Storm Data and Unusual Weather Phenomena - May 2023

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

NORTH DAKOTA, Central and West

MERCER COUNTY --- 15.9 S GOLDEN VLY [47.05, -102.05]

	05/09/23 17:00 CST	0	Hail (1.75 in)
	05/09/23 17:03 CST	0	Source: Public

NWS had no reports of damage.

MERCER COUNTY --- 15.2 S BEULAH [47.05, -101.78]

	05/09/23 17:25 CST	0	Hail (1.75 in)
	05/09/23 17:28 CST	0	Source: Public

NWS had no reports of damage.

MORTON COUNTY --- 5.1 ENE SWEET BRIAR [46.87, -101.09], 3.3 E MANDAN [46.82, -100.83]

	05/09/23 19:11 CST	1M	Hail (1.75 in)
	05/09/23 19:45 CST	0	Source: Trained Spotter

A supercell thunderstorm produced golf ball size hail near Crown Butte Lake , and then moved through the Mandan area continuing to produce golf ball size hail. Multiple vehicles were dented and roofs damaged. The storm then continued into Bismarck in Burleigh County.

BURLEIGH COUNTY --- 3.3 WNW BISMARCK [46.82, -100.83], 1.6 NE (BIS)BISMARCK MUNI A [46.79, -100.72]

	05/09/23 19:40 CST	0.50M	Hail (1.75 in)
	05/09/23 19:55 CST	0	Source: NWS Employee

A supercell thunderstorm over Mandan , Morton County, moved into Bismarck, Burleigh County. Initially, the storm continued to produce golf ball size hail near Bismarck State College, but hail size decreased to around one-inch in diameter as it moved through the city. Vehicles and homes were damaged , mainly on the western side of Bismarck.

BURLEIGH COUNTY --- 3.6 ENE BISMARCK [46.82, -100.70]

	05/09/23 20:20 CST	0	Hail (1.00 in)
	05/09/23 20:23 CST	0	Source: Public

KIDDER COUNTY --- 5.6 S TAPPEN [46.79, -99.64]

	05/09/23 22:45 CST	0	Hail (1.75 in)
	05/09/23 22:48 CST	0	Source: Public

NWS had no reports of damage.

Thunderstorms initially developed along a warm front over southwestern North Dakota during the late afternoon and early evening hours. One storm strengthened and became a supercell near the border of Mercer and Morton counties. The storm then moved towards the Bismarck and Mandan areas, with multiple reports of golf ball size hail along its path. The storm continued to produce golf ball size hail in Mandan and the west end of Bismarck, before it weakened as it moved through Burleigh County. Storm damage estimates were around one and a half million dollars. Additional storms then formed later in the evening, with one of those producing golf ball size hail in Kidder County.

(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

	05/17/23 07:00 CST	0	Dense Smoke
	05/17/23 22:00 CST	0	

May 17 had the poorest air quality ever measured in North Dakota. During the morning hours a cold front entered northwestern North Dakota and progressed across the state through the remainder of the day. Behind the front, north to northwest winds ushered in dense smoke from Canadian wildfires. The smoke had been held aloft for a few days, and was brought to the surface by the winds associated with the cold front. Visibility dropped abruptly to one-half mile or less across much of western and central North Dakota as the dense smoke moved in, with some locations recording visibilities less than one-quarter mile for a prolonged period of time. The Air Quality Index (AQI) pushed well into the hazardous category, which is the highest category, and begins at a PM2.5 concentration of 250.5 ug/m3. The highest hourly concentration reported was 1,041.1 ug/m3 at Hannover in Oliver County, with most other reporting stations in

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western and central North Dakota registering maximum hourly values well over 700 ug/m3. According to personnel at the North Dakota Department of Air Quality, this smoke produced the worst air quality conditions ever measured in the state. Conditions did improve some from northwest to southeast during the late day and evening, but visibility remained somewhat restricted by the smoke for a few days, and air quality was adversely affected. The event garnered significant media attention. The NWS office in Bismarck received numerous calls about the smoke from both the media and general public.

ADAMS COUNTY --- 6.9 N BUCYRUS [46.17, -102.79]

	05/23/23 20:24 MST	15K	Hail (1.00 in)
	05/23/23 20:29 MST	0	Source: Public

The thunderstorm produced copious amounts of hail up to one-inch in diameter, with the hail accumulating to around two inches deep on the ground. The hail damaged the vinyl siding on a garage.

KIDDER COUNTY --- 3.1 NNW STEELE [46.89, -99.93]

	05/23/23 20:47 CST	0	Hail (1.00 in)
	05/23/23 20:50 CST	0	Source: Public

Thunderstorms developed over southwest and south central North Dakota in the vicinity of a warm front that was lifting through the region. Two storms became severe producing one-inch diameter hail, one in Adams County and the other in Kidder County.

GOLDEN VALLEY COUNTY --- 5.9 NE SENTINEL BUTTE [46.98, -103.74]

	05/25/23 16:59 MST	0	Hail (1.00 in)
	05/25/23 17:02 MST	0	Source: Trained Spotter

MCKENZIE COUNTY --- 13.4 NNE ARNEGARD [48.01, -103.37]

	05/25/23 17:00 MST	0	Hail (1.50 in)
	05/25/23 17:03 MST	0	Source: Public

MCKENZIE COUNTY --- 11.2 SSW RAWSON [47.67, -103.64]

	05/25/23 17:57 MST	0	Hail (1.25 in)
	05/25/23 17:59 MST	0	Source: Public

MCKENZIE COUNTY --- 25.3 S FAIRVIEW [47.49, -103.93]

	05/25/23 18:40 MST	0	Hail (1.00 in)
	05/25/23 18:43 MST	0	Source: Public

MCKENZIE COUNTY --- CHARBONNEAU [47.85, -103.77]

	05/25/23 18:55 MST	0	Hail (0.88 in)
	05/25/23 18:58 MST	0	Source: Trained Spotter

WILLIAMS COUNTY --- 7.0 NNW SPRING BROOK [48.34, -103.54]

	05/25/23 19:00 CST	0	Hail (1.25 in)
	05/25/23 19:03 CST	0	Source: Public

WILLIAMS COUNTY --- 9.9 SSW APPAM [48.43, -103.63]

	05/25/23 19:18 CST	0	Hail (1.25 in)
	05/25/23 19:20 CST	0	Source: Public

WILLIAMS COUNTY --- 0.5 W ZAHL [48.57, -103.69]

	05/25/23 19:45 CST	0	Hail (1.00 in)
	05/25/23 19:48 CST	0	Source: Public

Thunderstorms developed along a surface trough over western North Dakota, with some of the storms becoming severe. One note of interest with these storms was that the strongest ones exhibited anticyclonic rotation, with multiple splitting storms. The largest hail reported was ping-pong ball size, which fell in far northern McKenzie County, just south of Lake Sakakawea. NWS received no reports of damage from the hail.

MERCER COUNTY --- 0.5 E HAZEN [47.30, -101.62]

	05/27/23 15:07 CST	0	Hail (1.50 in)
	05/27/23 15:09 CST	0	Source: Public

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NWS had no reports of damage.

A cluster of thunderstorms developed over west-central North Dakota, with one storm briefly becoming severe in Mercer County, producing ping-pong ball size hail at Hazen. Nearly as quickly as the storm went severe it weakened, and the hail report from Hazen was the only report of severe weather received at the NWS.