

Table S1. List of ASOS stations from which data was collected.

Location	ID	Latitude	Longitude	Elevation (m)
Albany, NY	KALB	42.75757	-73.80361	89
Albuquerque, NM	KABQ	35.0419	-106.6155	1620
Arcata, CA	KACV	40.97811	-124.10861	66
Atlanta, GA	KATL	33.6301	-84.4418	315
Atlantic City, NJ	KACY	39.45758	-74.57717	20
Baltimore, MD	KBWI	39.17536	-76.66833	47
Bangor, ME	KBGR	44.80744	-68.82814	59
Billings, MT	KBIL	45.8069	-108.5422	1088
Birmingham, AL	KBHM	33.56546	-86.74488	192
Boise, ID	KBOI	43.56667	-116.24056	874
Boston, MA	KBOS	42.36057	-71.00973	9
Brownsville, TX	KBRO	25.91461	-97.42313	6
Buffalo, NY	KBUF	42.9408	-78.7358	215
Burlington, IA	KBRL	40.77293	-91.12549	213
Burlington, VT	KBTV	44.47	-73.15	104
Caribou, ME	KCAR	46.87	-68.02	190
Casper, WY	KCPR	42.908	-106.46442	1612
Cedar City, UT	KCDC	37.7	-113.1	1714
Charleston, WV	KCRW	38.3794	-81.59	299
Charlotte, NC	KCLT	35.22255	-80.95431	228
Cheyenne, WY	KCYS	41.15564	-104.81047	1871
Chicago, IL	KORD	41.98754	-87.93193	200
Cleveland, OH	KCLE	41.405	-81.85278	233
Colorado Springs, CO	KCOS	38.80581	-104.70078	1881
Columbia, SC	KCAE	33.9419	-81.1181	69
Columbus, OH	KCMH	39.99139	-82.88083	247
Columbus, GA	KCSG	32.51611	-84.94222	121
Concord, NH	KCON	43.19528	-71.50111	105
Dallas, TX	KDAL	32.84711	-96.85178	148
Dayton, OH	KDAY	39.90611	-84.21861	305
Des Moines, IA	KDSM	41.53395	-93.65311	294
Detroit, MI	KDET	42.40919	-83.00986	190
Dodge City, KS	KDDC	37.76312	-99.96542	790
Dubuque, IA	KDBQ	42.39835	-90.70914	329
El Paso, TX	KELP	31.81111	-106.37583	1194
Elkins, WV	KEKN	38.88528	-79.85278	609
Eugene, OR	KEUG	44.12458	-123.21197	114
Fargo, ND	KFAR	46.92528	-96.81111	274
Farmington, NM	KFMN	36.74361	-108.22917	1677
Fort Smith, AR	KFSM	35.33658	-94.36744	141
Fort Wayne, IN	KFWA	40.97805	-85.18713	248

Fresno, CA	KFAT	36.78	-119.7194	100
Glasgow, MT	KGGW	48.2138	-106.6214	700
Grand Island, NE	KGRI	40.96754	-98.30964	563
Grand Junction, CO	KGTJ	39.13417	-108.54	1475
Hartford, CT	KBDL	41.9381	-72.6825	55
Helena, MT	KHLN	46.6056	-111.9636	1188
Houston, TX	KHOU	29.63747	-95.28245	14
Jackson, MS	KJAN	32.32	-90.08	101
Jacksonville, FL	KJAX	30.49406	-81.68786	9
Key West, FL	KEYW	24.55611	-81.75956	1
Knoxville, TN	KTYS	35.8181	-83.9858	299
La Crosse, WI	KLSE	43.88	-91.25	199
Lander, WY	KLND	42.81524	-108.72984	1694
Las Vegas, NV	KLAS	36.08006	-115.15225	664
Little Rock, AR	KLIT	34.7273	-92.23573	79
Los Angeles, CA	KLAX	33.93816	-118.38653	32
Louisville, KY	KSDF	38.17439	-85.736	149
Lubbock, TX	KLBB	33.66364	-101.82278	988
Mason City, IA	KMCW	43.15438	-93.3261	370
Medford, OR	KMFR	42.3811	-122.8722	405
Memphis, TN	KMEM	35.06111	-89.985	87
Miami, FL	KMIA	25.78805	-80.31693	4
Miles City, MT	KMLS	46.42797	-105.88625	801
Minneapolis, MN	KMSP	44.88537	-93.23131	265
Minot, ND	KMOT	48.25938	-101.28033	523
Mobile, AL	KMOB	30.68833	-88.24556	67
Montgomery, AL	KMGM	32.30064	-86.39397	62
Nashville, TN	KBNA	36.11889	-86.68917	180
New Orleans, LA	KMSY	29.9933	-90.2511	9
North Platte, NE	KLBF	41.12191	-100.66896	844
New York City, NY	KJFK	40.63861	-73.76222	7
Oklahoma City, OK	KOKC	35.3889	-97.6006	397
Omaha, NE	KOMA	41.31028	-95.89917	296
Pendleton, OR	KPDT	45.69506	-118.84144	456
Phoenix, AZ	KPHX	33.43428	-112.01158	337
Pierre, SD	KPIR	44.38269	-100.28597	522
Pittsburgh, PA	KPIT	40.49147	-80.23286	373
Portland, OR	KPDX	45.59083	-122.60028	12
Portland, ME	KPWM	43.64243	-70.30442	19
Providence, RI	KPVD	41.7219	-71.4325	19
Raleigh, NC	KRDU	35.8922	-78.7819	118
Rapid City, SD	KRAP	44.04533	-103.05736	965
Red Bluff, CA	KRBL	40.1519	-122.2536	108
Reno, NV	KRNO	39.48389	-119.77111	1539
Richmond, VA	KRIC	37.5115	-77.32336	54

Roanoke, VA	KROA	37.31724	-79.97368	345
Rock Springs, WY	KRKS	41.59422	-109.06519	2060
Sacramento, CA	KSAC	38.5069	-121.495	8
Salt Lake City, UT	KSLC	40.78	-111.97	1288
San Antonio, TX	KSAT	29.53369	-98.46978	242
San Francisco, CA	KSFO	37.61897	-122.37489	5
Santa Maria, CA	KSMX	34.9	-120.45	73
Sault Ste Marie, MI	KANJ	46.47922	-84.36839	218
Savannah, GA	KSAV	32.12758	-81.20214	15
Scottsbluff, NE	KBFF	41.87403	-103.59564	1203
Scranton, PA	KAVP	41.33347	-75.72267	289
Seattle, WA	KSEA	47.44469	-122.31437	137
Shreveport, LA	KSHV	32.4472	-93.8244	79
Sioux Falls, SD	KFSD	43.57694	-96.75361	429
South Bend, IN	KSBN	41.70722	-86.31639	237
Spokane, WA	KGEG	47.6216	-117.528	721
St. Louis, MO	KSTL	38.75245	-90.3734	171
Syracuse, NY	KSYR	43.11119	-76.10631	124
Tallahassee, FL	KTLH	30.3954	-84.35135	21
Tampa, FL	KTPA	27.9619	-82.5403	3
Tonopah, NV	KTPH	38.05052	-117.09043	1654
Topeka, KS	KTOP	39.07	-95.62	270
Traverse City, MI	KTVC	44.74164	-85.58236	190
Tucson, AZ	KTUS	32.12027	-110.93798	779
Tucumcari, NM	KTCC	35.18278	-103.60319	1239
Wilmington, DE	KILG	39.67278	-75.60083	24
Wilmington, NC	KILM	34.27	-77.9	10
Winnemucca, NV	KWMC	40.90194	-117.80722	1315

Table S2. List of potentially erroneous raw data that was checked for credibility. If a value was kept, it was because either the day(s) surrounding the date in question at the station, or the date itself at a nearby station, had a dewpoint value within 5°F (~2.8°C) of the questionable value. If a value was excluded, it was because those values were not within 5°F, unless otherwise noted below.

Location	Date	Value (°F)	Determination
Albany (KALB)	7/27/97	79	Excluded
	8/4/98	83	Excluded
Albuquerque (KABQ)	7/16/97	72	Excluded
Arcata (KACV)	8/24/00	128	Excluded
	9/2/83	68	Kept due to high values that week
Atlantic City (KACY)	6/25/52	85	Excluded
	6/26/52	85	Excluded
	7/2/55	84	Excluded
	9/2/56	84	Kept
Billings (KBIL)	6/12/53	75	Kept
	7/8/54	72	Excluded
	6/26/96	71	Kept
	6/28/97	69	Excluded
Birmingham (KBHM)	7/12/89	83	Excluded
	7/27/97	93	Excluded
	8/16/07	81	Excluded
Boise (KBOI)	7/13/07	84	Excluded
Burlington (KBRL)	7/19/92	86	Excluded
	9/8/96	86	Excluded
Caribou (KCAR)	7/19/75	86	Excluded
	7/20/77	78	Kept
Casper (KCPR)	8/13/98	69	Excluded
Cedar City (KCDC)	8/1/59	73	Excluded
	6/4/64	75	Excluded
	6/20/74	81	Excluded
	6/24/74	90	Excluded
	6/25/74	93	Excluded
7/14/96	84	Excluded	
Charlotte (KCLT)	9/26/17	82	Excluded
Cheyenne (KCYS)	7/21/18	69	Kept
Colorado Springs (KCOS)	9/25/96	69	Excluded
	7/24/98	70	Excluded
Columbia (KCAE)	8/31/55	82	Excluded
	7/30/58	82	Excluded
	8/12/83	83	Excluded
	6/29/00	81	Excluded
	7/23/91	82	Kept

Columbus (KCSG)	7/13/77	83	Excluded
	7/14/77	85	Excluded
	6/5/78	86	Excluded
	6/17/91	80	Excluded
	6/19/91	83	Excluded
Dallas (KDAL)	8/12/85	85	Excluded
	7/20/86	83	Excluded
	7/21/86	84	Excluded
	6/7/93	82	Excluded
	7/17/97	90	Excluded
	9/9/97	91	Excluded
	9/18/98	83	Excluded
	6/15/99	84	Excluded
	6/26/99	84	Excluded
8/24/99	86	Excluded	
Dayton (KDAY)	6/26/59	82	Excluded
Des Moines (KDSM)	9/6/98	84	Excluded
	7/26/97	82	Kept
Detroit (KDET)	8/3/96	82	Excluded
	6/29/97	82	Excluded
	7/14/97	91	Excluded
	9/15/98	84	Excluded
	6/11/99	86	Excluded
	6/13/99	86	Excluded
	7/1/99	82	Excluded
	8/10/02	81	Excluded
	6/7/05	86	Excluded
8/6/96	81	Kept	
Elkins (KEKN)	8/2/54-9/30/54	32	All values were 32 for this period, so they were excluded due to probable instrumentation error
El Paso (KELP)	8/19/78	78	Excluded
Eugene (KEUG)	6/21/58	71	Kept
	6/15/61	73	Kept
	6/16/61	72	Kept
	7/22/96	73	Kept
	7/4/97	72	Excluded
Fargo (KFAR)	7/19/11	83	Kept
Farmington (KFMN)	9/5/49	75	Kept
	7/6/68-9/2/68	32	All values were 32 for this period, so they were excluded due to probable instrumentation error
Fort Smith (KFMS)	7/2/57	83	Both kept due to high dewpoints that week.
	7/29/58	83	
	8/28/79	85	Excluded
Fresno (KFAT)	8/16/96	79	Excluded due to no surrounding stations within 5°F, even though day prior was only 5°F different
	7/1/97	83	Excluded
	7/6/07	75	Excluded

Glasgow (KGGW)	6/24/65	76	Excluded
	8/18/00	77	Excluded
	6/25/12	74	Excluded
Grand Island (KGRI)	7/4/80	83	Excluded
Grand Junction (KGTJ)	9/21/05	74	Excluded
Hartford (KBDL)	7/16/80	85	Excluded
	9/9/99	84	Excluded
	8/18/02	82	Excluded
	7/27/05	81	Kept
Helena (KHLN)	7/17/55	70	Kept
	7/4/75	69	Kept
	6/9/96	73	Kept
Houston (KHOU)	7/24/81	85	Excluded
	9/8/81	83	Excluded
	8/1/82	85	Excluded
	9/3/83	84	Excluded
	8/3/96	84	Excluded
	8/12/96	85	Excluded
	7/10/97	87	Excluded
	6/26/98	85	Excluded
	7/20/98	94	Excluded
	7/25/05	85	Excluded
	7/11/97	83	Kept
7/12/97	82	Kept	
Jacksonville (KJAX)	6/9/78	85	Excluded
	8/1/84	84	Excluded
Key West (KEYW)	8/6/75	84	Excluded
	6/8/79	88	Excluded
	8/9/79	87	Excluded
	6/30/85	84	Kept
Knoxville (KTYS)	8/4/65	79	Excluded
	8/3/05	82	Excluded
	6/30/17	84	Excluded
	6/19/18	87	Excluded
	7/4/80	81	Kept
La Crosse (KLSE)	7/3/77	81	Excluded
	7/4/77	83	Excluded
	6/26/78	85	Excluded
	7/5/78	85	Excluded
	9/14/00	113	Excluded
Lander (KLND)	7/7/75	67	Excluded
	7/23/79	68	Excluded
	7/9/18	64	Kept
Little Rock (KLIT)	6/7/79	85	Excluded
	7/6/77	82	Kept
	7/18/82	83	Kept
Los Angeles (KLAX)	6/27/76	73	Excluded
Lubbock (KLBB)	7/3/58	81	Excluded
	7/26/13	79	Excluded

Mason City (KMCW)	7/31/96-9/30/96 6/1/97-7/31/97 6/1/98-9/30/98	Low 30's Mid 30's Low 30's	All values were in the 30's °F which indicated an instrument error for each case
Medford (KMFR)	7/23/94 8/1/09	72 72	Excluded Kept
Memphis (KMEM)	9/5/97 8/17/97 6/13/97 7/8/96	89 84 84 90	Excluded Excluded Excluded Excluded
Miami (KMIA)	7/5/70 6/11/05 6/26/95 6/27/95	85 171 84 84	Excluded Excluded Kept Kept
Miles City (KMLS)	7/10/74 7/28/87 6/1/97 7/10/18 9/15/19	74 75 79 75 78	Excluded Kept Excluded Kept Excluded
Minot (KMOT)	7/23/97	86	Excluded
Mobile (KMOB)	7/29/63 8/1/69 7/13/72 7/3/74 7/16/75 7/29/99	83 84 83 85 84 86	Excluded Excluded Excluded Excluded Excluded Kept
Montgomery (KMGM)	8/14/01 8/15/01 8/17/01 8/18/01 9/20/01	85 86 85 86 85	All kept due to extremely high dewpoints in the area for the week Kept
Nashville (KBNA)	7/14/15 8/15/95	81 82	Excluded Kept
New Orleans (KMSY)	9/23/80	88	Excluded
New York (KJFK)	8/13/16	84	Excluded
North Platte (KLBF)	9/11/01 7/17/10 7/16/11	81 81 80	Excluded Kept Kept
Pendleton (KPDT)	7/11/75 9/7/98	71 72	Excluded Excluded
Phoenix (KPHX)	7/28/94 7/5/06 7/29/10	82 81 80	Excluded Kept Excluded
Pierre (KPIR)	8/13/97 7/15/98 6/20/99	142 84 246	Excluded Excluded Excluded
Portland (KPDX)	6/4/78 7/22/06	72 72	Excluded Kept

Providence (KPVD)	8/1/75 8/22/76 7/16/77 7/21/77	80 80 81 81	Kept Kept Both kept due to extremely high values that week
Raleigh (KRDU)	7/24/65 8/10/07 7/31/06 8/1/06	81 82 81 81	Excluded Excluded Kept Kept
Rapid City (KRAP)	8/19/04 9/13/17	91 131	Excluded Excluded
Reno (KRNO)	8/11/01	70	Excluded
Richmond (KRIC)	8/5/80 8/2/79 8/29/03	83 84 81	Excluded Kept Kept
Roanoke (KROA)	8/13/75	79	Excluded
Rock Springs (KRKS)	8/17/68 8/19/68 7/28/78 9/1/83 9/6/83 7/23/89 7/25/89	63 64 69 66 63 64 64	Excluded Excluded Excluded Excluded Kept Kept Kept
Sacramento (KSAC)	8/7/89 6/19/92 7/12/99 8/24/99 8/12/86	75 79 83 86 77	Excluded Excluded Excluded Excluded Kept
Salt Lake City (KSLC)	7/28/93	71	Excluded
San Antonio (KSAT)	7/28/79 6/17/95	84 82	Excluded due to no surrounding stations within 5°F even though day prior was only 5°F different Excluded
San Francisco (KSFO)	9/19/00	92	Excluded
Santa Maria (KSMX)	9/7/58 9/3/17	71 73	Kept Kept
Savannah (KSAV)	9/13/73	85	Excluded
Scranton (KAVP)	9/2/52 6/25/53 6/26/53 6/25/97	79 79 83 85	Excluded Excluded Excluded Excluded
Seattle (KSEA)	8/13/73 7/30/00	69 83	Excluded Excluded
Scottsbluff (KBFF)	6/27/03 7/16/03 7/20/03 7/21/03 9/17/13 9/18/13 6/28/14	77 79 82 82 79 83 79	Excluded Excluded Excluded Excluded Excluded Excluded Excluded

Shreveport (KSHV)	9/9/62 8/17/79	85 83	Excluded Excluded
Spokane (KGEK)	7/28/96 7/21/97 7/20/12 8/1/18	79 73 67 68	Excluded Excluded Excluded Excluded
South Bend (KSBN)	7/23/01	83	Excluded
Tallahassee (KTLH)	8/11/83 7/18/96 8/31/05	86 84 84	Excluded Kept Kept
Tampa (KTPA)	8/10/85 8/5/00 8/6/00 8/14/75 8/22/80 6/17/91	84 84 86 82 83 82	Excluded Excluded Excluded Kept Kept Kept
Tonopah (KTPH)	7/21/56 9/5/59 8/26/01	71 72 71	Kept due to high values that week for KTPH and surrounding stations Excluded Kept
Topeka (KTOP)	8/6/62	83	Excluded
Tucson (KTUS)	8/3/89	77	Kept
Tucumcari (KTCC)	5/31/02 6/2/02 6/8/02 6/13/02	82 81 85 81	Both kept due to high values all week Excluded Excluded
Wilmington (KILM)	6/9/51 7/30/69 9/20/77 7/20/83	84 84 84 88	Excluded Excluded Excluded Excluded