Question 1: Use the appropriate formula to convert the following temperatures. Feel free to use this handy temperature calculator by the National Weather Service:
http://www.srh.noaa.gov/epz/?n=wxcalc_tempconvert

20°C = 68 °F
-25°C = -13 °F
59°C = 138.2 °F
72°F = 22.22 °C
98.6°F = 37°C (body temperature)
0°C = 273.15°K

Question 2: Analyze the meteogram from New Orleans, LA (KMSY) below and answer the following.

Remember that time is in UTC at the bottom.

- What time (New Orleans time) was the warmest temperature reading for September 12, 2012? 1100
- What was the daily mean temperature on this day? 82 degrees
- What was the daily temperature range on this day? 12 degrees

Question 3: Next you are going to analyze yearly temperature means and ranges for specific locations around the world. *NOTE: Think of the controls of temperature (i.e. latitude, land/water distribution, ocean currents, altitude, geographic location) and how that might influence the temperature of these locations.*

Salt Lake City, Utah (Continental interior location)

Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
28	34	40	50	58	67	76	74	65	53	38	32

Yearly Mean Temperature 51.25
Yearly Temperature Range 48

Los Angeles, California (Coastal location)

Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
55	57	59	59	64	68	70	73	72	65	63	59

Yearly Mean Temperature 63.66
Yearly Temperature Range 18

Miami, Florida (Coastal location)

Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
66	68	70	73	77	80	82	82	81	77	70	68

Yearly Mean Temperature 74.5
Yearly Temperature Range 16

Fairbanks, Alaska (Coastal location near arctic)

Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
-11	0.5	10	27	47	59	60	55	44	26	4	.7

Yearly Mean Temperature 26.85
Yearly Temperature Range 71

Moscow, Russia (Continental interior location)

Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
14	15	24	40	53	62	66	63	52	40	29	20

Yearly Mean Temperature 39.83
Yearly Temperature Range 52

McMurdo Station, Antarctica (Continental interior location in Southern Hemisphere)

Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
24	15	5	-9	-11	-12	-15	-15	-12	-2	14	25

Yearly Mean Temperature 18
Yearly Temperature Range 27

Benghazi, Libya (Continental interior location in Sahara Desert of Africa)

Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
55	57	63	66	72	75	78	79	78	75	66	59

Yearly Mean Temperature 68.58
Yearly Temperature Range 24

Question 4: Go to NOAA's website at http://www.ncdc.noaa.gov/oa/climate/globalextremes.html#hightemp to analyze historical temperature and precipitation extremes globally. List the three hottest places ever recorded in the world.

1. Africa, 136 degrees, El Azizia, Libya, 367 ft., Sept 13, 1922
2. North America, 134 degrees, Death, CA (Greenland Ranch), -178 ft., July 10, 1913
3. Asia, 129 degrees, Tirat Tsvi, Israel, -722 ft., June 22, 1942

List the three coldest places ever recorded around the world.

1. Antarctica, -129 degrees, Vostok, Russia, 11220 ft., July 21, 1983
2. Asia, -90 degrees, Oimekron, 2625 ft., February 6, 1933
3. Asia -90 degrees, Verkhoyansk, Russia, 350 ft., February 7, 1892

Question 5: The heat index and wind chill is a way to compare temperature in relation to human senses. The **heat index** compares the relationship between temperature and humidity. The warmer the temperature and the higher the humidity, the hotter it will "feel" to humans. Go to http://www.srh.noaa.gov/jetstream/global/hi.htm to analyze heat waves.

1. Temperature = 100°F & Relative Humidity = 40% => Apparent Temperature = 110°F

Temperature = 100°F & Relative Humidity = 60% => Apparent Temperature = 130°F

Question 6: The wind chill compares temperature with wind speed. The faster the wind blows, the colder it will feel. Go to http://www.srh.noaa.gov/jetstream/global/chill.htm to analyze wind chills.

- Temperature = 30°F & Wind Speed = 0 mph => Wind Chill = 30°F
- Temperature = 30°F & Wind Speed = 15 mph => Wind Chill = 19°F
- Temperature = 15°F & Wind Speed = 20 mph => Wind Chill = -2°F
- Temperature = 0°F & Wind Speed = 20 mph => Wind Chill = -22°F

Question 7: Finally, you are going to verify a 24-hour forecast of surface temperature. Analyze the 24-hour national forecast for high temperatures and low temperatures.
High Temperature: http://images.intellicast.com/National/Temperature/HighTomorrow.aspx
Low Temperature: http://images.intellicast.com/National/Temperature/LowTomorrow.aspx
Determine a location on the map you would like and find a Station ID for that location. Find a Station ID for your chosen location at http://www.rap.ucar.edu/weather/surface/stations.txt. Remember, it should be a four-letter code usually starting with the letter "K" if it is within the lower-48 states.

1. What is your chosen location (city and state)? Boise, Idaho
2. What is its station ID? KBOI
3. Right click on the high temperature image and select "Save Picture As…" or "Save Image As…" and save the image to your computer. Save your high temperature map as **HighTemperature** and your low temperature map as **LowTemperature**. The weather model forecasts the high temperature to be 47 and the low temperature to be _32. Label appropriately with the degrees Fahrenheit. You will upload these images into your SLCC ePortfolio.
4. Now wait 24 hours. Once 24 hours have passed, go to the NWS climate website at http://www.nws.noaa.gov/climate/. You will see a map of temperature readings; click on your location (or the closest one to your chosen location).
5. Clicking on your location will bring up a new website (allow for pop-ups). Make sure the *Product* is the Daily Climate Report, the *Location* is your chosen city, and the Time Frame is one day (not more or less) after you looked at the high/low temperature forecast. Click GO.

What was the maximum temperature and time for your chosen location? 36 degrees 500 PM
What was the minimum temperature and time for your chosen location? 30 degrees 1017 AM
What was the average temperature for your chosen location? 33 degrees