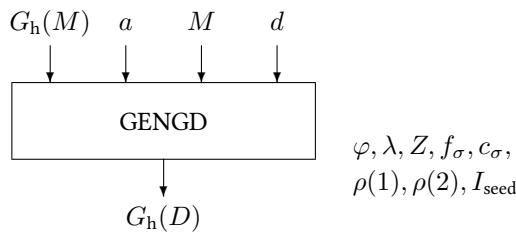


Block GENGD

Warning: The explicit usage of this block is deprecated, because it uses a west-positive convention for longitudes.

Please use [GENGD2](#) instead, with east-positive longitudes. GENGD is still used internally by GENGD2.

The GENGD block generates a series of daily global radiation data from monthly mean values.



Name	GENGD
Function	em0016
Inputs	4
Outputs	1
Parameters	9
Strings	0
Group	S

Inputs

- 1 Monthly mean value $G_h(M)$ / W m^{-2} of global radiation on a horizontal plane
- 2 Year a
- 3 Month $M \in [1, 12]$
- 4 Day $d \in [1, 31]$

Outputs

- 1 Daily mean value $G_h(d)$ / W m^{-2} of global radiation on a horizontal plane

Parameters

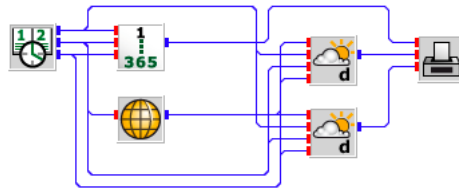
- 1 Model
 - 0 Gordon Reddy model
 - 1 Aguiar Collares-Pereira model
- 2 Latitude $\varphi \in [-90^\circ, +90^\circ]$, northern hemisphere positive

- 3 Longitude $\lambda \in [0^\circ, 360^\circ)$, west of Greenwich; values east of Greenwich may be used with a minus sign
- 4 Time zone $Z \in [0, 23]$, Greenwich Mean Time $Z = 0$, Central European Time $Z = 23$.
- 5 Variance factor f_σ to the Gordon / Reddy correlation; if unknown $f_\sigma = 1$ is recommended
- 6 Coefficient c_σ corresponding to the year-to-year variability due to different climatic conditions. When c_σ is set to zero the year-to-year variability is omitted. $c_\sigma = 0.185$ approximates North American variability, while $c_\sigma = 0.3$ approximates European variability
- 7 Autocorrelation coefficient $\rho(1)$ at a lag of one day; if unknown $\rho(1) = 0.3$ is recommended
- 8 Autocorrelation coefficient $\rho(2)$ at a lag of two days; if unknown $\rho(2) = 0.57\rho(1)$ is recommended
- 9 Initialization I_{seed} of random number generator

Strings

None

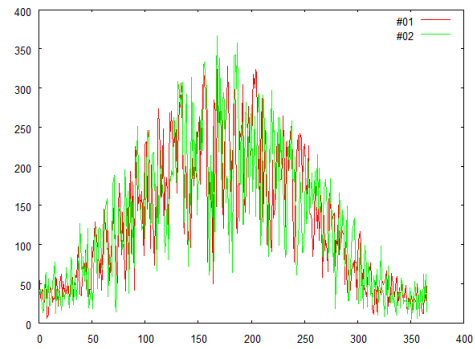
gengd.vseit



A **CLOCK** runs through the year 2010 in steps of one day. Monthly mean irradiance data are read from the INSEL weather data base by the **MTM** block for the location of Stuttgart, Germany.

Two **GENGD** blocks generate daily irradiance data, the upper block uses the Gordon and Reddy model, the lower one the Markov model approach proposed by Aguilar and Collares-Pereira.

A day of the year block [DOY](#) is used as x -coordinate by the [PLOT](#) block which displays the two generated irradiance data time series.



See also Blocks [DISGR](#), [GENG](#) and [GENGH](#).