

Storm Data and Unusual Weather Phenomena - December 2009

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-Z021) MCLEAN, (ND-Z022) SHERIDAN, (ND-Z023) WELLS, (ND-Z025) FOSTER, (ND-Z035) BURLEIGH, (ND-Z036) KIDDER, (ND-Z037) STUTSMAN	12/12/09 23:00 CST		0	Extreme Cold/Wind Chill
	12/15/09 12:00 CST		0	

A prolonged period of advisory to warning criteria wind chills occurred across portions of west and central North Dakota from the evening hours of December 12th through the morning hours of December 15th. North Dakota experienced a series of reinforced shots of cold Arctic air underneath northerly upper level flow, along with winds of 5 to 15 mph as Arctic high pressure systems surged south into the region. Wind chill temperatures of 35 to 50 below zero were common across the northwest and central during this period.

(ND-Z003) RENVILLE, (ND-Z004) BOTTINEAU, (ND-Z005) ROLETTE, (ND-Z011) WARD, (ND-Z012) MCHENRY, (ND-Z013) PIERCE, (ND-Z019) MERCER, (ND-Z020) OLIVER, (ND-Z021) MCLEAN, (ND-Z022) SHERIDAN, (ND-Z023) WELLS, (ND-Z025) FOSTER, (ND-Z034) MORTON, (ND-Z035) BURLEIGH, (ND-Z036) KIDDER, (ND-Z037) STUTSMAN, (ND-Z042) GRANT, (ND-Z045) SIOUX, (ND-Z046) EMMONS, (ND-Z047) LOGAN, (ND-Z048) LA MOURE, (ND-Z050) MCINTOSH, (ND-Z051) DICKEY	12/23/09 16:00 CST		0	Winter Storm
	12/25/09 06:00 CST		0	

(ND-Z003) RENVILLE, (ND-Z004) BOTTINEAU, (ND-Z005) ROLETTE, (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	12/25/09 06:00 CST		0	Blizzard
	12/26/09 21:00 CST		0	

A significant and prolonged winter storm impacted all of west and central North Dakota beginning Wednesday, December 23rd, lasting into Saturday, December 26th. Lead time was significant, as statements, watches, and warnings were posted well in advance of the storm.

During the afternoon hours of Wednesday the 23rd, the first wave of snow moved into the region as a northern stream upper low dropped south into the Northern Plains from central Alberta, combined with a surface trough of low pressure pushing from west to east across the state Wednesday and Wednesday night. After a brief lull in snowfall intensity Thursday, this first system merged with a southern stream upper low over the central plains Christmas Eve night, and intensified as the merged system moved slowly northeast into the Midwest on Christmas Day. As this occurred, areas of snow redeveloped from east to west Thursday night into Friday. The main forcing mechanism for snow across west and central North Dakota during this second wave of snow was a persistent TROWAL (TRough Of Warm Air Aloft) which developed and resulted in the continuous generation of moderate to heavy snow bands over central and portions of western North Dakota early Christmas Day into Saturday.

Additionally, already strong northerly winds of 20 to 30 mph Wednesday and Thursday increased on Friday, with gusts up to 45 mph developing across the state as surface low pressure retrograded northwest into western Iowa, resulting in a significant pressure gradient over the Dakotas. These strong winds accompanied the snow and produced widespread blizzard conditions over much of west and all of central North Dakota from Christmas Day through much of Saturday the 26th.

The significant blowing and drifting of snow resulted in nearly impossible travel throughout the event, especially on the 25th and 26th when the strongest winds occurred. Numerous no travel advisories were issued from the North Dakota Department of Transportation, along with several road closures including all of Interstate 94 and portions of U.S. Highways 83 and 2. Needless to say, holiday commerce across west and central North Dakota was severely impacted by this intense storm system.