Weather is what meteorologists tell you about each day: cloudy and cool today, sunny and hot tomorrow with a chance of thunderstorms. Weather varies quite a bit – even during summer. This chart shows high temperatures at Lubbock each day during July of 2012. A few days were around 100 degrees, while one day barely warmed into the 80s. Day-to-day weather is influenced by things such as disturbances, fronts, and geography. Weather may change wildly from one day to the next and differ greatly even from one nearby location to another.

Climate is the average weather that occurs over a long period of time. Whereas weather can change day-to-day, climate changes over a much longer time – usually many years. This graph shows each year's average July temperature at Lubbock starting in 1914. Some Julys were hot; some less hot. The blue line around 93 degrees is the long-term trend, and it shows slight warming. As you probably can tell, however, the climate typically fluctuates between warm phases – such as the 1930s – and cool phases - such as the 1970s - each that may persist several years. Short-term variations within the long-term trend are referred to as Climate Variability.

Weather and Climate are kind of like your wardrobe: you have clothes for the variety of conditions (climate) but wear only one set at a time (weather).

2012: On-pace for the hottest year
Temperatures for the U.S. January through October 2012 were the hottest of any year on-record. After a mild winter, hot spring and summer, and a warm fall - it seemed likely that 2012 would end as the warmest year ever. Lubbock and Childress, along with many other South Plains cities, were on the same pace as most of the country.
<table>
<thead>
<tr>
<th>Sunday</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>New Year’s Day</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>sr 753 am</td>
<td>sr 753 am</td>
<td>sr 753 am</td>
<td>sr 753 am</td>
<td>sr 753 am</td>
<td>sr 753 am</td>
<td>sr 753 am</td>
</tr>
<tr>
<td>ss 555 pm</td>
<td>ss 556 pm</td>
<td>ss 555 pm</td>
<td>ss 557 pm</td>
<td>ss 558 pm</td>
<td>ss 559 pm</td>
<td>ss 600 pm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>14</td>
<td>15</td>
<td>16</td>
<td>17</td>
<td>18</td>
<td>19</td>
</tr>
<tr>
<td>sr 752 am</td>
<td>sr 752 am</td>
<td>sr 752 am</td>
<td>sr 751 am</td>
<td>sr 751 am</td>
<td>sr 751 am</td>
<td>sr 751 am</td>
</tr>
<tr>
<td>ss 601 pm</td>
<td>ss 602 pm</td>
<td>ss 603 pm</td>
<td>ss 604 pm</td>
<td>ss 605 pm</td>
<td>ss 606 pm</td>
<td>ss 607 pm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>21</td>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
<td>26</td>
</tr>
<tr>
<td>sr 750 am</td>
<td>sr 750 am</td>
<td>sr 749 am</td>
<td>sr 749 am</td>
<td>sr 748 am</td>
<td>sr 748 am</td>
<td>sr 747 am</td>
</tr>
<tr>
<td>ss 605 pm</td>
<td>ss 608 pm</td>
<td>ss 609 pm</td>
<td>ss 610 pm</td>
<td>ss 611 pm</td>
<td>ss 612 pm</td>
<td>ss 613 pm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>28</td>
<td>29</td>
<td>30</td>
<td>31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>sr 747 am</td>
<td>sr 746 am</td>
<td>sr 746 am</td>
<td>sr 745 am</td>
<td>sr 744 am</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ss 614 pm</td>
<td>ss 614 pm</td>
<td>ss 615 pm</td>
<td>ss 616 pm</td>
<td>ss 617 pm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Lubbock National Weather Service**

**January 2013**

- **Jr. Day (Observed)**
- **Martin Luther King Jr. Day (Observed)**
- **First Quarter**
- **Full Moon**
- **New Moon**
- **Last Quarter**

**FREQUENCIES:**
- Lubbock 162.400
- Dimmitt 162.500
- Plainview 162.450
- Childress 162.525
- Dickens 162.500

**Lubbock Records**

**Tarot Records**

**NOAA WEATHER RADIO can be found at the following frequencies:**

- Lubbock 162.400
- Dimmitt 162.500
- Plainview 162.450
- Childress 162.525
- Dickens 162.500
The National Weather Service (NWS) Cooperative Observer Program (COOP) is truly the nation's weather and climate observing network of, by, and for the people. The COOP was formally created in 1890 under the Organic Act. More than 11,000 volunteers take observations on farms, in urban and suburban areas, in National Parks, on seashores, and on mountain tops. The data are representative of the places people live, work and play.

The NWS Lubbock COOP program has about 40 observers that collect valuable meteorological data every day, with dozens more that send in information when it rains, sleet or snows. These data are widely used by surrounding NWS offices, River Forecast Centers at Tulsa, OK, and Fort Worth, TX, and the National Climatic Data Center (NCDC).

NWS Lubbock would like to express our sincere appreciation to the many COOP observers who provide these important services.

Lubbock NWS COOP observer Anna Belle Walker received the 35-year Length of Service Award from Lubbock Meteorologist in Charge (MIC) Justin Weather (right) and Lubbock Senior Service Hydrologist John Lipe (left).

Lubbock NWS COOP observer Betty Carr, pictured with her husband Charles, received the 10-year Length of Service Award.

Lubbock NWS COOP observer Clinton Bowman received the 15-year Length of Service Award from Lubbock MIC Justin Weather and Administrative Support Assistant Marsha Black.

Lubbock NWS COOP observer Tommie Jo Cruise received the 35-year Length of Service Award from Lubbock MIC Justin Weather.

Lubbock NWS COOP observer Joe (Buzz) Thacker received the Benjamin Franklin Award for 55 years of weather reporting. The award was presented by Lubbock MIC Justin Weaver.
<table>
<thead>
<tr>
<th>SUNDAY</th>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
<th>FRIDAY</th>
<th>SATURDAY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>56 / 28</td>
<td>56 / 28</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>03</td>
<td>02</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>80-1934</td>
<td>80-2003</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1934 /</td>
<td>80-1935 /</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4-1972</td>
<td>0-4-1951</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sr 742 am</td>
<td>sr 741 am</td>
<td>sr 740 am</td>
<td>sr 740 am</td>
<td>sr 739 am</td>
<td>sr 738 am</td>
<td>sr 737 am</td>
</tr>
<tr>
<td>ss 621 pm</td>
<td>ss 622 pm</td>
<td>ss 623 pm</td>
<td>ss 624 pm</td>
<td>ss 625 pm</td>
<td>ss 626 pm</td>
<td>ss 627 pm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sr 736 am</td>
<td>sr 735 am</td>
<td>sr 734 am</td>
<td>sr 733 am</td>
<td>sr 732 am</td>
<td>sr 731 am</td>
<td>sr 730 am</td>
</tr>
<tr>
<td>ss 628 pm</td>
<td>ss 629 pm</td>
<td>ss 630 pm</td>
<td>ss 630 pm</td>
<td>ss 631 pm</td>
<td>ss 632 pm</td>
<td>ss 633 pm</td>
</tr>
<tr>
<td></td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
<td>21</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sr 729 am</td>
<td>sr 728 am</td>
<td>sr 727 am</td>
<td>sr 726 am</td>
<td>sr 725 am</td>
<td>sr 724 am</td>
<td>sr 723 am</td>
</tr>
<tr>
<td>ss 634 pm</td>
<td>ss 635 pm</td>
<td>ss 636 pm</td>
<td>ss 637 pm</td>
<td>ss 638 pm</td>
<td>ss 639 pm</td>
<td>ss 639 pm</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
<td>28</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sr 721 am</td>
<td>sr 720 am</td>
<td>sr 719 am</td>
<td>sr 718 am</td>
<td>sr 717 am</td>
<td>sr 716 am</td>
<td></td>
</tr>
<tr>
<td>ss 640 pm</td>
<td>ss 641 pm</td>
<td>ss 642 pm</td>
<td>ss 643 pm</td>
<td>ss 644 pm</td>
<td>ss 645 pm</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOAA WEATHER RADIO CAN BE FOUND AT THE FOLLOWING FREQUENCIES:**
- Lubbock 162.400
- Dimmitt 162.500
- Plainview 162.450
- Childress 162.525
- Dickens 162.500

**Normals:**
- 56 / 28 03
- 1918-1963 / -7-1951
- Lubbock Records
- sr 744 am - sunrise
- ss 619 pm - sunset

- 56 / 28 02
- 80-2003 / -4-1951
- sr 743 am
- ss 620 pm

**Groundhog Day**

**Last Quarter**

**New Moon**

**First Quarter**

**Presidents’ Day**

**Ash Wednesday**

**Valentine’s Day**

**Full Moon**
XERISCAPING HELPS CONSERVE
Our Water Resources

LANDSCAPING TIPS
Choose plants native or adapted to hot, dry West Texas summers and our cold, windy winters. They require up to 80% less water than non-adapted varieties.

For bedding plants and row gardens focus watering to the roots by using drip irrigation. Regulate ground temperature and evaporation with good quality mulch.

Water lawns early in the morning during the hotter summer months to reduce loss to evaporation.

Do not over-water or water too frequently.

Consider rainwater harvesting to collect rainfall for later use on the landscape.

Abide by any local government ordinances in place for your area.

MORE INFORMATION:
Lubbock Master Gardeners http://www.lubbockmastergardeners.org/
WestTexas SmartScape http://www.txsmartscape.com/WestTX/main.asp
Water IQ http://www.wateriq.org/index.asp
Rainwater Harvesting http://rainwaterharvesting.tamu.edu/

Using water wisely saves money and saves water for the future of West Texas.
### March 2013

#### Lubbock National Weather Service

**SUNDAY**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 ss 646 pm</td>
<td>Last Quarter</td>
</tr>
<tr>
<td>4 ss 647 pm</td>
<td></td>
</tr>
</tbody>
</table>

**MONDAY**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 ss 649 pm</td>
<td></td>
</tr>
</tbody>
</table>

**TUESDAY**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 ss 649 pm</td>
<td></td>
</tr>
</tbody>
</table>

**WEDNESDAY**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 ss 649 pm</td>
<td></td>
</tr>
</tbody>
</table>

**THURSDAY**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 ss 650 pm</td>
<td></td>
</tr>
</tbody>
</table>

**FRIDAY**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 ss 651 pm</td>
<td></td>
</tr>
</tbody>
</table>

**SATURDAY**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 ss 652 pm</td>
<td></td>
</tr>
</tbody>
</table>

### Severe Weather Awareness Week

- **10**: Daylight Saving Time begins
- **11**: New Moon
- **12**: First Quarter
- **13**: Spring Equinox (6:02 am)

### Flood Safety Awareness Week

- **24**: Easter Sunday
- **25**: Full Moon

### Weather Radio Frequencies

- **Lubbock**: 162.400
- **Dimmitt**: 162.500
- **Plainview**: 162.450
- **Childress**: 162.525
- **Dickens**: 162.500

**FREQUENCIES:**

- **63 / 34 0.03 89-2006 / 5-1922**: Lubbock Records
- **sr 715 am - sunrise ss 644 pm – sunset**

**Normals:**

- **63 / 34 0.03 89-2006 / 5-1922**
- **sr 714 am**
- **ss 645 pm**

**Event Dates:**

- **St. Patrick’s Day**: March 17
- **Easter Sunday**: April 21
- **Severe Weather Awareness Week**: March 30
- **Flood Safety Awareness Week**: May 18
Through 2012 and the first half of 2013 the current weather radar systems across the U.S. will be upgraded to include Dual-Polarization (Dual-Pol). Dual-Pol radars will have the ability to sense both the horizontal and vertical dimensions of the targets, rather than just the horizontal, like in the past. This added capability will result in significant improvements in the estimation of precipitation rates, the ability to discriminate between precipitation types (hail vs. rain), the identification of tornadic debris signatures, and the identification of non-meteorological returns (like birds, insects, etc.). The radar at Lubbock is scheduled to be upgraded to Dual-Pol in April 2013.

(Above) Radar reflectivity observed during a strong thunderstorm. This product was already available before the Dual-Pol upgrade, with stronger returns (reds, whites and purples) corresponding to heavier rain and possible hail (in the circle).

(Above) Correlation Coefficient (CC) observed during a strong thunderstorm. High values of CC tell us the same shape/type of precipitation is falling. In this case, where CC is high (red) rain is falling, whereas where it is lower in the circle, rain is mixed with hail.

(Left) Differential Reflectivity (ZDR) and (Right) Specific Differential Phase (KDP) observed during a strong thunderstorm. ZDR is the ratio of horizontal to vertical returned power. Round objects will have values near zero (like hail within the circle) while relatively wide but flat objects (like large falling raindrops which are shaped like hamburger buns) will have positive (red) values. The KDP is a measure of how much the horizontal and vertical pulses slow down as they move through the atmosphere. Large values of KDP, like found in the circle, correspond to heavier rainfall rates (potentially mixed with hail).
<table>
<thead>
<tr>
<th>SUNDAY</th>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
<th>FRIDAY</th>
<th>SATURDAY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>sr 735 am · sunrise ss 808 pm · sunset</td>
<td>sr 733 am ss 809 pm</td>
<td>sr 732 am ss 810 pm</td>
<td>sr 731 am ss 810 pm</td>
<td>sr 729 am ss 811 pm</td>
<td>sr 728 am ss 812 pm</td>
<td></td>
</tr>
<tr>
<td>April Fool’s Day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>sr 727 am ss 813 pm</td>
<td>sr 726 am ss 813 pm</td>
<td>sr 724 am ss 814 pm</td>
<td>sr 723 am ss 815 pm</td>
<td>sr 722 am ss 816 pm</td>
<td>sr 720 am ss 816 pm</td>
<td>sr 719 am ss 817 pm</td>
</tr>
<tr>
<td>14</td>
<td>15</td>
<td>16</td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
</tr>
<tr>
<td>sr 718 am ss 818 pm</td>
<td>sr 717 am ss 819 pm</td>
<td>sr 715 am ss 819 pm</td>
<td>sr 714 am ss 820 pm</td>
<td>sr 713 am ss 821 pm</td>
<td>sr 712 am ss 822 pm</td>
<td>sr 711 am ss 822 pm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
</tr>
<tr>
<td>sr 710 am ss 823 pm</td>
<td>sr 708 am ss 824 pm</td>
<td>sr 707 am ss 825 pm</td>
<td>sr 706 am ss 825 pm</td>
<td>sr 705 am ss 826 pm</td>
<td>sr 704 am ss 827 pm</td>
<td>sr 703 am ss 828 pm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>29</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sr 702 am ss 828 pm</td>
<td>sr 701 am ss 829 pm</td>
<td>sr 700 am ss 830 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SUNSET/SUNRISE TIMES**

<table>
<thead>
<tr>
<th>Date</th>
<th>Sunset</th>
<th>Sunrise</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8:28</td>
<td>5:34</td>
</tr>
<tr>
<td>2</td>
<td>8:28</td>
<td>5:34</td>
</tr>
<tr>
<td>3</td>
<td>8:28</td>
<td>5:34</td>
</tr>
<tr>
<td>4</td>
<td>8:28</td>
<td>5:34</td>
</tr>
<tr>
<td>5</td>
<td>8:28</td>
<td>5:34</td>
</tr>
<tr>
<td>6</td>
<td>8:28</td>
<td>5:34</td>
</tr>
<tr>
<td>7</td>
<td>8:29</td>
<td>5:34</td>
</tr>
<tr>
<td>8</td>
<td>8:29</td>
<td>5:35</td>
</tr>
<tr>
<td>9</td>
<td>8:29</td>
<td>5:35</td>
</tr>
<tr>
<td>10</td>
<td>8:29</td>
<td>5:35</td>
</tr>
<tr>
<td>11</td>
<td>8:29</td>
<td>5:35</td>
</tr>
<tr>
<td>12</td>
<td>8:29</td>
<td>5:35</td>
</tr>
<tr>
<td>13</td>
<td>8:29</td>
<td>5:35</td>
</tr>
<tr>
<td>14</td>
<td>8:30</td>
<td>5:36</td>
</tr>
<tr>
<td>15</td>
<td>8:30</td>
<td>5:36</td>
</tr>
<tr>
<td>16</td>
<td>8:30</td>
<td>5:36</td>
</tr>
<tr>
<td>17</td>
<td>8:30</td>
<td>5:36</td>
</tr>
<tr>
<td>18</td>
<td>8:30</td>
<td>5:36</td>
</tr>
<tr>
<td>19</td>
<td>8:30</td>
<td>5:36</td>
</tr>
<tr>
<td>20</td>
<td>8:30</td>
<td>5:36</td>
</tr>
<tr>
<td>21</td>
<td>8:31</td>
<td>5:37</td>
</tr>
<tr>
<td>22</td>
<td>8:31</td>
<td>5:37</td>
</tr>
<tr>
<td>23</td>
<td>8:31</td>
<td>5:37</td>
</tr>
<tr>
<td>24</td>
<td>8:31</td>
<td>5:37</td>
</tr>
<tr>
<td>25</td>
<td>8:32</td>
<td>5:38</td>
</tr>
<tr>
<td>26</td>
<td>8:32</td>
<td>5:38</td>
</tr>
<tr>
<td>27</td>
<td>8:32</td>
<td>5:38</td>
</tr>
<tr>
<td>28</td>
<td>8:33</td>
<td>5:39</td>
</tr>
<tr>
<td>29</td>
<td>8:33</td>
<td>5:39</td>
</tr>
<tr>
<td>30</td>
<td>8:33</td>
<td>5:39</td>
</tr>
</tbody>
</table>

**NOAA WEATHER RADIO FREQUENCIES:**

- Lubbock 162.400
- Dimmitt 162.500
- Plainview 162.450
- Childress 162.525
- Dickens 162.500
### South Plains Tornado Trivia

**Strongest Tornado:**
- May 11, 1970 - F5 tornado tracked through Lubbock and produced $250 million in damage, killed 26 people, and injured 1500.

**Largest Tornado:**
- May 28, 1980 – Tornado that tracked west of Tulia was estimated to be 2330 yards wide (1.3 miles wide).

**Longest Tracked Tornado:**
- From NE of Muleshoe to NE of Pampa on April 17, 1970 = 130 miles.
- Entire track in Lubbock NWS area: From NW of Levelland to NE of Muleshoe on June 17, 1980 = 45 miles.

---

### Number of Reported Tornadoes - 1950 to 2012

<table>
<thead>
<tr>
<th></th>
<th>Parmer</th>
<th>Castro</th>
<th>Swisher</th>
<th>Briscoe</th>
<th>Hall</th>
<th>Childress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>48</td>
<td>57</td>
<td>66</td>
<td>42</td>
<td>45</td>
<td>25</td>
</tr>
<tr>
<td>F3+</td>
<td>3</td>
<td>1</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Bailey</th>
<th>Lamb</th>
<th>Hale</th>
<th>Floyd</th>
<th>Motley</th>
<th>Cottle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>50</td>
<td>82</td>
<td>125</td>
<td>53</td>
<td>21</td>
<td>31</td>
</tr>
<tr>
<td>F3+</td>
<td>2</td>
<td>7</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Cochran</th>
<th>Hockley</th>
<th>Lubbock</th>
<th>Crosby</th>
<th>Dickens</th>
<th>King</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>28</td>
<td>57</td>
<td>91</td>
<td>52</td>
<td>31</td>
<td>19</td>
</tr>
<tr>
<td>F3+</td>
<td>1</td>
<td>6</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Yoakum</th>
<th>Terry</th>
<th>Lynn</th>
<th>Garza</th>
<th>Kent</th>
<th>Stonewall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>25</td>
<td>31</td>
<td>42</td>
<td>19</td>
<td>22</td>
<td>23</td>
</tr>
<tr>
<td>F3+</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
A heat burst is a meteorological phenomenon in which air descending from a dying thunderstorm causes a rapid temperature increase and strong winds at the surface. What distinguishes a heat burst from a more typical thunderstorm downburst is that heat bursts occur at night. At night, the air near the surface cools more rapidly than air above, creating a temperature inversion. Thunderstorm downdraft air warms as it descends and in some cases can punch through the inversion, allowing the warm, dry air to reach the ground.

The graph on the right shows how the air temperature (blue line) increased dramatically—rising to over 90 degrees! The dewpoint temperature (green) also decreased, leading to very low relative humidity in the middle of the night.

Example: Heat burst at Childress on June 15th, 2012

The graph on the right shows how the wind speed increased during the heat burst. The thick red line is the highest wind gust reported in a 5-minute period while the shaded area is the 5-minute average wind speed. The peak gust was 77mph.

Heat Burst Questions:

- **When do heat bursts typically occur?**
  Most heat bursts happen at night or during the early morning, when surface temperatures are cooler. Heat bursts occur most commonly in late spring and summer. During those seasons, we frequently see strong thunderstorms develop across our area in the afternoon and evening and then die off overnight – a sequence of events that is favorable for heat bursts.

- **How common are heat bursts?**
  Once thought to be rare, new dense networks of weather stations like the West Texas Mesonet are showing that heat bursts occur at least several times each year across west Texas.
# Lubbock National Weather Service

**June 2013**

<table>
<thead>
<tr>
<th>SUNDAY</th>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
<th>FRIDAY</th>
<th>SATURDAY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOAA WEATHER RADIO CAN BE FOUND AT THE FOLLOWING FREQUENCIES:**
- Lubbock 162.400
- Dimmitt 162.500
- Plainview 162.450
- Childress 162.525
- Dickens 162.500

<table>
<thead>
<tr>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>sr 638 am</td>
<td>sr 638 am</td>
<td>sr 638 am</td>
<td>sr 637 am</td>
<td>sr 637 am</td>
<td>sr 637 am</td>
<td>sr 637 am</td>
</tr>
<tr>
<td>ss 853 pm</td>
<td>ss 854 pm</td>
<td>ss 854 pm</td>
<td>ss 855 pm</td>
<td>ss 855 pm</td>
<td>ss 856 pm</td>
<td>ss 856 pm</td>
</tr>
<tr>
<td>88/61 0.10</td>
<td>88/61 0.11</td>
<td>89/62 0.12</td>
<td>89/62 0.11</td>
<td>89/62 0.12</td>
<td>89/62 0.11</td>
<td>89/63 0.11</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>sr 637 am</td>
<td>sr 637 am</td>
<td>sr 637 am</td>
<td>sr 637 am</td>
<td>sr 637 am</td>
<td>sr 637 am</td>
<td>sr 637 am</td>
</tr>
<tr>
<td>ss 857 pm</td>
<td>ss 857 pm</td>
<td>ss 858 pm</td>
<td>ss 858 pm</td>
<td>ss 859 pm</td>
<td>ss 859 pm</td>
<td>ss 859 pm</td>
</tr>
<tr>
<td>90/63 0.12</td>
<td>90/63 0.10</td>
<td>90/63 0.11</td>
<td>90/64 0.10</td>
<td>90/64 0.11</td>
<td>91/64 0.11</td>
<td>91/64 0.10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
<th>20</th>
<th>21</th>
<th>22</th>
</tr>
</thead>
<tbody>
<tr>
<td>sr 637 am</td>
<td>sr 637 am</td>
<td>sr 637 am</td>
<td>sr 637 am</td>
<td>sr 638 am</td>
<td>sr 638 am</td>
<td>sr 638 am</td>
</tr>
<tr>
<td>ss 900 pm</td>
<td>ss 900 pm</td>
<td>ss 900 pm</td>
<td>ss 900 pm</td>
<td>ss 901 pm</td>
<td>ss 901 pm</td>
<td>ss 901 pm</td>
</tr>
<tr>
<td>91/65 0.10</td>
<td>91/65 0.10</td>
<td>91/65 0.10</td>
<td>91/65 0.10</td>
<td>92/65 0.09</td>
<td>92/66 0.10</td>
<td>92/66 0.10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>23</th>
<th>24</th>
<th>25</th>
<th>26</th>
<th>27</th>
<th>28</th>
<th>29</th>
</tr>
</thead>
<tbody>
<tr>
<td>sr 639 am</td>
<td>sr 639 am</td>
<td>sr 639 am</td>
<td>sr 639 am</td>
<td>sr 640 am</td>
<td>sr 640 am</td>
<td>sr 640 am</td>
</tr>
<tr>
<td>ss 901 pm</td>
<td>ss 901 pm</td>
<td>ss 901 pm</td>
<td>ss 901 pm</td>
<td>ss 902 pm</td>
<td>ss 902 pm</td>
<td>ss 902 pm</td>
</tr>
<tr>
<td>92/66 0.09</td>
<td>92/66 0.09</td>
<td>92/66 0.10</td>
<td>92/66 0.08</td>
<td>92/67 0.09</td>
<td>92/67 0.08</td>
<td>92/67 0.09</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>30</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>sr 641 am</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ss 902 pm</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
In spring of 2012, Texas Tech installed a Lightning Mapping Array (LMA). The LMA detects VHF point sources that are made by lightning channel steps. This essentially allows us to “see” the total lightning (both cloud-to-cloud [CC] and cloud-to-ground [CG]) from thunderstorms in real-time. Before the LMA, meteorologists at the NWS were only able to observe CG strikes. Since CC lightning often precedes the first CG strike, the LMA can provide lead time on developing thunderstorms that could produce dangerous CG lightning. In addition, trends in the frequency and altitude of lightning can indicate whether a thunderstorm updraft is strengthening or weakening, which in turn is another tool meteorologist can use to help make warning decisions.

WTLMA data gathered between 8:40 and 8:50 pm on April 29, 2012. Plotted on the map are the total lightning point sources, including all intra-cloud lightning. Note the high concentration of activity across the southwest half of Lubbock County, where a severe supercell storm is located. The top (right) plot displays a west-to-east (north-to-south) vertical cross-section of the lightning observed. The greatest concentration of lightning sources is between 10 and 12 km above ground level.

Different views of a severe storm that affected Lubbock County in late April 2012

Coverage map for the WTLMA. The sensors (red dots) are scattered around the Lubbock area, with sensitivity of lightning detection decreasing radially outward from Lubbock. The best coverage is within 100-150 km of Lubbock. However, Oklahoma also operates a LMA that fills in the gaps across the eastern Panhandle into the Rolling Plains.

Base reflectivity data captured by the Lubbock radar at 8:50 pm on April 29, 2012. The storm over southwest Lubbock County produced baseball size hail driven by 80+ mph gusts.
<table>
<thead>
<tr>
<th>SUNDAY</th>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
<th>FRIDAY</th>
<th>SATURDAY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7</td>
<td>8</td>
<td>14</td>
<td>15</td>
<td>16</td>
<td>17</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td></td>
<td>21</td>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td></td>
<td>28</td>
<td>29</td>
<td>30</td>
<td>31</td>
<td></td>
</tr>
</tbody>
</table>

**Normals:** 93/67.08
105-1994/56-1924
Lubbock Records

sr 641 am - sunrise
ss 902 pm – sunset

**Independence Day**

**New Moon**

**Full Moon**

**Last Quarter**

**Delta Aquarids Meteor Shower**
(July 28-29)

NOAA WEATHER RADIO
CAN BE FOUND AT THE FOLLOWING FREQENCIES:

- Lubbock: 162.400
- Dimmitt: 162.500
- Plainview: 162.450
- Childress: 162.525
- Dickens: 162.500
The West Texas Mesonet project began in 1999 to provide free, real-time weather and agricultural information for residents of the South Plains of West Texas. Over the years the project has grown well beyond the South Plains to include three observation towers in eastern New Mexico, one in Guadalupe Mountains National Park and sites at Palo Duro and Caprock Canyons State Parks. To the left is a map of the West Texas domain which includes 70 mesonet stations (red stars) as of late 2012. Each observation station collects temperature, moisture, wind, pressure, solar radiation, and precipitation data, with most sites also measuring soil temperature and moisture at several depths.
<table>
<thead>
<tr>
<th></th>
<th>SUNDAY</th>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
<th>FRIDAY</th>
<th>SATURDAY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>sr 702 am</td>
<td>ss 844 pm</td>
<td>sr 703 am</td>
<td>ss 844 pm</td>
<td>sr 704 am</td>
<td>ss 843 pm</td>
<td>sr 705 am</td>
</tr>
<tr>
<td></td>
<td>sr 707 am</td>
<td>ss 838 pm</td>
<td>sr 708 am</td>
<td>ss 837 pm</td>
<td>sr 709 am</td>
<td>ss 838 pm</td>
<td>sr 710 am</td>
</tr>
<tr>
<td></td>
<td>sr 712 am</td>
<td>ss 830 pm</td>
<td>sr 713 am</td>
<td>ss 829 pm</td>
<td>sr 713 am</td>
<td>ss 828 pm</td>
<td>sr 715 am</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>105-1936/54-1962</td>
<td>100-1931/53-1926</td>
<td>99-1943/51-1917</td>
</tr>
<tr>
<td></td>
<td>sr 717 am</td>
<td>ss 821 pm</td>
<td>sr 718 am</td>
<td>ss 820 pm</td>
<td>sr 718 am</td>
<td>ss 819 pm</td>
<td>sr 720 am</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>sr 721 am</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOAA WEATHER RADIO CAN BE FOUND AT THE FOLLOWING FREQUENCIES:</td>
<td>Lubbock 162.400</td>
<td>Dimmitt 162.500</td>
<td>Plainview 162.450</td>
<td>Childress 162.525</td>
<td>Dickens 162.500</td>
<td>Lubbock Records sr 700 am - sunrise ss 847 pm – sunset</td>
<td>106-1966/55-1925</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**August 2013**

**WWW.WEATHER.GOV/LUBBOCK**

**New Moon**

**First Quarter**

**Full Moon**

**Last Quarter**

**Persieds Meteor Shower (Aug 12-13)**
The Tropics

2012 Texas Impacts Minimal
The 2012 Atlantic hurricane season produced 19 tropical storms, 10 hurricanes, and 1 major hurricane. Though 2012 was tied for the 7th most active season since records began in 1851, Texas escaped without any direct impacts. However, the remnants of eastern Pacific Hurricane Miriam did bring flooding rains to parts of the Lone Star State in late September. Midland recorded an impressive 4.66 inches on September 28, 2012, making it the third wettest day on record. The heavy rain did produce flooding, but also put a brief dent in the drought and some water in reservoirs.

<table>
<thead>
<tr>
<th>2013 Atlantic Names</th>
<th>Andrea</th>
<th>Barry</th>
<th>Chantal</th>
<th>Dorian</th>
<th>Erin</th>
<th>Fernand</th>
<th>Gabrielle</th>
<th>Humberto</th>
<th>Ingrid</th>
<th>Jerry</th>
<th>Karen</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lorenzo</td>
<td>Melissa</td>
<td>Nestor</td>
<td>Olga</td>
<td>Pablo</td>
<td>Rebekah</td>
<td>Sebastien</td>
<td>Tanya</td>
<td>Van</td>
<td>Tanya</td>
<td>Wendy</td>
</tr>
</tbody>
</table>

Hurricane Sandy (above) garnered a lot of attention as she moved off the southeast coast and then took a sharp left, striking the heavily populated northeast part of the nation in late October 2012. Sandy quickly lost tropical characteristics as she interacted with a cold upper level storm system approaching from the Ohio River Valley. Even though Sandy became extratropical (entraining much colder and drier air), the combination of Sandy’s remnants and the upper level storm brought strong winds and heavy precipitation to a large corridor of the northeast. Where temperatures were cold enough, across the higher elevations of the Appalachians, a couple of feet of snow fell in parts of West Virginia. The strong winds knocked out power for millions and the storm surge and large waves resulted in severe beach erosion and caused billions of dollars of damage and destruction to coastal New York and New Jersey.

**Average Atlantic Hurricane Season**

<table>
<thead>
<tr>
<th></th>
<th>Maximum Sustained Wind Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Named Storms</td>
<td>11</td>
</tr>
<tr>
<td>Hurricanes</td>
<td>6</td>
</tr>
<tr>
<td>Major Hurricanes (Category 3 or higher)</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>≥ 39 mph</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hurricanes</td>
<td>≥ 74 mph</td>
</tr>
<tr>
<td>Major Hurricanes (Category 3 or higher)</td>
<td>≥ 111 mph</td>
</tr>
</tbody>
</table>

Hurricane Sandy
October 24, 2012

Credit: NASA

Hurricane Isaac made landfall just west of Port Fourchon, Louisiana in late August 2012 with sustained winds of 80 mph. Initially, Isaac took its time and brought strong winds and very heavy rain, with New Orleans recording 20 inches of rain before the storm moved northward. The remnants of Isaac did eventually bring beneficial rain to parts of the drought stricken Midwest.

Credit: NASA

**Hurricane Isaac**
August 28, 2012
**September 2013**

**Lubbock National Weather Service**

<table>
<thead>
<tr>
<th>SUNDAY</th>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
<th>FRIDAY</th>
<th>SATURDAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td><strong>Labor Day</strong></td>
<td><strong>New Moon</strong></td>
<td><strong>First Quarter</strong></td>
<td><strong>Full Moon</strong></td>
<td><strong>Last Quarter</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>15</td>
<td>16</td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
<td>21</td>
</tr>
<tr>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
<td>28</td>
</tr>
<tr>
<td>29</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Normals:**

- **SUN/WED/MON 9/64.08**
- **TUE/THU 8/63.09**
- **FRI/SAT 8/62.09**

**Lubbock Records**

- **SUN/WED/MON 99-1951/43-1915**
- **TUE/THU 101-1947/50-1955**
- **FRI/SAT 100-1965/42-1993**

**Autumnal Equinox** (3:44 pm)

**NOAA Weather Radio can be found at the following frequencies:**

- Lubbock: 162.400
- Dimmitt: 162.500
- Plainview: 162.450
- Childress: 162.525
- Dickens: 162.500

**Lubbock Records**

- 1977 / 40
- 1997 / 37
- 1998 / 42
- 2000 / 46

**Lubbock Records**

- 1994 / 36
- 1995 / 33
- 1997 / 43
- 2000 / 47

**Lubbock Records**

- 1953 / 39
- 1957 / 44
- 1959 / 45
- 2000 / 46

**Lubbock Records**

- 1948 / 51
- 1945 / 42
- 1947 / 50
- 2000 / 4

**Lubbock Records**

- 1916 / 0.07
- 1918 / 0.07
- 1918 / 0.08
- 1919 / 0.08

**Lubbock Records**

- 1918 / 0.07
- 1918 / 0.09
- 1919 / 0.08
- 1919 / 0.09

**Lubbock Records**

- 1918 / 0.07
- 1918 / 0.09
- 1919 / 0.08
- 1919 / 0.09

**Lubbock Records**

- 1918 / 0.07
- 1918 / 0.09
- 1919 / 0.08
- 1919 / 0.09

**Lubbock Records**

- 1918 / 0.07
- 1918 / 0.09
- 1919 / 0.08
- 1919 / 0.09
In Lubbock, the earliest fall freeze occurred on October 7, 1952. The latest fall freeze in Lubbock occurred on November 23, 2003.
# October 2013

<table>
<thead>
<tr>
<th>SUNDAY</th>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
<th>FRIDAY</th>
<th>SATURDAY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>sb 742 am - sunrise</td>
<td>ss 730 pm</td>
<td>ss 729 pm</td>
<td>ss 727 pm</td>
<td>ss 726 pm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ss 731 pm - sunset</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>sb 746 am</td>
<td>sb 747 am</td>
<td>sb 748 am</td>
<td>sb 749 am</td>
<td>sb 750 am</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ss 723 pm</td>
<td>ss 722 pm</td>
<td>ss 721 pm</td>
<td>ss 720 pm</td>
<td>ss 717 pm</td>
</tr>
<tr>
<td>13</td>
<td>14</td>
<td>15</td>
<td>16</td>
<td>17</td>
<td>18</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>sb 752 am</td>
<td>sb 752 am</td>
<td>sb 755 am</td>
<td>sb 756 am</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ss 715 pm</td>
<td>ss 713 pm</td>
<td>ss 712 pm</td>
<td>ss 709 pm</td>
</tr>
<tr>
<td>20</td>
<td>21</td>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>sb 756 am</td>
<td>sb 757 am</td>
<td>sb 800 am</td>
<td>sb 801 am</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ss 707 pm</td>
<td>ss 706 pm</td>
<td>ss 705 pm</td>
<td>ss 701 pm</td>
</tr>
<tr>
<td>27</td>
<td>28</td>
<td>29</td>
<td>30</td>
<td>31</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>sb 802 am</td>
<td>sb 803 am</td>
<td>sb 805 am</td>
<td>sb 806 am</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ss 700 pm</td>
<td>ss 659 pm</td>
<td>ss 658 pm</td>
<td>ss 656 pm</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Halloween</td>
<td></td>
</tr>
</tbody>
</table>

**Normals:**
- 80 / 53 0.07

**Lubbock Records:**
- sb 742 am - sunrise
- ss 731 pm - sunset

**FREQUENCIES:**
- Lubbock 162.400
- Dimmitt 162.500
- Plainview 162.450
- Childress 162.525
- Dickens 162.500

**Events:**
- Columbus Day: October 13
- Orionids Meteor Shower: October 21
- First Quarter: October 14
- New Moon: October 5
- Full Moon: October 19
- Last Quarter: October 26
- Last Quarter: October 26
- Halloween: October 31
Enhanced radio and radar propagation

Before the days of digital TV, you probably recall nights where the picture on the TV screen almost appeared to be two completely different images. Perhaps you may have heard an FM radio station from quite a distance away on a clear, calm evening. In both cases, you were experiencing the result of low level weather conditions. When moist air near the surface is “capped” by slightly warmer air above it (temperature inversion) and very dry air exists above that cap, the phenomenon of tropospheric ducting occurs. The normal line-of-sight characteristics of very high frequencies are modified such that the radio waves are bent back toward the earth’s surface and substantially extend the range. This is similar to the behavior of light in a fiber optic. These conditions often affect weather radars, too, as seen in the image to the left. This is not rain or snow reflecting, but rather weak returns formed by the scattering of the radar waves by the temperature inversion aloft. Sometimes, if one views a national radar image this effect is visible across an expansive geographical area. For this to occur, calm weather conditions are required over a broad area — usually under high surface pressure.

The image to the right depicts the surface map from September 6, 2003 when radio contacts were made by amateur radio operators from Texas to Maine. At the same time, FM radio broadcasts were heard many states away from their transmitters. NOAA weather radio from Virginia was heard in Texas. Usually, a large high pressure system over the southeastern US with a front to its northwest yields the best events. In addition, large scale events occur from California to Hawaii each year! Although these openings are rare (just a few per year), one will observe at least modest local to regional enhancement about half the nights of the year. So, tune off your local station and see what you hear! Over time, you will hear different stations fade in!
### Lubbock National Weather Service

#### November 2013

<table>
<thead>
<tr>
<th>SUNDAY</th>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
<th>FRIDAY</th>
<th>SATURDAY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>NOAA WEATHER RADIO CAN BE FOUND AT THE FOLLOWING FREQUENCIES:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lubbock 162.400</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dimmitt 162.500</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Plainview 162.450</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Childress 162.525</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dickens 162.500</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Special Days
- **3** New Moon Daylight Saving Time Ends
- **10** First Quarter Veteran’s Day
- **17** Full Moon
- **24** Last Quarter
- **4** Election Day
- **7** Normal's Lubbock Records
- **14** Leonids Meteor Shower (Nov 16-18)
- **21** Thanksgiving Day

#### Holidays
- **30** End of the Atlantic Hurricane Season

#### Weather Records
- **69** / **41.04**
  - 88-2005 / 7-1991
- **66** / **38.03**
  - 85-1927 / 19-1950
- **63** / **38.03**
  - 85-1966 / 10-1959
- **61** / **33.03**
  - 84-1982 / 19-1956
- **60** / **32.02**
  - 82-1915 / 7-1938
- **61** / **34.00**
  - 85-1966 / 14-1937
- **59** / **32.03**
  - 86-1965 / 15-1993
- **59** / **31.02**
  - 81-1949 / 12-1976
- **58** / **30.03**
  - 83-1949 / 5-1976
- **58** / **30.02**
  - 78-2012 / 1-1976

#### Records
- **58** / **30.02** 1959-1976, 1979-1986
- **58** / **30.02** 1994-2006
- **58** / **30.02** 1975-1986
- **58** / **30.02** 1980-1991
- **58** / **30.02** 1985-2006
- **58** / **30.02** 1991-2006
- **58** / **30.02** 1965-1986
- **58** / **30.02** 1991-2006
Historic Cold Waves on the Texas South Plains

We’re fortunate that most winters on the South Plains fail to make dents in the record book for bitter cold or snow. However, the history books show that this region experiences its share of bitterly cold airmasses originating in the Arctic. Since cold air is heavier than warm air, it stays close to the ground and spreads more readily when over flat land such as the Great Plains. If the jet stream assumes a large dip through the middle of the U.S. (such as shown to the right), this cold air races south and often times disrupts our seasonal temperatures with harsh cold.

Cold patterns such as this rarely last more than a few days, but this was not the case in late December of 1983 when one such pattern remained in place for just over 1 week! In fact, from the 18th through Christmas Day and into the morning of the 26th, the temperature at Lubbock remained at or below freezing for 207 hours straight. Almost one year earlier, much of the region saw 7 consecutive days of sub-freezing temperatures from Dec 28, 1982 through Jan 3, 1983. These remain the worst cold waves ever to strike the region in terms of duration. In both of these cases, thousands of homes and businesses suffered extensive water damage from ruptured water pipes.

Historically, late December through middle January have favored the strongest and longest-lasting cold waves on the South Plains. If snow covers the ground, then the odds are improved the cold air will last even longer.

### Top Records for Consecutive Days \( \leq 32^\circ \) in Lubbock

<table>
<thead>
<tr>
<th># Days</th>
<th>Last Full Day ( \leq 32^\circ )</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Dec 25, 1983</td>
</tr>
<tr>
<td>7</td>
<td>Jan 3, 1983</td>
</tr>
</tbody>
</table>

**Insulate your water pipes!**

Home plumbing in warmer climates like ours is highly vulnerable to failure, especially after 48 hours or more of freezing temperatures. Water pipes left exposed to cold air (such as near roofing or exterior walls) are most prone to freezing. If ice develops in the water line, pressure builds up between the ice and the water source which may lead to a rupture and thousands of dollars in water damage to your home! Letting your faucets drip does not always prevent such a catastrophe from happening.
<table>
<thead>
<tr>
<th>SUNDAY</th>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
<th>FRIDAY</th>
<th>SATURDAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>sr 740 am ss 539 pm 78-1970 / 3-1917</td>
<td>sr 741 am ss 540 pm 80-1939 / 5-1978</td>
<td>sr 742 am ss 540 pm 81-1933 / 6-1917</td>
<td>sr 743 am ss 540 pm 82-1937 / 6-1961</td>
<td>sr 744 am ss 540 pm 79-1921 / 5-1917</td>
<td>sr 745 am ss 541 pm 82-2010 / 8-1987</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>16</td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
<td>21</td>
</tr>
<tr>
<td>sr 746 am ss 542 pm 0-0-0</td>
<td>sr 747 am ss 542 pm 0-0-0</td>
<td>sr 747 am ss 543 pm 0-0-0</td>
<td>sr 747 am ss 543 pm 0-0-0</td>
<td>sr 747 am ss 543 pm 0-0-0</td>
<td>sr 748 am ss 544 pm 0-0-0</td>
<td>sr 749 am ss 544 pm 0-0-0</td>
</tr>
<tr>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
<td>28</td>
</tr>
<tr>
<td>sr 750 am ss 546 pm 0-0-0</td>
<td>sr 750 am ss 546 pm 0-0-0</td>
<td>sr 750 am ss 546 pm 0-0-0</td>
<td>sr 751 am ss 546 pm 0-0-0</td>
<td>sr 751 am ss 546 pm 0-0-0</td>
<td>sr 751 am ss 546 pm 0-0-0</td>
<td>sr 751 am ss 546 pm 0-0-0</td>
</tr>
<tr>
<td>29</td>
<td>30</td>
<td>31</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sr 752 am ss 550 pm 0-0-0</td>
<td>sr 753 am ss 548 pm 0-0-0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Normals:**
- SUNDAY: 57 / 30 0.02
- MONDAY: 57 / 30 0.03
- TUESDAY: 57 / 29 0.02
- WEDNESDAY: 56 / 29 0.02
- THURSDAY: 56 / 29 0.03
- FRIDAY: 56 / 28 0.02
- SATURDAY: 55 / 28 0.03

**Lubbock Records**
- SUNDAY: 79-2012 / 12-1918
- TUESDAY: 82-2010 / 15-1967
- WEDNESDAY: 81-1958 / 15-1921
- THURSDAY: 79-1939 / 10-1950
- FRIDAY: 83-1939 / 1-1950

**New Year’s Eve**

**Christmas**

**Geminids Meteor Shower**
- Dec 13-14

**Winter Solstice**
- (Nov 21: 11:11 am)

**Noah Weather Radio**
- Can be found at the following frequencies:
  - Lubbock: 162.400
  - Dimmitt: 162.500
  - Plainview: 162.450
  - Childress: 162.525
  - Dickens: 162.500
Severe Weather Safety Tips

Prepare a Home Severe Weather Plan—
- Pick a place where family members could gather if a tornado is headed your way. It could be your basement or, if there is no basement, a center hallway, bathroom, or closet on the lowest floor. Keep this place uncluttered.
- If you are in a high-rise building, you may not have enough time to go to the lowest floor. Pick a place in a hallway in the center of the building.

Assemble a Disaster Supplies Kit containing—
- First aid kit and essential medications.
- Canned food and can opener.
- At least three gallons of water per person.
- Protective clothing, bedding, or sleeping bags.
- Battery-powered radio, flashlight, and extra batteries.
- Special items for infant, elderly, or disabled family members.

When a Severe Thunderstorm or Tornado WATCH is issued—
- Listen to NOAA Weather Radio, local radio and TV stations for further updates.
- Be alert to changing weather conditions.

When a Severe Thunderstorm or Tornado WARNING is issued—
- If you are inside, go to the safe place you picked to protect yourself from glass and other flying objects.
- If you are outside, hurry to the basement of a nearby sturdy building or lie flat in a ditch or low-lying area.
- If you are in a car or mobile home, get out immediately and head for safety (as above).

After the Severe Thunderstorm or Tornado passes—
- Watch out for fallen power lines and stay out of the damaged area.
- Listen to the radio for information and instructions.
- Use a flashlight to inspect your home for damage.

Conduct periodic Severe Weather drills so everyone remembers what to do. Stay tuned for warnings—
- Listen to your local radio and TV stations for updated storm information.
- Be especially alert to the weather when Severe Thunderstorm and Tornado WATCHES are in effect and take action when WARNINGS are issued.
- Know what a Severe Thunderstorm or Tornado WATCH and WARNING means:
  - A Tornado/Severe Thunderstorm WATCH means a Tornado/Severe Thunderstorm is possible in your area.
  - A Tornado/Severe Thunderstorm WARNING means a Tornado/Severe Thunderstorm has been detected and may be headed for your area. Go to a safe location immediately.