

National Weather Service Climate Records

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Weather data was collected from 77 weather stations in and surrounding the COHYST active boundary. The entire breadth of weather data was acquired at each weather station; from the inception of the station through the end of 2013. Weather station were chosen based upon the length, the completeness, and level of data quality of their historical data set. Each weather station needed to collect daily minimum and maximum temperature as well as precipitation. This data was applied to the CROPSIM soil water balance model for a variety of crops and irrigation methods to create inputs for the watershed model. Further detail on the use of the climate data is available in Section 5.

For four stations, Kingsley, North Platte, Gothenburg and Grand Island, precipitation and evaporation data for the period 1984 thru 2010 were used in the reservoir and canal water budget calculations that are part of the Surface Water Operations Model presented in Section 6. An exception is that evaporation data for Gothenburg were obtained by interpolation of the other records.

Table 1. NWS weather station used in the COHYST model.

Index	Station	County	State	Station Code	NWS code	CROPSIM Zone	Latitude	Longitude	Elevation	Start	End [†]
1	Ainsworth	Brown	NE	AINS	c250050	2	42.55	-99.86	2,510	1890	Current
2	Albion	Boone	NE	ALBI	c250070	3	41.69	-98.00	1,790	1893	Current
3	Alliance 1 WNW	Box Butte	NE	ALI1	c250130	1	42.11	-102.90	3,994	1894	Current
4	Anselmo 2 SE	Custer	NE	ANSE	c250245	3	41.60	-99.83	2,604	1948	Current
5	Arnold	Custer	NE	ARNO	c250355	3	41.42	-100.18	2,718	1948	2007
6	Arthur	Arthur	NE	ARTH	c250365	2	41.57	-101.69	3,500	1948	Current
7	Atkinson	Holt	NE	ATKI	c250420	3	42.51	-99.03	2,090	1906	Current
8	Atwood 2 SW	Rawlins	KS	ATW2	c140439	3	39.80	-101.04	2,934	1939	Current
9	Bartlett 4 S	Wheeler	NE	BART	c250525	3	41.87	-98.55	2,219	1948	Current
10	Beaver City	Furnas	NE	BEAV	c250640	3	40.13	-99.83	2,160	1982	Current
11	Benkelman	Dundy	NE	BENK	c250760	3	40.05	-101.54	3,025	1948	Current
12	Big Springs	Deuel	NE	BIGS	c250865	2	41.05	-102.15	3,678	1948	Current
13	Bellville	Republic	KS	BLVK	c140682	5	39.82	-97.64	1,535	1948	Current
14	Broken Bow 2 W	Custer	NE	BROK	c251200	3	41.41	-99.68	2,500	1894	Current
15	Burwell 4 SE	Garfield	NE	BURW	c251345	3	41.78	-99.14	2,176	1948	Current
16	Cambridge	Furnas	NE	CAMB	c251415	3	40.28	-100.14	2,239	1948	Current
17	Clay Center 6 ESE	Clay	NE	CLY6	c251680	4	40.50	-97.94	1,734	1948	2012
18	Central City	Merrick	NE	CNTC	c251560	4	41.12	-98.01	1,695	1878	Current

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19	Columbus 3 NE	Platte	NE	COLU	c251825	4	41.46	-97.33	1,450	1948	Current
20	Crete	Saline	NE	CRET	c252020	5	40.62	-96.95	1,435	1896	Current
21	Crescent Lake	Garden	NE	CRSC	c252000	1	41.76	-102.44	3,820	1948	Current
22	Culbertson	Hitchcock	NE	CULB	c252065	3	40.23	-100.83	2,614	1889	Current
23	Curtis 3 NNE	Frontier	NE	CURT	c252100	3	40.67	-100.49	2,721	1948	Current
24	David City	Butler	NE	DAVI	c252205	4	41.25	-97.13	1,610	1889	Current
25	Fairbury	Jefferson	NE	FAIB	c252820	5	40.07	-97.17	1,350	1893	Current
26	Fairmont	Fillmore	NE	FAIM	c252840	5	40.64	-97.59	1,640	1948	2010
27	Geneva	Fillmore	NE	GENE	c253175	5	40.53	-97.60	1,630	1893	2014
28	Genoa 2 W	Nance	NE	GNO2	c253185	4	41.45	-97.76	1,590	1893	Current
29	Gothenburg	Dawson	NE	GOTH	c253365	3	40.94	-100.15	2,585	1894	Current
30	Grand Island WSO Airport	Hall	NE	GRAN	c253395	4	40.96	-98.31	1,840	1900	Current
31	Greeley	Greeley	NE	GREE	c253425	3	41.55	-98.53	2,020	1948	Current
32	Guide Rock	Webster	NE	GUID	c253485	4	40.07	-98.33	1,635	1948	2010
33	Harlan County Lake	Harlan	NE	HARL	c253595	4	40.09	-99.21	2,000	1948	Current
34	Hastings 4 N	Adams	NE	HAST	c253660	4	40.65	-98.38	1,938	1880	Current
35	Hays Center	Hayes	NE	HAYC	c253690	3	40.52	-101.03	3,045	1948	Current
36	Hebron	Thayer	NE	HEBR	c253735	5	40.17	-97.59	1,480	1893	Current
37	Hershey 5 SSE	Lincoln	NE	HERS	c253810	3	41.11	-100.98	2,952	1911	2010
38	Holdrege	Phelps	NE	HOLD	c253910	4	40.45	-99.38	2,320	1895	Current
39	Holyoke	Phillips	CO	HOLY	c054082	3	40.55	-102.34	3,780	1948	Current
40	Idalia 4 NNE	Yuma	CO	IDAL	c054242	3	39.70	-102.29	3,965	1948	Current
41	Imperial	Chase	NE	IMPE	c254110	3	40.52	-101.66	3,280	1893	Current
42	Kearney 4 NE	Buffalo	NE	KEAR	c254335	4	40.73	-99.01	2,130	1894	Current
43	Madison 2 W	Madison	NE	MADI	c255080	3	41.83	-97.45	1,580	1894	2011
44	Madrid	Perkins	NE	MADR	c255090	3	40.85	-101.54	3,200	1900	Current
45	Mankato	Jewell	KS	MANK	c144982	5	39.79	-98.20	1,755	1958	2011
46	Mason City	Custer	NE	MASO	c255250	3	41.22	-99.30	2,260	1893	Current

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47	Mccook	Red Willow	NE	MCCO	c255310	3	40.22	-100.63	2,565	1909	Current
48	Minden	Kearney	NE	MIND	c255565	4	40.52	-98.95	2,160	1884	Current
49	Mullen 21 NW	Cherry	NE	MULL	c255702	2	42.25	-101.34	3,460	1911	2010
50	Norton 9 SSE	Norton	KS	NORT	c145856	4	39.74	-99.84	2,360	1939	Current
51	North Platte WSO Airport	Lincoln	NE	NPLA	c256065	3	41.12	-100.67	2,778	1948	Current
52	Norfolk Karl Stefan Airport	Madison	NE	NRFA	c255995	3	41.99	-97.44	1,551	1948	Current
53	Oakdale	Antelope	NE	OAKD	c256135	3	42.07	-97.97	1,710	1893	Current
54	Oberlin 1 E	Decatur	KS	OBER	c145906	3	39.82	-100.53	2,610	1893	Current
55	Oconto	Custer	NE	OCON	c256167	3	41.13	-99.75	2,578	1948	Current
56	Ogallala	Keith	NE	OGAL	c256200	2	41.13	-101.72	3,230	1948	Current
57	O'Neill	Holt	NE	ONEI	c256290	3	42.46	-98.66	1,990	1948	Current
58	Osceola	Polk	NE	OSCE	c256375	4	41.18	-97.55	1,640	1948	Current
59	Oshkosh	Garden	NE	OSHK	c256385	1	41.40	-102.35	3,390	1913	Current
60	Purdum	Blaine	NE	PURD	c256970	2	42.07	-100.25	2,690	1903	Current
61	Ravenna	Buffalo	NE	RAVE	c257040	4	41.03	-98.90	2,050	1887	Current
62	Red Cloud	Webster	NE	REDC	c257070	4	40.10	-98.52	1,720	1893	Current
63	Sedgwick 5 S	Sedgwick	CO	SDG2	c057515	2	40.86	-102.52	3,990	1952	Current
64	Seward	Seward	NE	SEWA	c257715	5	40.90	-97.09	1,445	1893	Current
65	Smith Center	Smith	KS	SMIT	c147542	4	39.78	-98.78	1,780	1948	Current
66	Stapleton 5 W	Logan	NE	STAP	c258133	2	41.46	-100.60	2,990	1989	Current
67	Saint Francis	Cheyenne	KS	STFR	c147093	3	39.77	-101.81	3,362	1908	Current
68	St Paul 4 N	Howard	NE	STPA	c257515	4	41.21	-98.46	1,796	1948	Current
69	Superior 4 E	Nuckolls	NE	SUPE	c258320	5	40.03	-97.98	1,620	1893	Current
70	Trenton Dam	Hitchcock	NE	TRED	c258628	3	40.17	-101.06	2,810	1949	Current
71	Tryon	McPherson	NE	TRYO	c258650	2	41.55	-100.96	3,247	1948	2007
72	Valentine National Wildlife Refuge	Cherry	NE	VALG	c258755	2	42.57	-100.69	2,930	1948	Current
73	Wallace 2 W	Lincoln	NE	WALL	c258920	3	40.84	-101.21	3,100	1948	Current

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74	Wayne	Wayne	NE	WAYN	c259045	3	42.24	-97.01	1,465	1948	Current
75	Wray	Yuma	CO	WRAY	c059243	3	40.06	-102.22	3,680	1918	Current
76	York	York	NE	YORK	c259510	4	40.87	-97.59	1,610	1921	2007
77	Yuma	Yuma	CO	YUMA	c059295	3	40.12	-102.72	4,140	1948	Current

[†]A designation of 'current' indicates the weather station is active through the end of 2013.

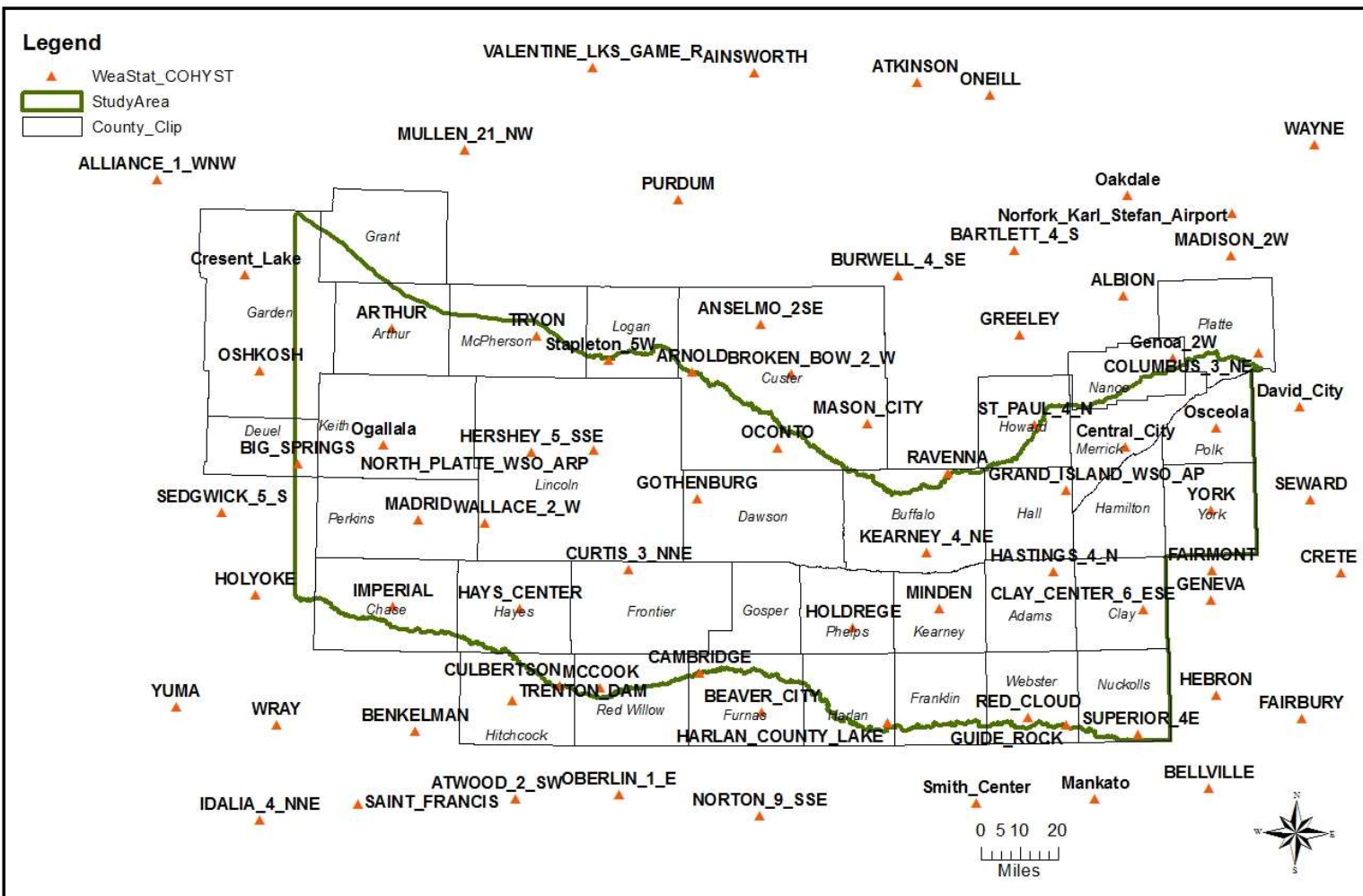


Figure 4-A-1. Location of the National Weather Service stations used for COHYST CROPSIM model runs and Watershed model precipitation inputs. The evaporation data at some stations was used to estimate lake evaporation for reservoirs in the COHYST 2010 model area.