

# SolarData

*(Version 4.0.1 -- Revised December 12, 2014)*

## Introduction

**SolarData.exe** is a utility to display the latest solar activity numbers on your screen. The following data is displayed:

- Solar Flux Index (SFI)
- A-Index (Ap)
- K-Index (Kp)
- Smoothed Sunspot Number (SSN)

The data is updated periodically from text documents available on the NOAA Space Weather Prediction Center website.

## Program Installation

Run the installation package file, **SolarDataSetup.exe**. This will install **SolarData.exe** and all required supporting files on your computer. The installer will suggest a default location for the program file. You may change the location or leave it at the default, it does not matter. However, the **SolarData.rtf** file MUST be located in the same directory as the **SolarData.exe** file.

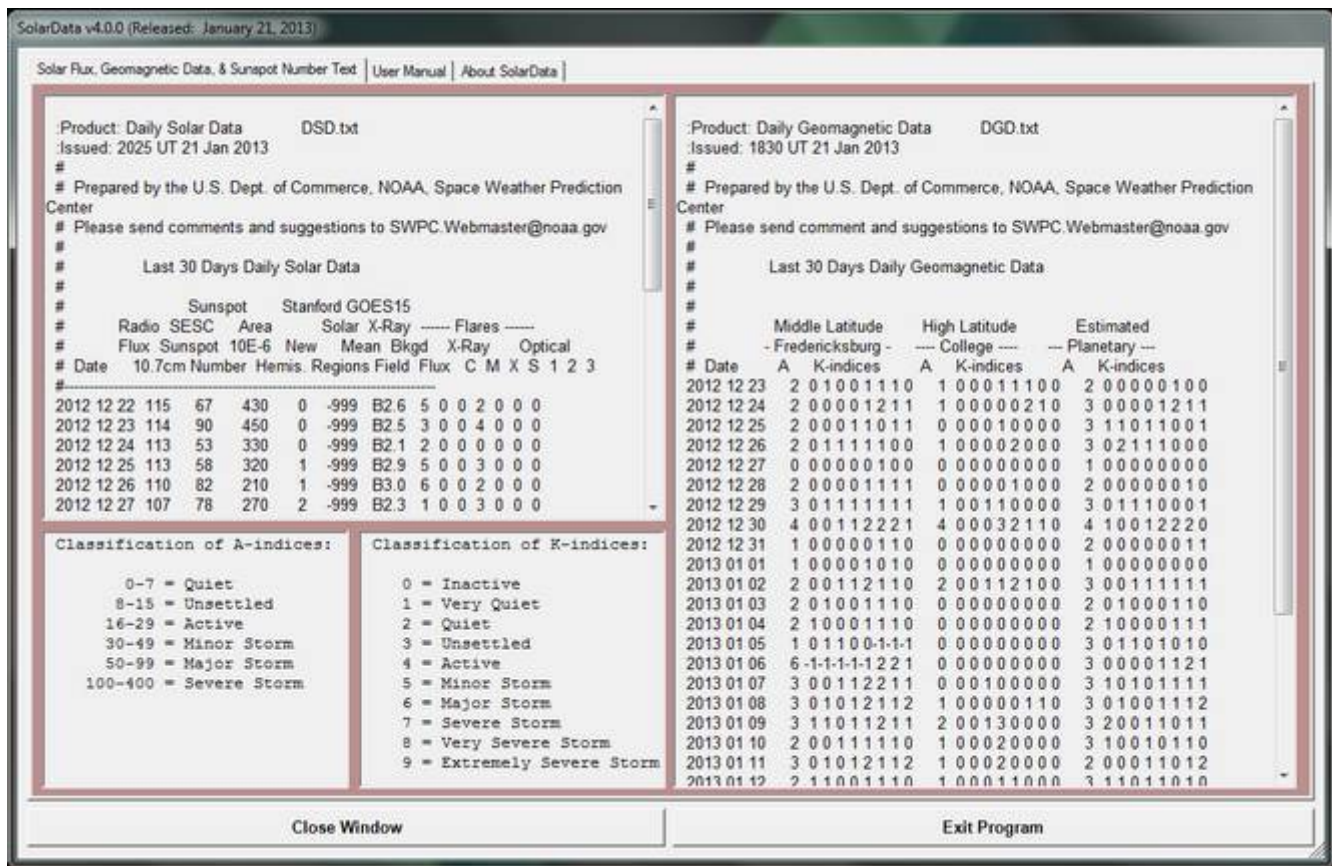
## Program Operation

On startup, **SolarData.exe** displays 4 small boxes containing the data. By default, the display is positioned in the upper-left corner of the display. The text & background colors for each item varies according to the current value (low, medium, high). A sample display is shown in **Figure 1** below.



**Figure 1 -- Main Display**

Clicking on any of the 4 boxes of the main display will open the window shown in **Figure 2**.



**Figure 2 -- Text Display Window**

- The 1st tab contains the full text of the documents from the NOAA website.
- The 2nd tab displays this user manual.
- The 3rd tab displays basic information about the **SolarData** program.
- Click on the "Close Window" button to close the window & return to normal operation.
- Click on the "Exit Program" button to exit the program completely.

## Program Setup

By default, the main display is displayed in the upper-left corner of the screen and all four boxes are displayed with default colors. You can customize the position and colors of the display and other settings by right-clicking on any for the 4 boxes of the main display to open the setup form shown in **Figure 3**.

The screenshot shows the 'Solar Data Setup' window. It has a title bar with 'Solar Data Version 4.0.0 (Released: January 21, 2013) -- Copyright Copyright © 2013 by RNA Consulting Services, LLC' and buttons for Help, About, Return, and Exit. The main area is divided into several sections:

- Solar Flux Index Display Settings:** High Value Display (SFI = ###), High-Medium Threshold (120), Medium Value Display (SFI = ###), Medium-Low Threshold (80), Low Value Display (SFI = ###).
- A-Index Display Settings:** High Value Display (A = ##), High-Medium Threshold (30), Medium Value Display (A = ##), Medium-Low Threshold (15), Low Value Display (A = ##).
- K-Index Display Settings:** High Value Display (K = ##), High-Medium Threshold (5), Medium Value Display (K = ##), Medium-Low Threshold (4), Low Value Display (K = ##).
- Sunspot Number Display Settings:** High Value Display (SSN = ###), High-Medium Threshold (100), Medium Value Display (SSN = ###), Medium-Low Threshold (50), Low Value Display (SSN = ###).
- Main Display Settings:** Data Update Interval (5) Minutes, Update Now button, Always on Top of Other Windows checkbox, Set Display Position button.
- Data Source URL's:** A note that settings should not normally be changed, and two text boxes for URLs: Solar Flux, A-Index, & K-Index (http://www.swpc.noaa.gov/ftpdir/indices/DSD.txt) and Smoothed Sunspot Number (http://www.swpc.noaa.gov/ftpdir/indices/DGD.txt).

**Figure 3 -- Setup Form**

### Setting the Display Colors

Each of the 4 boxes of the main display can be displayed in 3 different color combinations based on the value of the data. If the value of the data is below the "Medium-Low Threshold" value, then the color combination for the "Low Value Display" will be used. If the value is equal to or greater than the "Medium-Low Threshold" but less than the "High-Medium Threshold", then the "Medium Value Display" colors will be displayed. If the value is equal to or greater than the "High-Medium Threshold" then the "High Value Display" colors will be displayed.

To change the color of the text in a color combination, left-click on the box of the combination you want to change & select the text color from the dialog that appears. To change the color of the background in a color combination, right-click on the box of the combination you want to change & select the background color from the dialog that appears.

To change the threshold values, either type a new value into the box or scroll the value up or down with the arrows. If a threshold is set to an invalid value, the background of both the "High-Medium Threshold" and the "Medium-Low Threshold" boxes will flash red. A value is invalid if the "High-Medium Threshold" value is less than the "Medium-Low Threshold" value.

**NOTE:** The theoretical minimum value of the Solar Flux Index (SFI) is 64. Therefore, the threshold boxes will flash red if either threshold is set to less than 64.

The controls in the "Main Display Settings" area of the form allow you to set the position of the main display on the screen, select whether the main display is always displayed on top of any other windows on the screen, and to set the data update interval.

## Setting the Display Position

To set the display position on the screen, click on the button labeled "Set Display Position". A small window the same size & shape as the main display window will appear overtop of the main display. Drag this new window to the desired position & click on the red "X" to close it.

## Setting "Always On Top"

Check the box labeled "Always on Top of Other Windows" to force the main display to always be displayed on top of any other windows on the screen.

## Setting the Update Interval

The update interval determines how often the program goes to the NOAA website to check for new data. The default value is every 5 minutes. You can change this by typing in another value (in minutes) into the box or by scrolling the value using the arrows.

Clicking the button labeled "Update Now" will close the setup form and will cause the program to check for new data immediately.

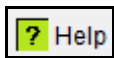
## Setting the Data URL's

The addresses on the NOAA website where the documents which contain the data are located can also be changed from the setup form.

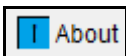
**WARNING:** These settings should **NEVER** be changed unless NOAA changes the location of the documents.

## ToolBar Buttons

At the top of the setup form is a toolbar containing the following 4 buttons (left-to-right):



Clicking on this button will open a window that displays this document.



Clicking on this button will open a window that displays basic information about the program.



Clicking on this button will close the setup form & return the program to normal operation. If you have changed any settings, a box will pop up asking if you want to save your changes.



Clicking on this button will close the program. If you have changed any settings, a box will pop up asking if you want to save your changes before the program exits.

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## About the Author

**SolaRData.exe** was written by Ray Andrews, K9DUR.

Ray holds an Amateur Extra class license and was first licensed in April 1960. He currently resides in West Terre Haute, IN, and is a retired electronic design engineer and software developer. He operates a small custom software consulting business just to keep him out of mischief between camping trips.

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## Revision History

v4.0.1 – Dec 12, 2014 – Changed default URL's for SWPC documents.

v4.0.0 – Jan 21, 2013 – Added ability to position display anywhere on the screen. Moved setup parameters to .xml file. Redesigned setup form to use toolbar.

v3.1.2 – Feb 15, 2012 – Fixed bug causing no A-index or K-index data to be displayed between 0000 UTC & 0300 UTC.

v3.1.1 – Dec 30, 2011 – Added code to correct display when no data available.

v3.1.0 – Dec 21, 2011 – Changed NOAA source documents & re-wrote text parser.

v3.0.0 – Jul 15, 2011 – Complete re-write. Added user manual.