

December 2010, Record Coldest for East Central Florida

Daytona Beach, FL December 2010					Orlando, FL December 2010				
Coldest December on record					Coldest December on record				
Average temperature was 50.1 degrees					Average temperature was 52.0 degrees				
10.7 degrees below normal					11.0 degrees below normal				
broke previous record by 2.6 degrees					broke previous record by 3.5 degrees				
Day	Max	Min	Avg	Departure	Day	Max	Min	Avg	Departure
1	72	45	59	-4	1	71	48	60	-5
2	59	39	49	-14	2	62	43	53	-12
3	64	40	52	-11	3	66	41	54	-11
4	70	38	54	-9	4	70	37	54	-11
5	70	45	58	-5	5	74	49	62	-3
6	53	35	44	-18	6	54	38	46	-18
7	52	31	42	-20	7	53	35	44	-20
8	59	29	44	-18	8	60	31	46	-18
9	60	44	52	-10	9	63	45	54	-10
10	63	46	55	-7	10	66	47	57	-7
11	66	47	57	-4	11	68	46	57	-7
12	70	41	56	-5	12	75	46	61	-2
13	46	33	40	-21	13	49	35	42	-21
14	48	24	36	-25	14	49	28	39	-24
15	56	26	41	-20	15	57	31	44	-19
16	69	31	50	-11	16	71	32	52	-11
17	77	49	63	2	17	77	44	61	-2
18	67	48	58	-2	18	67	44	56	-7
19	58	44	51	-9	19	60	44	52	-10
20	60	38	49	-11	20	63	40	52	-10
21	68	35	52	-8	21	69	38	54	-8
22	76	40	58	-2	22	76	41	59	-3
23	60	38	49	-11	23	64	43	54	-8
24	61	35	48	-12	24	67	40	54	-8
25	72	39	56	-3	25	73	40	57	-5
26	63	35	49	-10	26	64	36	50	-12
27	49	28	39	-20	27	50	30	40	-22
28	56	24	40	-19	28	55	26	41	-21
29	61	26	44	-15	29	65	24	45	-16
30	71	35	53	-6	30	74	43	59	-2
31	74	48	61	2	31	77	51	64	3
Avg	62.9	37.3	50.1	-10.7	Avg	64.8	39.2	52.0	-11.0

<p>9 days below freezing 4 record lows 2 record cool highs 2 days above normal</p>	<p>7 days at/below freezing 6 record lows 3 record cool highs 1 day above normal</p>
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Melbourne, FL December 2010					Vero Beach, FL December 2010				
Coldest December on record					Coldest December on record				
Average temperature was 54.0 degrees					Average temperature was 53.9 degrees				
9.4 degrees below normal					10.8 degrees below normal				
broke previous record by 2.2 degrees					broke previous record by 4.2 degrees				
Day	Max	Min	Avg	Departure	Day	Max	Min	Avg	Departure
1	71	49	60	-6	1	72	51	62	-5
2	66	43	55	-11	2	67	43	55	-12
3	67	44	56	-9	3	69	44	57	-10
4	71	41	56	-9	4	71	42	57	-9
5	77	51	64	-1	5	77	50	64	-2
6	60	39	50	-15	6	60	38	49	-17
7	54	31	43	-21	7	56	31	44	-22
8	62	31	47	-17	8	62	32	47	-19
9	64	47	56	-8	9	59	47	53	-13
10	75	47	61	-3	10	76	46	61	-4
11	68	52	60	-4	11	73	52	63	-2
12	78	50	64	0	12	78	48	63	-2
13	53	36	45	-18	13	56	34	45	-20
14	52	29	41	-22	14	53	26	40	-25
15	57	28	43	-20	15	58	29	44	-21
16	74	34	54	-9	16	74	33	54	-10
17	80	50	65	2	17	80	45	63	-1
18	66	50	58	-5	18	68	47	58	-6
19	60	46	53	-10	19	61	47	54	-10
20	64	42	53	-9	20	65	41	53	-11
21	68	41	55	-7	21	70	43	57	-7
22	76	47	62	0	22	75	44	60	-4
23	66	45	56	-6	23	67	47	57	-7
24	67	42	55	-7	24	68	44	56	-8
25	75	45	60	-2	25	75	43	59	-5
26	67	35	51	-11	26	66	33	50	-14
27	52	31	42	-20	27	52	31	42	-21
28	58	28	43	-19	28	58	29	44	-19
29	62	30	46	-16	29	63	28	46	-17
30	71	44	58	-3	30	69	41	55	-8
31	76	63	70	9	31	76	61	69	6
Avg	66.4	41.6	54.0	-9.4	Avg	66.9	41	53.9	-10.8
7 days below freezing 4 record lows 2 record cool highs 2 days above normal					7 days at/below freezing 6 record lows 2 record cool highs 1 day above normal				

...EXTREME COLD AIR OUTBREAKS LEAD TO THE COLDEST DECEMBER ON RECORD FOR EAST CENTRAL FLORIDA...

...RAINFALL WAS ALSO WELL BELOW NORMAL FOR DECEMBER 2010...

A SERIES OF STRONG COLD FRONTS THAT BROUGHT NUMEROUS NIGHTS OF FREEZING TEMPERATURES TO THE AREA THIS MONTH LEAD TO THE COLDEST DECEMBER ON RECORD. LITTLE RAINFALL ACCOMPANIED THESE BOUNDARIES WHICH ALSO LEAD TO WELL BELOW NORMAL RAINFALL ACROSS THE AREA.

.TEMPERATURES...

ABOVE NORMAL TEMPERATURES EXPERIENCED ACROSS THE AREA DURING LATE NOVEMBER WERE ENDED BY THE 1ST OF THE MONTH AS THE FIRST OF A SERIES OF STRONG FRONTS CROSSED THE AREA. ADDITIONAL COLD FRONTS CROSSED THE AREA ON THE 5TH...12TH...18/19TH...AND 25/26TH WHICH REINFORCED BELOW NORMAL TEMPERATURES FOR MOST OF THE MONTH. THREE SEPARATE FREEZE EVENTS WERE EXPERIENCED THIS DECEMBER DUE TO THE VERY UNSEASONABLE COLD AIR BEHIND THESE BOUNDARIES. THESE EVENTS TOOK PLACE ON THE MORNINGS OF THE [7-8TH...14-16TH...AND 27-29TH](#). ONE OF THE EARLIEST HARD FREEZES (MINIMUM TEMPERATURES BELOW 28 DEGREES) TO OCCUR ON RECORD FOR DECEMBER WAS OBSERVED DURING THE 14TH AND 15TH WITH HARD FREEZES OBSERVED AGAIN ON THE 28TH AND 29TH.

DAILY AVERAGE TEMPERATURE DEPARTURES REMAINED BELOW NORMAL ALMOST EVERY SINGLE DAY WITH DEPARTURES AS HIGH 15 TO 25 DEGREES BELOW NORMAL OCCURRING ON SEVERAL DAYS. IN ADDITION...NUMEROUS RECORD LOWS AND COOL HIGHS WERE BROKEN THROUGHOUT THE MONTH. IN THE END MONTHLY AVERAGE TEMPERATURE DEPARTURES ACROSS EAST CENTRAL FLORIDA WERE 9 TO 11 DEGREES BELOW NORMAL. THESE AVERAGE TEMPERATURE VALUES NOT ONLY SET THIS DECEMBER AS THE COLDEST ON RECORD...BUT SHATTERED THE PREVIOUS COLDEST DECEMBER RECORDS BY A WHOLE 2 TO 4 DEGREES. RECORDS FOR THE FOUR MAIN CLIMATE SITES IN THE AREA GO AS FAR BACK AS THE EARLY 20S...HOWEVER EVEN COOP SITES THAT HAVE DATA EXTENDING BACK INTO THE EARLY 1900S SUCH AS TITUSVILLE...FORT PIERCE AND DELAND EXPERIENCED THEIR COLDEST DECEMBER ON RECORD BY A LARGE MARGIN.

THE MAIN CONTRIBUTING FACTOR FOR THESE WELL BELOW NORMAL TEMPERATURES DURING DECEMBER WAS A PERSISTENT AND STRONG [NEGATIVE PHASE OF THE ARCTIC OSCILLATION \(AO\)](#). THE NEGATIVE PHASE OF THE ARCTIC OSCILLATION TYPICALLY BRINGS MORE COLD AIR OUTBREAKS ALONG THE CENTRAL AND EASTERN UNITED STATES.

THE OVERALL MONTHLY AVERAGE TEMPERATURE VALUES FOR THE FOUR MAIN CLIMATE SITES ACROSS EAST CENTRAL FLORIDA ARE AS FOLLOWS:

-DAYTONA BEACH HAD AN AVERAGE MONTHLY TEMPERATURE OF 50.1 DEGREES FAHRENHEIT WHICH WAS 10.7 DEGREES BELOW NORMAL. THIS IS THE COLDEST DECEMBER ON RECORD FOR THIS SITE. (RECORDS GO BACK TO 1923)

-ORLANDO HAD AN AVERAGE MONTHLY TEMPERATURE OF 52.0 DEGREES FAHRENHEIT WHICH WAS 11.0 DEGREE BELOW NORMAL. THIS IS THE COLDEST DECEMBER ON RECORD FOR THIS SITE. (RECORDS GO BACK TO 1948)

-MELBOURNE HAD AN AVERAGE MONTHLY TEMPERATURE OF 54.0 DEGREES FAHRENHEIT WHICH WAS 9.3 DEGREES BELOW NORMAL. THIS IS THE COLDEST DECEMBER ON RECORD FOR THIS SITE. (RECORDS GO BACK TO 1937)

-VERO BEACH HAD AN AVERAGE MONTHLY TEMPERATURE OF 53.9 DEGREES FAHRENHEIT WHICH WAS 10.8 DEGREES BELOW NORMAL. THIS IS THE COLDEST DECEMBER ON RECORD FOR THIS SITE. (RECORDS GO BACK TO 1942)

TOP 5 COLDEST DECEMBER AVERAGE TEMPERATURE RANKINGS IN DEGREES FAHRENHEIT AND LAST YEAR SET:

	DAYTONA	ORLANDO	MELBOURNE	VERO BEACH
1	50.1 (2010)	52.0 (2010)	54.0 (2010)	53.9 (2010)
2	52.7 (1935)	55.5 (1989)	56.2 (1989)	58.1 (1989)

3	53.3 (1989)	56.5 (1963)	58.3 (1950)	59.2 (1969)
4	54.1 (1960)	57.2 (1954)	58.4 (1968)	59.3 (1963)
5	54.7 (1950)	57.5 (1960)	58.6 (1969)	59.5 (1962)

DATA FROM CO-OPERATIVE STATIONS* IN EAST CENTRAL FLORIDA:

DECEMBER (AVERAGE TEMPERATURE AND RANKING)

CLERMONT 50.6 - COLDEST (DATA GOES BACK TO 1948)

DELAND 47.8*- COLDEST (DATA GOES BACK TO 1900)

TITUSVILLE 51.7 - COLDEST (DATA GOES BACK TO 1901)

SANFORD 51.4 - COLDEST (DATA GOES BACK TO 1948)

OKEECHOBEE 51.9*- COLDEST (DATA GOES BACK TO 1945)

FT. PIERCE 53.7 - COLDEST (DATA GOES BACK TO 1901)

STUART 54.4 - COLDEST (DATA GOES BACK TO 1936)

*NOTE: RANKINGS FROM CO-OPERATIVE STATIONS MAY BE LESS RELIABLE DUE TO MISSING DATA. (AVERAGES FOR DELAND AND OKEECHOBEE WERE MISSING DATA FROM THE 31ST, WHICH WOULD LIKELY MAKE THE AVERAGE TEMPERATURES SLIGHTLY HIGHER THAN THESE NUMBERS REFLECT).

.RAINFALL...

THE NUMEROUS COLD FRONTS THAT CROSSED THE AREA DURING THE MONTH BROUGHT LITTLE IN THE WAY OF PRECIPITATION. THIS IS NOT UNUSUAL AS LA NINA CONDITIONS CURRENTLY OBSERVED OVER THE EQUATORIAL PACIFIC WATERS TYPICALLY BRING DRIER THAN NORMAL CONDITIONS OVER FLORIDA DURING THE WINTER SEASON. THE MOST SIGNIFICANT RAINFALL EVENT OCCURRED AHEAD OF THE COLD FRONT THAT CROSSED THE AREA LATE ON THE 18TH. SEVERAL LOCATIONS OBSERVED A QUARTER TO A HALF INCH OF RAINFALL WITH A HEAVIER BAND OF PRECIPITATION OCCURRING FROM OKEECHOBEE TO SOUTHERN BREVARD AND INDIAN RIVER COUNTIES. LOCALLY HEAVY RAINFALL AMOUNTS UP TO 1.5 TO 2 INCHES WERE REPORTED ALONG THIS BAND WITH MELBOURNE BREAKING A DAILY RAINFALL RECORD WHEN IT RECEIVED 1.87 INCHES. OVERALL ACROSS THE AREA...RAINFALL DEFICITS OF 1 TO 2 INCHES WERE GENERALLY OBSERVED FOR THE MONTH.

THE OVERALL RAINFALL TOTALS FOR THE FOUR MAIN CLIMATE SITES ACROSS EAST CENTRAL FLORIDA ARE AS FOLLOWS (RANKINGS PROVIDED IF IN THE TOP10):

-DAYTONA BEACH RECEIVED 0.38 INCHES OF RAINFALL WHICH WAS 2.33 INCHES BELOW NORMAL. THIS IS 8TH DRIEST DECEMBER ON RECORD FOR THIS SITE.

-ORLANDO RECEIVED 0.78 INCHES OF RAINFALL WHICH WAS 1.53 INCHES BELOW NORMAL.

-MELBOURNE RECEIVED 1.95 INCHES OF RAINFALL WHICH WAS 0.36 INCHES BELOW NORMAL.

-VERO BEACH RECEIVED 0.56 INCHES OF RAINFALL WHICH WAS 1.63 INCHES BELOW NORMAL.

BELOW IS A LIST OF OBSERVED PRECIPITATION TOTALS AND RAINFALL STATISTICS FOR SELECT SITES ACROSS EAST CENTRAL FLORIDA FOR DECEMBER 2010:

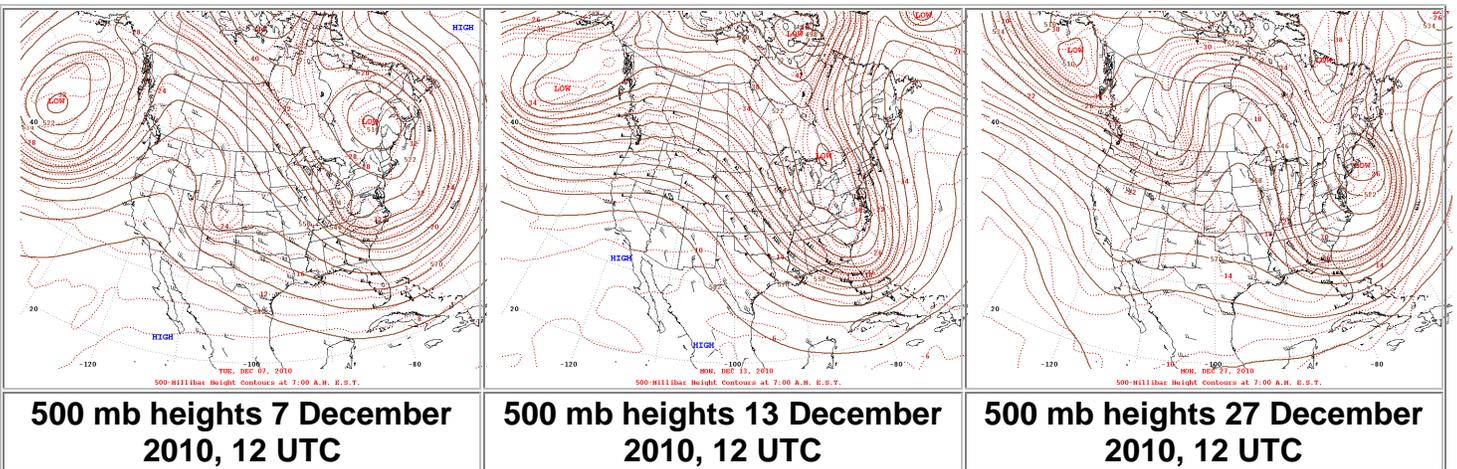
STATION	DEC 2010 RAINFALL	30 YEAR NORMAL	DEPARTURE FROM NORMAL	PERCENT OF NORMAL
DAYTONA BEACH (DAB)	0.38"	2.71"	-2.33"	14%
ORLANDO (MCO)	0.78"	2.31"	-1.53"	34%
MELBOURNE (MLB)	1.95"	2.31"	-0.36"	84%
VERO BEACH (VRB)	0.56"	2.19"	-1.63"	26%
CLERMONT (CLRF1)	0.75"	2.40"	-1.65"	31%
DELAND (DELF1)	0.29"	2.65"	-2.36"	11%
SANFORD (SFNF1)	0.15"	2.53"	-2.38"	6%
TITUSVILLE (TITF1)	0.32"	2.52"	-2.20"	13%
FORT PIERCE (FPCF1)	0.39"	2.28"	-1.89"	17%
OKEECHOBEE (OKEF1)	0.71"	2.28"	-1.57"	31%
STUART (STRF1)	0.70"	2.78"	-2.08"	25%

FOR MORE LOCAL CLIMATE INFORMATION...PLEASE VISIT OUR WEB PAGE AT [HTTP://WEATHER.GOV/MELBOURNE](http://weather.gov/melbourne) AND CLICK ON THE "LOCAL" LINK UNDER THE CLIMATE SUBSECTION ON THE LEFT SIDE OF THE PAGE.

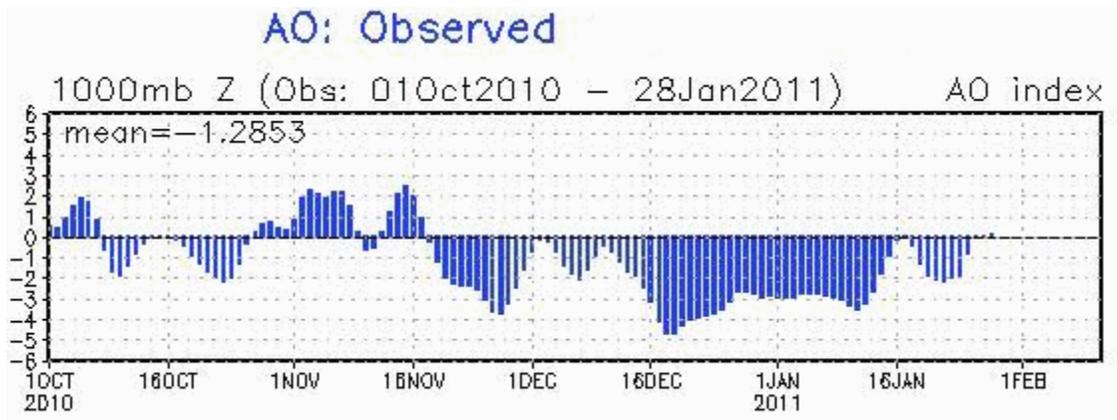
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WEITLICH/GLITTO

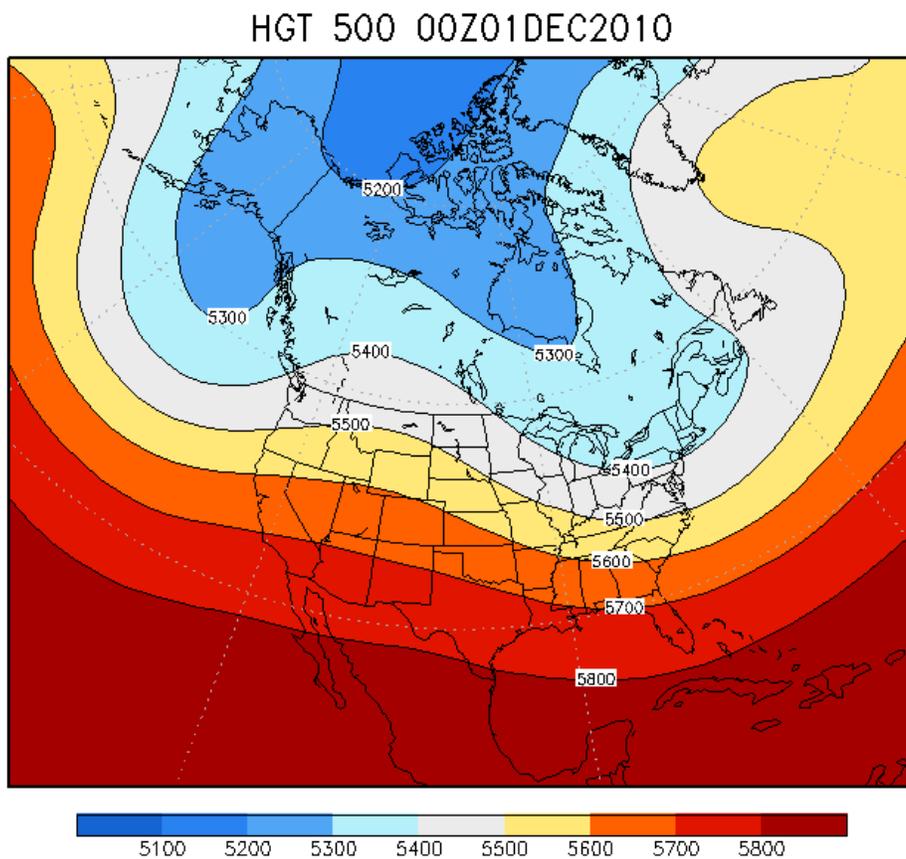
500 mb flow for the three central Florida freeze events in December 2010, showing strong meridional flow over the eastern U.S. (click images to enlarge)



Arctic Oscillation (AO) showing negative values through the whole month of December 2010.

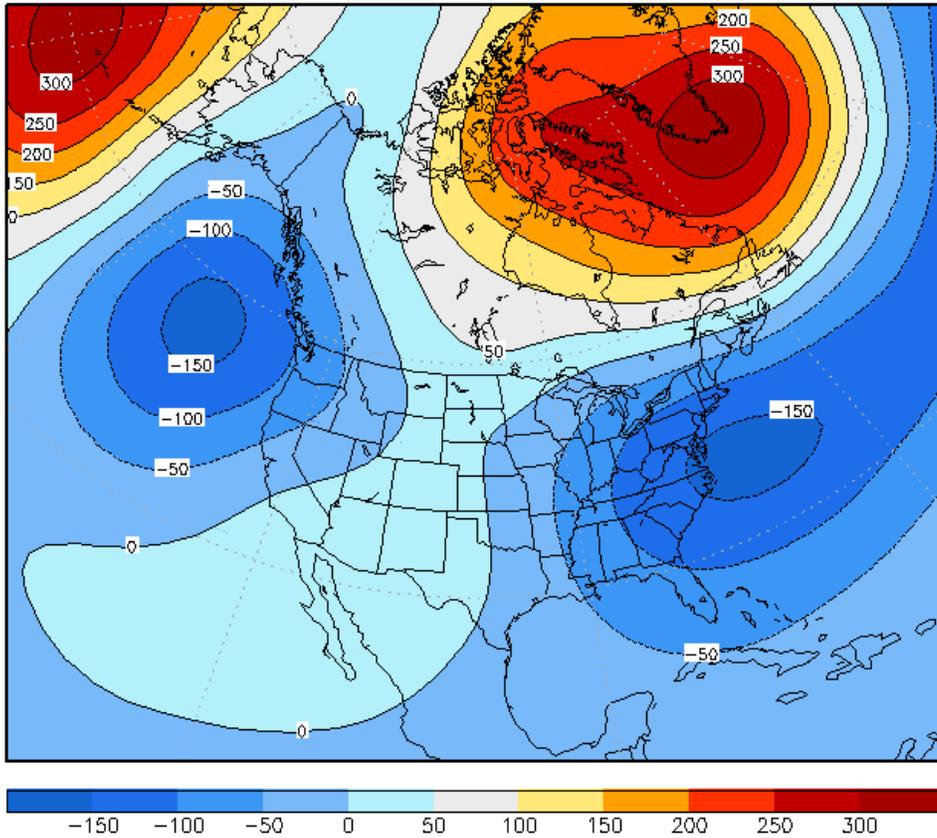


Mean 500 mb heights (meters) for December 2010 showing northwest flow aloft across the eastern U.S.



500 mb monthly height anomaly (meters) for December 2010, showing lower than normal heights across the eastern U.S. and positive anomaly vicinity Greenland (which is a characteristic of negative Arctic Oscillations).

HGT anom 500 00Z01DEC2010



1000 mb monthly temperature anomaly (degrees Celsius) for December 2010, depicting the cold low level temperatures experienced across the eastern U.S.

TMP anom 1000 00Z01DEC2010

