

Observations at the 2004 Balloon Fest.

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Planning your experiment

1. Test the equipment in the flight configuration
 - a. No connection between flight equipment and ground equipment
 - b. Check battery life for flight duration
 - i. Be prepared for up to 4 flights
 - ii. Have back up batteries and/or recharger
 - c. Check data capacity
 - i. Run equipment for the predicted flight time and make sure that there is enough storage for the data
 - d. Practice transferring data to the computer
 - i. Do you have the right cables?
 - ii. Is the software compatible?
 - iii. Do you know the sequence of operating the controls to transfer data?
2. If you plan on using triangulation to determine the height of the balloon, remember that the balloon will not be directly over the person holding the line. The wind strength and direction will vary with both time and altitude moving the balloon around. The wind at 200 feet can be a completely different direction than the wind at 500 feet.
3. If you are planning on using radio control of some feature on the payload, test the operation over the distance required (500 feet) to make sure it has adequate range.
4. The data should close. That is, the readings on the ground before you start should agree with the readings on the ground when you finish. You should think through how, if necessary, you will compensate for changing ambient conditions.
5. Someone in your group should understand the principle behind each instrument you are using. If not, then you have two choices, do some research so you do understand or modify your experiment so you only use instruments that you understand. Otherwise, you will have problems interpreting your data when it deviates from predictions.

Analysis and presentation of the data

1. Rarely do you get all the data that you planned on.
 - a. Equipment and/or instrumentation failure
 - b. Analyze and present the data you get -- don't spend time on the data that you didn't get
2. When you don't get the result that you predicted, be prepared to question the prediction.
 - a. Was there something going on that you hadn't anticipated?
 - b. Do you have the units straight?
 - c. Could the constants that you used be off?