

1. Review information in Chapter on rawinsonde systems. Review the checklist and procedures carefully before Monday class.

2. Review information on Vaisala rawinsonde systems available from:

<http://www.vaisala.com/weather/products/rs92.html>.

3. Review information on Graw rawinsonde systems available from:

<http://radiosondes.com/121.html>

4. Question 1. Summarize in a couple of paragraphs the key similarities and differences between the two rawinsonde systems.

5. Question 2. What have you been assigned to do as part of the launch team?

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6. Checklist. Make sure you have the following before going outside to launch.

	Checklist
	DC/AC converter
	12 V automobile battery
	Helium tank
	Helium pressure gauge
	Wrench for helium tank
	Balloons
	GRAW DFM-06 sondes
	Sonde plastic extension and stretchable cord
	Unwinders
	Tie/tiewraps
	Electrical tape
	String
	Needle-nose pliers with snippers
	Laptop (with GRAW software)
	ICOM receiver
	ICOM receiver cable
	Extra AA batteries for ICOM receiver
	Cell phone
	Kestrel

	Hand-held GPS
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## 7. Launch Procedure.

	<b>BALLOON PREPARATION</b>
	24 hours prior to launch: call Scot Woodrow and advise of launch
	30 minutes before launch. Call SLC TRACON and advise of launch at given location and time
	Fill helium balloon to appropriate weight
	Tie off helium balloon with string first and then tie-wraps. Put tie wrap slightly less than ½ up from the base of balloon handle.
	Cut about 1 m of string. Attach one end firmly to the balloon handle near tie wrap.
	Fold balloon handle and tie wrap again. Be careful not to puncture balloon and cut tie wrap off right at base. Wrap with electrical tape.
	Securely fasten balloon or have someone hold it while initializing the radiosonde
	Plug ICOM receiver into laptop microphone input
	Plug in GRAW USB interface cable to USB port on laptop
	Power up laptop and start GRAW software
	Attach
	<b>DFM-06 RAWINSONDE INITIALIZATION</b>
	Start GRAW software. In upper left corner select INITIALIZE → SONDE and then select “Yes, Please” to have the wizard guide you through initialization
	Select “sounding” and then connect the radiosonde to the laptop (Make sure green LED light comes on the DFM-rawinsonde)
	Enter quadrant 1 and then enter location name: “location x (date)”
	Press “Initialize Sonde” button and then click “Next” when sonde is initialized.
	Set the frequency to 400.05 MHz, or something that can be programmed in the ICOM receiver and then press “Next.”
	Make sure the FM mode is selected on the ICOM receiver and set ICOM receiver to selected MHz band, adjust frequency. Have volume set at 000 to 0000.
	Check to see if you hear a high pitched beep tone if you pull out the ICOM cord from the laptop microphone jack. This is to make sure you are receiving data. Press “Next.”
	Select “Received Raw Data” view and then “Next.” Enter Pressure, temperature, altitude, from KESTREL and GARMIN GPS.
	Enter latitude, longitude, altitude from GARMIN GPS. Note that the latitude needs to be a negative number.
	Turn DFM-06 on and remove DFM-06 from the cable and set in open location for GPS
	Make sure STATE indicator on lower right hand side of GRAW GUI is green, and that RAW GPS is coming in and that the data times are synchronized with the DFM-06 radiosonde data.
	<b>FINAL LAUNCH PREPARATION</b>
	Attach plastic extension to top of DFM-06 radiosonde with stretchable cord
	Remove plastic cap from unwinder and tie thin string to the top of the radiosonde plastic extension. Tie the thicker string from the balloon onto the top of the unwinder.
	Make sure everything is secure. The balloon is ready to launch after a final check that the data is still coming in. Make sure unwinder string will not get jammed on ascent.

	Launch balloon.
	After about 20 minutes, save file from the "Received raw data." Name it by date and time. This is in case the laptop crashes, as the files are automatically saved. At end of launch, go to "Terminate sounding." Save file and exit again

GRAW DFM-06 Rawinsonde launch Lab and worksheet

Name \_\_\_\_\_

1 and 2 March 2010

Record the following:

Question 3. Exact time of launch (UTC)

\_\_\_\_\_

Question 4. Initial temperature, pressure, wind speed and direction from KESTREL

\_\_\_\_\_

Latitude and longitude of launch site: \_\_\_\_\_

Sky conditions at launch time \_\_\_\_\_

Question 5. Data from the radiosonde at the following levels:

Level (mb)	Temp (°C)	Dew Point (°C)	Wind speed (kts)	Wind Direction (°)	Ascent rate (m/s)	Latitude/longitude
825						
775						
700						
500						
250						

Question 6. Are there any *cloud layers* or *inversions* present in the data? If so, explain

Question 7. Is the wind profile indicative of cold or warm air advection or neither? Explain.

Question 8. Briefly discuss the stability characteristics of the sounding.

At approximately what level is the tropopause?

Question 9. Describe any other notable atmospheric conditions evident from this launch.

Question 10. How does your launch data compare with the 00Z UTC Salt Lake City sounding launched 2 hours after your afternoon launch?

**Turn in your brief answers to questions 1-10 by the next lecture.**