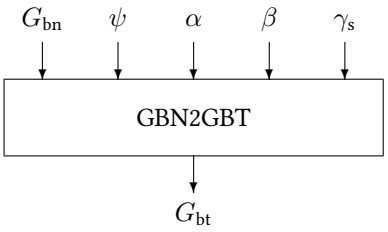
Block GBN2GBT

The GBN2GBT block converts beam radiation normal to tilted.



Name	GBN2GBT
Function	em0019
Inputs	5
Outputs	1
Parameters	0
Strings	0
Group	S

Inputs

1 Beam radiation normal G_{bn}/ W m^{-2}
2 Azimuth of the Sun ψ / °
3 Elevation of the Sun α / °
4 Surface tilt angle β / °
5 Surface azimuth γ_s / °

Outputs

1 Beam radiation tilted G_{bt} / W m^{-2}

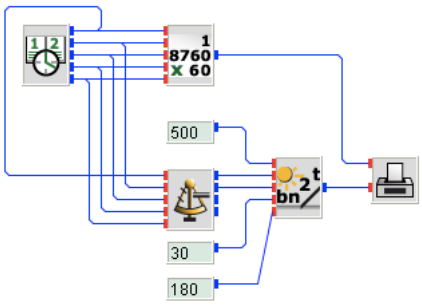
Parameters

None

Strings

None

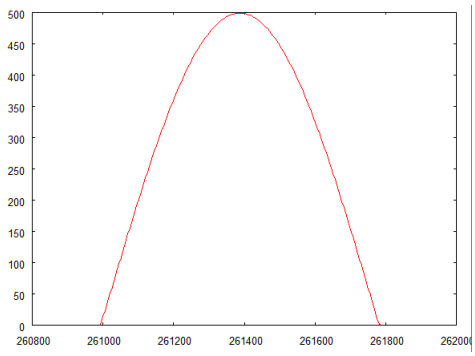
gbn2gbt.vseit



A CLOCK block simulates the first of June 2010 between 04:00 o'clock in the morning until 10:00 p.m., i. e., 22:00 hours in steps of five minutes. Assuming a constant light source with 500 Watt per square meter beam irradiance from the direction of the Sun, the GBN2GBT block calculates how much of this beam radiation arrives at a suface facing the south (azimuth 180 degrees, in INSEL convention) with a tilt angle of 30 degrees – as defined by two CONST blocks.

The SUNAE block calculates solar azimuth and elevation after Spencer's model for the coordinates of Stuttgart, Germany (latitude 48.77 degrees north, longitude 9.18 degrees east, i. e., -9.18 degrees in INSEL convention, time zone 23, i. e., Central European Time). Solar azimuth and elevation are connected to the GBN2GBT block.

A minute of the year block MOY is used as x-coordinate by the PLOT block which displays the result.



See also Block GH2GT