Recording Data from the Cosmic Watch to a Macintosh

Revision History

revision	date	author	notes
1	Jul 9 2021	J. Weber	Initial release, validated on using Mac OS X *Mojave* 10.14.6
2	Jan 25 2023	J. Weber	
3	Feb 01 2023	J. Weber	Mac binary replaces git, python

Purpose

This document details the procedure for installing Cosmic Watch software on a Macintosh (Mac) computer, and reading data from the Cosmic Watch detector.

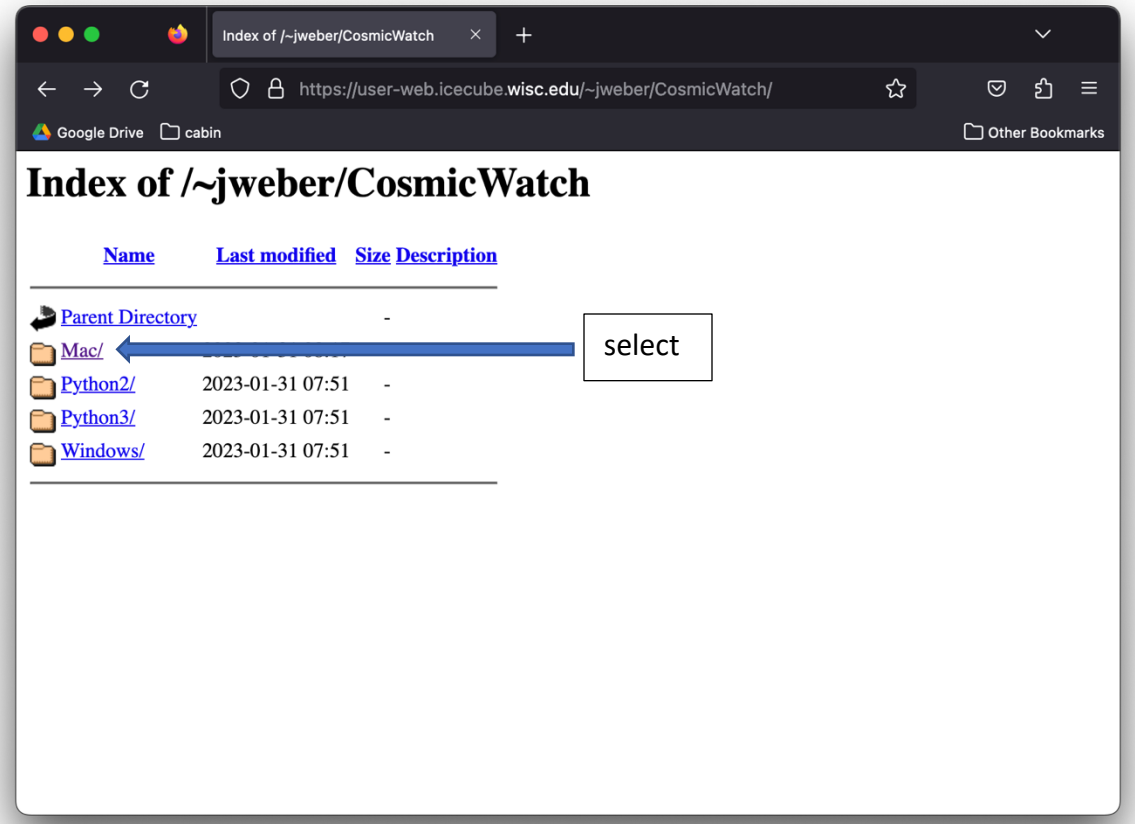
Before You Begin

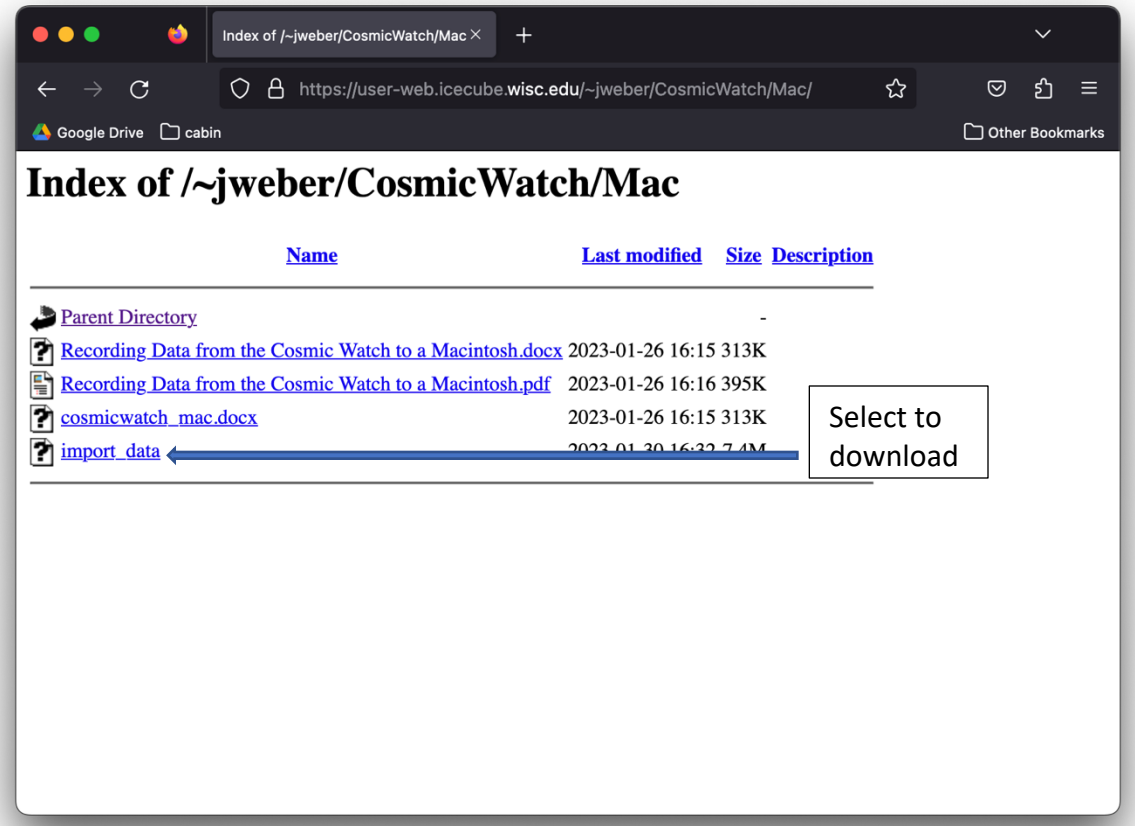
You will need the following before starting this procedure:

- Macintosh (Mac) desktop or laptop computer
- Cosmic Watch detector
- USB serial data cable, and optional adapters from Cosmic Watch to Mac. One end of the cable must be a USB Mini-B plug to connect to the Cosmic Watch. The other end will connect to the Mac. Newer Macs since 2016 may require a USB-C plug. Older Macs will likely require a USB A plug. Adapters or dongles may be required to make this connection complete. Connect the Cosmic Watch to the Mac via the serial data cable. The Cosmic Watch detector is powered through the USB cable.
- A wired or WiFi internet connection, to download required software dependencies and libraries.

Download Cosmic Watch Software

From your browser navigate to the CosmicWatch download URL https://user-web.icecube.wisc.edu/~jweber/CosmicWatch/ then to the Mac folder and download the import_data file.


Index of /~jweber/CosmicWatch
https://user-web.icecube.wisc.edu/~jweber/CosmicWatch/
Google Drive
cabin
Other Bookmarks
Index of /~jweber/CosmicWatch
Name
Last modified
Size
Description
Parent Directory -
Mac/
Python2/ 2023-01-31 07:51 -
Python3/ 2023-01-31 07:51 -
Windows/ 2023-01-31 07:51 -
select

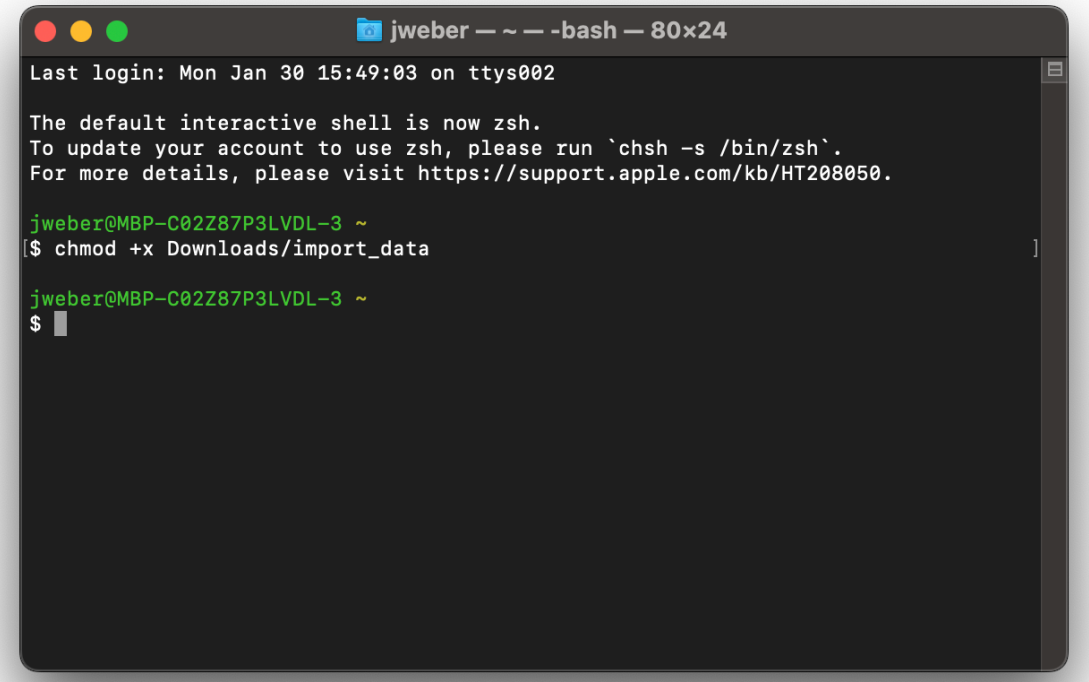


import_data is the Mac program (app) which allows you to communicate with the CosmicWatch detector. Use the Mac Finder app to locate the *import_data* file, which should be the newest file in your *Downloads* folder.

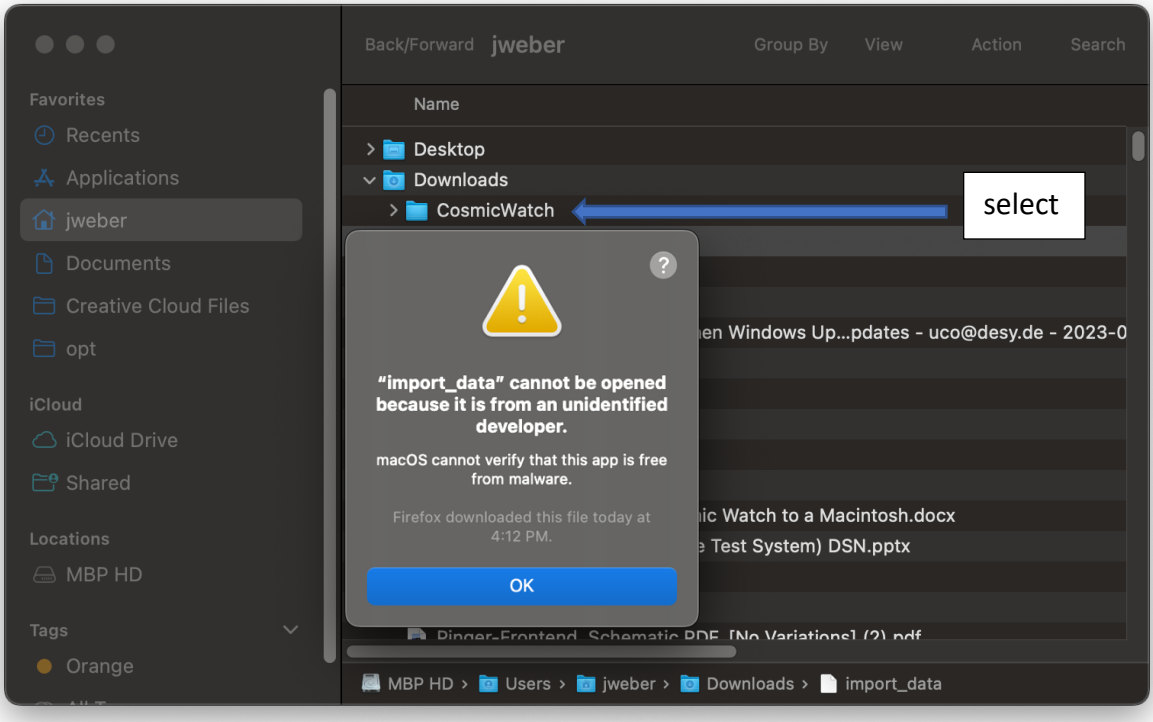
Open a Terminal app using this link. Copy/paste the command

chmod +x Downloads/import_data

into the Terminal to make the *import_data* file an executable program, then hit the *return* key

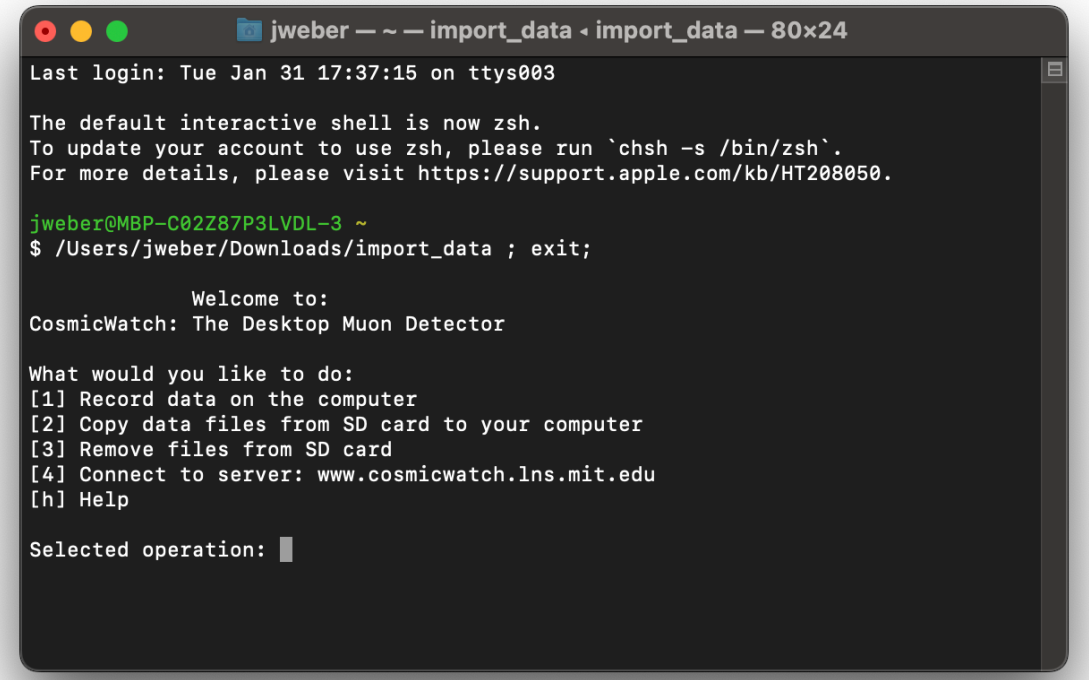


Back in the Finder window, click on *import_data* to open the program. Depending upon your system security settings you may get a warning that the program was not downloaded from the Mac App Store. Fear not, the program was developed at WIPAC and is safe to run. If you encounter a warning, see the Apple notes for safely opening programs from third parties: https://support.apple.com/en-us/HT202491 .

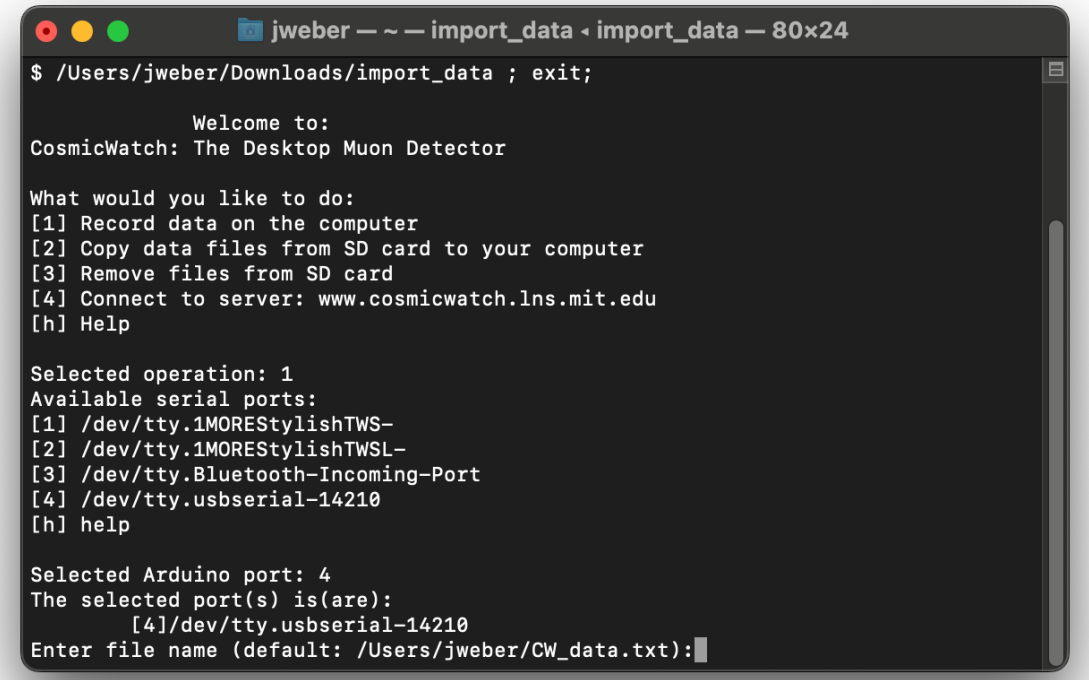


When you are able to open the *import_data* file in the Finder window, you may encounter a window with *"Terminal.app" would like to access files in your Downloads folder.* If so, hit OK to open the *import_data* file.

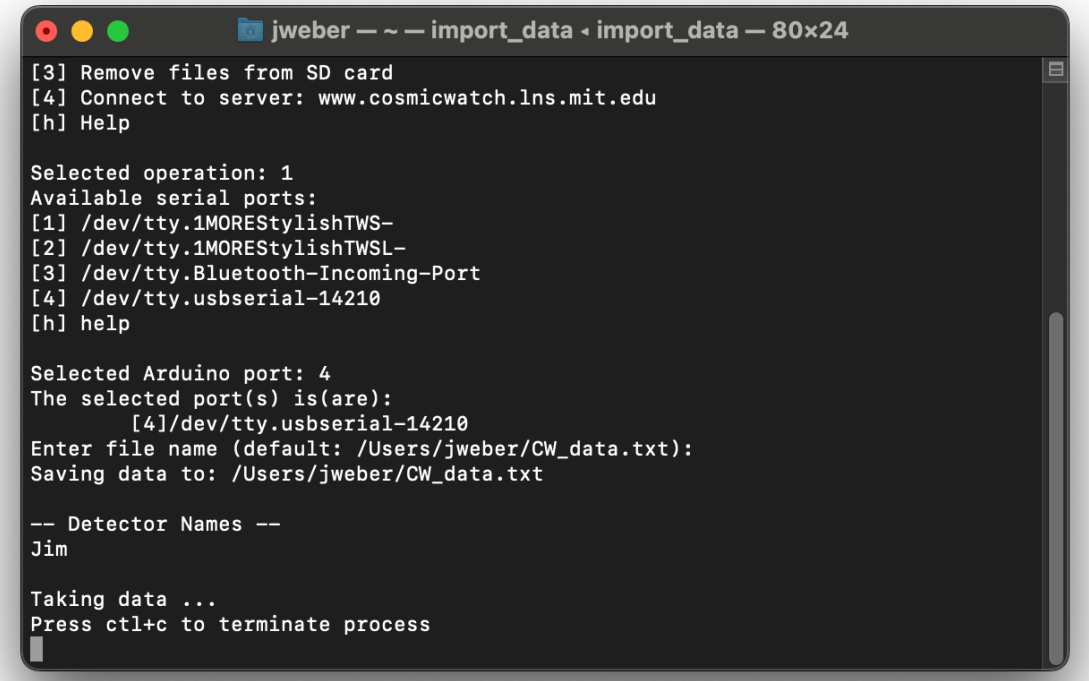
When you do successfully launch the import_data program you will see text output similar to the following:



Select option *1 Record data on the computer,* then hit *return*. Next select the serial port with *usbserial* in the name. In our example, this is option *4 /dev/tty.usbserial-14210* . Then hit *the return* key again to accept the default output file name*:*

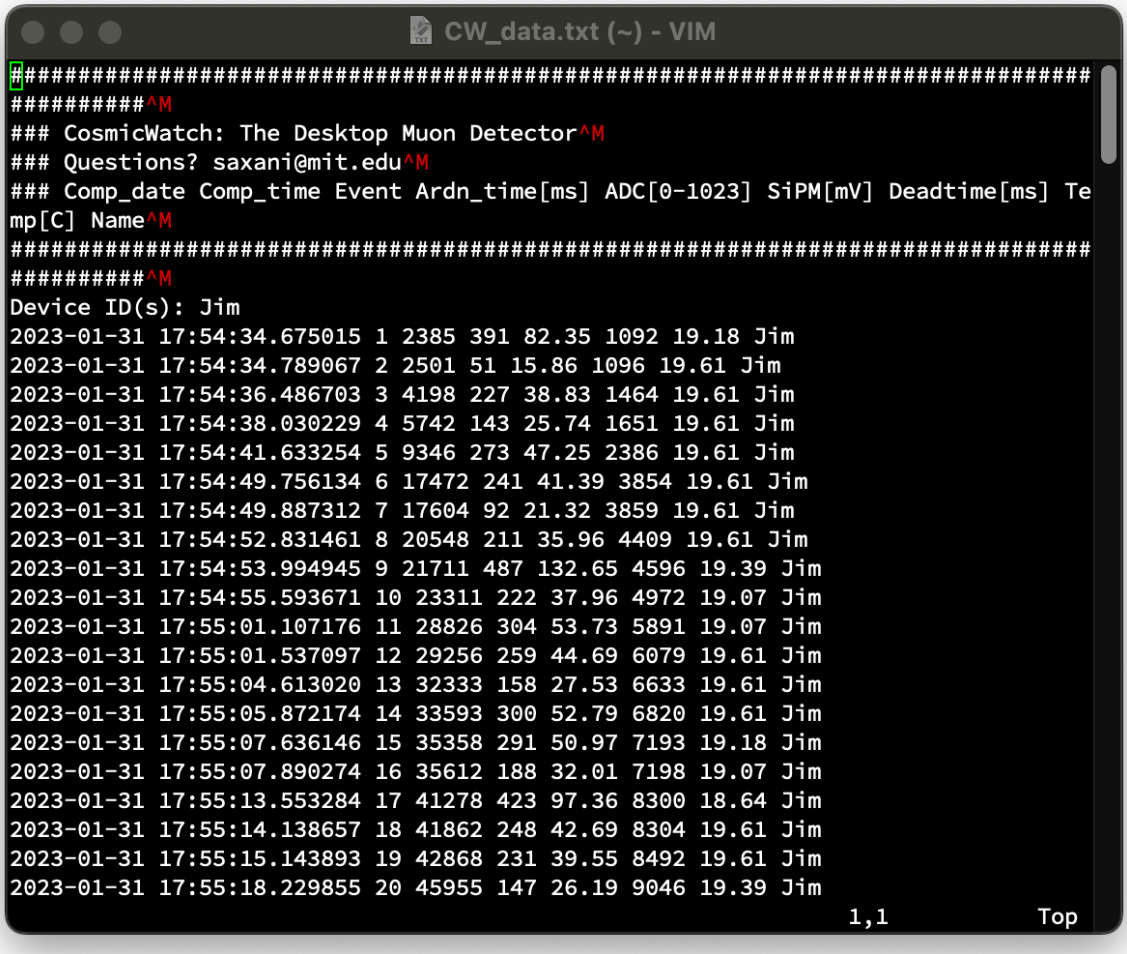

jweber — ~ — import_data ◂ import_data — 80×24
$ /Users/jweber/Downloads/import_data ; exit;
Welcome to:
CosmicWatch: The Desktop Muon Detector
What would you like to do:
[1] Record data on the computer
[2] Copy data files from SD card to your computer
[3] Remove files from SD card
[4] Connect to server: www.cosmicwatch.lns.mit.edu
[h] Help
Selected operation: 1
Available serial ports:
[1] /dev/tty.1MOREStylishTWS-
[2] /dev/tty.1MOREStylishTWSL-
[3] /dev/tty.Bluetooth-Incoming-Port
[4] /dev/tty.usbserial-14210
[h] help
Selected Arduino port: 4
The selected port(s) is(are):
[4]/dev/tty.usbserial-14210
Enter file name (default: /Users/jweber/CW_data.txt):

After setting the output data file, you should see that the CosmicWatch is “Saving data to:” your output data file. This indicates your Mac is counting muon detections from the CosmicWatch!



The Mac will record about 1 reading per second. To stop collecting data, hit *control+c* (that is the *control* key and lower case *c* key at the same time). You must stop the program with *control+c* before closing the program window, or the output data file may be empty.

To view your CosmicWatch data, use the Mac Finder to open the file *CW_data.txt* in your top level user directory, which is likely the same as your name:



Each line in *CW_data.txt* is a time stamped reading from the CosmicWatch. You can close the window when done.