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V. DATA ANALYSIS

FAST TRACK Data Analysis

1. Enter the **Review Saved Data** mode.

   - Note Channel Number (CH) designations:

Channel	*Displays*
CH 1	**EEG**
CH 40	**alpha**
CH 41	**alpha RMS**

   - Note measurement box settings:

Channel	*Measurement*
CH 1	**Stddev**
CH 40	**Stddev**
CH 41	**Mean**
CH 40	**Freq**

2. Set up your display window for optimal viewing of the entire recording.

Data Analysis continues…

Detailed Explanation of Data Analysis Steps

If entering **Review Saved Data** mode from the Startup dialog or lessons menu, make sure to choose the correct file.

The data should resemble Fig. 4.13.

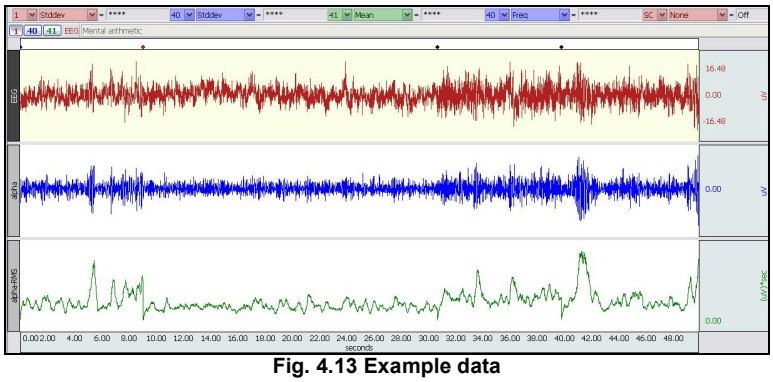

Fig. 4.13 Example data

The measurement boxes are above the marker region in the data window. Each measurement has three sections: channel number, measurement type, and result. The first two sections are pull-down menus that are activated when you click them.

Brief definition of measurements:

Stddev: Standard deviation is a measure of the variability of data points. The advantage of the Stddev measurement is that extreme values or artifacts do not unduly influence the measurement.

Mean: Displays the average value in the selected area.

Freq: Converts the time segment of the selected area to frequency in cycles per second

The ñselected areaò is the area selected by the **I-beam** tool (including endpoints).

Note: The append event markers mark the beginning of each recording. Click on (activate) the event marker to display its label.

Useful tools for changing view:

Display menu: Autoscale Horizontal, Autoscale Waveforms, Zoom Back, Zoom Forward

Scroll Bars: Time (Horizontal); Amplitude (Vertical)

Cursor Tools: Zoom Tool

Buttons: Overlap, Split, Show Grid, Hide Grid, -, +

Hide/Show Channel: ñAlt + clickò (Windows) or ñOption + clickò (Mac) the channel number box to toggle channel display.

3. Use the I-Beam cursor to select the first data recording.

   A

4. Repeat the measurements for each of the data recordings.

   A

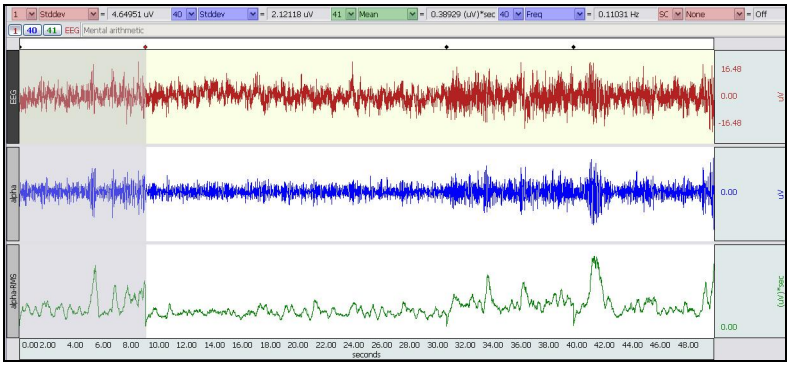

Fig. 4.14 First data recording selected

5. Zoom in on a small section of the Recording 1 data.

Be sure to zoom in far enough so that you can easily measure the frequency of the **alpha** wave.

6. Use the I-Beam cursor to select an area from one peak to the next in the **alpha** band (CH 40).

   B

Fig. 4.15 shows a sample setup for measuring the frequency in the **alpha** band (CH 40).

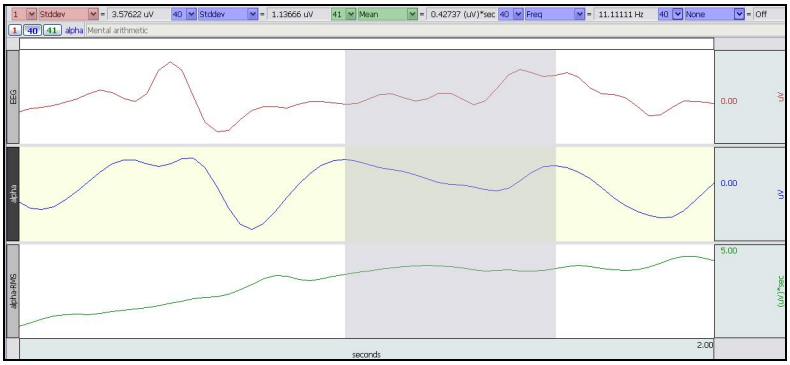

Fig. 4.15 Alpha wave frequency measurement

7. Answer the questions at the end of the Data Report.
8. **Save** or **Print** the Data Report.
9. **Quit** the program.

An electronically editable **Data Report** is located in the journal (following the lesson summary,) or immediately following this Data Analysis section. Your instructor will recommend the preferred format for your lab.

END OF DATA ANALYSIS

END OF LESSON 4

Complete the Lesson 4 Data Report that follows.

ELECTROENCEPHALOGRAPHY II

- *EEG II*

DATA REPORT

Studentôs Name: _____

Lab Section: _____

Date: _____

I. Data and Calculations

Subject Profile

Name:_____ Height:_____

Age:_____ Gender: Male / Female Weight:_____

Amplitudes

A. **Complete Table 4.1 with the amplitudes of the recorded data** in the control and experimental conditions. Calculate the difference for the Alpha-RMS Mean between the Experimental Conditions and the Control, and then summarize whether the Experimental Mean was larger (+,) smaller (–,) or the same (=) as the Control Mean.

For example: To calculate Alpha-RMS Difference for the ñMental Arithmeticò recording, subtract the ñEyes Closed (Control)ò Alpha-RMS value from the measured ñMental Arithmeticò Alpha-RMS value.

Table 4.1

Condition	EEG 1 Stddev	Alpha 40 Stddev	Alpha-RMS 41 Mean	Alpha-RMS Difference (Exp. - Control)	Alpha-RMS Summary (+, –, =)
Eyes closed (**Control**)					
Mental arithmetic					
Recovering from hyperventilation					
Eyes open					

Frequency

B. **What is the frequency of an alpha rhythm from "Eyes closed" data?** 40 Freq =_____Hz

Does this agree with the expected values? Yes No

II. Questions

C. Refer to Table 4.1: When was the general amplitude of the EEG highest?

_____

_____

_____

D. Refer to Table 4.1: When were the alpha wave levels highest?

_____

_____

_____

E. Refer to Table 4.1: How do your results compare with the information presented in the Introduction?

F. Did Subject need to concentrate during math problems? Yes No
How would the level of concentration required affect the data?

G. What might account for the amplitude difference of waves recorded from a subject tested alone, in a darkened room, and subjects tested in a lab full of students?

H. Which conditions produced the lowest alpha activity?

III. OPTIONAL Active Learning Portion

A. ***Hypothesis***

B. ***Materials***

C. ***Method***

D. ***Set Up***

E. ***Experimental Results***

End of Lesson 4 Data Report