

Acquire Solar Activity Indices:

Mg II Index*
SORCE Solstice, GOME (Univ. Bremen),
GOME2 (Univ. Bremen)

USAF White Light*
Sunspot Regions
Obtained from NOAA/NGDC-Bill Denig

Specify Fixed Inputs:

Scale
Common scale of Mg II index composite
(Viereck et al., 2004)

Beta Sun Angle
(generic sun orientation)

Compute Model Inputs:

Facular Brightening Function (PX)

Sunspot Blocking Function (PS)

Compute Irradiance:
Apply (fixed) linear regression coefficients

Scaling Factors convert PX and PS to Irradiance Changes
Wavelength-dependent scaling factors – SSI
Bolometric scaling factors – TSI
Internal Consistency: The sum of the SSI equals independently modeled TSI.

Generate Output Files:

Daily Solar Irradiance: TSI and SSI
Output NetCDF4 for NRLTSI-2 & NRLSSI-2
*Irradiance updates are in response to sunspot darkening and facular brightening time series