Data Manipulation and Submission

Lab Guide

Task

Convert the data in the appropriate format for reporting to GLOBE.

What You Need

- ❏ Computer: 386 or better, 4 Mb RAM, Windows 3.1 or later, 1 available COM (serial) port
- ❏ Excel or other spreadsheet software
- ❏ BoxCar® software

In the Lab

You should send in your data to GLOBE as often as you download your logger, which should be approximately weekly to monthly.

1. Double click on the BoxCar® icon to run this software.

2. Under "File" select "Open" and open the BoxCar® file (.dtf) that contains the data you are preparing to submit to GLOBE

3. Under "File" select "Export" and then "Excel" or the appropriate spreadsheet choice (or just select the "Excel" icon on the shortcut toolbar).

4. The "Export Set-Up" box will appear

5. Select all four channels that contain Celsius measurements by selecting each channel marked "Temperature [*C]" in the "Units" box (be sure to deselect the first default value which is marked "Temperature [*F]").

6. Select "Export".

7. Maintain the name as "SSYYMMDD.txt"

8. Select "OK".

9. Launch Excel or other spreadsheet software.

10. Under "File" select "Open" and choose the file that contains your data (SSYYMMDD. txt).

11. Make sure to select "All Files (*.*)" under "Files of Type".

12. Select "Open".

13. The "Text Import Wizard" should be set to "Delimited", "Start Import at Row 1", "File origin Windows (ANSI).

14. Select "Finish" directly without passing through the intermediate steps. You should see one column of time data and four columns of temperature data with units of [*C].

15. Graph your data following the steps in *Looking at the Data*.

16. If you have any data points that are unquestionably bad, replace those values with a "B".

17. If one of your sensors was not connected or not working, place an "X in the appropriate cells of your spreadsheet.

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18. Select the whole first row that contains the titles (by clicking on "1") and remove it, by selecting "Delete" under the "Edit" menu.

19. Format the whole first column that contains the time and date (by clicking on "A") and choose "Cells" under the "Format" menu.

20. In the pop-up box that appears select "Custom" under "Category" and under "Type" enter yyyymmddhhmm. Hit "OK". The date and time entries are now in the format required by GLOBE.

21. Select columns A,B,C and insert three new columns by selecting "Columns" under the "Insert" menu.

22. Scroll down to the last row of data.

23. Type "DLOG" in column A.

24. Enter your GLOBE School ID in column B.

25. Enter the GLOBE site type and number where the data logger is installed (atmosphere site = ATM-dd or soil moisture site = SMS-dd; e.g., ATM-01 or SMS-01) in column C.

26. Highlight the three cells containing "DLOG", your GLOBE school ID, and the site type and number and select "Copy" under the "Edit" menu.

27. Highlight the first three columns in the second to last row of data and then use the following two keystrokes to highlight all the cells in columns A-C that contain data: "End", "Shift Up Arrow".

28. Select "Paste" under the "Edit" menu so that these three values are copied to the selected area of columns A-C.

29. Select column E and insert one new column by selecting "Columns" under the "Insert" menu.

30. Format the whole fifth column (by clicking on "E") and choose "Cells" under the "Format" menu.

31. In the format cells "Number" pop-up box that appears, select "Text". Move to the format cells "Alignment" tab and select "Right" within the "Horizontal" selection box. Hit "OK"

32. Scroll down to the last roll of data, if necessary.

33. In column E, enter the UT offset between your site and the prime meridian (UT_offset = UT_time – Local_time). This will be a constant unless there has been a local time shift (ie. day light savings) during the period of observation. Enter this value using a ±hhmm scheme (example: +0400 for a 4 hour offset for the East coast of the U.S. or –1030 for a –10 hour 30 minute offset for central Australia). Note, the sign of these offsets are opposite the standard value. Unfortunately, the coming and going of daylight savings varies by country. Please consult local authorities as to what local time you need to make this adjustment (or visit www.worldtimezone.com/daylight.htm)

34. Highlight the cell containing your offset and select "Copy" under the "Edit" menu.

35. Highlight the empty cell in column E in the second to last row and then use the following two keystrokes to highlight all the cells in column E that contain data: "End", "Shift Up Arrow".

36. Select "Paste" under the "Edit" menu so that this value is copied to the selected area of column E.

37. Save this document by selecting "Save As" under the "File" menu.

38. Change the name of this GLOBE formatted file to "DLYYMMDD.txt" (ignore the warning about file format generated by "Excel") and save as a tab-delimited text file.

39. You are now ready to send your data to GLOBE by email.

40. Launch your email program without quitting Excel.

41. In the "To:" field of your message enter "DATA@GLOBE.GOV".

42. In the "Subject:" field enter "DATA".

43. The first line of the text of your message must be "//AA". This tells the GLOBE server that the lines that follow will contain data.

44. Copy and paste the nine columns of the spreadsheet file that contains your logger data:

    a. Switch back to Excel or other spreadsheet and highlight the portion of the nine columns that contain information.

    b. Select "Copy" under the "Edit" menu.

    c. Switch back to your email program, put the cursor on the line below the "//AA" entry in the text portion of the message, and select "Paste" under the "Edit" menu. The whole table should now appear in the body of the email message.

45. After you insert the table with your data, type on the last line of your message "//ZZ". This tells the computer that there are no more data in your message. See an example of what your email should look like below.

46. Send the email to GLOBE.

Example of an email containing air and soil temperature data collected with a data logger

To: DATA@GLOBE.GOV								
From: GLOBE_School@Somewhere.edu								
Subject: DATA								
//AA								
DLOG	ZZUSTEST	ATM-01	200105141600	+0400	B	B	B	B
DLOG	ZZUSTEST	ATM-01	200105141615	+0400	24.79	24.79	24.79	24.79
DLOG	ZZUSTEST	ATM-01	200105141630	+0400	24.79	24.79	24.79	24.79
DLOG	ZZUSTEST	ATM-01	200105141645	+0400	24.79	24.79	24.79	24.79
DLOG	ZZUSTEST	ATM-01	200105141700	+0400	24.79	24.79	24.79	24.79
DLOG	ZZUSTEST	ATM-01	200105141715	+0400	24.79	24.4	24.79	24.79
DLOG	ZZUSTEST	ATM-01	200105141730	+0400	24.79	24.4	24.79	24.79
DLOG	ZZUSTEST	ATM-01	200105141745	+0400	24.79	24.4	24.79	24.79
DLOG	ZZUSTEST	ATM-01	200105141800	+0400	24.79	24.4	24.4	24.79
DLOG	ZZUSTEST	ATM-01	200105141815	+0400	24.79	24.4	X	24.79
DLOG	ZZUSTEST	ATM-01	200105141830	+0400	24.79	24.79	X	24.79
DLOG	ZZUSTEST	ATM-01	200105141845	+0400	24.79	24.79	X	24.79
DLOG	ZZUSTEST	ATM-01	200105141900	+0400	24.79	25.17	X	24.79
DLOG	ZZUSTEST	ATM-01	200105141915	+0400	24.79	25.17	X	24.79
//ZZ								