**Introduction to LogTag Data Loggers and Data Analysis**

LogTag Analyzer is a software package that allows the user to import and analyze data recorded by LogTag data loggers. The objective of this tutorial is to familiarize you with some of the basic functions of LogTag Analyzer by analyzing data collected by LogTag temperature data loggers.

Please note that this tutorial does not attempt to give you a complete introduction to all the functions in LogTag Analyzer. It is rather a starting point for you to explore and analyze data. There are many other software packages available to analyze data. This is simply the interface that works best with the LogTag data loggers that we use at MOSS.

Note: Unfortunately LogTag analyzer is only available for PCs, so this tutorial will not work for you if you are using a Mac.

Getting the Data

Before we can analyze data, we need to have data to analyze. We will be acquiring data from 10 LogTag temperature loggers distributed throughout Ponderosa State Park. In order to download the data from each LogTag, you must have a USB interface connected to your computer and have installed LogTag Analyzer software package (the LogTag Analyzer software package is designed for PCs and can be downloaded for free online at http://www.thermoworks.com/software/. If you are using a MOSS hp computer, the software is already installed and can be accessed from a desktop shortcut.) Once the USB interface is connected to the computer, open LogTag Analyzer by double clicking on the desktop shortcut on any MOSS PC then plug a LogTag temperature data logger into the USB interface as pictured below.
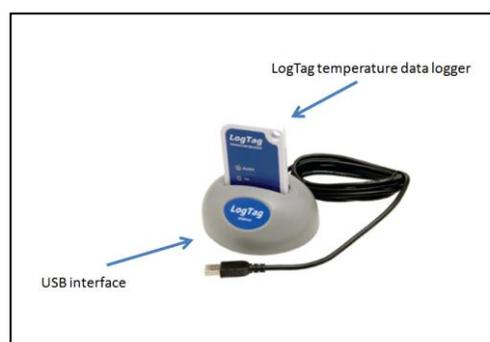
Once the LogTag temperature data logger is plugged into the USB interface, your computer should automatically import data from the device. The LogTag temperature data loggers are set to finish taking data at 2:00 PM on Monday, June 25, 2012. If you attempt to download the data prior to this time, the computer may not automatically import the data. If this is the case, select *LogTag > Download …* from the toolbar. If this does not work, select *LogTag > Wizard*. Once the wizard opens and recognizes the LogTag, the program will automatically download the data recorded on the device in order to start reprogramming the device. After this happens, click *Cancel* to exit the wizard.
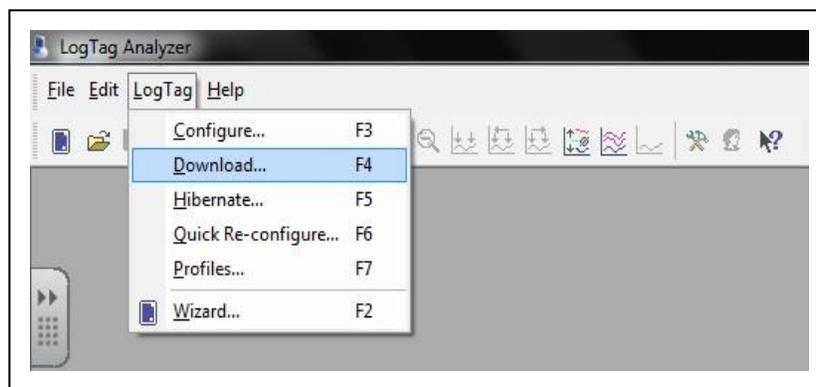

The data will automatically display as a graph and save itself under *C:\Users\moss\My Documents\My LogTag Data*. The saved file will be named in the following manner: serial number Started MM-DD-YYYY, Finished MM-DD-YYYY. It may look something like this: 1900308084 Started 6-4-2012, Finished 6-24-2012.ltd. To rename the LogTag file according to its location, navigate to the folder listed above, right click on the file you want to rename, and select *Rename*. This action will highlight the file's current name and allow you to type in the location where the Log Tag was found, i.e. "Lily Marsh." If another file already exists with the name of the location you would like to enter, simply include the date the information was downloaded as part of the file name and that will set the two files apart.


Analyzing the Data
Once you have downloaded your LogTag information, copy the file(s) from *C:\Users\moss\My Documents\My LogTag Data* to *C:\Users\moss\Dropbox\Jan Teaching Files\NR 101\LogTag Data*. It will take a few minutes for all the files to upload to Dropbox. After all the files have uploaded to the dropbox, you can analyze trends by overlaying the files. To overlay the files, first open LogTag Analyzer. Within

LogTag Analyzer, select *File > Multi Chart*. This option should allow you to open multiple files simultaneously on the same graph.
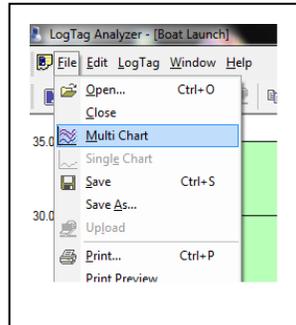
Next, select *File > Open…* and choose the files you would like to overlay from the dropbox folder. You can select multiple files by holding down the *shift* ↑key as you select files. Once you have selected your files, a graph will appear with many lines all of the same color. To differentiate the lines, right click on any one of them and select *Align charts*. This should modify the graph so that each data file is displayed in a different color.
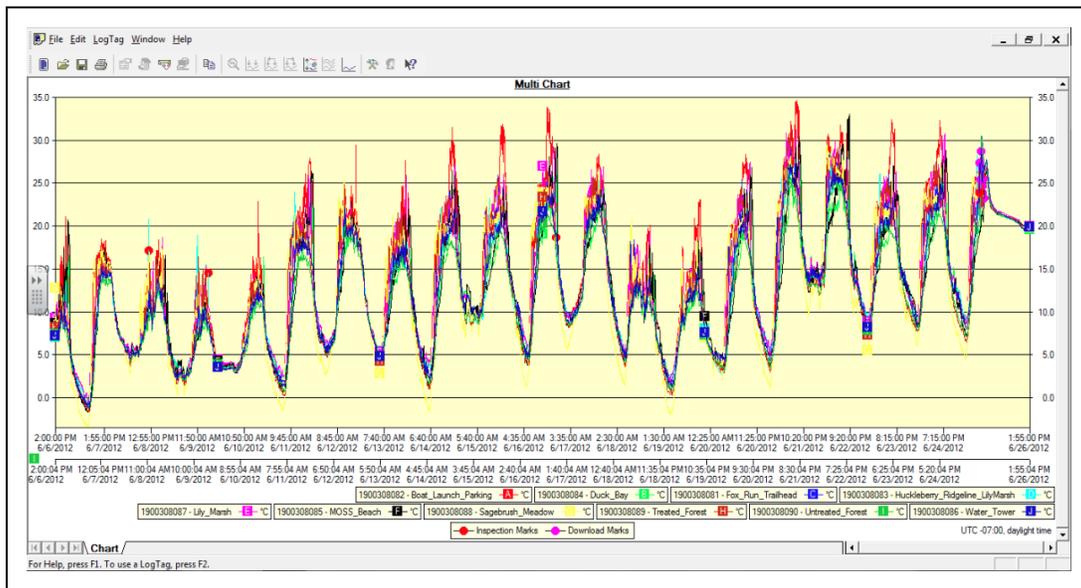
To zoom in on a small area of the graph simply click the left mouse button and drag it over the area you would like to zoom into. Viewing small areas at a time will help you differentiate between the different locations.

Discussion

Zoom in so that you can see at least two but no more than four days worth of data. Examine the temperature data. What do you notice about the different locations? Which has the highest daytime and nighttime temperatures? Which has the lowest daytime and nighttime temperatures? Could this temperature data have implications for water resources in Ponderosa State Park? Could this data be applied to other environments outside of Ponderosa State Park?

Helpful resources for learning more about LogTag Recorders and LogTag Analyzer

To learn more about the variety of LogTag recorders available, please visit the ThermoWorks website: http://www.thermoworks.com

For help using LogTag Analyzer including manuals and quick-start guides, please visit the following website: http://www.thermoworks.com/software

Important: If you used a MOSS computer for this tutorial, please make sure you delete all the files you created from the computer after you are done with the tutorial. Thanks!

Disclaimer: Please e-mail any suggestions of how to potentially improve this document to Jan Eitel (jeitel@ uidaho.edu). Use of trade names does not constitute an official endorsement by the McCall Outdoor Science School.