

## Storm Data and Unusual Weather Phenomena - January 2010

Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
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### NORTH DAKOTA, Central and West

(ND-Z001) DIVIDE, (ND-Z002) BURKE, (ND-Z003) RENVILLE, (ND-Z004) BOTTINEAU, (ND-Z005) ROLETTE, (ND-Z009) WILLIAMS, (ND-Z010) MOUNTRAIL, (ND-Z011) WARD, (ND-Z012) MCHENRY, (ND-Z013) PIERCE, (ND-Z017) MCKENZIE, (ND-Z018) DUNN, (ND-Z019) MERCER, (ND-Z020) OLIVER, (ND-Z021) MCLEAN, (ND-Z022) SHERIDAN, (ND-Z023) WELLS, (ND-Z031) GOLDEN VALLEY, (ND-Z032) BILLINGS, (ND-Z033) STARK	01/05/10 06:00 CST		0	Winter Weather
	01/06/10 20:00 CST		0	

(ND-Z025) FOSTER, (ND-Z034) MORTON, (ND-Z035) BURLEIGH, (ND-Z036) KIDDER, (ND-Z037) STUTSMAN, (ND-Z040) SLOPE, (ND-Z041) HETTINGER, (ND-Z042) GRANT, (ND-Z043) BOWMAN, (ND-Z044) ADAMS, (ND-Z045) SIOUX, (ND-Z046) EMMONS, (ND-Z047) LOGAN, (ND-Z048) LA MOURE, (ND-Z050) MCINTOSH, (ND-Z051) DICKEY	01/05/10 06:00 CST		0	Winter Storm
	01/07/10 02:00 CST		0	

An upper level disturbance dropping south into the Northern Plains out of the Canadian Rockies, combined with a surface trough of low pressure, brought moderate snow accumulations and gusty winds to portions of west and central North Dakota from the morning of January 5th, through the early morning of January 7th.

Snow began Tuesday morning over western portions of the state as a surface trough developed across eastern Montana, and the left exit region of an upper level jet streak approached the local area. Areas of light to moderate snow developed further east through Tuesday night as these features pushed south and east, and continued into Wednesday as the parent upper level trough moved into the region.

Storm total snow accumulations ranged from five to eight inches from western North Dakota into portions of central North Dakota, with heavier amounts just under one foot reported over the James River Valley.

Furthermore, strong northwest winds of 20 to 35 mph developed behind the surface trough as strong Arctic high pressure surged south into the region Tuesday night into Wednesday. These strong winds accompanied the snow and produced near blizzard conditions over southwest and south central North Dakota at times, and resulted in numerous no travel advisories issued by county officials.

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	01/08/10 12:00 CST		0	

After a winter storm that brought near blizzard conditions to western and central North Dakota moved out of the Northern Plains, dangerous wind chill conditions developed as Arctic high pressure pushed south across south central Canada and into the Northern Plains. The strong cold air advection combined with gusty northwest winds resulted in wind chill temperatures of 40 to 55 below zero from Wednesday night the 6th, through Friday morning the 8th.

(ND-Z001) DIVIDE, (ND-Z002) BURKE, (ND-Z009) WILLIAMS, (ND-Z010) MOUNTRAIL, (ND-Z017) MCKENZIE, (ND-Z018) DUNN, (ND-Z019) MERCER, (ND-Z020) OLIVER, (ND-Z031) GOLDEN VALLEY, (ND-Z032) BILLINGS, (ND-Z033) STARK, (ND-Z034) MORTON, (ND-Z035) BURLEIGH, (ND-Z036) KIDDER, (ND-Z040) SLOPE, (ND-Z041) HETTINGER, (ND-Z042) GRANT, (ND-Z043) BOWMAN, (ND-Z044) ADAMS, (ND-Z045) SIOUX, (ND-Z046) EMMONS, (ND-Z047) LOGAN, (ND-Z050) MCINTOSH	01/18/10 18:00 CST		0	Winter Weather
	01/22/10 12:00 CST		0	

(ND-Z001) DIVIDE, (ND-Z002) BURKE, (ND-Z003) RENVILLE, (ND-Z004) BOTTINEAU, (ND-Z005) ROLETTE, (ND-Z009) WILLIAMS, (ND-Z010) MOUNTRAIL, (ND-Z011) WARD, (ND-Z012) MCHENRY, (ND-Z013) PIERCE, (ND-Z017) MCKENZIE, (ND-Z018) DUNN, (ND-Z019) MERCER, (ND-Z020) OLIVER, (ND-Z021) MCLEAN, (ND-Z022) SHERIDAN, (ND-Z023) WELLS, (ND-Z025) FOSTER, (ND-Z031) GOLDEN VALLEY, (ND-Z032) BILLINGS, (ND-Z033) STARK, (ND-Z034) MORTON, (ND-Z035) BURLEIGH, (ND-Z036) KIDDER, (ND-Z037) STUTSMAN, (ND-Z040) SLOPE, (ND-Z041) HETTINGER, (ND-Z042) GRANT, (ND-Z043) BOWMAN, (ND-Z044) ADAMS, (ND-Z045) SIOUX, (ND-Z046) EMMONS, (ND-Z047) LOGAN, (ND-Z048) LA MOURE, (ND-Z050) MCINTOSH, (ND-Z051) DICKEY	01/22/10 12:00 CST		0	Winter Storm
	01/23/10 12:00 CST		0	

A single storm system brought a wide variety of severe and unusual winter weather to west and central North Dakota from Monday,

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January 18th, through Monday, January 25th. (See Storm Data Entry for January 24-25).

The first phase of this storm was a prolonged period of dense freezing fog which originated across southwest North Dakota beginning on the 18th, then developed north and east on the 19th and 20th as strong warm air advection surged north ahead of a developing storm system over the Rockies. The freezing fog deposited thick layers of rime ice and hoar frost on power lines and other objects, resulting in breaking power lines and power outages starting on the night of the 19th. As the main storm system lifted north towards the Dakotas, large scale ascent overspread the region and combined with the warm air advection resulting in continued dense fog and areas of light freezing drizzle from the 20th through the 22nd. Frost on the power lines acted as a sponge, soaking up the drizzle and thickening the existing layer of ice. The result was more downed power lines and loss of power to many across west and central North Dakota. The southwest and south central parts of the state were hit the hardest.

The second phase of the storm arrived on Friday the 22nd as the main short wave impulse ejected northeast into the Northern Plains, bringing moderate to heavy wet snow to much of the area, as well as moderate freezing rain and sleet to portions of the south central Friday morning and afternoon. Precipitation changed over to all snow later in the day Friday, and continued Friday night before diminishing in intensity and ending later Friday night into Saturday, January 23rd, as the storm's dry slot wrapped into the state. Snowfall amounts by late Saturday morning were around two inches far west to six inches central. The heavy wet snow and periods of freezing precipitation resulted in even more power outages and hazardous travel conditions.

As the storm pulled away winds increased, more snow fell, and visibility was close to zero. A full blown blizzard was raging from the 24th into the 25th.

Impacts from this event were substantial. Numerous no travel advisories were issued by state and county officials, and several roads were closed due to icy conditions and near zero visibilities. Numerous schools and businesses were also closed either due to the blizzard conditions which followed on the 24th and the 25th, or the widespread power outages. Preliminary damage assessments indicated that there was over 20 million dollars in total damages over west and central North Dakota due to this storm.

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01/24/10 11:00 CST	20.12M	Blizzard
01/25/10 21:00 CST	0	

The third and final phase of an intense storm system (see Storm Data Entry for January 18-23) came on Sunday the 24th and Monday the 25th as the storm center started to pull out of the Northern Plains. As this occurred, areas of wrap around snow developed west and spread east, bringing several more inches of accumulation to the area. More significantly, wind speeds increased due to a strengthening pressure gradient and strong mixing, resulting in full blown blizzard conditions across much of North Dakota beginning in the west on Sunday and spreading east on Monday. Peak wind speed gusts at major reporting stations ranged from 45 to 55 mph over this two day period. These strong winds resulted in further power outages and delayed the repair of existing downed power lines. Conditions improved Monday night into Tuesday as the storm pushed through the Great Lakes region.

Impacts from this event were substantial. Numerous no travel advisories were issued by state and county officials, and several roads were closed due to icy conditions and near zero visibilities. Numerous schools and businesses were also closed either due to the blizzard conditions which followed on the 24th and the 25th, or the widespread power outages. Preliminary damage assessments indicated that there was over 20 million dollars in total damages over west and central North Dakota due to this storm, with the majority of damages related to utility systems.