Instructions for downloading and processing the "SUNY gridded" solar radiation from the National Solar Radiation Data Base
[ftp://ftp.ncdc.noaa.gov/pub/data/nsrdb-solar/SUNY-gridded-data**]**

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These are procedures for acquiring radiation values, with which to parameterize ArcGIS's Solar Radiation Toolset. These instructions were created in October 2007, and use Microsoft's Access and Excel software to obtain monthly estimates of global radiation (Uglo).

Here is an excerpt from the NSRDB site's "readme" file:

> The SUNY model produces estimates of global and direct irradiance at hourly intervals on the 10-km grid for all 50 states, excluding Alaska above 60° north latitude and west of 160° west longitude…The directory structure that is divided into 2X2 degree tiles. Thus with 8-year files, there are 400 files in each subdirectory. For yearly files, there are 400X8 = 3200 files. So for example, directory 10640 has all files from -106 to -104 long, 40.0 to 42.0 lat. Within this will be a file such as dir_glo_105454105.csv, with 8 years of data from location 105.45 deg W, 41.05 degrees N. There are 436 of these subdirectories.

Download and unzip the appropriate files, then open each file in Access. *(They have too many records to open in Excel – you'll first need to "prune" nighttime hours with no recorded radiation.)*

- File type – all files
- Delimited (.csv file)
- First row contains field names
- Date & Itime fields → type "text."
- Do not import (skip) the "S" (shifted) values.
- Double-click to open
    - Click on UGLO column, then sort
    - Highlight the non-zero UGLO rows, then copy-and-paste into a blank Excel file
    - Re-sort .xls file by date, time.
    - Save Excel file.

Next Steps. You may wish to cut-and-paste the results of each step to a new worksheet, to maintain a copy of your original data.

1. Optional – dealing with leap years. If you are working across years, and need to have a standard 28-day February, you can delete all rows for February 29th.
2. Highlight the "Date" column, and change to month/year format. Verify that each row has the proper date, e.g. Jan-98, Feb-98, Mar-98...Dec-05.
3. Highlight all the cells, and from the Toolbar run Data -- Subtotals: At each change in date, use function Sum, and add subtotal to UGLO (summary below data). This creates a monthly sum of each day's radiation value.
4. Highlight the UGLO column, select "copy," then "Paste Values (Paste Special)." (You are pasting actual numbers right on top of the existing column, instead of using the computed subtotals.)
5. From the Toolbar select Data -- Subtotals, and hit the "Remove All" button.

6. Highlight all the cells, and from the Toolbar select Data -- Sort -- by UDIF. This will result in the monthly UGLO totals grouping together (since they all have "no value" for UDIF).
7. Delete all the rows except the Monthly Totals (and the header row), and Delete all the columns Except Date and UGLO.
8. Optional – Obtaining monthly averages across multiple years: Sort by date (if you have several years of values for each month), then derive a single average for each month. To create a final table with just the monthly averages: Copy this worksheet and Paste Values (Paste Special) to a final worksheet. Sort the monthly values in order by month (January, February, etc.), and delete all the rows for the individual year's data.