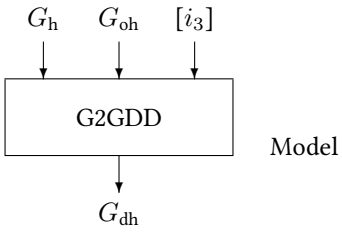
Block G2GDD

The G2GDD block returns the diffuse radiation according to various correlations for daily data.





Model

Name	G2GDD
Function	em0010
Inputs	2 . . . [3]
Outputs	1
Parameters	1
Strings	0
Group	S

Inputs

1 Global radiation G_h / W m^{-2} on a horizontal plane
2 Global radiation outside the atmosphere G_oh / W m^{-2} on a horizontal plane
3 Model dependent (see Parameters section for further details)

Outputs

1 Diffuse radiation G_dh / W m^{-2} on a horizontal plane

Parameters

1 Correlation
- 0 Liu, Jordan
- 1 Ruth, Chant
- 2 Collares-Pereira
- 3 Vignola, McDaniels
- 4 Erbs, Klein, Duffie – this correlation requires the sunrise hour angle ω_sr / ° as third block input.
- 5 Vignola, McDaniels – this correlation requires the day of the year DOY as third block input.

Strings

None

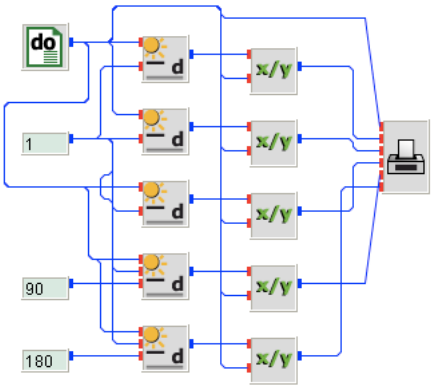
Description

The block calculates the fraction of daily diffuse and global radiation on a horizontal surface mainly on the basis of the clearness index which is defined as

$$k_t = \frac{G_h}{G_{oh}}$$

Through the setting of the first block parameter one of several correlations can be chosen.

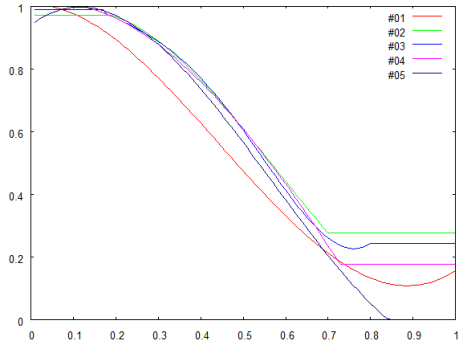
g2gdd.vseit



A DO block is used to vary the (normalised) global radiation on a horizontal surface from 0.01 to 1 in steps of 0.01. The extraterrestrial radiation is set to one by a CONST block. Hence the two inputs to the G2GDD blocks correspond exactly to a clearness index. Usually, the second input to the G2GDD block comes from block GOH.

The DIV blocks calculate the diffuse fraction by dividing the diffuse radiation from the G2GDD blocks by the output of the DO block.

As shown by the PLOT block the results for all correlations are quite similar.



See also Block G2GDH and G2GDM