NOAA - National Weather Service
Tampa Bay Area
2525 14th Avenue SE, Ruskin, Florida 33570
813-645-2323 http://weather.gov/tampa

Climate Normals Change on August 1

New normal temperatures and precipitation have been released, part of the routine update of Climate Normals that occurs every 10 years in the United States. New normals will officially begin use on August 1, 2011 here in West Central and Southwest Florida. The new normals will be based on a period of record that covers 1981-2010. The previous set of normals covered 1971-2000.

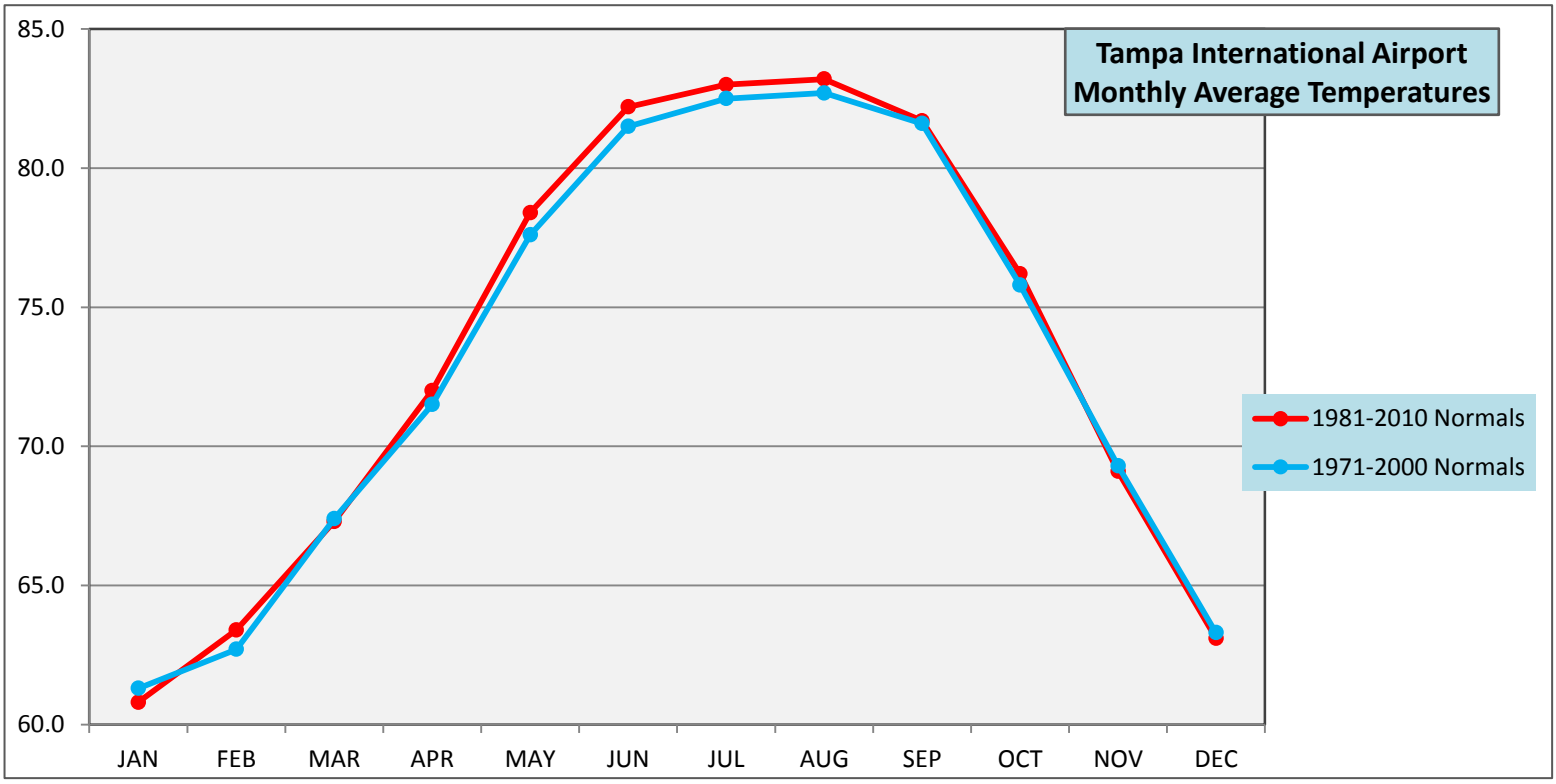
Climate Normals are calculated by the National Climate Data Center and involve a process of determining average values as well as accounting for bad and erroneous data in the climate record. Much more information on how the normals are calculated, and what they mean, can be found in our previous top news story: http://www.srh.noaa.gov/images/tbw/TopNews/PDF/NewClimateNormals.pdf

Beginning August 1, 2011, these new normals will be used for National Weather Service Climate products. The previous set of normals will no longer be used and users of the data must be aware of this important change.

The following are some details on the new normals, including the differences from the previous set. This story only covers the new normals at Tampa International Airport and Fort Myers Page Field, the two primary Local Climatological Data (LCD) sites for the forecast area. All normals for all sites have been updated in addition to these two.

Tampa International Airport (KTPA)

Temperatures at Tampa International Airport



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The new Climate Normals for Temperature at Tampa International Airport show some important differences. First, the normal winter time temperatures (with the exception of February) have become slightly colder than the previous normals. This is likely due to the influence of the recent winter time arctic outbreaks (January 2010 and December 2010), both of which were significant. The removing of two very warm Januarys (1972 and 1974) contributed to the month becoming cooler in the new normals. Also the removal from the new normals period of February 1978 (2nd coldest on record) is part of the reason for the warming of normal temperatures in that month. It's important to note that almost every other area of the country experienced a warming winter time temperature trend with the new normals, except for portions of Florida which saw cooling.

The second change of importance is that the new normals are warmer during the spring and summer. Much of this is due to the warming of nighttime low temperatures. This has several possible causes. One is the increased urbanization of the Tampa area, especially at the airport where the equipment is located. Another is the moves in the location of the equipment, which are not great distances but can be impacting low temperatures. Another factor could be the possible influence of changes in the global climate, which cannot be accurately determined through analyzing data from one site.

The table below shows a comparison at Tampa from the New Climate Normals (1981-2000) to the Old Climate Normals (1971-2000). The third set of data shows the change of the new set from the previous set. Blue numbers indicate the new normal is colder than the previous one while red indicates that it is warmer.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1981-2010 Normals												
Max Temp	69.9	72.5	76.3	81.0	87.2	89.6	90.1	90.2	88.9	84.3	78.0	72.0
Avg Temp	60.8	63.4	67.3	72.0	78.4	82.2	83.0	83.2	81.7	76.2	69.1	63.1
Min Temp	51.6	54.4	58.2	63.0	69.7	74.8	75.9	76.2	74.5	68.0	60.3	54.2
1971-2000 Normals												
Max Temp	70.1	71.6	76.3	80.6	86.3	88.9	89.7	90.0	89.0	84.1	78.0	72.0
Avg Temp	61.3	62.7	67.4	71.5	77.6	81.5	82.5	82.7	81.6	75.8	69.3	63.3
Min Temp	52.4	53.8	58.5	62.4	68.9	74.0	75.3	75.4	74.3	67.6	60.7	54.7
Difference												
Max	-0.2	+0.9	0.0	+0.4	+0.9	+0.7	+0.4	+0.2	-0.1	+0.2	0.0	0.0
Avg	-0.5	+0.7	-0.1	+0.5	+0.8	+0.7	+0.5	+0.5	+0.1	+0.4	-0.2	-0.2
Min	-0.8	+0.6	-0.3	+0.6	+0.8	+0.8	+0.6	+0.8	+0.2	+0.4	-0.4	-0.5

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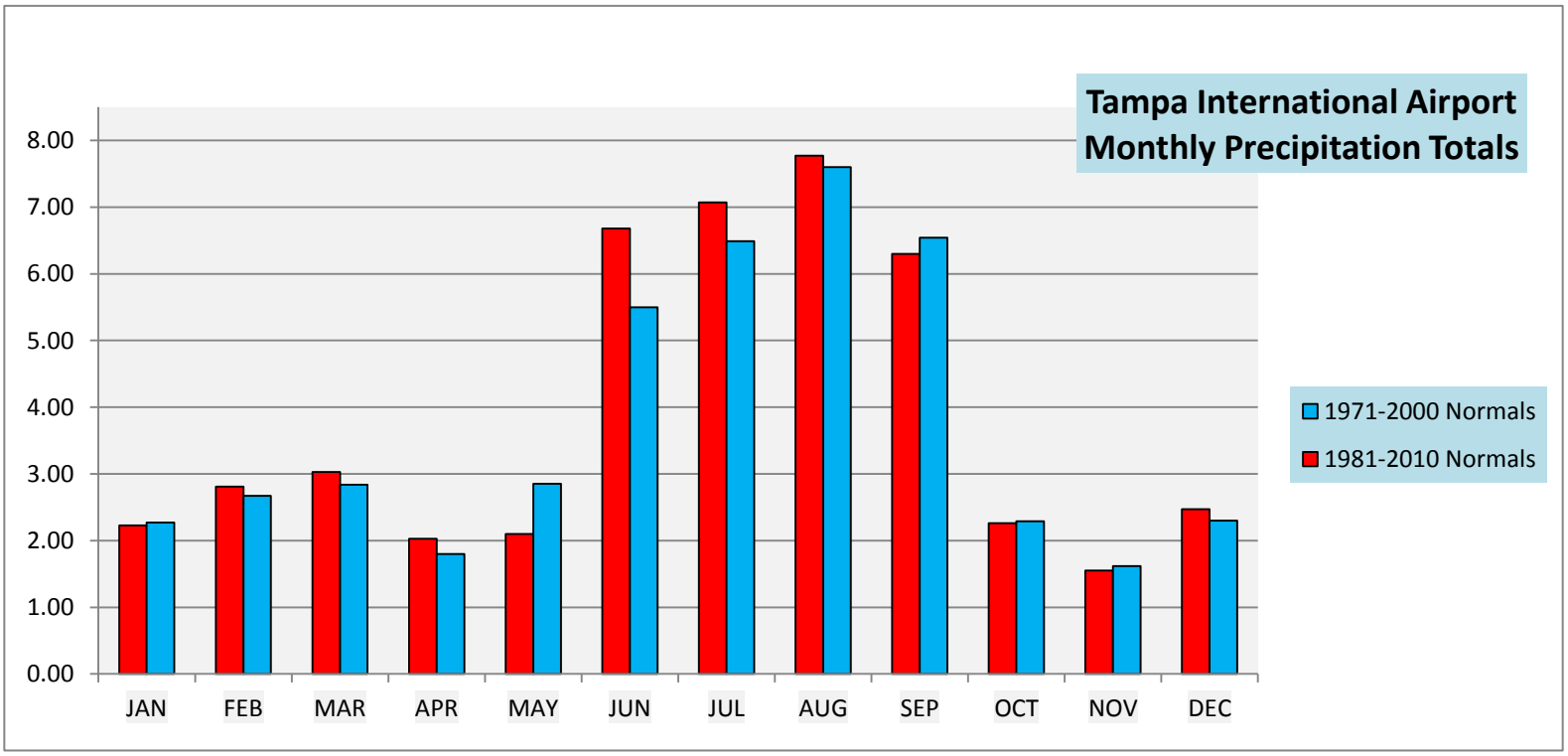
Precipitation at Tampa International Airport



The new Precipitation Normals for Tampa International Airport show that in general the monthly normal totals remain close to the previous ones. The biggest difference is during the months of June and July where the normal precipitation amount increased by over an inch. The next biggest change would be May, where the new normals are drier than the previous set by almost an inch. The reasons for differences in precipitation amounts from one set of normals to another can be difficult to determine. However, noticing that the biggest changes occur in the tropical season (getting wetter in the summer), it is possible that increased tropical activity in the early 2000's was partially responsible for a higher monthly normal rainfall. Rainfall totals during the bulk of the dry season (Oct-Apr) were nearly unchanged. The drying of the May normals is mostly due to the removal of May 1979 from the new normals, which was the wettest May ever with more than 17 inches of rain at Tampa.

The table below shows a comparison from the New Climate Normals (1981-2000) to the Old Climate Normals (1971-2000) at Tampa. The third set of data shows the change of the new set from the previous set. Blue numbers indicate the new normal is lower than the previous one while red indicates that it is higher.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1981-2010 Normals	2.23	2.81	3.03	2.03	2.10	6.68	7.07	7.77	6.30	2.26	1.55	2.47	46.30
1971-2000 Normals	2.27	2.67	2.84	1.80	2.85	5.50	6.49	7.60	6.54	2.29	1.62	2.30	44.77
Difference	-0.04	+0.14	+0.19	+0.23	-0.75	+1.18	+0.58	+0.17	-0.24	-0.03	-0.07	+0.17	+1.53

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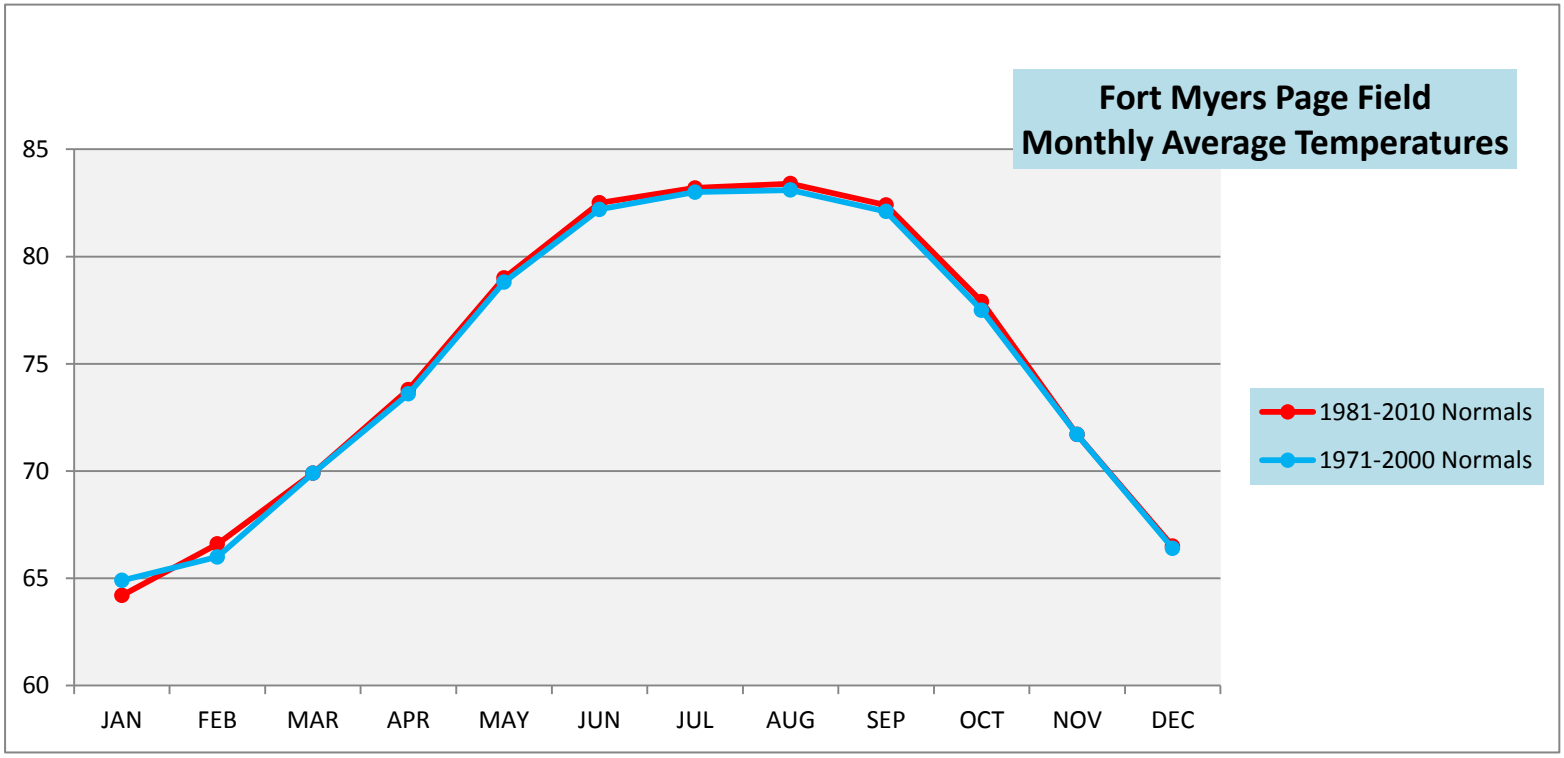
Fort Myers Page Field Airport (KFMY)

Temperatures at Fort Myers Page Field



The new climate normals for monthly temperatures at Fort Myers Page Field show only one significant difference from the previous set of normals to the new set. The largest difference is found during the month of January when the monthly average temperature fell by 0.7 degrees from the previous normals. All other months were either very close to the same normals as the previous set, or above the previous normals. The summertime months showed increases in monthly average temperatures. These trends are similar to the trends observed at Tampa International Airport, and the reasons behind them are likely the same. However, the cooling trend in the winter months is not as pronounced at Fort Myers as it was at Tampa. The January cooling at Fort Myers was strongly influenced by the removal of two of the warmest Januarys on record, 1972 and 1974 and the addition of 2001, 2003, and 2010 which are all in the top coldest on record.

Overall, most of the changes for the climate normals to Fort Myers were small, less than a half degree (with the exception of January's cooling). And it can be seen from the data that most of the differences are caused primarily from changes to the low temperatures, which showed warming during the summer and cooling in January. Most of the normal max temperatures did not show as much of a change.

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The table below shows a comparison from the New Climate Normals (1981-2000) to the Old Climate Normals (1971-2000) at Fort Myers. The third set of data shows the change of the new set from the previous set. Blue numbers indicate the new normal is colder than the previous one while red indicates that it is warmer.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1981-2010 Normals												
Max Temp	74.7	77.2	80.4	84.6	89.4	91.5	91.9	91.8	90.5	86.7	81.3	76.6
Avg Temp	64.2	66.6	69.9	73.8	79.0	82.5	83.2	83.4	82.4	77.9	71.7	66.5
Min Temp	53.7	55.9	59.4	63.1	68.7	73.5	74.5	74.9	74.3	69.1	62.0	56.4
1971-2000 Normals												
Max Temp	75.3	76.5	80.5	84.5	89.1	91.2	91.7	91.7	90.3	86.3	81.3	76.6
Avg Temp	64.9	66.0	69.9	73.6	78.8	82.2	83.0	83.1	82.1	77.5	71.7	66.4
Min Temp	54.5	55.4	59.3	62.7	68.4	73.1	74.2	74.4	73.9	68.6	62.1	56.2
Difference												
Max	-0.6	+0.7	-0.1	+0.1	+0.3	+0.3	+0.2	+0.1	+0.2	+0.4	0.0	0.0
Avg	-0.7	+0.6	0.0	+0.2	+0.2	+0.3	+0.2	+0.3	+0.3	+0.4	0.0	+0.1
Min	-0.8	+0.5	+0.1	+0.4	+0.3	+0.4	+0.3	+0.5	+0.4	+0.5	-0.1	+0.2

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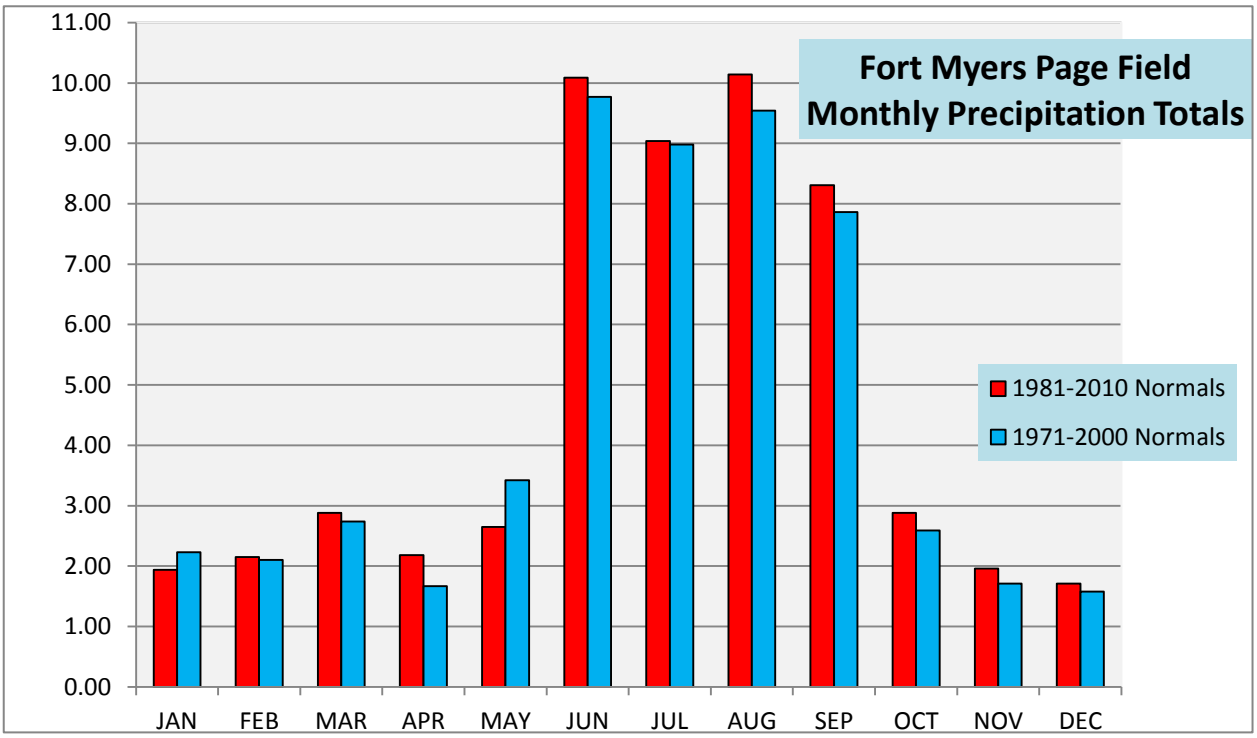
Precipitation at Fort Myers Page Field



The new Precipitation Normals for Fort Myers show that in general the monthly normal totals remain close to the previous ones. The biggest difference is during the month of May where the normal value has decreased by over half an inch. This corresponds to a drop in the normal precipitation in May at Tampa as well. Normals during the summertime also showed small increases, similar to what was seen at Tampa. The reasons for this are likely the same as well with the increased tropical activity in the early 2000's. The drying in May was influenced by the addition of the driest May on record which was May 2001 with 0.20 inches of rain. Rainfall totals during the bulk of the dry season (Oct-Apr) showed mainly small increases. November and December, which are the driest months of the year, both saw increases in monthly rainfall normals. Two Novembers (2002,2005) were added to the new normals, and they were among the wettest ever, which helped to increase the monthly normal.

The table below shows a comparison from the New Climate Normals (1981-2000) to the Old Climate Normals (1971-2000) at Fort Myers. The third set of data shows the change of the new set from the previous set. Blue numbers indicate the new normal is lower than the previous one while red indicates that it is higher.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1981-2010 Normals	1.94	2.15	2.88	2.18	2.65	10.09	9.04	10.14	8.31	2.88	1.96	1.71	55.93
1971-2000 Normals	2.23	2.10	2.74	1.67	3.42	9.77	8.98	9.54	7.86	2.59	1.71	1.58	54.19
Difference	-0.29	+0.05	+0.14	+0.51	-0.77	+0.32	+0.06	+0.60	+0.45	+0.29	+0.25	+0.13	+1.74

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The new normal numbers for Tampa and Fort Myers reflect the addition of some more recent weather trends, which include the arctic outbreaks of 2010, and increased tropical activity in the early-mid 2000s. It also included the loss of many years in the 1970s. In the early 1970s, some very warm January temperatures were removed, but also some very cold ones from the late 1970s.

It can be seen that individual years and short term (5-10 year) cycles can have large influences on the 30 year normals period. This is why one should be careful to not infer too much on overall climate change from one new set of updated 30 year normals. Normals are a constantly changing and updating set of numbers, and every 10 years we revisit them to reflect the latest changes in our local weather conditions.