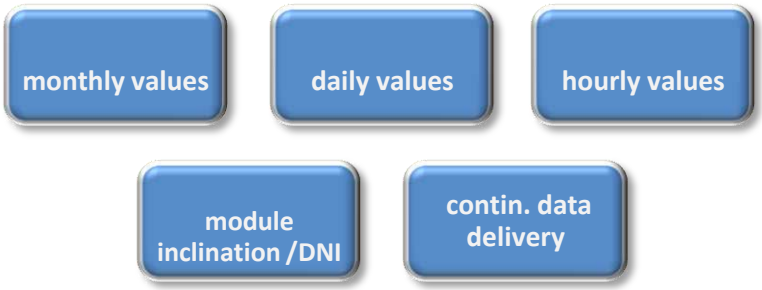
Satellite data of meteocontrol were compared with numerous scientific analyses of chosen reference ground measurement stations. All of them achieve the same result: the exact coordinate data retrieval ensures a continual precision of data without losses by statistical interpolations.

- rRMSE hourly values[2]: 14.5%
- rRMSE daily values[2]: 7.5%
- rRMSE monthly values[2]: 3.6%
- rBIAS[2]: 1.5%

[2] *Values referring to sites within Europe. Reference: Kemper et. Al. 2008*

Flexible price structure for maximised customer satisfaction

Our clear price structure allows for easy comprehension of prices for the customer at each step. Changes of orders can be implemented fast and easy without much time and effort. Highest flexibility is provided by the possibility of data orders down to the month[2]. Thus, only the necessary data has to be ordered.



Scope of services

- Global, diffuse, and direct insolation data
- Historical time series of data
- Different temporal resolutions (quarter-hourly[1], hourly, daily, monthly or annual values)
- Conversion of data to module inclination, calculation of direct normal insolation (DNI)
- Long-time mean values
- Insolation maps with long-time mean values for Europe as well as separate European countries

Your benefits

- High-resolution regional satellite data for almost any possible point worldwide
- No data gaps
- Retrieveable for any possible coordinate – irrespective of ground measurement stations
- Actual (quarter-[1])hourly values from satellite data
- Easy order and fast delivery of data

Meteo data by meteocontrol

Meteo data, *monthly values*

O Global insolation on horizontal plane. Time period: _____ *(mm/yyyy - mm/yyyy)*
(Single data delivery via e-mail usually within 1 working day after placement of order.); Art.-No.: 310.005

O Calculation of values for inclined surfaces. Inclination and orientation:_____
(Values for inclined surfaces are available only in addition to values of global horizontal insolation.
Description of orientation: +/-180° ≙ N, -90° ≙ E, 0° ≙ S, +90° ≙ W); Art.-No.: 320.001

O Calculation of direct normal insolation (DNI); Art.-No.: 320.002
(Values of direct normal insolation are available only in addition to values of global horizontal insolation.)

O Values of diffuse and direct insolation*;* Art.-No.: 310.010
(Values of diffuse and direct insolation are available only in addition to values of global horizontal insolation.)

O Temperature data, Art.-No.: 310.013
(Temparature values are available only in addition to values of global horizontal insolation.
Delivery time of data may increase by 1 working day when ordering temperature data.)

O Data delivery via e-mail on a continuous basis, duration 12 months*;*
Art.-No.: 310.005a
(At the beginning of each month you will receive the monthly values of the previous month.)

Meteo data, *daily values*

O Global insolation on horizontal plane. Time period: _____ *(mm/yyyy - mm/yyyy)*
(Single data delivery via e-mail usually within 2 working days after placement of order.); Art.-No.: 310.006

O Calculation of values for inclined surfaces. Inclination and orientation:_____
(Values for inclined surfaces are available only in addition to values of global horizontal insolation.
Description of orientation: +/-180° ≙ N, -90° ≙ E, 0° ≙ S, +90° ≙ W); Art.-No.: 320.001

O Calculation of direct normal insolation (DNI); Art.-No.: 320.002
(Values of direct normal insolation are available only in addition to values of global horizontal insolation.)

O Values of diffuse and direct insolation*;* Art.-No.: 310.011
(Values of diffuse and direct insolation are available only in addition to values of global horizontal insolation.)

O Temperature data, Art.-No.: 310.014
(Temparature values are available only in addition to values of global horizontal insolation.
Delivery time of data may increase by 1 working day when ordering temperature data.)

O Data delivery via e-mail on a continuous basis, duration 12 months*;*
Art.-No.: 310.006a
(Depending upon your needs, you will receive the daily values of the previous period at the beginning of each week or each month.)

Meteo data, *hourly values*

O Global insolation on horizontal plane. Time period: _____ *(mm/yyyy - mm/yyyy)*
(Single data delivery via e-mail usually within 2 working days after placement of order); Art.-No.: 310.007

O Calculation of values for inclined surfaces. Inclination and orientation:_____
(Values for inclined surfaces are available only in addition to values of global horizontal insolation.
Description of orientation: +/-180° ≙ N, -90° ≙ E, 0° ≙ S, +90° ≙ W); Art.-No.: 320.001

O Calculation of direct normal insolation (DNI); Art.-No.: 320.002
(Values of direct normal insolation are available only in addition to values of global horizontal insolation.)

O Values of diffuse and direct insolation*;* Art.-No.: 310.012
(Values of diffuse and direct insolation are available only in addition to values of global horizontal insolation.)

O Temperature data, Art.-No.: 310.015
(Temparature values are available only in addition to values of global horizontal insolation.
Delivery time of data may increase by 1 working day when ordering temperature data.)

O Data delivery via e-mail on a continuous basis, duration 12 months*;*
Art.-No.: 310.007a
(Depending upon your needs, you will receive the hourly values of the previous period at the beginning of each week or each month.)

Meteo data, *1/4-hourly values*
AVAILABLE ONLY FOR SITES WITHIN EUROPE

O Global insolation on horizontal plane. Time period: _____ *(mm/yyyy - mm/yyyy)*
(Single data delivery via e-mail usually within 2 working days after placement of order. Please keep in mind that ¼-hourly values of global horizontal insolation are available only for certain regions.); Art.-No.: 310.008

O Calculation of values for inclined surfaces. Inclination and orientation:_____
(Values for inclined surfaces are available only in addition to values of global horizontal insolation.
Description of orientation: +/-180° ≙ N, -90° ≙ E, 0° ≙ S, +90° ≙ W); Art.-No.: 320.001

O Calculation of direct normal insolation (DNI); Art.-No.: 320.002
(Values of direct normal insolation are available only in addition to values of global horizontal insolation.)

O Values of diffuse and direct insolation*;* Art.-No.: 310.006
(Values of diffuse and direct insolation are available only in addition to values of global horizontal insolation.)

O Data delivery via e-mail on a continuous basis, duration 12 months*;*
Art.-No.: 310.008a
(At the beginning of each month you will receive the ¼-hourly values of the previous month.)

Meteo data, *miscellaneous values*
AVAILABLE ONLY FOR SITES WITHIN EUROPE

O Monthly mean values of global horizontal insolation over the past 5 years;
Art.-No.: 310.001
(12 values per location, single data delivery via e-mail)

O 10x yearly mean value of global horizontal insolation over the last 10 years;
Art.-No.: 310.000
(Subscription of 10: one value for 10 different locations, 10 single deliveries)

O Solarindex Basic*;* Art.-Nr.: 310.100
*(Shown is the deviation of last year's the monthly values of global horizontal insolation compared to the monthly mean values of the past 5 years for the area of the chosen site (50km*50km). You will get the percentage diference for each month.)*

O Solarindex Premium*;* Art.-Nr.: 310.300
(Shown is the deviation of last year's the monthly values of global horizontal insolation compared to the monthly mean values of the past 10 years for the specific site. You will get the corresponding insolation data as well as absolute and percentage diferences for each month.)