

Montana Weather/Precipitation Summary

April 2013 by NOAA's National Weather Service Great Falls Montana

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1 Dry and Mild Morning low of 0°F at Westby	2 Maximum temperature 74°F at Fort Benton.	3	4	5 Wind gust of 70 mph at Logan Pass.	6 Pea-size hail reported near Bozeman from thunderstorms. 
7 Change to cooler conditions. Thunderstorms over southern Montana.	8  Snow eastern half of the state.	9 Morning low of -6°F at Summit and -7°F at Placer Basin. Record low temperatures and heavy snowfall.	10 Mild. Morning low of 0°F near Martinsdale. Wind gust of 71 mph at Deep Creek RAWS.	11 Morning low of 0°F at Cooke City. Daily snowfall record set at Glasgow – received 1.7".	12 Turn to cooler again. Snow starts and continues through the 17 th .	13  Strong winds at higher elevations in southwest Montana. Gusts to 62 mph at Harkness RAWS (Beaverhead Co).
14 Snow across the state. 4-12" of snow across eastern Montana.	15 Morning low of 2°F near Utica	16 State maximum temperature only 49°F at Thompson Falls. Record low temperatures.	17 Morning low of -16°F at Placer Basin. Another round of snow. Record low temperatures.	18	19	20  Thunderstorms eastern Montana with some pea-size hail.
21  Snowfall set a daily record at Great Falls. 4-18 inches of snow west and central.	22 A foot of snow portions of south central. Record low temperatures.	23 Cold day. Record low temperatures. -11F Cooke City -18F Placer Basin	24	25	26	27 State maximum temperature 81°F Miles City. Very windy
28	29 Windy statewide. Thunderstorms central and east 	30 Cooler again with scattered snow showers 				

Blue boxes represent cooler than normal conditions.
 Yellow boxes represent mild temperatures.
 Orange boxes represent warmer than normal conditions.

April 1-6

The first week of April was mild and generally dry. Thunderstorms associated with a cold front brought some small hail to southwest Montana on the sixth.

April 7-9

Cooler conditions spread statewide. Thunderstorms occurred in southern Montana, in advance of a cold front on the seventh. By the eighth, snow was falling across eastern Montana, with up to a foot of snow over portions of the southeast from the seventh through ninth. Cold air spread over the state with a low of -6°F at Marias Pass and -7°F at Placer Basin on the ninth. Cut Bank, Great

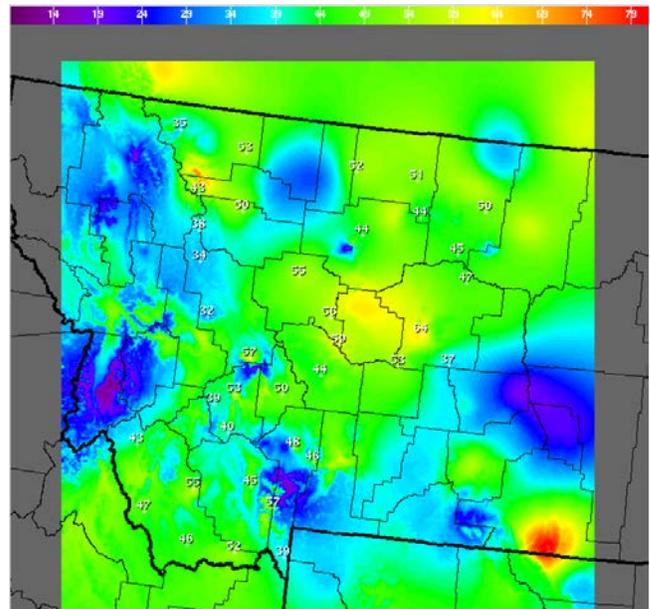
Falls and Havre set record lows on the ninth. Hammond (Carter County) received 1.28 inches of precipitation.

April 12-24

Generally cooler than normal conditions prevailed during this period. Snow fell periodically during this period as well. On the 13th and 14th, up to 14 inches of snow fell at higher elevations and over portions of northeast Montana. Glasgow set a daily snowfall record of 6.4 inches on the 14th. On the 16th and 17th, up to a foot and one-half of snow fell over parts of southern Montana. From the 14th through 17th temperatures were up to 20 degrees below normal, then from the 21st to 22nd, temperatures were up to 25 degrees below normal. Additionally, several record low temperatures were set during this period. Missoula and Dillon set record lows on the 16th, with record lows set at Dillon, Missoula and Kalispell on the 17th. Another round of cold air was ushered in on the 20th. Thunderstorms along the cold front produced some pea size hail in central and northeast Montana. Snow fell overnight on the 20th and 21st. Up to a foot and one-half of snow fell over the western and central mountains, with a foot near Seeley Lake. Great Falls set a daily record snowfall, with 4.6 inches falling on the 21st. Snow spread into southern Montana, with a foot of snow measured near Red Lodge on the 22nd. Cold air set a record low of 15°F at Missoula on the 22nd. Very cold air on the 23rd dropped lows to 10°F at Butte. Butte, Missoula, Bozeman, Dillon and Lewistown all set new record lows for the date. Cooke City dropped to -11°F, for the lowest in the state for the month. This set a new daily statewide record low for April 23rd. The old record was -10°F at West Yellowstone in 1927. At higher elevations, Placer Basin fell to -18°F. This is the coldest so late in the season at any location in Montana.

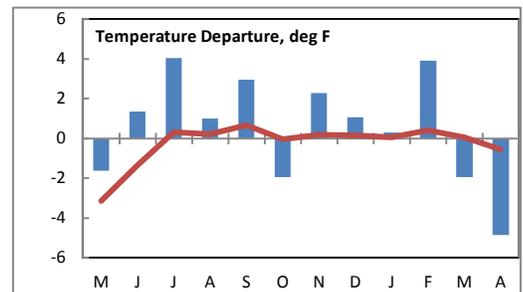
April 27 – 29

Windy conditions occurred statewide on the 27th and 29th. On the 27th, very strong winds were mainly through central Montana. On the 29th, strong winds spread statewide. Winds did down some power lines in northwest Montana on the 29th. Peak gusts reached 84 mph at Two Medicine on the 27th, and 93 mph at Logan Pass on the 29th. Cut Bank reported some damage to road signs on the 29th.



A ridge of high pressure aloft along the west coast continued to dominate the weather across much of western Montana during April. A trough of low pressure was shifted somewhat further west (Fig. 1). This flow pattern contributed to significantly cooler than normal temperatures across the state.

Statewide composite temperatures averaged nearly five degrees below normal in April. Temperatures ranged from a few degrees below normal west, to twelve degrees below normal in the northeast. Westby, with an average April temperature of 28.8°F, is the coolest average in the state. This is the first time since records began in 1937 that Westby has had an average April temperature below freezing, and this is the coldest April of record in portions of northeast Montana. An area of slightly above normal temperatures ranged through central Montana just east of the Rockies. Otherwise, temperatures were as much as 13°F below normal in northeastern Montana. This is the second consecutive month with below average temperatures. For the past 12-months, the statewide composite average temperature is very close to normal (red line on graph to right).

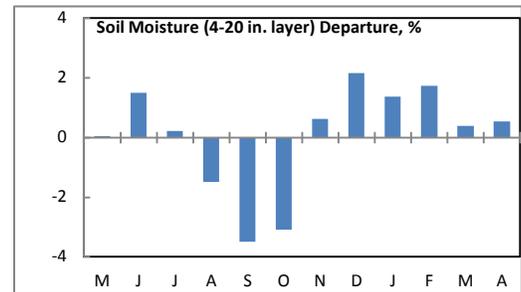
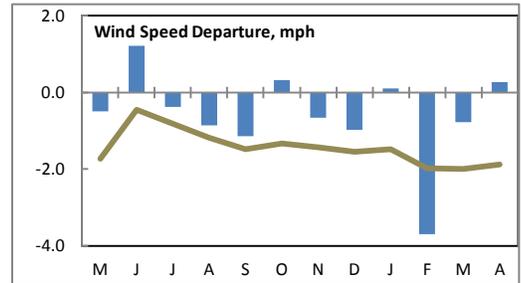
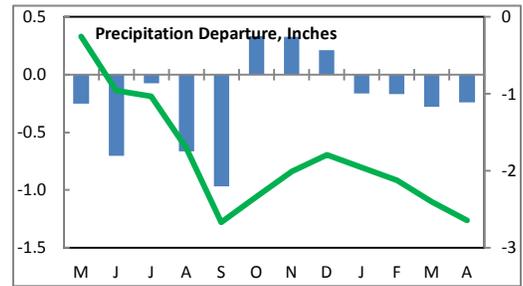


The monthly departure from normal for precipitation across Montana is shown in Figure 3. This figure shows above normal precipitation fell over scattered areas in Montana. The greatest positive anomaly was in the extreme northeast. Dry conditions prevailed over a large portion of southwest Montana. The wettest area was along the Idaho border in northwestern Montana. Overall, with mixed precipitation amounts across the state, the composite precipitation for April was below normal. This was the fourth consecutive month with below normal precipitation and the ninth of the past 12 months to record below normal precipitation. For the past 12-months, there is a 2.65-inch negative anomaly for the state (green line on precipitation graphic to right).

Snowfall amounts were also variable. With above normal values over portions of the state, the composite statewide average was above normal. The statewide average of 7.5-inches was 0.8-inches below average. For the water-year, snowfall has averaged 52.1-inches, about 6-inches below normal.

On a statewide average, winds were above normal in April. Generally, winds were stronger than normal west, and lighter than average east. For the past 12-months, winds are running 0.6-mph below average (brown line on wind graphic).

Soil moisture remained a bit above normal at the end of April. There was some drying from March through April. This April ranks as the 5th driest of record (with records starting in 1996) (see soil moisture figure to right). Refer to NCDC's State of the Climate report for the latest monthly discussion: <http://www.ncdc.noaa.gov/sotc/>.



Precipitation/convection

Severe convective weather occurred on zero days in April. The normal for the month is about one day.

Snow depths at lower elevations were near normal at the end of the month. At higher elevations, Flattop Mountain had 128 inches on the ground (115), Badger Pass 91 inches (81), Pike Creek 27 inches (49), Wood Creek 20 inches (24), Spur Park 64 inches (60), Black Bear 88 inches (97), and Noisy Basin 107 inches (105). Normal values for each location are in parentheses. West Yellowstone snow-on-the-ground melted out on April 29. This was close to the average of May 3.

For the water-year-to-date (October through April), the statewide mean temperature was 30.7°F, 0.2°F below normal. This is the 61st warmest of record. Statewide precipitation has averaged 6.44-inches, 0.03-inches above normal (see figure 4). This is the 63rd wettest of record. Mean wind speeds were 9.0-mph, or 0.8-mph below normal. This has been the 13th calmest season. Statewide snowfall for the winter season averaged 52.1-inches, 6.1-inches below normal. This has been the 55th least snowiest period of record.

April summary information:

High Temperature	81°F at Miles City (27 th)	Greatest Precip	4.44" near Libby
Low Temperature	-11°F at Cooke City -18°F at Placer Basin (23 rd)		10.40" at Poorman Creek SNOTEL (Lincoln)
Warmest Ave Temp	44.0°F at Billings Water Treatment Plant	Peak Wind Gust	93 mph at Logan Pass (29 th) 84 mph near East Glacier (27 th) (Glacier)
Coollest Ave Temp	28.9°F at Westby		
Range of Temp departures	-12.0°F at Westby to - 1.1°F at Troy	Highest Ave Wind	15.4 mph at Cut Bank 22.9 mph at Logan Pass (Glacier)
21 city mean monthly Temperature/Normal	38.1/43.0F 4.9F below normal. 11 th coldest of record (since 1880). 9 th percentile.	20 city mean monthly wind speed/Normal	10.1 mph/9.0 mph; 34 th calmest of record (since 1936). 42 nd percentile
22 city mean monthly precipitation/Normal	1.12/1.36" – 82% of normal. 65 th driest of record (since 1880). 47 th percentile	19 city mean monthly snowfall/Normal	7.5-in/6.7-in; 30 th lowest of record (since 1880). 75 th percentile

**Historical Rank of Precipitation (inches)
for the Current Month and Water Year to Date**

Location	Apr	% of Norm	Rank	Pcntl	Oct 1 – Apr 30	% of norm	Rank	Pcntl	Years
Baker	0.79	88%	5	29	3.17	79%	5	29	15
Billings	1.02	59%	48	42	4.21	61%	34	30	112
Belgrade	0.68	43%	16	20	3.50	60%	5	5	76
Butte	0.24	21%	5	3	2.53	54%	5	3	119
Cut Bank	0.72	92%	56	52	4.19	156%	89	84	106
Dillon	0.14	13%	3	3	1.65	48%	2	1	73
Glasgow	1.15	135%	77	67	5.01	145%	94	83	113
Great Falls	1.01	71%	58	47	5.63	106%	67	55	121
Havre	0.80	95%	65	48	5.20	153%	105	79	133
Helena	0.78	80%	65	48	4.84	127%	78	57	135
Jordan	1.70	157%	12	85	5.10	140%	12	79	15
Kalispell	1.40	113%	93	77	8.74	101%	70	58	119
Lewistown	1.23	87%	66	56	5.57	94%	48	41	117
Livingston	0.45	25%	9	7	3.53	59%	11	9	110
Miles City	1.27	93%	85	62	3.36	82%	37	27	136
Missoula	0.68	56%	41	30	7.53	112%	89	67	132
Mullan Pass	5.37	178%	71	99	38.00	133%	63	87	72
Wolf Point	0.25	27%	1	0	2.04	60%	6	36	15
Glendive	1.30	102%	74	62	5.42	123%	88	78	113
Sidney	0.98	93%	40	53	5.65	124%	58	80	72
BZN-MSU	0.94	41%	20	14	6.01	66%	20	14	134

Rankings and Percentiles are 1=driest, higher numbers=wetter.

For an automated version of this chart, updated daily, go to

<http://www.wrh.noaa.gov/tfx/dx.php?wfo=tfx&type=&loc=products&fx=PCPNTOTALS>

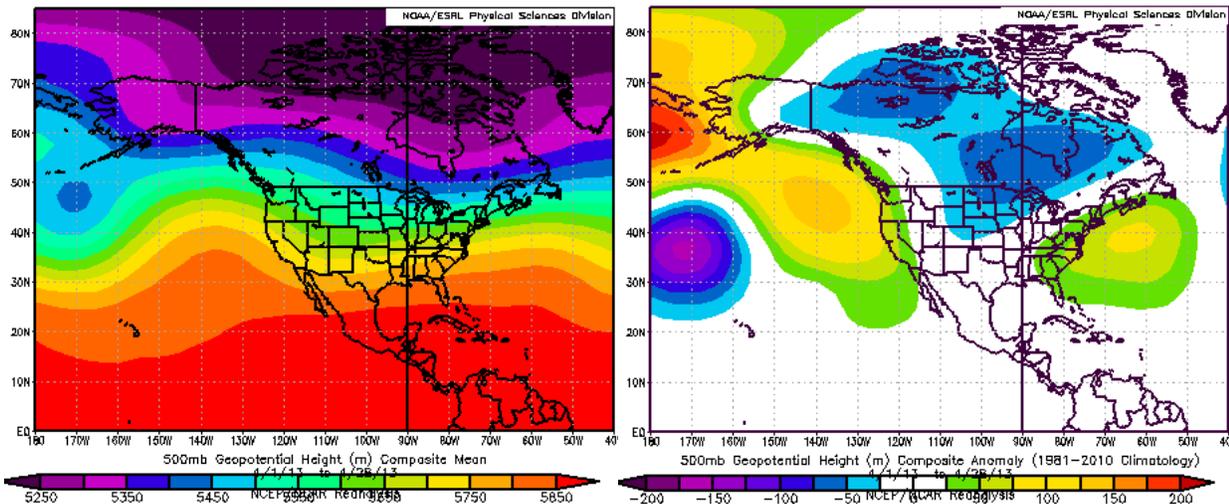


Figure 1a (left); 1b (right). Mean flow at 500 millibars (~18,000 ft) for this month (left) and departure from normal (right). The ridge over the west coast was shifted somewhat westward than normal, with a deeper trough shifted westward over the western Great Lakes.

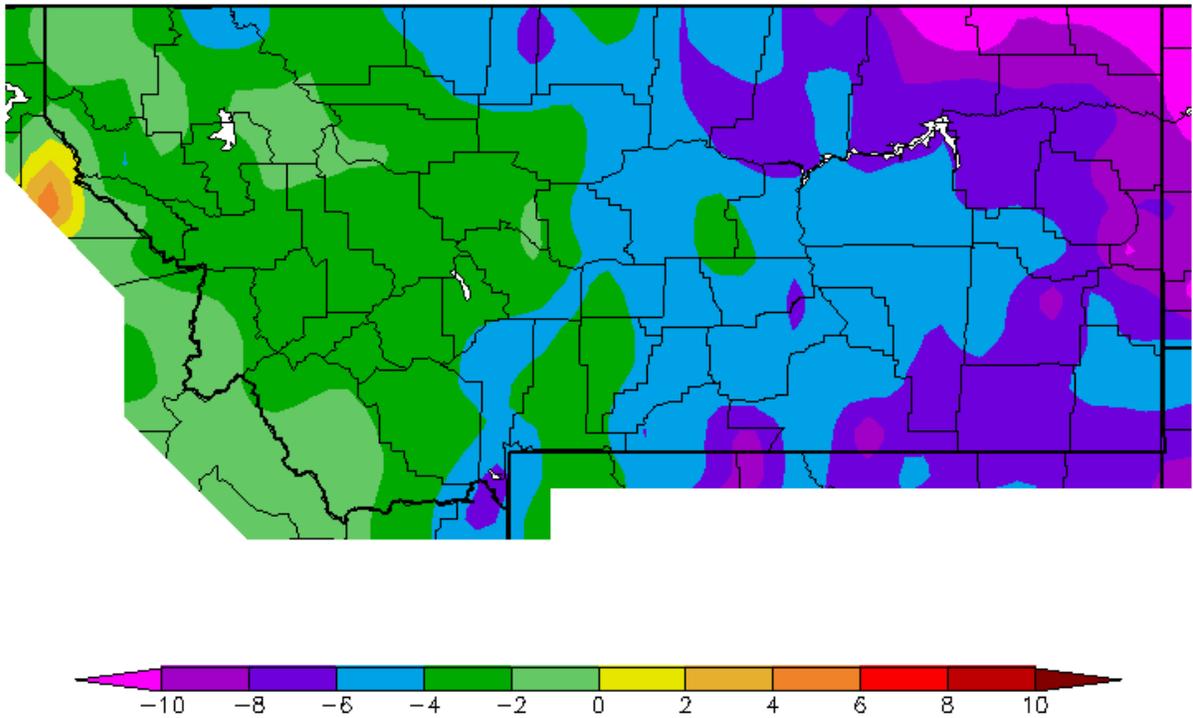


Figure 2. April 2013 temperature departures from normal ($^{\circ}\text{F}$) (Western Region Climate Center).

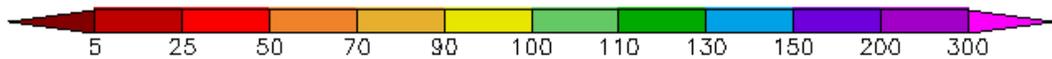
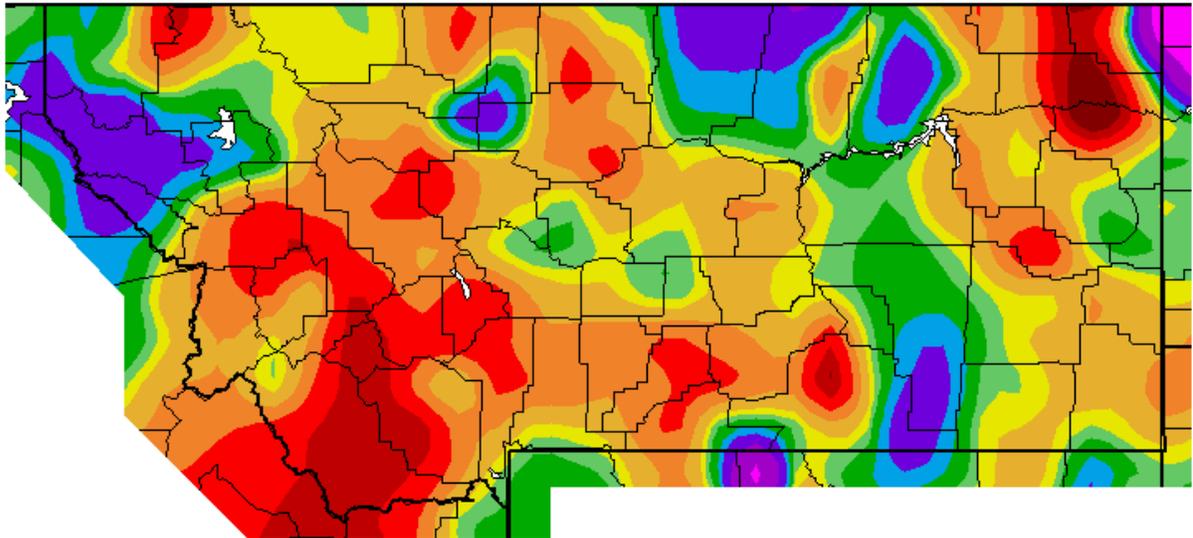


Figure 3. April 2013 precipitation departures from normal (percent) (Western Region Climate Center).

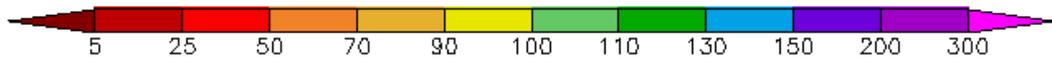
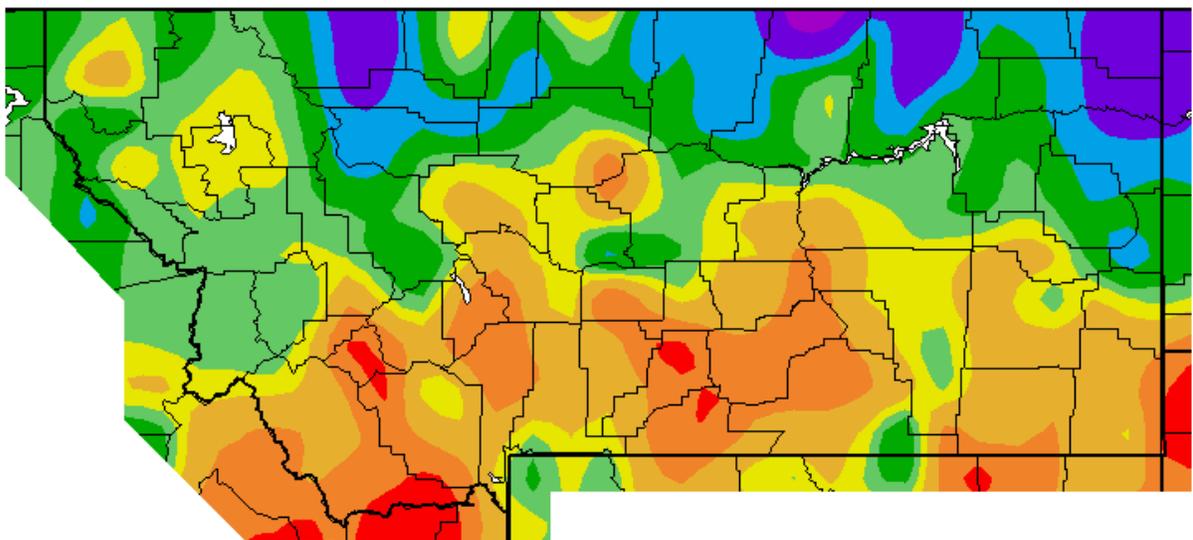


Figure 4. Water year percent of normal precipitation (Oct – Apr).

For a state map of % of normal water year precipitation (updated around the 7th of each month), go to:
http://www.wrh.noaa.gov/tfx/image.php?wfo=tx&type=data&loc=hydro&fx=watyr_pcnorm.png

For the latest information on mountain snow pack from the NRCS, go to:
<http://www.mt.nrcs.usda.gov/snow/index.html>

For the latest U.S. Drought Monitor, issued weekly by the Climate Prediction Center (CPC), go to:
<http://www.drought.unl.edu/dm/monitor.html>

These data are preliminary and have not undergone final QC by NCDC. Therefore, these data are subject to revision. Final and certified climate data can be access at the National Climatic Data Center (NCDC) <http://www.ncdc.noaa.gov>. Many more links are on the Drought Information Page of the NWS Great Falls web site at <http://www.wrh.noaa.gov/tfx/main/drought.php?wfo=tx>. The climatological record for normals is 1981-2010. The ranking period for temperature, precipitation and snowfall is since 1880. The ranking period for wind speeds is since 1936. The ranking period for soil moisture is since 1995.