

## Storm Data and Unusual Weather Phenomena - September 2014

| Location | Date/Time | Deaths & Injuries | Property & Crop Dmg | Event Type and Details |
|----------|-----------|-------------------|---------------------|------------------------|
|----------|-----------|-------------------|---------------------|------------------------|

### IOWA, Southwest

**HARRISON COUNTY --- 3.1 NE LOGAN [41.68, -95.76], 2.2 SSW LOGAN [41.62, -95.81], 2.4 S LOGAN [41.62, -95.80], 1.8 E LOGAN [41.65, -95.77], 3.4 ENE LOGAN [41.68, -95.74]**

|                    |     |                           |
|--------------------|-----|---------------------------|
| 09/01/14 00:00 CST | 5K  | Flood (due to Heavy Rain) |
| 09/01/14 06:10 CST | 10K | Source: River/Stream Gage |

Heavy Rainfall in northwest Iowa in late August led to minor flooding along the Boyer River. The river rose above flood stage in the early morning on the first, and crested and fell below flood stage later that morning.

**POTTAWATTAMIE COUNTY --- 1.5 NE HANCOCK [41.42, -95.35], 1.9 NNE OAKLAND [41.35, -95.39], 2.3 N OAKLAND [41.35, -95.40], 0.7 SSW HANCOCK [41.39, -95.38], 1.4 NNE HANCOCK [41.42, -95.36]**

|                    |     |                           |
|--------------------|-----|---------------------------|
| 09/01/14 05:12 CST | 5K  | Flood (due to Heavy Rain) |
| 09/01/14 17:14 CST | 10K | Source: River/Stream Gage |

Heavy rainfall at the end of August allowed the West Nishnabotna River to rise above flood stage on the early morning on the 1st, crested during the early afternoon, and fell below flood stage during the early evening. The flooding was minor and confined to low-lying areas along the river.

**FREMONT COUNTY --- 2.4 NW RIVERTON [40.70, -95.61], 3.4 WSW RIVERTON [40.66, -95.63], 3.1 SW RIVERTON [40.65, -95.62], 1.5 WNW RIVERTON [40.69, -95.60], 1.8 NW RIVERTON [40.70, -95.59]**

|                    |     |                           |
|--------------------|-----|---------------------------|
| 09/02/14 03:42 CST | 5K  | Flood (due to Heavy Rain) |
| 09/02/14 14:11 CST | 10K | Source: River/Stream Gage |

Heavy rainfall at the end of August allowed the West Nishnabotna River to rise above flood stage on the early morning on the 2nd, crested during the late morning, and fell below flood stage during the afternoon. The flooding was minor and confined to low-lying areas along the river.

**Repeated thunderstorms in late August led to flooding along several rivers in eastern Nebraska and western Iowa. Some of the rivers remained in flood into early September.**

**FREMONT COUNTY --- 1.4 N HAMBURG [40.62, -95.65]**

|                    |   |                         |
|--------------------|---|-------------------------|
| 09/09/14 15:54 CST | 0 | Hail (1.75 in)          |
| 09/09/14 15:54 CST | 0 | Source: Trained Spotter |

A surface warm front extending west to east across northern Kansas the afternoon of September 9th slowly moved north into southeastern Nebraska and southwest Iowa. Surface based storms along and just north of this front quickly became supercellular. An HP supercell developed over Otoe county producing one brief tornado. Elevated storms formed during the afternoon well north of the surface boundary on the leading edge of an 850mb front ahead of a strong shortwave moving into the central plains. A moisture rich environment led to very heavy rain with reports of flash flooding.

**MONTGOMERY COUNTY --- 1.9 WSW STENNETT [41.07, -95.23], 2.7 N COBURG [40.96, -95.29], 2.7 NNE COBURG [40.95, -95.25], 0.1 W RED OAK [41.02, -95.23], 1.3 S STENNETT [41.06, -95.20]**

|                    |     |                           |
|--------------------|-----|---------------------------|
| 09/10/14 03:31 CST | 5K  | Flood (due to Heavy Rain) |
| 09/10/14 21:18 CST | 10K | Source: River/Stream Gage |

A slow moving thunderstorm complex lead to heavy rainfall on the 9th causing the East Nishnabotna River to rise above flood stage around the Red Oak area. The river rose above flood stage during the early morning on the 10th, crested during mid afternoon and fell below flood stage during the evening. The flooding was minor and confined to low-lying areas.

**PAGE COUNTY --- 3.7 NNE CLARINDA [40.78, -95.00], 0.9 NNE CLARINDA [40.74, -95.02], 1.4 SSW CLARINDA MUNI ARPT [40.70, -95.03], 1.1 SSE CLARINDA MUNI ARPT [40.71, -95.01], 3.2 WNW HAWLEYVILLE [40.78, -94.98]**

|                    |     |                           |
|--------------------|-----|---------------------------|
| 09/10/14 03:45 CST | 5K  | Flood (due to Heavy Rain) |
| 09/11/14 17:11 CST | 10K | Source: River/Stream Gage |

A slow moving thunderstorm complex lead to heavy rainfall on the 9th causing the Nodaway River to rise above flood stage around the Clarinda area. The river rose above flood stage during the early morning on the 10th, crested later that morning, and fell below flood stage during the evening. The flooding was minor and confined to low-lying areas.

**FREMONT COUNTY --- 1.9 N RANDOLPH [40.90, -95.58], 1.8 SSW RANDOLPH [40.84, -95.58], 2.0 SSW RANDOLPH [40.85, -95.59], 1.1 NW RANDOLPH [40.88, -95.58], 2.1 NNW RANDOLPH [40.90, -95.58]**

|                    |   |                           |
|--------------------|---|---------------------------|
| 09/10/14 04:45 CST | 0 | Flood (due to Heavy Rain) |
| 09/10/14 18:00 CST | 0 | Source: River/Stream Gage |

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| Location  | Date/Time | Deaths & Injuries | Property & Crop Dmg | Event Type and Details |
|---|-----------|-------------------|---------------------|------------------------|
| <p>A slow moving thunderstorm complex lead to heavy rainfall on the 9th causing the West Nishnabotna River to rise above flood stage around the Randolph area. The river rose above flood stage during the early morning on the 10th, crested during the early afternoon and fell below flood stage during the evening. The flooding was minor and confined to low-lying areas.</p> |           |                   |                     |                        |

**FREMONT COUNTY --- 3.5 NNE HAMBURG [40.65, -95.64], 0.5 N HAMBURG REIDS ARPT [40.59, -95.65], 1.0 ENE HAMBURG REIDS ARPT [40.59, -95.63], 2.6 NE HAMBURG [40.63, -95.62], 3.5 NNE HAMBURG [40.65, -95.62]**

|                    |     |                           |
|--------------------|-----|---------------------------|
| 09/10/14 11:56 CST | 5K  | Flood (due to Heavy Rain) |
| 09/11/14 16:30 CST | 10K | Source: River/Stream Gage |

A slow moving thunderstorm complex lead to heavy rainfall on the 9th causing the West Nishnabotna River to rise above flood stage around the Hamburg area. The river rose above flood stage during the afternoon on the 10th, crested later that morning, and fell below flood stage during the afternoon on the 11th. The flooding was minor and confined to low-lying areas.

**FREMONT COUNTY --- 1.3 N RIVERTON [40.70, -95.57], 1.2 NE RIVERTON [40.69, -95.56], 0.9 NNW RIVERTON [40.69, -95.57], 1.1 WSW RIVERTON [40.67, -95.59], 1.1 W RIVERTON [40.68, -95.59]**

|                    |     |                           |
|--------------------|-----|---------------------------|
| 09/10/14 15:00 CST | 5K  | Flood (due to Heavy Rain) |
| 09/11/14 15:00 CST | 10K | Source: River/Stream Gage |

A slow moving thunderstorm complex lead to heavy rainfall on the 9th causing the East Nishnabotna River to rise above flood stage around the Riverton area. The river rose above flood stage during the afternoon on the 10th, crested during the morning on the 11th, and fell below flood stage later that afternoon. The flooding was minor and confined to low-lying areas.

**A generally wet period with repeated thunderstorms from August into early September led to a number of area rivers having above normal river levels. A slow moving complex of thunderstorms near the 10th of September set rivers in southeast Nebraska and southwest Iowa above flood stage. This included the Missouri and the Big Blue Rivers in Nebraska, and the East Nishnabotna, main stem of the Nishnabotna, and Nodaway Rivers in southwest Iowa.**

### NEBRASKA, East

**SALINE COUNTY --- 3.6 ENE DORCHESTER [40.67, -97.06], 3.5 N DORCHESTER [40.70, -97.11], 3.9 N DORCHESTER [40.71, -97.11], 4.3 NE DORCHESTER [40.68, -97.05], 5.0 NNW CRETE [40.69, -96.99]**

|                    |     |                           |
|--------------------|-----|---------------------------|
| 09/01/14 00:00 CST | 5K  | Flood (due to Heavy Rain) |
| 09/03/14 02:00 CST | 10K | Source: River/Stream Gage |

The West Folk of the Big Blue began to flood in late August and continued above flood stage into early September . The river crested in late August and fell below flood stage early on the morning on the 3rd. The flooding was minor and mainly confined to low-lying areas along the river.

**SALINE COUNTY --- 4.2 NNW CRETE [40.69, -96.97], 2.0 NNE WILBER [40.50, -96.93], 1.4 NNW WILBER [40.50, -96.96], 1.7 WSW CRETE [40.62, -96.98], 4.4 NNW CRETE [40.69, -96.99]**

|                    |     |                           |
|--------------------|-----|---------------------------|
| 09/01/14 00:00 CST | 5K  | Flood (due to Heavy Rain) |
| 09/04/14 03:43 CST | 10K | Source: River/Stream Gage |

Flooding from late August continued into early September along the Big Blue River . The river crested in late August, but continued in minor flooding until the early morning on the 4th. The flooding was confined to low-lying areas along the river.

**Repeated thunderstorms in late August led to flooding along several rivers in eastern Nebraska and western Iowa. Some of the rivers remained in flood into early September.**

**DODGE COUNTY --- FREMONT ARPT [41.45, -96.53]**

|                    |   |                              |
|--------------------|---|------------------------------|
| 09/09/14 13:45 CST | 0 | Thunderstorm Wind (MG 55 kt) |
| 09/09/14 13:45 CST | 0 | Source: AWOS                 |

**DOUGLAS COUNTY --- (OMA)EPPELY FLD OMAH [41.30, -95.90]**

|                    |   |              |
|--------------------|---|--------------|
| 09/09/14 14:15 CST | 0 | Heavy Rain   |
| 09/09/14 15:15 CST | 0 | Source: ASOS |

Heavy rain within the thunderstorm complex contributed to a new daily record 24 hour rainfall of 3.43 inches.

**DOUGLAS COUNTY --- 0.8 SSW MOORHEAD [41.27, -96.06], 2.1 NNE GIBSON [41.28, -95.95], 1.2 E GIBSON [41.25, -95.95], 1.0 W RALSTON [41.20, -96.05], 2.4 W SEYMOUR [41.24, -96.07]**

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|          | 09/09/14 14:15 CST |                   | 0                   | Flash Flood (due to Heavy Rain) |
|          | 09/09/14 15:15 CST |                   | 0                   | Source: Newspaper               |

Most of the Omaha metro area received anywhere from 3.00 to 3.50 inches with 1.50 to 2.00 inches in the southern parts of the metro area. Some reports of near 5.00 inches in the northern part of the county were reported. High water trapped vehicles in some Omaha areas, including under the bridge near Westroads Mall at West Dodge Road and Regency Parkway. When Omaha firefighters arrived, they spotted a minivan in nearly 3 feet of water. Firefighters helped a mother and three children from their vehicle. Other vehicles had to deal with flooding at 96th and Q Streets, 84th and Cass Streets and 90th and Burt Streets. Saddle Creek Road was flooded under the Dodge Street bridge. Runoff that overwhelmed the city's storm sewers caused manhole covers to pop off in several locations around the city.

### DOUGLAS COUNTY --- 1.5 WSW LANE [41.24, -96.20]

|                    |   |                              |
|--------------------|---|------------------------------|
| 09/09/14 14:15 CST | 0 | Thunderstorm Wind (EG 50 kt) |
| 09/09/14 14:15 CST | 0 | Source: NWS Employee         |

Sporadic tree damage was observed near the area of 180th and Center streets in Omaha.

### OTOE COUNTY --- 1.5 WSW ELBERON [40.66, -95.97], 3.4 SE NEBRASKA CITY [40.62, -95.80]

|                    |   |                              |
|--------------------|---|------------------------------|
| 09/09/14 15:25 CST | 0 | Thunderstorm Wind (EG 70 kt) |
| 09/09/14 15:42 CST | 0 | Source: NWS Storm Survey     |

A storm survey of the track of the slow-moving Otoe County supercell revealed a swath of damage winds associated with the forward flank to the north of the tornado. This damage started just south of Nebraska Highway 2 about 3 miles east of Dunbar and continued east southeast across the south side of Nebraska and to the Missouri River. The damage consisted of flattened corn and broken or snapped tree limbs.

### OTOE COUNTY --- 1.7 WNW NEBRASKA CITY ARPT [40.68, -95.90]

|                    |   |                         |
|--------------------|---|-------------------------|
| 09/09/14 15:26 CST | 0 | Hail (1.75 in)          |
| 09/09/14 15:26 CST | 0 | Source: Law Enforcement |

### OTOE COUNTY --- 3.8 SSW ELBERON [40.62, -95.99], 2.7 NE PAUL [40.59, -95.84]

|                    |       |                                      |
|--------------------|-------|--------------------------------------|
| 09/09/14 15:29 CST | 50K   | Tornado (EF1, L: 7.72 mi, W: 965 yd) |
| 09/09/14 15:51 CST | 0.10M | Source: NWS Storm Survey             |

The tornado developed from a slow moving supercell across rural Otoe County. The tornado initially developed near County Road 50, and between County Road M and L. Initial damage was mainly to crops and snapped tree limbs. The slow-moving tornado traveled generally east southeast exhibiting a slightly erratic path through rural Otoe County. The tornado impacted a couple of farmsteads along County Road 56, and also along County Road M. At these locations outbuildings were damaged or destroyed, as well as considerable tree damage. The tornado cross U.S. Highway 75 at the intersection of Nebraska Highway 128 where tree and power line damage occurred. The tornado continued east along Highway 128 continuing to do tree and crop damage for 1 mile before dissipating.

### OTOE COUNTY --- 3.9 NE LORTON [40.61, -95.97], 1.6 ENE PAUL [40.58, -95.85]

|                    |   |                              |
|--------------------|---|------------------------------|
| 09/09/14 15:30 CST | 0 | Thunderstorm Wind (EG 70 kt) |
| 09/09/14 15:48 CST | 0 | Source: NWS Storm Survey     |

A storm survey revealed a swath of damage winds to the south of the tornado track, likely associated with the rear-flank downdraft of the slow-moving Otoe County supercell. The damage was confined to flattened corn and broken or snapped tree limbs.

### OTOE COUNTY --- 1.7 WNW NEBRASKA CITY ARPT [40.68, -95.90]

|                    |   |                         |
|--------------------|---|-------------------------|
| 09/09/14 15:37 CST | 0 | Hail (1.00 in)          |
| 09/09/14 15:37 CST | 0 | Source: Law Enforcement |

### SEWARD COUNTY --- 7.0 N UTICA [40.98, -97.35]

|                    |   |                              |
|--------------------|---|------------------------------|
| 09/09/14 18:14 CST | 0 | Thunderstorm Wind (EG 52 kt) |
| 09/09/14 18:19 CST | 0 | Source: Trained Spotter      |

Nickel size hail was also reported.

**A surface warm front extending west to east across northern Kansas the afternoon of September 9th slowly moved north into southeastern Nebraska and southwest Iowa. Surface based storms developed along and just north of this front, and quickly became supercellular. One HP supercell developed over Otoe county produced an EF1 tornado. Elevated storms formed during the afternoon well north of the surface boundary on the leading edge of an 850 mb front. This was ahead of a strong shortwave moving into the central plains. A moisture rich environment led to very heavy rain with several reports of flash flooding.**

## Storm Data and Unusual Weather Phenomena - September 2014

| Location   | Date/Time          | Deaths & Injuries | Property & Crop Dmg | Event Type and Details          |
|--|--------------------|-------------------|---------------------|---------------------------------|
| <b>NEMAHA COUNTY --- 3.2 NNE PERU [40.53, -95.72], 3.4 NNW PERU [40.52, -95.76], 0.8 WNW BROWNVILLE [40.40, -95.66], 1.4 SSW NEMAHA [40.31, -95.68], 2.3 ENE NEMAHA [40.34, -95.63]</b>  |                    |                   |                     |                                 |
|  | 09/10/14 09:48 CST |                   | 10K                 | Flood (due to Heavy Rain)       |
|  | 09/12/14 08:40 CST |                   | 25K                 | Source: River/Stream Gage       |
| The Missouri River reached flood stage near Brownville on the 10th and crested in the early morning hours of the 11th at 34.95 feet. The river fell below flood stage on the morning of the 12th. The flooding was confined to low areas along the river.  |                    |                   |                     |                                 |
| <b>RICHARDSON COUNTY --- 5.6 N RULO [40.13, -95.41], 5.3 N RULO [40.13, -95.42], 0.3 NE RULO [40.05, -95.43], 1.3 SSE RULO [40.03, -95.42], 1.1 SE RULO [40.04, -95.42]</b>  |                    |                   |                     |                                 |
|  | 09/10/14 14:00 CST |                   | 10K                 | Flood (due to Heavy Rain)       |
|  | 09/12/14 14:35 CST |                   | 25K                 | Source: River/Stream Gage       |
| The Missouri River rose above flood stage during the afternoon of the 10th, and crested during the early morning hours on the 11th, before falling below flood stage on the afternoon of the 12th. The flooding was minor and confined to low-lying areas along the river.   |                    |                   |                     |                                 |
| <b>BUTLER COUNTY --- 0.6 NW SURPRISE [41.11, -97.33], 1.5 E SURPRISE [41.10, -97.29], 1.5 E SURPRISE [41.10, -97.29], 0.2 ESE SURPRISE [41.10, -97.32], 0.7 WNW SURPRISE [41.10, -97.33]</b>   |                    |                   |                     |                                 |
|  | 09/11/14 18:37 CST |                   | 5K                  | Flood (due to Heavy Rain)       |
|  | 09/12/14 17:10 CST |                   | 10K                 | Source: River/Stream Gage       |
| The Big Blue River rose above flood stage on the evening of the 11th, and then crested in the early morning on the 12th before falling below flood stage later on the same day. The flooding was minor and confined to low-lying areas along the river.  |                    |                   |                     |                                 |
| <b>A generally wet period with repeated thunderstorms from August into early September led to a number of area rivers having above normal river levels. A slow moving complex of thunderstorms near the 10th of September set rivers in southeast Nebraska and southwest Iowa above flood stage. This included the Missouri and the Big Blue Rivers in Nebraska, and the East Nishnabotna, main stem of the Nishnabotna, and Nodaway Rivers in southwest Iowa.</b> |                    |                   |                     |                                 |
| <b>CEDAR COUNTY --- 0.9 WSW BOW VLY [42.71, -97.25]</b>  |                    |                   |                     |                                 |
|  | 09/19/14 19:57 CST |                   | 0                   | Hail (1.50 in)                  |
|  | 09/19/14 19:57 CST |                   | 0                   | Source: Trained Spotter         |
| <b>CEDAR COUNTY --- 0.7 N COLERIDGE [42.51, -97.20]</b>  |                    |                   |                     |                                 |
|  | 09/19/14 20:03 CST |                   | 0                   | Hail (0.75 in)                  |
|  | 09/19/14 20:03 CST |                   | 0                   | Source: Law Enforcement         |
| <b>KNOX COUNTY --- 1.0 W BLOOMFIELD [42.60, -97.65]</b>  |                    |                   |                     |                                 |
|  | 09/19/14 20:30 CST |                   | 0                   | Hail (1.50 in)                  |
|  | 09/19/14 20:30 CST |                   | 0                   | Source: COOP Observer           |
| <b>CEDAR COUNTY --- 0.5 E HARTINGTON [42.62, -97.26]</b>   |                    |                   |                     |                                 |
|  | 09/19/14 21:34 CST |                   | 0                   | Hail (1.00 in)                  |
|  | 09/19/14 21:34 CST |                   | 0                   | Source: Emergency Manager       |
| Isolated thunderstorms formed across northeast Nebraska along a frontal boundary in a moderately unstable atmosphere. Deep layer shear was sufficient to produce isolated large hail over Knox and Cedar counties.   |                    |                   |                     |                                 |
| <b>LANCASTER COUNTY --- 2.3 SSE RAYMOND [40.92, -96.76], 1.0 NW DENTON [40.74, -96.84], 2.7 SSW ROKEBY [40.68, -96.75], 2.3 NW CHENEYS [40.76, -96.62], 1.9 WSW ARROW ARPT [40.86, -96.68]</b>   |                    |                   |                     |                                 |
|  | 09/30/14 22:30 CST |                   | 50K                 | Flash Flood (due to Heavy Rain) |
|  | 09/30/14 23:59 CST |                   | 10K                 | Source: Trained Spotter         |
| Various spotters, media outlets, and the general public reported flash flooding across the Lincoln metro area. The area received between 4 to 7 inches of rainfall and this led to the flash flooding. The flooding caused several streets and highways in the Lincoln area to be closed.  |                    |                   |                     |                                 |
| <b>SALINE COUNTY --- 8.8 SSW DORCHESTER [40.53, -97.16], 8.8 SSE FRIEND [40.53, -97.22], 3.8 ENE FRIEND [40.67, -97.21], 0.9 NW DORCHESTER [40.66, -97.13], 4.4 S DORCHESTER [40.59, -97.13]</b>   |                    |                   |                     |                                 |
|  | 09/30/14 22:30 CST |                   | 5K                  | Flash Flood (due to Heavy Rain) |
|  | 09/30/14 23:59 CST |                   | 15K                 | Source: Trained Spotter         |
| Emergency management and spotters reported flash flooding across Saline County. The area received between 4 to 7 inches of rainfall and this led to the flash flooding. The flooding caused several streets and highways to be closed, including Nebraska Highway 15 near the Dorchester.  |                    |                   |                     |                                 |

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|----------|-----------|----------------------|------------------------|------------------------|
|----------|-----------|----------------------|------------------------|------------------------|

More to come.