VARIATIONS

Severe general midsummer droughts occur at irregular intervals, although during such droughts many small areas have practically normal precipitation. The table below shows the variations in annual precipitation since the North Dakota climatologic service of the Weather Bureau was established in 1892. The lowest average for the whole State for a single year was 10.92 inches in 1917 and the highest was 23.57 inches in 1896. These two extremes show a marked variability, but the tendency to one extreme is frequently followed by a tendency to the other, as illustrated in the wet year of 1916 and the dry year of 1917. The general average, with a few exceptions, has been well maintained through all the period of the record.

Yearly variation of precipitation in North Dakota, 1892–1923

Year	Average precipitation (inches)	Departure from normal (inches)	Year	Average precipitation (inches)	Departure from normal (inches)	Year	Average precipitation (inches)	Departure from normal (inches)
1892	18.34	+0.40	1903	19.25	+1.31	1914	19.16	+1.22
1893	15.91	−2.03	1904	19.02	+1.08	1915	19.42	+1.48
1894	15.64	−2.30	1905	19.96	+2.02	1916	20.50	+2.56
1895	17.32	−.62	1906	19.72	+1.78	1917	10.92	−7.02
1896	23.57	+5.63	1907	14.41	−3.53	1918	16.02	−1.92
1897	15.88	−2.06	1908	18.64	+.70	1919	15.76	−2.18
1898	15.17	−2.77	1909	17.73	−.21	1920	15.34	−2.60
1899	17.67	−.27	1910	12.19	−5.75	1921	19.59	+1.65
1900	18.96	+1.02	1911	19.40	+1.46	1922	19.75	+1.81
1901	19.48	+1.54	1912	20.34	+2.40	1923	17.76	−.18
1902	19.34	+1.40	1913	14.69	−3.25			

RELATION TO WATER TABLE

The influence of meteorologic conditions upon the ground-water supply is best seen in the fluctuations of the water level in shallow wells and of the flow of streams.

Deficiency of summer rainfall sometimes causes droughts, the effect of which is marked on the streams, springs, and shallow-drift wells, producing scarcity of water for stock and domestic use. Heavy drains for stock are made on the deeper wells when streams are low, and as these wells are of small bore they are sometimes temporarily exhausted.

The most severe drought on record is that of 1917. During this season occurred the most unfavorable weather conditions ever known in North Dakota. The average temperature recorded was exceedingly high, the precipitation was the least ever recorded in the State, and there was an unusual amount of sunshine. Hot, dry winds also prevailed during critical periods of summer, thus greatly increasing the possibilities of evaporation. So far was the ground-water level lowered under these adverse conditions that the normal was not reestablished for several years.