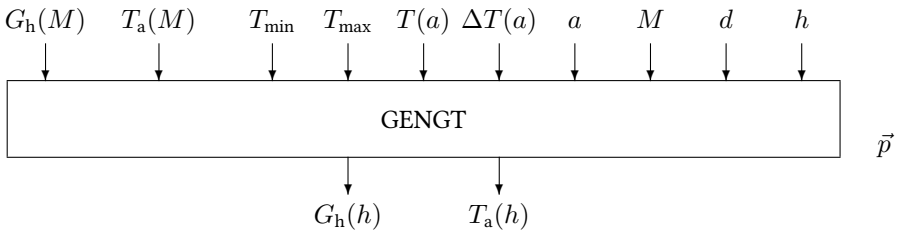
Block GENGT

Warning: This block is deprecated, because it used a west-positive convention for longitudes. Please use GENGT2 instead, with east-positive longitudes.

The GENGT block generates a series of hourly radiation and temperature data from monthly mean values. Optionally, hourly values of relative humidity may be generated. When a minute input is connected and different from zero, GENGT performs a linear interpolation between the two corresponding hours.





Name	GENGT
Function	em0022
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Outputs	3
Parameters	8 . . . [10]
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Group	S

Inputs

1	Global horizontal irradiance $G_\mathrm{h}(M)$ / W m^{-2} (monthly)
2	Ambient temperature $T_\mathrm{a}(M)$ / °C (monthly)
3	Daily minimum ambient temperature T_min / °C
4	Daily maximum ambient temperature T_max / °C
5	Yearly average ambient temperature $T(a)$ / °C
6	Maximum ambient temperature difference $\Delta T(a)$ / °C
7	Year a
8	Month $M \in [1, 12]$
9	Day $d \in [1, 31]$
10	Hour $h \in [0, 23]$
11	Relative humidity $\varphi(M)$ (monthly)
12	Minute $m \in [0, 59]$

Outputs

1	Global radiation $G_\mathrm{h}(h)$ / $\mathrm{W\,m^{-2}}$
2	Ambient temperature $T_\mathrm{a}(h)$ / °C
3	Relative humidity $\varphi_(h)$

Parameters

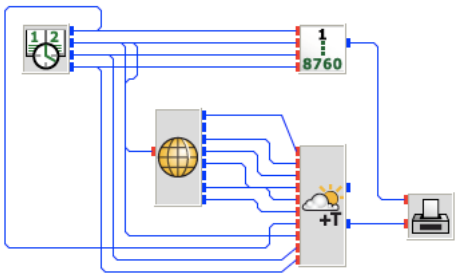
1	Latitude $\varphi \in [-90°, +90°]$, northern hemisphere positive
2	Longitude $\lambda \in [0°, 360°)$, **west of Greenwich**; values east of Greenwich may be used with a minus sign
3	Time zone $Z \in [0, 23]$, Greenwich Mean Time $Z = 0$, Central European Time $Z = 23$.
4	Variance factor f_σ to the Gordon / Reddy correlation, eq **??**; if unknown $f_\sigma = 1$ is recommended
5	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
6	Autocorrelation coefficient $\rho(1)$ at a lag of one day; if unknown $\rho(1) = 0.3$ is recommended
7	Autocorrelation coefficient $\rho(2)$ at a lag of two days; if unknown $\rho(2) = 0.57\rho(1)$ is recommended
8	Initialization I_seed of random number generator 0 for a different random sequence at each run
9	Maximum allowed deviation between given monthly mean temperature and calculated value (0.1°C by default)
10	Maximum number of allowed iterations for temperature synthesis (2000 by default)

Strings

None

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gengt.vseit



A CLOCK block simulates the year 2010 in steps of one hour. An hour of the year block HOY is used to convert the CLOCK block output to a convenient x-coordinate for a PLOT block.

The input data required by the GENGT block all come from the MTM block for the location of Berlin, Germany, in this case.

The PLOT block displays the generated time series of hourly ambient temperature data.

