

SE U.S. May Have A Drier, Warmer-Biased Summer

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As a meteorologist, I enjoy statistical information. I find it fascinating when numbers and data from past weather events line up to show an enhanced likelihood of a certain scenario happening. The question I looked at and am presenting in this blog is what a wet 12-month period, from April of one year through March of the following year, in the southeastern United States could mean for the region in the upcoming late spring and summer. The southeastern U.S. recently had one of the wettest April through March periods since record keeping began back in 1895 (124 years).

For the values I present in this blog, a ranking of 1 would be the driest or coolest year since 1895 and a rank of 124 would be the wettest or warmest year. The values I analyzed were from the National Centers For Environmental Information, specifically, NOAA's Climate at a Glance online page. This past year, from April 2018 through March 2019, the southeastern U.S. ranked 123 out of 124 suggesting it was the second wettest April through March period on record.

I then made a list of other years ranking in the top ten wettest April through March periods to assess what kind of weather evolved in the following months. The assessment follows below in the two accompanying snapshots.

	A	B	C	D	E	F	G	H	I	J	K	
1		1 - Month				2 - Month			3 - Month		4 - Month	
2		May	June	July	August	May - June	June - July	July - August	May - July	June - August	May - August	
3	2010	96	28	13	76	60	12	33	34	20	39	
4	1998	43	8	38	33	15	11	26	14	9	12	
5	1990	90	2	18	46	31	3	25	17	6	18	
6	1980	96	16	8	2	51	7	2	25	1	8	
7	1965	5	112	94	39	56	112	64	70	98	53	
8	1960	45	34	96	63	34	67	85	51	65	50	
9	1948	79	15	104	65	39	55	93	61	59	60	
10	1929	110	101	49	16	115	79	19	104	45	73	
11	1902	16	32	5	23	19	10	8	4	7	5	
12	1899	14	30	65	51	14	35	49	21	35	20	
13												
14												
15		: Driest on Record				: Top Ten Driest						

The results of this study were quite interesting. A dry-bias stands out in the months that follow such a wet 12-month period and more notable was the absence of wet weather biases. There was no wet bias in any of the years during the May through August period that followed the wet 12-month period ending in March.

Nine out of the 10 May through August periods shown above in the far right column ranked in the drier half (62 or lower) of all of the years since 1895. Also, in this column, 6 out of the 10 years placed in the driest one third of the data (ranked less than 41). Hence there was a

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definite drier bias to the May through August periods that followed the wettest 12-month periods ending in March.

I then dug deeper and analyzed how the temperatures ranked in May through August for the same years. My results for temperature are shown below.

	A	B	C	D	E	F	G	H	I	J	K
1		1 - Month				2 - Month			3 - Month		4 - Month
2		May	June	July	August	May - June	June - July	July - August	May - July	June - August	May - August
3	2010	114	123	121	122	124	124	124	124	124	124
4	1998	111	119	115	97	122	121	110	123	121	122
5	1990	57	70	88	100	68	83	102	69	92	88
6	1980	53	34	115	115	38	90	126	81	104	98
7	1965	109	9	9	43	56	4	18	36	5	32
8	1960	22	42	58	74	21	48	70	26	53	28
9	1948	81	92	80	20	95	90	44	93	60	74
10	1929	61	19	16	38	30	12	18	23	13	17
11	1902	120	101	113	90	118	111	109	122	114	121
12	1899	118	110	65	110	122	104	95	114	109	121
13											
14											
15		: Warmest on Record				: Top Ten Coolest					
16		: Top Ten Warmest				: Coolest on Record					

A warm summer temperature bias stands out among the summers that follow the wettest 12 month periods ending in March. Very few of the summers were cooler biased, although 1965 was a significantly cool year. Five out of the ten years shown in the table above placed in the top ten warmest summers for the southeastern states.

In the farthest right column, where May through August was analyzed, 7 out of 10 years placed in the warmer half of the data (rankings greater than 62). Six out of 10 years in this column were ranked in the warmest one-third of the data (values greater than 83).

So, based on this data, it does seem more likely that the southeastern United States would experience a warmer and drier-biased May through August period this year compared to being cooler and/or wetter-biased. There are obvious exceptions to the warmer and drier bias in the study as noted above leaving room for further speculation about weather in the coming late spring and summer based on the previous 12 months of wet biased conditions.

A drier and warmer-biased May through August in the Southeast would potentially cause crop stress. There were notable losses of crops in Georgia, southeastern Alabama, northern Florida, and parts of South Carolina in 2018 due to Hurricane Michael. So, additional losses this year from too much warmth and/or dryness would not be good. It was also interesting that the warm and dry biases occurred in either three or all four months from May through August in many of the years analyzed which helps to show the potential persistence that can happen if this bias returns during the coming summer.

The drier and warmer weather bias suggested in the statistics presented here also fit well with other World Weather, Inc. studies over the past few months suggesting a drier-than-usual bias in the summer this year from May through July. Those studies were based upon the record cold November weather in the heart of the Midwest and the record cold February noted in the

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north-central states and solar minimum years all of which suggested a similar dry bias. Having four separate statistical weather studies based on different weather parameters pointing to the same conclusion raises confidence that the summer will indeed be drier biased from May through July and possibly in August, as well, this year.