

**2006 NEBRASKA  
SEVERE WEATHER AWARENESS WEEK**

**MARCH 27 – 31, 2006**

**TORNADO SAFETY DRILL MARCH 29**

**INFORMATION PACKET**

**National Weather Service**



The National Weather Service again requests your participation in "**Nebraska Severe Weather Awareness Week**" activities from **March 27 - 31, 2006**.

The annual **statewide tornado drill** will take place **during the day, Wednesday, March 29**, with a backup date of Thursday, March 30.

Enclosed is tornado and severe weather information that can be used by you and your staff for preparedness endeavors in the local jurisdiction. **Feel free to duplicate and distribute as necessary.**

It was a quiet year for tornadoes during 2005 in comparison to the last few years. Only 40 twisters occurred in Nebraska last year. This is just one below the average of 41 that the state typically sees each year. There were no injuries or deaths related to tornadoes. There were five thunderstorm related injuries in the state. Three people were hurt by thunderstorm winds, one injury was due to hail, and the other was related to a flash flood event.

What will 2006 bring in the way of severe weather and tornadoes to Nebraska? The answer is unknown, but we do know that we must be ready and prepared.

As always, we look forward to working with you in our annual severe weather preparedness partnership program. Please make contact if you have any questions or comments.



**Grand Island Flooding  
May 11, 2005**



**Hall County Flooding  
May 11, 2005**

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# 2005 Nebraska Tornado Facts

**Tornadoes: 40** (1 below normal)

**Deaths: Zero**    **Injuries: Zero**

**Longest Track: 17 miles** (Banner County and Cheyenne County both on June 27)

**Strongest: F2** (Banner County – June 27)

**Most in a county: 4** (Buffalo County)

**Days of occurrence: 15**    **Most in one day: 8** (May 7)

**Most in one month: 18** (May)

**First tornado of the year: March 30** (Scotts Bluff County, 3:06 pm MST)

**Last touchdown of the year: September 18** (Holt County, 6:30 pm CDT)



## ----- 2005 Monthly Tornado Totals -----

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	
Total	0	0	1	3	18	13	1	0	4	0	0	0	40	100%
F5	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
F4	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
F3	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
F2	0	0	0	0	0	1	0	0	0	0	0	0	1	2%
F1	0	0	0	0	1	1	0	0	0	0	0	0	2	5%
F0	0	0	1	3	17	11	1	0	4	0	0	0	37	93%

**Yearly Summary:** Nebraska experienced a more typical year for tornado occurrences in 2005. At 40 twisters for the state last year, this was just one tornado below the average of 41 that normally occur. The citizens of the state were prepared for severe weather, and this is reflected by the fact that there were no deaths or injuries from to tornadoes last year. Tornadoes typically occur during the months of April, May, and June. Last year's season followed close to a typical year. The first tornado touched down on March 30<sup>th</sup>, and the peak three months saw 85 percent of the tornadoes. The final tornado occurred on September 18<sup>th</sup>. Tornado damage in 2005 was estimated at \$800,000.

Nearly all of the tornadoes in the state last year were in the “weak” category (F0 and F1). Only one tornado was at the F2 rating. This tornado occurred in Banner county on June 27. The tornado traveled 17 miles and damaged power transmission towers, power lines, irrigation pivots, and uprooted trees.

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# NEBRASKA TORNADO STATISTICS

## by County

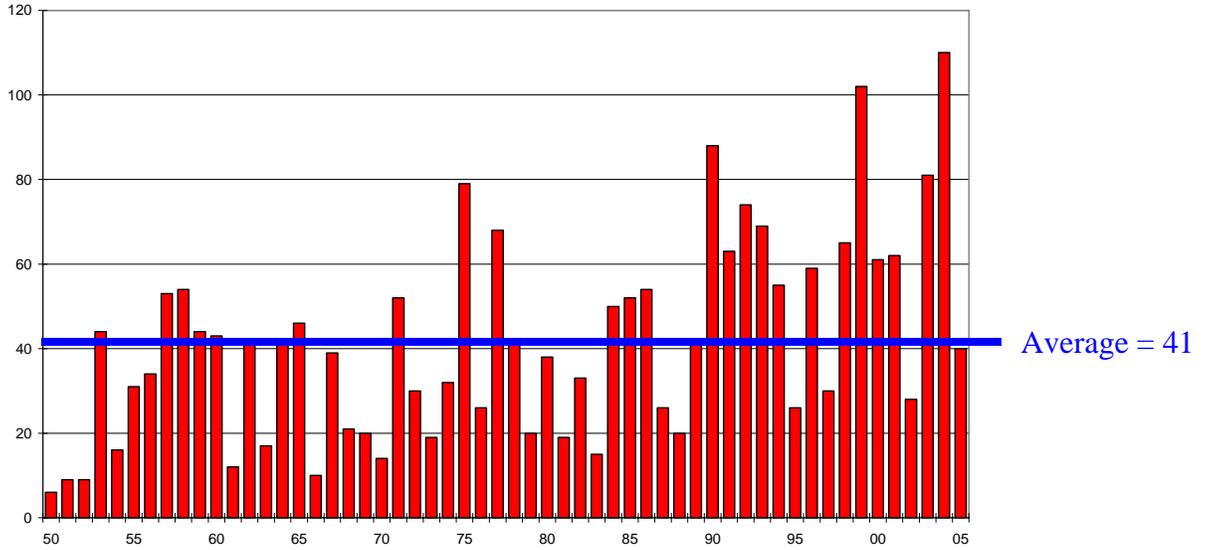
1950 - 2005

### TORNADOES, FATALITIES, AND INJURIES

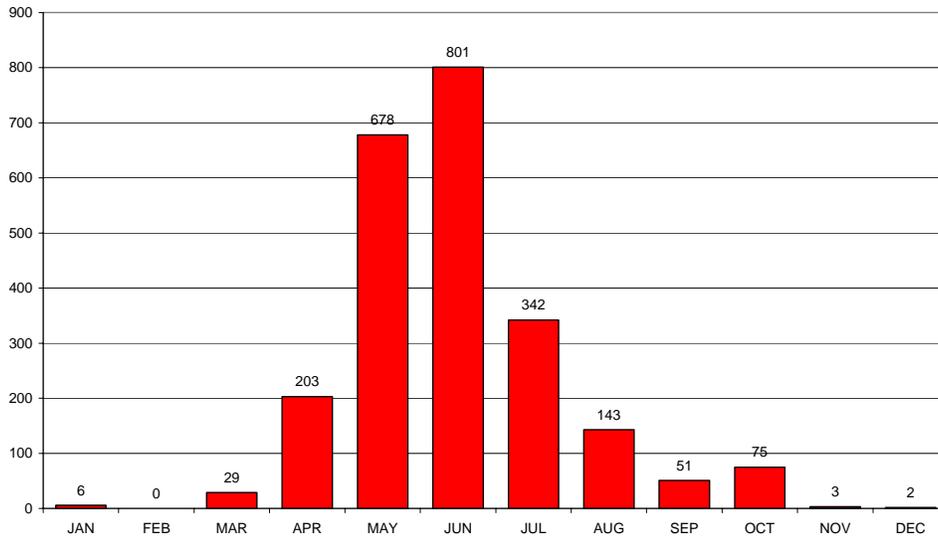
County	Tor	Fat	Inj	County	Tor	Fat	Inj	County	Tor	Fat	Inj
Adams	44	2	21	Garden	21	0	1	Phelps	26	1	5
Antelope	36	0	0	Garfield	13	0	0	Pierce	26	0	2
Arthur	7	0	0	Gosper	14	0	5	Platte	28	0	0
Banner	21	0	0	Grant	13	0	1	Polk	30	0	3
Blaine	6	0	2	Greeley	19	0	12	Red Willow	30	0	0
Boone	20	4	55	Hall	71	5	198	Richardson	15	0	0
Box Butte	36	0	0	Hamilton	47	0	1	Rock	16	0	1
Boyd	10	0	8	Harlan	18	0	0	Saline	21	0	8
Brown	25	0	3	Hayes	13	0	0	Sarpy	7	2	38
Buffalo	72	0	6	Hitchcock	25	0	1	Saunders	34	0	22
Burt	13	0	35	Holt	65	0	4	Scotts Bluff	51	2	48
Butler	28	0	5	Hooker	12	0	0	Seward	28	1	17
Cass	34	0	1	Howard	42	0	27	Sheridan	47	0	8
Cedar	23	1	6	Jefferson	14	0	1	Sherman	28	1	14
Chase	14	0	3	Johnson	16	0	0	Sioux	16	0	0
Cherry	60	0	6	Kearney	24	0	0	Stanton	21	0	1
Cheyenne	53	0	2	Keith	37	0	1	Thayer	55	6	93
Clay	37	0	3	Keya Paha	12	0	0	Thomas	8	0	2
Colfax	23	0	0	Kimball	38	0	0	Thurston	13	0	0
Cuming	23	0	4	Knox	37	1	104	Valley	33	12	4
Custer	82	0	18	Lancaster	34	1	35	Washington	14	0	2
Dakota	8	0	1	Lincoln	75	0	7	Wayne	16	0	1
Dawes	33	0	0	Logan	15	1	5	Webster	31	0	0
Dawson	48	0	4	Loup	15	0	0	Wheeler	10	0	2
Deuel	25	0	2	McPherson	9	0	0	York	38	2	33
Dixon	22	0	1	Madison	38	6	55				
Dodge	21	0	12	Merrick	25	0	0				
Douglas	13	3	145	Morrill	38	0	1				
Dundy	21	0	2	Nance	23	0	0				
Fillmore	31	0	3	Nemaha	15	1	9				
Franklin	24	0	1	Nuckolls	36	0	10				
Frontier	25	0	2	Otoe	24	0	3				
Furnas	25	1	0	Pawnee	15	0	1				
Gage	43	0	26	Perkins	28	0	1				

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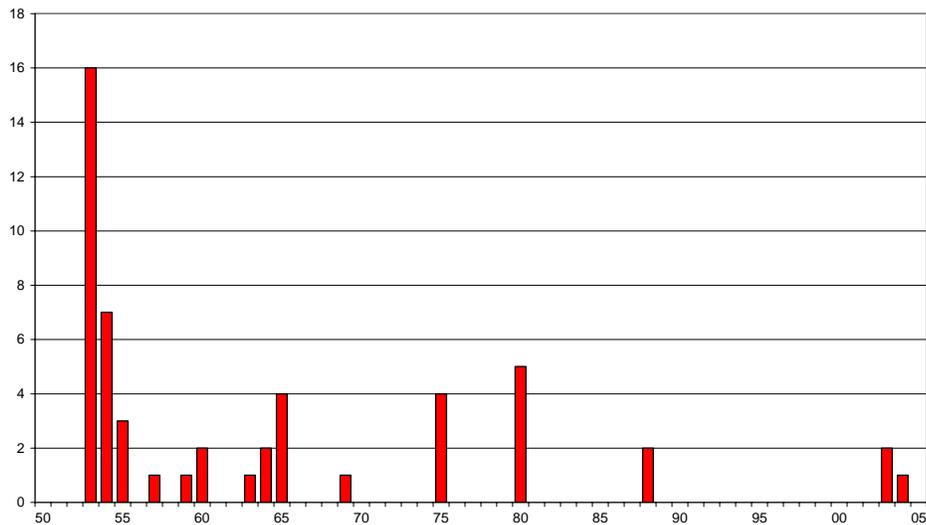
## Nebraska Tornadoes 1950-2005



## Nebraska Tornadoes 1950-2005



## Nebraska Tornado Deaths 1950-2005



## 2005 Weather in Review for South-Central Nebraska

By the NWS Hastings, NE

The first significant severe weather event occurred on April 18 when thunderstorms brought large hail, flash flooding and a few tornadoes to south-central Nebraska. The hardest hit area was southeast of a line from Columbus to Hastings. A couple of tornadoes touched down around the York and Fillmore county line along with hail the size of golf balls and baseballs. Damage from the hail totaled in the millions of dollars in Fillmore county alone. The area from Polk county to Nuckolls county saw very heavy rains which caused many roads and underpasses to become flooded. The towns of Shelby, Gresham, and York reported nearly three and a half inches of rain.

May was a very active month for severe weather across south-central Nebraska. On the 7<sup>th</sup>, severe thunderstorms brought eight tornadoes and hail up to the size of baseballs to a part of the area. The first and most significant tornado touched down south of Holdrege and moved northeast, lifting northeast of town. The twister damaged a few farmsteads and a hanger at the Holdrege airport. The next tornado occurred briefly near Axtell. Four more tornadoes skipped across Buffalo county between Kearney and Shelton and caused some damage to outbuildings along their paths. Another twister touched down in rural Hall county north of Wood River. The last tornado occurred east of Belgrade in Nance county, was briefly on the ground and caused no damage. Hailstones ranging in size from golf balls to baseballs fell in the city of Kearney causing around a million dollars in damage to homes and vehicles. The hail damaged nine sheriff's deputy cars.

The next night of significant severe weather occurred on the night of May 11<sup>th</sup>. Thunderstorms ravaged a large part of south-central Nebraska with hail, high winds, catastrophic flooding and a tornado. During the evening and early morning hours, 4 to 12 inches of rain fell from Dawson county to York County. The towns of Kenesaw and Wood River measured over 11 inches of rain. The city of Grand Island saw a record-breaking 7.21 inches of rain. Many areas saw flooding with the most significant occurring in Wood River where the business district and most of the residential areas sustained flood damage. Three miles of roads were washed out in Kearney county and 15 miles of roads and 10 bridges were damaged in Merrick county. Emergency rescues of stranded people were conducted in York county, one by helicopter and another by airboat. Flood damage was in the tens of millions of dollars and was estimated to be from 12 to 15 million in Hall county alone.



Large hail, strong winds and a tornado also pounded the region. Hastings was particularly hard hit as baseball size hail and high winds belted the city for about 20 minutes. Literally, thousands of vehicles and homes sustained damage, especially on the east side of town, including the downtown business district. Damage was 40 million dollars and over 30 people left their homes for shelters provided by the city. A tornado clipped the south side of Wood River causing damage to a house there. Strong winds were responsible for derailing a train in Merrick county, bringing down a radio station tower and another communications tower, many center pivot irrigation systems,

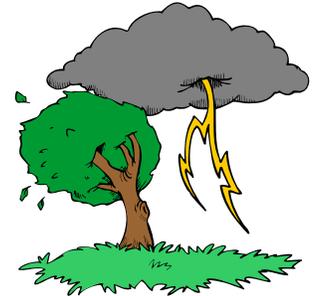


and causing widespread power outages in rural areas. Both Hall and Adams counties were declared Federal Disaster Areas.

More severe thunderstorms rumbled across south-central Nebraska on the evening of the 17<sup>th</sup>. These storms brought 70 mph winds and golf ball sized hail to Dawson county. A brief tornado touched down south of Gothenburg. Strong winds blew across Phelps county causing a few sporadic power outages. Some minor street flooding occurred in Holdrege where over 2 inches of rain fell.

June saw severe weather on June 9<sup>th</sup>, with winds gusted to 80 mph in Webster county where in Red Cloud, considerable tree damage and minor structural damage was reported. Golf ball size hail was reported to have fallen for about 5 minutes near Cambridge in western Furnas county.

July saw a few hailstorms during the first 9 days of the month. Damage was rather isolated but significant where it occurred. On the 1<sup>st</sup>, golf ball sized hail in western Harlan county Nebraska damaged or destroyed nearly 20,000 acres of crops between Stamford and Orleans. On the 8<sup>th</sup>, baseball sized hail damaged crops near Farnam, Nebraska in southwest Dawson county. And on July 9<sup>th</sup>, a late morning severe thunderstorm produced 60 mph winds in Furnas county. Power poles and large tree limbs were broken between Arapahoe and Cambridge.



In Valley County, Nebraska, thunderstorms during the evening of August 3<sup>rd</sup> brought hail, strong winds and heavy rains. Tennis ball size hail was reported west of Ord and strong winds damaged crops southwest of town. Over 3 inches of rain was produced by the storms.

A strong thunderstorm on the night of August 17<sup>th</sup>, pounded Dawson, Gosper and Phelps counties of south-central Nebraska. Approximately 22,000 acres of corn and soybeans in Dawson county sustained a 90 percent loss. The local Extension Agent stated, "In the heart of it, the crop was pounded to nothing." Buildings south of Cozad sustained window, siding and shingle damage and the power plant south of Lexington had some siding ripped from the building. There were several reports of center pivot, grain bin, farmstead, tree, and vehicle damage along the storm's path.

Severe thunderstorms rolled across parts of Gosper, Phelps and Furnas counties during the evening of September 5<sup>th</sup> to round out the Labor Day weekend. Northwest Phelps county was hit particularly hard with hail the size of golf balls driven by 70 mph winds. A 90-year-old barn and grain bin was destroyed north of Bertrand. Many vehicles were damaged by the hail, including a Gosper County sheriff's car. About six sections of corn and soybeans were severely damaged and stripped badly. Anywhere from 2 to 5 inches of rain fell in the area. The heavy rains caused some flooding and crop damage.



The last significant severe weather event occurred on September 12<sup>th</sup>. Two brief tornadoes were reported in Valley County, Nebraska north of Ord. These twisters were out in open country and caused no damage. Hail up to 2 inches in diameter fell in Adams County, Nebraska and caused some damage near Roseland.

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# TORNADO SAFETY TIPS

★ **IN HOMES OR SMALL BUILDINGS:** Go to the basement or cellar (if available) or to an interior room on the lowest floor, such as a closet or bathroom. Upper floors are unsafe. If there is no time to descend, go to a closet, a small room with strong walls, or an inside hallway. Wrap yourself in overcoats or blankets to protect your body from flying debris.

★ **IN SCHOOLS, HOSPITALS, FACTORIES, OR SHOPPING CENTERS:** Go to interior rooms and halls on the lowest floor. Stay away from glass enclosed places or areas with wide-span roofs such as auditoriums and warehouses. Crouch down and cover your head. Don't take shelter in halls that open to the south or the west. Centrally-located stairwells are good shelter.



★ **IN HIGH-RISE BUILDINGS:** Go to interior small rooms, halls, rest rooms or designated shelter areas. Stay away from exterior walls, elevators, doors or glassy areas.

★ **IN CARS OR MOBILE HOMES: ABANDON THEM IMMEDIATELY!!!** Most deaths occur in cars and mobile homes. If you are in either of those locations, leave them and go to a substantial structure or designated tornado shelter.



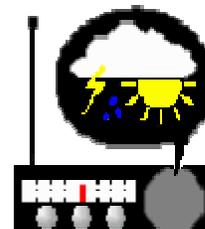
★ **IF NO SUITABLE STRUCTURE IS NEARBY:** Lie flat in the nearest ditch or depression and use your hands to cover your head. Be alert for flash floods.

★ **DURING A TORNADO:** Absolutely avoid buildings with large free-span roofs. Stay away from west and south walls. Remember: lowest level, smallest room, center part.

★ **TO PREPARE FOR A TORNADO:** Store water in clean covered containers. You should keep disaster supplies in your home at all times (i.e. flashlight, radio first aid kit.).

No matter where you are, **do some advance planning.** Identify protective areas you can get to in a hurry. Obtain a **NOAA Weather Radio** that will provide an alarm if a tornado watch or warning is in affect for your county.

**The key to tornado survival is to be prepared and to take immediate action when a warning is issued or when you spot a tornado. Remember, the actions you take during a tornado may save your life and the lives of your family.**



**BOTTOM LINE FOR TORNADO SAFETY: GET IN, GET DOWN, COVER UP!**

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## Turn Around, Don't Drown: Flash Flooding and Flood Safety

While we work and prepare most for tornadoes, the combination of flash floods and river floods have accounted for 3 deaths and over \$174 million in damage over the past 10 years! These numbers compare very close to the number of tornadoes deaths (3) and tornado damage (\$268 million) across Nebraska during the same time period. During that time, your National Weather Service issued well nearly 600 warnings for flash flooding alone, alerting Nebraskans of the flood threat to life and property. When these warnings are issued for your area, or the moment you realize that a flash flood is imminent, act quickly to save yourself. **YOU MAY ONLY HAVE SECONDS!**

### How do flash floods occur?

Several factors contribute to flash flooding. The two key elements are rainfall intensity and duration. Intensity is the rate of rainfall, and duration is how long the rain lasts. Topography, soil conditions, and ground cover, also play an important role.

Most flash floods are caused by slow-moving thunderstorms or thunderstorms repeatedly moving over the same area.

When a Flood or Flash Flood **WATCH** is issued, be alert to signs of flash flooding and be ready to evacuate on a moment's notice. When a Flash Flood **WARNING** is issued for your area, or the moment you realize that a flash flood is imminent, act quickly to save yourself.

### How can a foot or two of water cost you your life?

Water weighs 62.4 lbs. per cubic foot and typically flows downstream at 6 to 12 miles an hour. When a vehicle stalls in the water, the water's momentum is transferred to the car. For each foot the water rises, 500 lbs. of lateral force are applied to the car.

However, the biggest factor is buoyancy. For each foot the water rises up the side of the car, the car displaces 1,500 lbs. of water. In effect, the car weighs 1,500 lbs. less for each foot the water rises. Thus, two feet of water will carry away most automobiles.

Immediately:

- Get out of areas subject to flooding. This includes dips, low spots, low water crossings, etc.
- Do not attempt to walk across flowing streams. Water moving swiftly, even water 6 inches deep, can sweep you off your feet.
- If driving, be aware that the road bed may not be intact underestimate flood waters. Remember: **Turn Around, Don't Drown!** Go another way. NEVER drive through flooded roads or low water crossings! If your vehicle stalls, leave it immediately and seek higher ground.
- Be cautious at night when flooding is hard to recognize.
- Choose camp sites along waterways with care. Remember that storms that are miles away may bring raging water your way.



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## Critical NWS Flood Products

During periods of torrential rainfall, listen to NOAA Weather Radio, local media, or cable media such as the Weather Channel for the latest information from the National Weather Service and local emergency officials. Critical flood products include:

- ★ **Hydrologic Outlook:** This product alerts the public when flood producing rainfall is expected in 36 to 72 hours. During the months of February and March, this product also contains information on the potential for flooding from the spring snow melt.
- ★ **Flood Watch:** A flood or flash flood watch is issued when conditions are favorable for flooding or flash flooding to develop.
- ★ **Flash Flood Warning:** A warning is issued when flooding is imminent. Flash floods usually develop within six hours of a heavy rainfall event.
- ★ **Urban/Small Stream Flood Advisory (issued as a Flood Statement):** These statements are issued when minor flooding problems are expected, namely in flood prone urban areas or near small streams that may rise quickly out of their banks. Even minor flooding can cause huge problems though, if proper precautions are not taken.
- ★ **Flood Warning:** These warnings are issued for river floods and in the case of longer periods of rain which result in slower rises in flood waters, or for a prolonged flood event.

Know your area's flood risk. For information, call your local National Weather Service office, Red Cross chapter, or local emergency management agency. Also, check your homeowner or renter's insurance as these policies normally do not cover flooding. Contact your insurance agent to find out more about the inexpensive opportunities provided by the National Flood Insurance Program.

**For more information on flooding check out:**

**Turn Around, Don't Drown toolkit:** <http://tadd.weather.gov/>

**National Flood Safety Awareness:** <http://www.floodsafety.noaa.gov>

**Free historic flood pictures:** <http://www.photolib.noaa.gov/historic/nws>

Also, for more information on enhancing your knowledge of hazardous weather and better preparing your community, be sure to take the Anticipating Hazardous Weather and Community Risk course at: <http://meted.ucar.edu/hazwx/frameset.htm>

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11. If you see a flash of lightning and the next clap of thunder is 5 seconds later, how far away did the lightning bolt hit?

- A. 15 miles, B. 10 miles, C. 5 miles, D. 1 mile



12. The number one cause of death associated with thunderstorms in Nebraska since 1950 is:

- A. Tornadoes  
B. Lightning  
C. Flash floods and floods  
D. Hail

13. Six inches of fast moving water can knock you off your feet.

- A. True  
B. False

14. A hailstone the size of a baseball weighs about:

- A. a quarter of a pound  
B. a half a pound  
C. one pound  
D. 2 pounds



15. The largest hailstone officially recorded fell in Aurora, Nebraska on June 22<sup>nd</sup> in 2003. The diameter/circumference was measured as:

- A. 5 inches/8 inches  
B. 8 inches/12 inches  
C. 7 inches/18.5 inches  
D. 20 inches/45 inches



16. How many tornadoes occurred in Nebraska in 2005?

- A. 174  
B. 52  
C. 40  
D. 93

..... **QUIZ ANSWERS** .....

1. D (Dec-Jan), 2. B (False), 3. A (True), 4. B (False), 5. B (False),  
6. B (False), 7. B (False), 8. B (False), 9. C (Attention and Shelter),  
10. A (True), 11. D (1 mile), 12. A (Tornadoes), 13. A (True), 14. C (1 pound),  
15. C (7 inches/18.5 in), 16. C. 40

