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Atlas of Growing Degree Day Statistics for the Northeastern United States and Southeastern Canada

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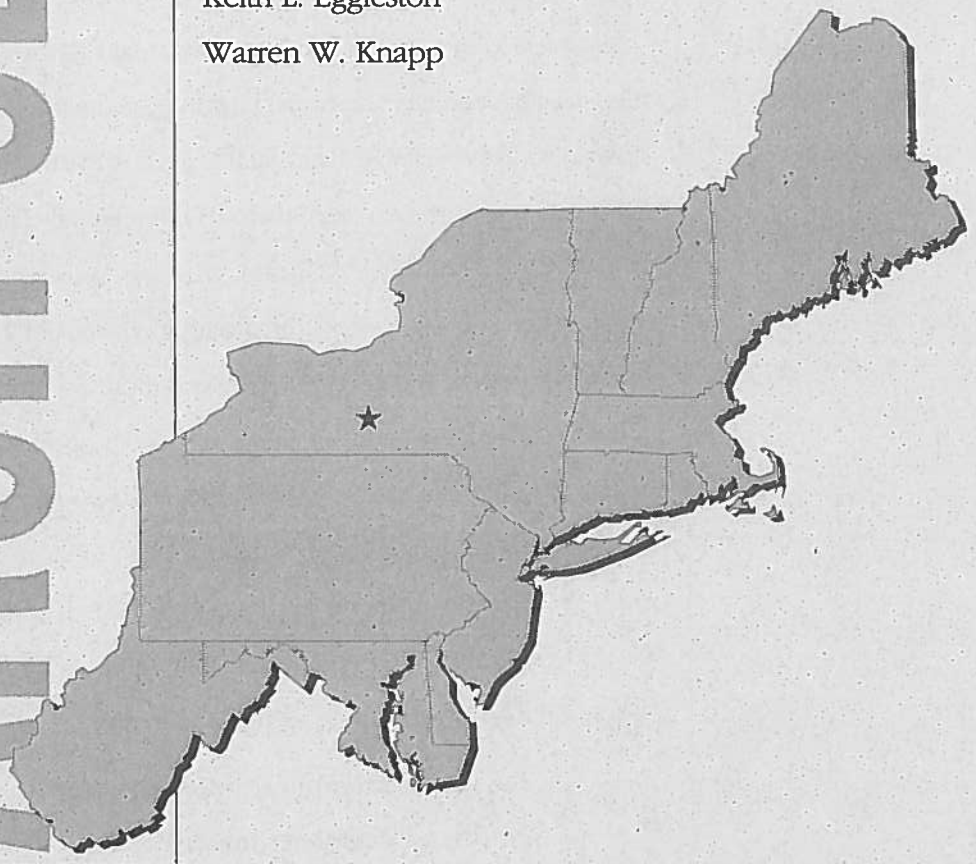

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CONTENTS

INTRODUCTION

Growing degree days (GDD) provide a useful means of relating crop growth and insect development to temperature. The selection of crop varieties, strategies for pest control and scheduling of crop management practices are often based upon the average or "normal" number of GDD received at a specific location. These "normals" generally represent 30-year averages which are routinely updated with each new decade. Although maps depicting the geographic distribution of GDD normals have been compiled on a statewide basis (Cornell Cooperative Extension, 1987), a comprehensive regional climatology of GDD values is lacking. Such regional information is essential for determining a site's suitability for new crop varieties and comparing crop development at different locations.

The series of maps presented in this publication provides an extensive regional climatology of GDD statistics. Although such maps are useful for displaying spatial GDD characteristics across the region, other applications may require station-specific GDD information. Persons requiring GDD statistics at particular locations should contact the Northeast Regional Climate Center (NRCC). Likewise, users who require GDD statistics based on different methodology, calculated using other bases or accumulated over different time intervals should contact the NRCC at (607) 255-1751.

METHODOLOGY

Data

This atlas is based upon daily maximum and minimum temperature observations from 640 stations encompassing the northeastern United States and adjacent portions of Canada. The location of these stations is shown in Figure 1. Station names and coordinates are listed in Table 1. All stations are included in the U.S. National Weather Service or Canadian Atmospheric Environment Service Cooperative Observer Networks. Although these stations provide the densest network of temperature observations available, in mountainous areas there is a tendency for stations to be located in valleys rather than at the highest elevations. As a result, mapped GDD values may be overestimated in such areas. This shortfall is of little consequence, however, considering the agricultural applications of these statistics.

The data are representative of the 30-year time period from 1961-1990. This time period was chosen because it a) coincides with the years for which comprehensive data, specifying the time of day at which temperature observations were made, is available for each station; b) minimizes the amount of missing data; and c) corresponds with the current period used to calculate climatic normals. Stations at which more than 10% of the daily temperature data are missing during the 1961-1990 time interval have been excluded.

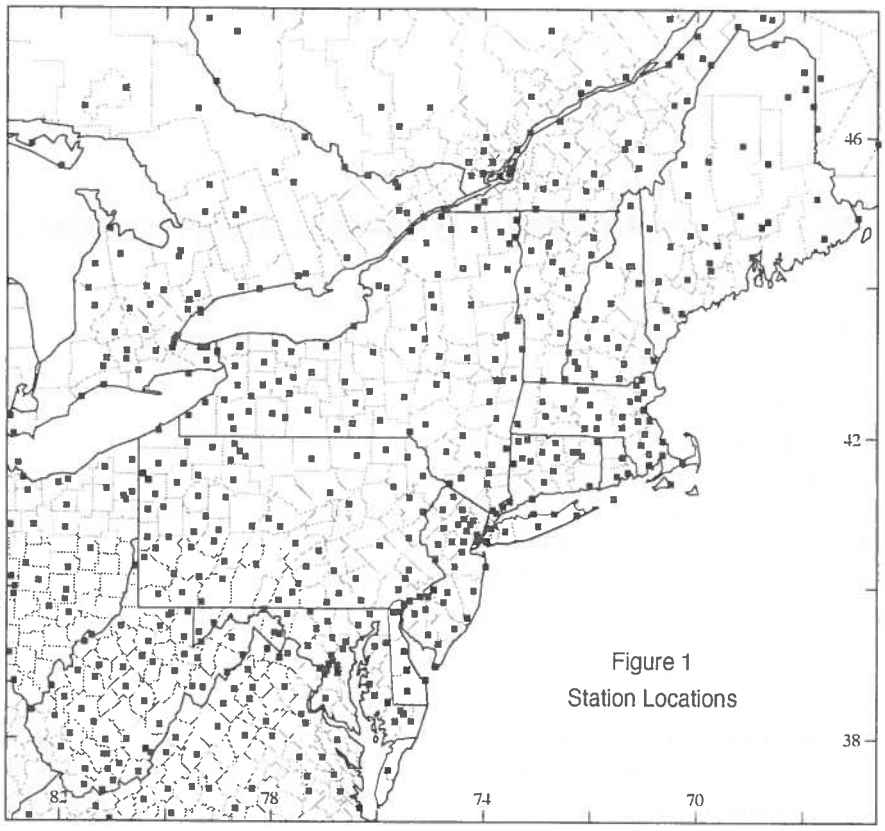

Figure 1
Station Locations

Estimation of missing data

Serially complete temperature records have been used to compute this summary of GDD values. In these records, missing temperature observations have been estimated based on the daily departure from the normal maximum or minimum temperature at surrounding stations (DeGaetano et al., 1995). Daily maximum temperature estimates obtained by this procedure were, on average, within 2°F of the observed values at the 12 northeastern U.S. stations where the procedure was tested.

Quality control

The data used in this publication were subjected to a semi-automated quality-control procedure developed by Robinson (1993). In this procedure, daily data are assessed for internal consistency and consistency with data from the previous day. Temperature data are considered inconsistent when any of the following conditions occur:

1) A temperature exceeds the prescribed maximum for the state or is less than the state's prescribed minimum temperature. In the Northeast, prescribed state maxima range from 105° in Maine to 112° F in West Virginia. Minima range from -17° in Delaware to -52° F in New York.
2) Maximum temperature is less than the minimum temperature.
3) Minimum temperature exceeds the prior day's maximum temperature.
4) Maximum temperature exceeds the minimum temperature by more than 60° F.

Temperatures which met Condition 1 or Condition 4 were compared with temperatures at surrounding stations and retained as valid, if the temperature at any neighboring station met the same quality-control condition. If similar temperatures were not found at a surrounding site, the inconsistent observation was assumed missing and estimated using the methods of DeGaetano et al., (1995). Temperatures meeting Condition 2 or Condition 3 were also assumed missing and estimated.

Growing Degree Day Calculation Methods

Numerous methods for calculating growing degree days exist. However, for brevity, only three of the most common methods; base 50, 50-86 and Canadian corn heat units, are presented in this atlas. A base temperature of 50° F is subtracted from the average daily air temperature to obtain base 50 GDD. A similar procedure is used to calculate 50-86 method GDD; however, minimum temperatures are limited to 50°F or above and maximum temperatures are restricted to 86°F or below. The corn heat unit method uses a curvilinear relationship with temperature to obtain degree days. Schmidlin and Dethier (1987) give a more complete description of these methods. The GDD values presented in this atlas are given in degrees Fahrenheit. These values can be converted degrees Celsius by simply multiplying the isoplethed values by a factor of 0.56.

Adjustment for Observation Time

The recording of daily temperature extremes typically occurs at one of three times: morning (7:00 - 8:00 a.m.), early evening (4:00 - 7:00 p.m.) or midnight, and are intended to represent the preceding 24 hour period. Temperature averages from midnight observations tend to be slightly cooler than those taken at the most common observation hours, 7:00 a.m. and 8:00 a.m., while average temperatures calculated from afternoon observations tend to be warmer. This warm bias results since these observation hours coincide with the normal time of maximum temperature occurrence. If a warm afternoon is followed by a day with cooler temperatures, the maximum temperature observation taken during the warm afternoon will likely represent the maximum temperature of both the current and subsequent 24-hour periods since, once reset, the thermometer will remain at or near the maximum temperature. In effect this maximum temperature is recorded twice. Thus, sites that make observations about the time of the daily maximum temperature tend to accumulate GDD more rapidly than do stations taking morning or midnight observations. In contrast, GDD accumulate less rapidly when daily temperature observations are taken near the time of the daily minimum temperature occurrence (generally 5:00 - 6:00 a.m.), since the minimum temperature on a particularly cold morning is often recorded as the minimum for two successive days.

Observing and reporting practices also differ across national borders. In Canada, daily temperature observations are taken twice daily, once in the early morning and again during the late afternoon or early evening. After each observation, thermometers are reset yielding two sets of maximum and minimum temperatures each day. Using these observations, the daily maximum temperature for day n is defined as the warmer of the afternoon maximum temperature of day n and the morning maximum temperature of day n+1. Daily minimum temperature is simply the colder of the morning and afternoon minimum temperatures of day n. An advantage to this observation practice is that for reporting purposes maximum and minimum temperatures generally correspond to their actual day of occurrence.

Although on a daily basis the bias introduced by inconsistencies in observation time and practice are often negligible, these small differences accumulate over time, resulting in significant inconsistencies in weekly or longer period GDD totals among stations. For example, Baker (1975) found that in Minnesota, the seasonal (May – September) difference between base 50 GDD computed using 7:00 a.m. and 3:00 p.m. temperature observations exceeded 300 GDD. DeGaetano and Knapp (1993) found similar differences in seasonal GDD accumulations in the Northeast.

To minimize the systematic biases introduced by differences in observation time and practice, DeGaetano and Knapp (1993) developed a method to adjust GDD accumulations based on any observation hour or the Canadian observation practice to a value representing an 8:00 a.m. observation schedule. This hour was chosen as the standard because it represents the most common observation time in the Northeast and therefore introduces minimal change to the GDD threshold values that are in common use. Adjustment factors representing the average difference between GDD accumulations for a given hour and that of an 8:00 a.m. observation schedule are used as a basis for standardization. These factors, given in DeGaetano et al. (1993), have been applied to the GDD values upon which this atlas is based.

MAP FORMAT

A series of isoplethed maps depicting the regional distribution of GDD values form the basis of this atlas. In general, these maps summarize three aspects of the regional GDD climatology. The maps on pages 13-39 show selected percentiles of seasonal GDD accumulation. Due to a wide range in growing season length across the region, GDD statistics are given for three separate growing seasons defined by the periods April 1 – October 31, April 15 – October 15 and May 1 – September 30. Median monthly GDD totals are given in the maps on pages 40-48. Finally, the maps on pages 49-51 show the median number of days required to accumulate 120 and 450 GDD using the 50-86 method. These accumulation thresholds are specific to corn and correspond to the emergence of the growing point and the 5-leaf stage, respectively.

Percentile values are used to characterize the climatological distribution of growing degree days across the Northeast. Percentiles divide an ordered set of data into 100 intervals according to their size. For example the 10th percentile is the quantity expected to be exceeded, on average, 90% of the time. In other words, this value is greater than 10% of the available data. Conversely, the 90th percentile represents the quantity expected to be exceeded, on average, 10% of the time. For Binghamton, NY, the 90th percentile of the seasonal (May 1 – September 30) accumulation of 50–86 method GDD is 2424 for the years 1961-1990. Therefore, in 90% of the growing seasons, 2424 or fewer GDD accumulated. Conversely, in 10% of the seasons more than 2424 GDD were realized. The 50th percentile or median value corresponds to the quantity expected to be exceeded, on average, one half of the time. Thus, in a thirty-year period, the 50th percentile value will be, on average, exceeded 15 times.

Although average values have been conventionally used to define GDD "normals", percentiles are used here. For temperature and temperature-derived variables such as GDD, the value of the median and average are similar. For example, at Binghamton the median seasonal 50–86 method GDD accumulation is 2276 while the average value is 2260. Despite this similarity, the median is a more desirable statistic for two

primary reasons. First, the median is more robust and thus is fairly resilient to extreme and possibly erroneous observations. Such values can greatly alter the average, but have little effect on the median. Secondly, the median contains information regarding frequency. For example, knowing that the average seasonal (April 15 – October 15) accumulation of 50–86 method GDD at Hagerstown, MD is 3312, gives no information concerning the number of seasons in which more or less than 3312 GDD accumulated at Hagerstown. However, given the median accumulation is 3301, then any season has a 50-50 chance of exceeding this GDD total. Such information is useful in planning, especially if a range of percentile values are known. Users unfamiliar with the use and calculation of percentiles are referred to any introductory statistics text (e.g. Wilks, 1995) for a more detailed discussion.

MAPPING DETAILS

The maps presented in this atlas have been prepared by first gridding individual station values, and then isoplething the gridded fields by automated means. Growing degree day values were transformed into a 54 x 82 (latitude x longitude) grid, with points spaced at 0.2° intervals. This grid is confined to the map rectangle, but stations outside the rectangle were also used to improve the representation at the edges of the maps. Details concerning the gridding algorithm are given in Wilks and Cember (1993).

The gridded fields were smoothed using the moving average in a 3 x 3 cell window (i.e. by an unweighted averaging of each grid point with its eight adjacent neighbors). These smoothed gridded values were contoured and plotted using the NCAR Graphics software package, version 3.00 (Clare and Kennison, 1989).

ACKNOWLEDGMENT

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Table 1. List of stations used and their locations.

Station #	Station name	Latitude (degrees)	Longitude (degrees)
CONNECTICUT			
060806	BRIDGEPORT WSO AP	41.17	73.13
060961	BULLS BRIDGE DAM	41.65	73.48
060973	BURLINGTON	41.80	72.93
061689	COVENTRY	41.80	72.35
062658	FALLS VILLAGE	41.95	73.37
063207	GROTON	41.35	72.05
063451	HARTFORD-BRAINARD F	41.73	72.65
063456	HARTFORD WSO AP	41.93	72.68
064488	MANSFIELD HOLLOW LAK	41.75	72.18
064767	MIDDLETOWN 4 W	41.55	72.72
065077	MOUNT CARMEL	41.40	72.90
065445	NORFOLK 2 SW	41.97	73.22
067373	SHEPAUG DAM	41.72	73.30
067970	STAMFORD 5 N	41.13	73.55
068138	STORRS	41.80	72.25
069388	WEST THOMPSON LAKE	41.95	71.90
069568	WIGWAM RESERVOIR	41.68	73.15
DELAWARE			
072730	DOVER	39.15	75.52
073570	GEORGETOWN 5 SW	38.63	75.45
075320	LEWES	38.77	75.13
075915	MILFORD 4 SE	38.90	75.47
076410	NEWARK UNIVERSITY FA	39.67	75.73
079595	WILMINGTON WSO AP	39.67	75.60
079605	WILMGTON PORTER RESV	39.77	75.53
MAINE			
170275	AUGUSTA FAA AP	44.32	69.80
170355	BANGOR FAA AP	44.80	68.82
170480	BELFAST	44.40	69.00
170814	BRASSUA DAM	45.67	69.82
170833	BRIDGEWATER	46.42	67.85
170844	BRIDGTON 3 NW	44.07	70.75
171175	CARIBOU WSO AP	46.87	68.02
171628	CORINNA	44.95	69.22
172426	EASTPORT	44.92	67.00
172765	FARMINGTON	44.68	70.15
172878	FORT KENT	47.25	68.58
173046	GARDINER	44.22	69.78
173261	GRAND LAKE STREAM	45.18	67.78
173892	HOULTON FAA AP	46.12	67.78
174086	JACKMAN	45.63	70.27
174183	JONESBORO	44.65	67.65
174566	LEWISTON	44.10	70.22
174781	LONG FALLS DAM	45.22	70.20
174927	MADISON	44.80	69.88
175261	MIDDLE DAM	44.78	70.92
175304	MILLINOCKET	45.65	68.70
176430	ORONO	44.87	68.70
176905	PORTLAND WSMO AP	43.65	70.32
176937	PRESQUE ISLE	46.65	68.00
177174	RIPOGENUS DAM	45.88	69.18
177325	RUMFORD 1 SSE	44.53	70.53
177479	SANFORD 2 NNW	43.47	70.78
178598	SQUA PAN DAM	46.55	68.33
179151	WATERVILLE PMP STN	44.55	69.65
179314	WEST BUXTON 2 NNW	43.70	70.62
MARYLAND			
180465	BALTIMORE WSO AP	39.18	76.67
180470	BALTIMORE WSO CI	39.28	76.62
180700	BELTSVILLE	39.03	76.88
180732	BENSON POLICE BARRAC	39.50	76.38
181032	BOYDS 2 NW	39.22	77.33
181385	CAMBRIDGE WTR TMT PL	38.57	76.07
181750	CHESTERTOWN	39.22	76.07
181995	COLLEGE PARK	38.98	76.95
182060	CONOWINGO DAM	39.65	76.17
182325	DALECARLIA RESVR D C	38.93	77.12
182906	EMMITSBURG 2 SE	39.68	77.30
183675	GLENN DALE BELL STN	38.97	76.80
183975	HAGERSTOWN	39.65	77.73
184030	HANCOCK FRUIT LAB	39.70	78.18
185080	LA PLATA 1 W	38.53	77.00
185111	LAUREL 3 W	39.10	76.90
185985	MILLINGTON 1 SE	39.27	75.87
186350	NATIONAL ARBORETUM D	38.90	76.98
186620	OAKLAND 1 SE	39.40	79.40
187330	PRINCESS ANNE	38.22	75.68
187806	ROYAL OAK 2 SSW	38.72	76.18
188000	SALISBURY	38.37	75.58
188005	SALISBURY FAA AP	38.33	75.52
188065	SAVAGE RIVER DAM	39.52	79.13
188380	SNOW HILL 4 N	38.23	75.38
189030	UNIONVILLE	39.45	77.18
189070	UPPER MARLBORO 3 NNW	38.87	76.78
189140	VIENNA	38.48	75.83
189440	WESTMINSTER POLICE B	39.55	76.97
189750	WOODSTOCK	39.33	76.87

Station #	Station name	Latitude (degrees)	Longitude (degrees)
MASSACHUSETTS			
190120	AMHERST	42.38	72.53
190408	BARRE FALLS DAM	42.43	72.03
190535	BEDFORD	42.48	71.28
190666	BIRCH HILL DAM	42.63	72.12
190736	BLUE HILL	42.22	71.12
190770	BOSTON WSO AP	42.37	71.03
190860	BROCKTON	42.05	71.00
190998	BUFFUMVILLE LAKE	42.12	71.90
191774	CUMMINGTON HILL	42.47	72.93
192107	EAST BRIMFIELD LAKE	42.12	72.13
192451	EAST WAREHAM	41.77	70.67
192501	EDGARTOWN	41.38	70.52
192975	FRAMINGHAM	42.28	71.42
193213	GREAT BARRINGTON AP	42.18	73.40
193505	HAVERHILL	42.77	71.07
193624	HINGHAM	42.23	70.92
193821	HYANNIS	41.67	70.30
193985	KNIGHTVILLE DAM	42.28	72.87
194105	LAWRENCE	42.70	71.17
194744	MIDDLETON	42.60	71.02
195246	NEW BEDFORD	41.63	70.93
196486	PLYMOUTH	41.95	70.67
196783	READING	42.52	71.13
196938	ROCHESTER	41.78	70.92
198367	TAUNTON	41.90	71.07
198573	TULLY LAKE	42.63	72.22
199316	WEST MEDWAY	42.13	71.43
199923	WORCESTER WSO AP	42.27	71.87
NEW HAMPSHIRE			
270703	BETHLEHEM	44.28	71.68
270741	BLACKWATER DAM	43.32	71.72
271683	CONCORD WSO AP	43.20	71.50
272174	DURHAM	43.15	70.95
272999	FIRST CONN LAKE	45.08	71.28
273530	GRAFTON	43.57	71.95
273626	GREENLAND	43.03	70.85
273850	HANOVER	43.70	72.28
274399	KEENE	42.92	72.27
274656	LEBANON FAA	43.63	72.32
275211	MASSABESIC LAKE	42.98	71.40
275629	MOUNT SUNAPEE	43.33	72.08
275639	MOUNT WASHINGTON	44.27	71.30
275712	NASHUA 2 NNW	42.78	71.48
275995	NORTH CONWAY	44.05	71.13
276697	PETERBORO 2 S	42.85	71.95
276818	PINKHAM NOTCH	44.27	71.25
276945	PLYMOUTH	43.78	71.65
278539	SURRY MOUNTAIN LAKE	43.00	72.32
NEW JERSEY			
280311	ATLANTIC CITY WSO AP	39.45	74.57
280346	AUDUBON	39.88	75.08
280690	BELLEPLAIN ST FOREST	39.25	74.87
280907	BOONTON 1 SE	40.90	74.40
281335	CANOE BROOK	40.75	74.35
281351	CAPE MAY 2 NW	38.95	74.93
281582	CHARLOTTEBURG RESVOI	41.03	74.43
282768	ESSEX FELLS SERV BLG	40.83	74.28
283029	FLEMINGTON 5 NNW	40.57	74.88
283291	GLASSBORO	39.70	75.12
283951	HIGHTSTOWN 2 W	40.27	74.57
284229	INDIAN MILLS 2 W	39.80	74.78
284635	LAMBERTVILLE	40.37	74.95
284887	LITTLE FALLS	40.88	74.23
284987	LONG BRANCH OAKHURST	40.27	74.00
285003	LONG VALLEY	40.78	74.78
285581	MILLVILLE FAA AP	39.37	75.07
285728	MOORESTOWN	39.97	74.97
285769	MORRIS PLAINS 1 W	40.83	74.50
286026	NEWARK WSO AP	40.70	74.17
286055	NEW BRUNSWICK 3 SE	40.47	74.43
286177	NEWTON ST PAULS ABBE	41.03	74.80
286843	PEMBERTON 3 S	39.93	74.70
287079	PLAINFIELD	40.60	74.40
288194	SOMERVILLE 3 NW	40.60	74.63
288644	SUSSEX 1 SE	41.20	74.60
288816	TOMS RIVER	39.95	74.22
288899	TUCKERTON	39.60	74.35
289910	WOODSTOWN	39.65	75.32
NEW YORK			
300042	ALBANY WSFO AP	42.75	73.80
300063	ALCOVE DAM	42.47	73.93
300085	ALFRED	42.25	77.78
300093	ALLEGANY STATE PARK	42.10	78.75
300183	ANGELICA	42.30	78.02
300220	ARCADE	42.53	78.42
300331	AURORA RESEARCH FARM	42.73	76.65
300443	BATAVIA	42.98	78.18

Station #	Station name	Latitude (degrees)	Longitude (degrees)
NEW YORK (continued)			
300448	BATH	42.35	77.35
300687	BINGHAMTON WSO AP	42.22	75.98
300785	BOONVILLE 2 SSW	43.45	75.35
300889	BRIDGEHAMPTON	40.95	72.30
300937	BROCKPORT 2 W	43.23	77.97
301012	BUFFALO WSCMO AP	42.93	78.73
301152	CANANDAIGUA 3 S	42.85	77.28
301185	CANTON 4 SE	44.57	75.12
301387	CHASM FALLS	44.75	74.22
301401	CHAZY	44.88	73.43
301436	CHERRY VALLEY 2 NNE	42.82	74.73
301623	COLDEN 1 N	42.67	78.68
301752	COOPERSTOWN	42.70	74.92
301799	CORTLAND	42.60	76.18
301966	DANNEMORA	44.72	73.72
301974	DANSVILLE	42.57	77.70
302060	DEPOSIT	42.07	75.43
302129	DOBBS FERRY	41.02	73.87
302554	ELIZABETHTOWN	44.22	73.60
302610	ELMIRA	42.10	76.80
303025	FRANKLINVILLE 1 SSW	42.33	78.47
303033	FREDONIA	42.45	79.30
303259	GLENHAM	41.52	73.93
303284	GLENS FALLS FARM	43.33	73.73
303294	GLENS FALLS FAA	43.35	73.62
303319	GLOVERSVILLE	43.05	74.35
303346	GOUVERNEUR 3 NW	44.35	75.52
303354	GOWANDA PSYCHIAT CTR	42.48	78.93
303360	GRAFTON	42.78	73.47
303773	HEMLOCK	42.78	77.62
303889	HINCKLEY 2 SW	43.30	75.15
304025	HUDSON COR FAC	42.25	73.80
304102	INDIAN LAKE 2 SW	43.75	74.28
304174	ITHACA CORNELL UNIV	42.45	76.45
304555	LAKE PLACID 2 S	44.25	73.98
304647	LAWRENCEVILLE	44.75	74.65
304731	LIBERTY 1 NE	41.80	74.73
304791	LITTLE FALLS CTY RES	43.07	74.87
304808	LITTLE VALLEY	42.25	78.80
304844	LOCKPORT 2 NE	43.18	78.65
304849	LOCKPORT 4 NE	43.20	78.63
305134	MASSENA FAA AP	44.93	74.85
305310	MIDDLETOWN 2 NW	41.45	74.45
305334	MILLBROOK	41.85	73.62
305377	MINEOLA	40.73	73.63
305426	MOHONK LAKE	41.77	74.15
305597	MOUNT MORRIS 2 W	42.73	77.90
305796	NEW YORK AVE V BRKLY	40.60	73.98
305801	N Y CENTRAL PK WSO C	40.78	73.97
305811	N Y LA GUARDIA WSO A	40.77	73.90
305821	NY WESTERLEIGH STAT	40.60	74.17
306085	NORWICH	42.53	75.53
306164	OGDENSBURG 4 NE	44.73	75.43
306184	OLD FORGE	43.72	74.98
306314	OSWEGO EAST	43.47	76.50
306441	PATCHOGUE 2 N	40.80	73.02
306538	PERU 2 WSW	44.57	73.57
306659	PLATTSBURGH AFB	44.65	73.47
306774	PORT JERVIS	41.38	74.68
306820	POUGHKEEPSIE	41.63	73.88
307134	RIVERHEAD RESEARCH F	40.97	72.72
307167	ROCHESTER WSO AP	43.12	77.67
307405	SALEM	43.17	73.32
307484	SARATOGA SPRINGS 4 S	43.03	73.82
307497	SCARSDALE	40.98	73.80
307633	SETAUKET STRONG	40.97	73.10
307799	SLIDE MOUNTAIN	42.02	74.42
307842	SODUS CENTER	43.20	77.02
308088	SPENCER 1 S	42.18	76.50
308248	STILLWATER RESERVOIR	43.88	75.03
308383	SYRACUSE WSO AP	43.12	76.12
308600	TROY LOCK AND DAM 2	42.75	73.68
308631	TUPPER LAKE SUNMOUNT	44.23	74.43
308737	UTICA FAA	43.15	75.38
308936	WALTON	42.17	75.13
308944	WANAKENA RANGER SCHO	44.15	74.90
308962	WARSAW 5 SW	42.68	78.20
309000	WATERTOWN	43.97	75.87
309005	WATERTOWN FAA	44.00	76.02
309140	WESTCHESTER COUNTY A	41.07	73.68
309189	WESTFIELD 3 SW	42.28	79.62
309292	WEST POINT	41.38	73.97
309389	WHITEHALL	43.55	73.40
PENNSYLVANIA			
360106	ALLENTOWN WSO AP	40.65	75.43
360130	ALTOONA FAA AP	40.30	78.32
360355	BAKERSTOWN 3 WNW	40.65	79.98
360763	BLOSERVILLE 1 N	40.27	77.37
360865	BRADFORD FAA AP	41.80	78.63
360868	BRADFORD 5 SW RES 5	41.90	78.73
361105	BURGETTSTOWN 2 W	40.38	80.43

Station #	Station name	Latitude (degrees)	Longitude (degrees)
PENNSYLVANIA (continued)			
361354	CHAMBERSBURG 1 ESE	39.93	77.63
361485	CLARION 3 SW	41.20	79.43
361534	CLERMONT 4 NW	41.73	78.53
361705	CONFLUENCE 1 SW DAM	39.80	79.37
361790	CORRY	41.92	79.63
362183	DONEGAL 2 NW	40.13	79.40
362190	DONORA 1 SW	40.17	79.87
362260	DU BOIS FAA	41.18	78.90
362682	ERIE WSO AP	42.08	80.18
362942	FORD CITY 4 S DAM	40.72	79.50
363028	FRANKLIN	41.38	79.82
363437	GRATERFORD 1 E	40.23	75.43
363526	GREENVILLE 2 NE	41.42	80.37
363632	HAMBURG	40.55	75.98
363662	HANOVER	39.80	76.98
363699	HARRISBURG FAA AP	40.22	76.85
363758	HAWLEY 1 E	41.48	75.17
364019	HOLTWOOD	39.83	76.33
364214	INDIANA 3 SE	40.60	79.12
364325	JAMESTOWN 2 NW	41.50	80.47
364385	JOHNSTOWN	40.33	78.92
364432	KANE 1 NNE	41.68	78.80
364778	LANDISVILLE 2 NW	40.12	76.43
364992	LEWISTOWN	40.58	77.58
365336	MADERA 2 SE	40.80	78.40
365390	MARCUS HOOK	39.82	75.42
365408	MARION CENTER 2 SE	40.75	79.03
365606	MEADVILLE 1 S	41.63	80.17
365651	MERCER	41.22	80.23
365662	MERCERSBURG 1 E	39.83	77.90
365817	MILLVILLE 2 SW	41.10	76.57
365902	MONTGOMERY L AND D	40.65	80.38
365915	MONTROSE	41.83	75.87
366233	NEW CASTLE 1 N	41.02	80.37
366297	NEWPORT	40.48	77.13
366889	PHILADELPHIA WSCMO A	39.88	75.23
366916	PHILIPSBURG 8 E	40.90	78.08
366927	PHOENIXVILLE 1 E	40.12	75.50
366993	PITTSBURGH WSCMO2 AP	40.50	80.22
367029	PLEASANT MOUNT 1 W	41.73	75.45
367229	PUTNEYVILLE 2 SE DAM	40.93	79.28
367477	RIDGWAY	41.42	78.75
367782	SALINA 3 W	40.52	79.55
368073	SHIPPENSBURG	40.05	77.52
368184	SLIPPERY ROCK 1 SSW	41.05	80.07
368449	STATE COLLEGE	40.80	77.87
368560	STOYSTOWN	40.10	78.95
368596	STROUDSBURG	41.00	75.18
368873	TIONESTA 2 SE LAKE	41.48	79.43
368888	TITUSVILLE WATERWORK	41.63	79.70
368893	TOBYHANNA	41.18	75.42
368905	TOWANDA 1 ESE	41.75	76.42
369050	UNIONTOWN 1 NE	39.92	79.72
369298	WARREN	41.85	79.15
369367	WAYNESBURG	39.90	80.17
369408	WELLSBORO 3 S	41.70	77.27
369464	WEST CHESTER 1 W	39.97	75.63
369705	WIL-BARRE-SRAN WSO A	41.33	75.73
369728	WILLIAMSPORT WSO AP	41.25	76.92
369933	YORK 3 SSW PUMP STN	39.92	76.75
RHODE ISLAND			
370896	BLOCK ISLAND STATE A	41.17	71.58
374266	KINGSTON	41.48	71.53
375215	NEWPORT	41.52	71.32
376698	PROVIDENCE WSO AP	41.73	71.43
VERMONT			
430499	BELLOWS FALLS	43.13	72.45
431081	BURLINGTON WSO AP	44.47	73.15
431243	CAVENDISH	43.38	72.60
431360	CHELSEA	43.98	72.45
431580	CORNWALL	43.95	73.22
432769	ENOSBURG FALLS	44.58	72.80
435278	MONTPELIER FAA AP	44.20	72.57
435416	MOUNT MANSFIELD	44.53	72.82
435542	NEWPORT	44.93	72.20
436761	READSBORO 1 SE	42.75	72.93
436995	RUTLAND	43.60	72.97
437054	SAINT JOHNSBURY	44.42	72.02
438600	VERNON	42.77	72.52
438815	WATERBURY 2 SSE	44.32	72.75
439099	WEST BURKE	44.65	71.98
WEST VIRGINIA			
460355	ATHENS CONCORD COLL	37.43	81.00
460527	BAYARD	39.27	79.37
460580	BECKLEY V A HOSPITAL	37.78	81.18
460582	BECKLEY WSO	37.78	81.12
460921	BLUEFIELD FAA AP	37.30	81.22
460939	BLUESTONE LAKE	37.65	80.88
461083	BRANDONVILLE	39.67	79.62

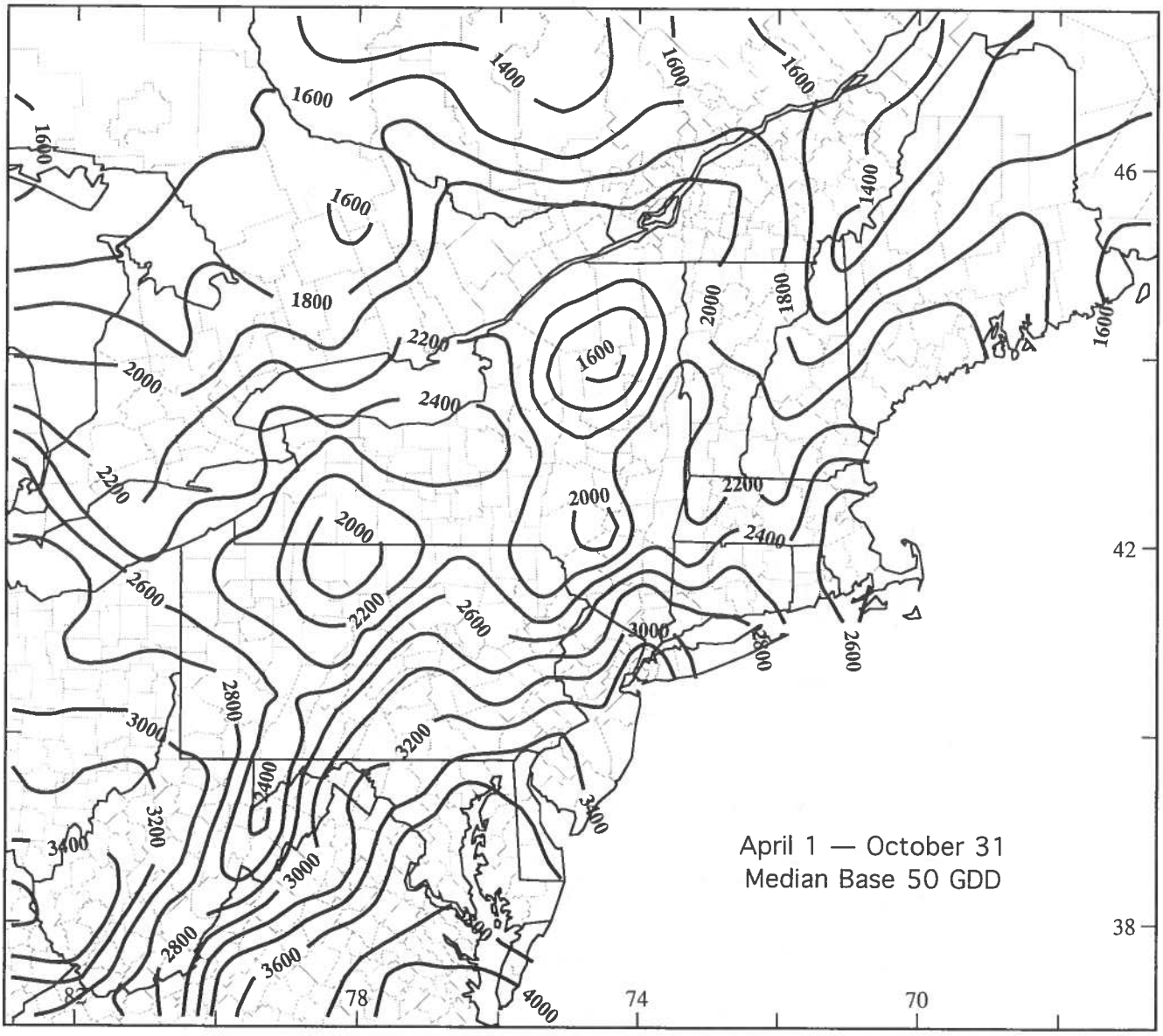
Table 1 (continued)

Station #	Station name	Latitude (degrees)	Longitude (degrees)
WEST VIRGINIA (continued)			
461215	BUCKEYE 1 SE	38.18	80.13
461220	BUCKHANNON	39.00	80.27
461393	CANAAN VALLEY	39.05	79.43
461570	CHARLESTON WSFO AP	38.37	81.60
461677	CLARKSBURG 1	39.27	80.35
462054	CRESTON	38.95	81.28
462718	ELKINS WSO AP	38.88	79.85
462920	FAIRMONT	39.47	80.13
463072	FLAT TOP	37.58	81.10
463215	FRANKLIN 2 NE	38.67	79.32
463353	GARY	37.37	81.55
463361	GASSAWAY	38.67	80.77
463544	GLENVILLE 1 ENE	38.93	80.82
463846	HAMLIN	38.28	82.10
464200	HOGSETT GALLIPOLIS D	38.68	82.18
464393	HUNTINGTON WSO AP	38.37	82.55
464763	KEARNEYSVILLE WSO	39.38	77.88
465224	LEWISBURG 3 N	37.85	80.40
465353	LOGAN	37.87	81.98
465365	LONDON LOCKS	38.20	81.37
465563	MADISON	38.05	81.82
465707	MARTINSBURG FAA AP	39.40	77.98
465739	MATHIAS	38.87	78.87
465871	MC ROSS	37.98	80.75
465963	MIDDLEBOURNE 2 ESE	39.48	80.87
466202	MORGANTOWN FAA AP	39.65	79.92
466212	MORGANTOWN L AND D	39.62	79.97
466591	OAK HILL	37.97	81.15
466849	PARKERSBURG FAA AP	39.35	81.43
466859	PARKERSBURG 1 E	39.27	81.57
466867	PARSONS 1 SE	39.10	79.67
467029	PINEVILLE	37.58	81.53
467552	RIPLEY 4 NNE	38.88	81.68
467730	ROMNEY 1 SW	39.33	78.77
467785	ROWLESBURG 1	39.33	79.68
468384	SPENCER 1 SE	38.80	81.35
468433	SPRUCE KNOB	38.68	79.52
469011	UNION 3 SSE	37.55	80.53
469281	WARDENSVILLE R M FAR	39.10	78.58
469333	WEBSTER SPRINGS	38.48	80.42
469368	WELLSBURG WATER TRMT	40.28	80.62
469436	WESTON	39.07	80.47
469522	WHITE SULFER SPRINGS	37.80	80.30
469683	WINFIELD LOCKS	38.53	81.92
KENTUCKY			
152791	FARMERS 2 S	38.12	83.55
OHIO			
330862	BOWLING GREEN	41.38	83.62
331072	BUCYRUS	40.82	82.97
331404	CENTERBURG 2 SE	40.30	82.65
331458	CHARDON	41.58	81.18
331541	CHIPPEWA LAKE	41.07	81.90
331657	CLEVELAND WSFO AP	41.42	81.87
331783	COLUMBUS VALLEY CRSN	39.90	82.90
331786	COLUMBUS WSO AP	40.00	82.88
331890	COSHOCTON 3 SSW	40.25	81.87
332119	DELAWARE	40.28	83.07
332251	DORSET	41.68	80.67
332599	ELYRIA 3 E	41.38	82.05
332786	FINDLAY FAA AP	41.02	83.67
332791	FINDLAY WPCC	41.05	83.67
333758	HILLSBORO	39.20	83.62
333780	HIRAM	41.30	81.15
333874	HOYTVILLE 2 NE	41.22	83.77
333987	IRWIN	40.12	83.48
334865	MANSFIELD WSO AP	40.82	82.52
334942	MARION 2 N	40.62	83.13
334979	MARYSVILLE	40.23	83.37
335041	MC CONNELSVILLE LOCK	39.65	81.85
335356	MINERAL RIDGE WTR WK	41.15	80.78
335747	NEWARK WATER WORKS	40.08	82.42
335857	NEW LEXINGTON 2 NW	39.73	82.22
335894	NEW PHILADELPHIA	40.50	81.45
336118	NORWALK	41.27	82.62
336405	PANDORA	40.95	83.97
336600	PHILO 3 SW	39.83	81.92
336781	PORTSMOUTH	38.75	82.88
336882	PUT IN BAY PERRY MON	41.65	82.80
337447	SANDUSKY	41.45	82.72
338313	TIFFIN	41.12	83.17
338357	TOLEDO EXPRESS WSO A	41.58	83.80
338534	UPPER SANDUSKY	40.83	83.28
338769	WARREN 3 S	41.20	80.82
338794	WASHINGTON COURT HOU	39.52	83.42
338830	WAVERLY	39.12	82.98
338951	WESTERVILLE	40.13	82.95
339219	WILMINGTON 3 N	39.48	83.82
339312	WOOSTER EXP STATION	40.78	81.92
339406	YOUNGSTOWN WSO AP	41.25	80.67
339417	ZANESVILLE FAA AP	39.95	81.90

Station #	Station name	Latitude (degrees)	Longitude (degrees)
VIRGINIA			
440327	ASHLAND	37.75	77.48
440385	BACK BAY WL REF	36.67	75.92
440551	BEDFORD	37.35	79.52
440720	BIG MEADOWS	38.52	78.43
440766	BLACKSBURG 3 SE	37.18	80.42
441209	BURKES GARDEN	37.08	81.33
441585	CHARLOTTE COURT HOUS	37.07	78.70
441593	CHARLOTTESVILLE 2 W	38.03	78.52
441606	CHASE CITY	36.83	78.47
441614	CHATHAM	36.82	79.40
442009	CORBIN	38.20	77.37
442044	COVINGTON FILT PLANT	37.80	80.00
442208	DALE ENTERPRISE	38.45	78.93
442245	DANVILLE-BRIDGE ST	36.58	79.38
442941	FARMVILLE 2 N	37.33	78.38
443192	FREDERICKSBURG NATL	38.32	77.45
444044	HOLLAND 1 E	36.68	76.78
444101	HOPEWELL	37.30	77.30
444128	HOT SPRINGS	38.00	79.83
444720	LANGLEY AFB	37.08	76.35
444768	LAWRENCEVILLE 5 W	36.77	77.93
444876	LEXINGTON	37.78	79.43
444909	LINCOLN	39.12	77.72
445050	LOUISA	38.03	78.00
445096	LURAY 5 E	38.67	78.38
445120	LYNCHBURG WSO AP	37.33	79.20
445851	MOUNT WEATHER	39.07	77.88
446139	NORFOLK WSO AP	36.90	76.20
446475	PAINTER 2 W	37.58	75.82
446626	PENNINGTON GAP	36.75	83.05
446692	PHILPOTT DAM 2	36.78	80.03
446712	PIEDMONT RESEARCH ST	38.22	78.12
447201	RICHMOND WSO AP	37.50	77.33
447285	ROANOKE WSO AP	37.32	79.97
447338	ROCKY MOUNT	37.00	79.90
448062	STAUNTON SEWAGE PLAN	38.15	79.03
448192	SUFFOLK LAKE KILBY	36.73	76.60
448448	TIMBERVILLE 3 E	38.65	78.72
448829	WALKERTON 2 NW	37.75	77.05
448888	WARRENTON 6 SE	38.68	77.77
448894	WARSAW 2 NW	37.98	76.77
448906	WASH NATL WSCMO AP	38.85	77.03
449025	WEST POINT 2 SW	37.52	76.83
449151	WILLIAMSBURG 2 N	37.30	76.70
449186	WINCHESTER 3 ESE	39.18	78.12
449215	WISE 1 SE	36.97	82.57
449263	WOODSTOCK 2 NE	38.90	78.47
449301	WYTHEVILLE 1 S	36.93	81.08
ONTARIO			
606815	SUDBURY A	46.62	80.80
606898	TURBINE	46.38	81.57
607171	COCHRANE	49.07	81.03
607222	EARLTON A	47.70	79.85
607381	IROQUOIS FALLS	48.75	80.67
607384	ISLAND FALLS	49.58	81.38
607396	KAPUSKASING CDA	49.40	82.43
607420	KIRKLAND LAKE	48.15	80.02
607828	TIMMINS A	48.57	81.37
608477	MADAWASKA	45.50	77.98
608570	NORTH BAY A	46.35	79.43
609292	GORE BAY A	45.88	82.57
609791	SOUTH BAYMOUTH	45.58	82.02
610126	CATARAQUI TS	44.37	76.62
610144	CHATS FALLS	45.47	76.23
610149	CHENAUX	45.58	76.68
610182	COMBERMERE	45.37	77.62
610187	CORNWALL	45.02	74.75
610190	CORNWALL ONTARIO HYDRO	45.03	74.80
610402	KEMPTVILLE	45.00	75.63
610546	MORRISBURG	44.92	75.18
610597	OTTAWA CDA	45.38	75.72
610600	OTTAWA INTL A	45.32	75.67
610640	PETAWAWA NAT FORESTRY	45.98	77.43
610795	SOUTH MOUNTAIN	44.97	75.48
611146	CHATSWORTH	44.40	80.90
611234	ESSA ONT HYDRO	44.37	79.80
611366	HUNTSVILLE WPCP	45.33	79.22
611509	MIDHURST	44.45	79.77
611552	MUSKOKA A	44.97	79.30
611950	WIARTON A	44.75	81.10
612081	BLYTH	43.72	81.38
612470	LUCKNOW	43.95	81.50
612621	PAISLEY	44.27	81.37
613198	DELHI CDA	42.87	80.55
613214	DUNNVILLE PUMPING STN	42.83	79.62
613336	HARROW CDA	42.03	82.90
613558	NEW GLASGOW	42.52	81.63
613563	NIAGARA FALLS	43.13	79.08
613662	PORT DALHOUSIE	43.18	79.27
613669	PORT STANLEY	42.67	81.22
613914	VINELAND STATION	43.18	79.40

Station #	Station name	Latitude (degrees)	Longitude (degrees)
ONTARIO (continued)			
613944	WELLAND	43.00	79.27
613952	WINDSOR A	42.27	82.97
614095	BRANTFORD MOE	43.13	80.23
614240	FERGUS SHAND DAM	43.73	80.33
614242	FOLDENS	43.02	80.78
614280	GLEN ALLAN	43.68	80.72
614447	LONDON A	43.03	81.15
614526	MONTICELLO	43.97	80.40
614671	PRESTON	43.40	80.42
614810	STRATFORD MOE	43.37	81.00
614945	WESTMINSTER TWP WPCP	42.92	81.22
614962	WOODSTOCK	43.13	80.77
615068	BELLEVILLE	44.15	77.40
615106	BURLINGTON TS	43.33	79.83
615319	HAMILTON A	43.17	79.93
615329	HAMILTON PSYCHHOSPITAL	43.23	79.90
615330	HAMILTON RBG	43.28	79.88
615579	ORANGEVILLE MOE	43.92	80.08
615585	ORONO	43.97	78.62
615667	PORT HOPE	43.95	78.28
615701	RICHMOND HILL	43.88	79.45
615835	TORONTO	43.67	79.40
615866	TORONTO ISLAND A	43.63	79.40
615873	TORONTO PEARSON INT'L A	43.67	79.63
615887	TRENTON A	44.12	77.53
615957	WOODBRIDGE	43.80	79.60
616315	HALIBURTON A	45.00	78.58
616519	MINDEN	44.93	78.72
QUEBEC			
701072	BERTHIERVILLE	46.05	73.18
701416	L'ASSOMPTION CDA	45.82	73.43
701573	OKA	45.50	74.07
701629	QUEBEC A	46.80	71.38
701647	RIGAUD	45.47	74.28
701680	ST ALBAN	46.72	72.08
701681	ST ALEXIS DES MONTS	46.53	73.15
701684	STE ANNE DE LA PERADE	46.58	72.23
701775	STE THERESE OUEST	45.65	73.88
702086	BROMPTONVILLE	45.50	71.97
702200	DISRAELI	45.92	71.32
702216	DRUMMONDVILLE	45.88	72.48
702232	FARNHAM	45.30	72.93
702259	GARTHBY	45.83	71.38
702280	GRANBY	45.38	72.70
702324	HUNTINGDON	45.05	74.17
702327	IBERVILLE	45.33	73.25
702400	LAMBTON	45.83	71.08
702428	LENNOXVILLE CDA	45.37	71.83
702444	MAGOG	45.27	72.12
702492	MILAN	45.58	71.12
702525	MONTREAL/DORVAL INT'L A	45.47	73.75
702525	MONTREAL JAR BOT	45.57	73.55
702528	MONTREAL MCGILL	45.50	73.58
702544	NICOLET	46.20	72.62
702574	ORMSTOWN	45.12	74.05
702604	PHILIPSBURG	45.03	73.08
703365	LACHUTE	45.65	74.33
703448	MANIWAKI	46.38	75.97
703552	NOMININGUE	46.38	75.05
703568	NOTRE DAME DU LAUS	46.12	75.63
703731	ST HIPPOLYTE	45.98	74.00
703740	ST JEROME	45.80	74.05
704237	FORESTVILLE	48.73	69.08
704284	GRANDES BERGERONNES	48.25	69.52
704354	LABRIEVILLE B1	49.30	69.55
704777	ST URBAIN	47.57	70.55
704791	SEPT-ILES A	50.22	66.27
705112	CAPLAN	48.10	65.68
705116	CAP MADELEINE	49.23	65.32
705120	CAUSAPSCAL	48.37	67.23
705398	LAMARTINE	47.08	70.35
705409	LA POCATIERE CDA	47.35	70.03
705512	MONT JOLI A	48.60	68.22
705521	MONTMAGNY	46.97	70.58
705567	NOTRE DAME DU LAC	47.60	68.80
705612	PORT DANIEL	48.15	64.98
705648	RIMOUSKI	48.45	68.52
705693	ST CAMILLE	46.48	70.22
705714	ST ELEUTHERE	47.48	69.28
705716	ST ELZEAR DE BONAVENTURE	48.18	65.35
705728	STE GERMAINE	46.42	70.47
705730	ST GUY	48.05	68.82
705760	ST PAMPHILE	46.97	69.78
705765	STE PERPETUE	47.05	69.93
705772	STE ROSE DU DEGELIS	47.57	68.63
705822	SQUATECK	47.88	68.70
705852	TRINITE DES MONTS	48.13	68.47
705856	TROIS PISTOLES	48.15	69.13
706008	ALBANEL	48.88	72.45

Station #	Station name	Latitude (degrees)	Longitude (degrees)
QUEBEC (continued)			
706040	BAGOTVILLE A	48.33	71.00
706356	LAC BOUCHETTE	48.27	72.18
706369	LAC STE CROIX	48.42	71.75
706564	NORMANDIN CDA	48.85	72.53
706668	ROBERVAL A	48.52	72.27
706682	ST AMBROISE	48.57	71.33
706746	ST LEON DE LABRECQUE	48.67	71.52
706816	SHIPSHAW	48.45	71.22
707424	LA TUQUE	47.40	72.78
708045	BARRAGE DES QUINZE	47.55	79.23
708046	BARRAGE TEMISCAMINGUE	46.72	79.10
708060	BELLETERRE	47.38	78.70
708456	MANNEVILLE	48.55	78.48
709012	AMOS	48.57	78.13
709860	VAL D'OR A	48.07	77.78
NEW BRUNSWICK			
810010	ACADIA FOREST EXP ST	45.98	66.37
810020	ALMA	45.60	64.95
810030	AROOSTOOK	46.80	67.72
810100	CHATHAM A	47.02	65.45
810120	DOAKTOWN	46.55	66.15
810150	FREDERICTON A	45.87	66.53
810160	FREDERICTON CDA	45.92	66.62
810180	GAGETOWN 2	45.78	66.15
810300	MINTO	46.03	66.03
810310	MONCTON	46.10	64.78
810320	MONCTON A	46.12	64.68
810380	OROMOCTO	45.83	66.47
810440	REXTON	46.67	64.87
810490	SAINT JOHN A	45.32	65.88
810520	SUSSEX	45.72	65.53


April 1 — October 31
Median Base 50 GDD
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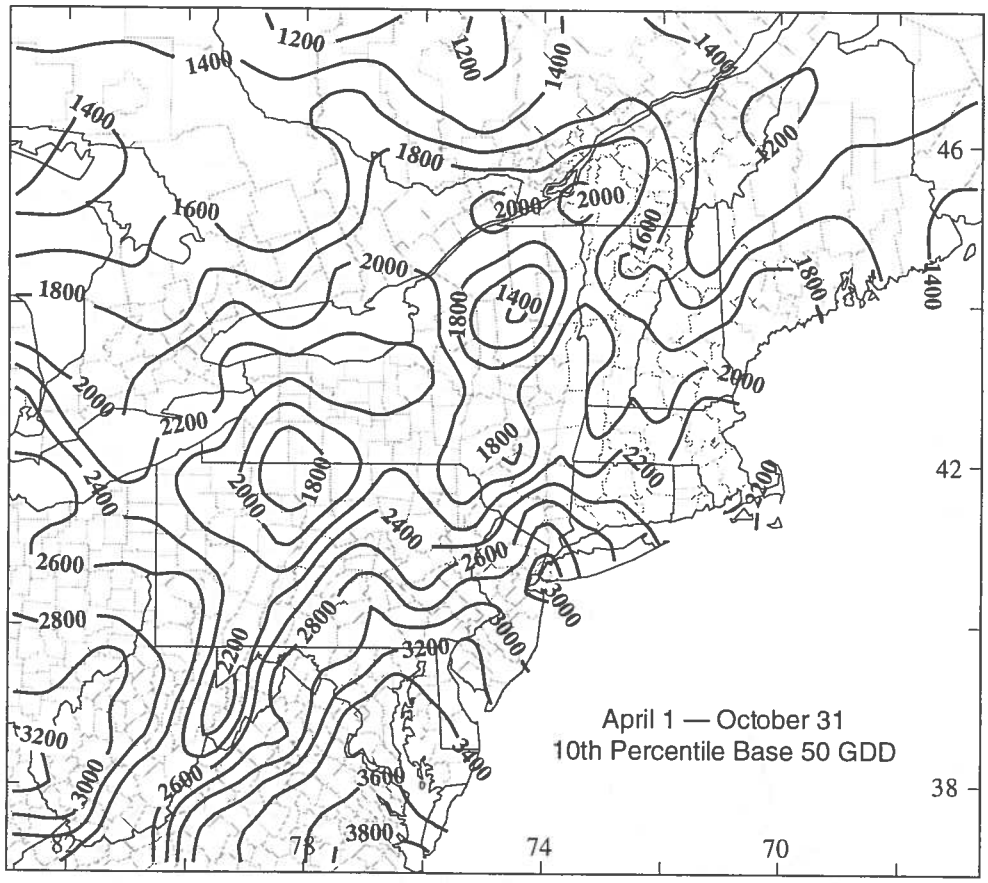
April 1 — October 31
10th Percentile Base 50 GDD
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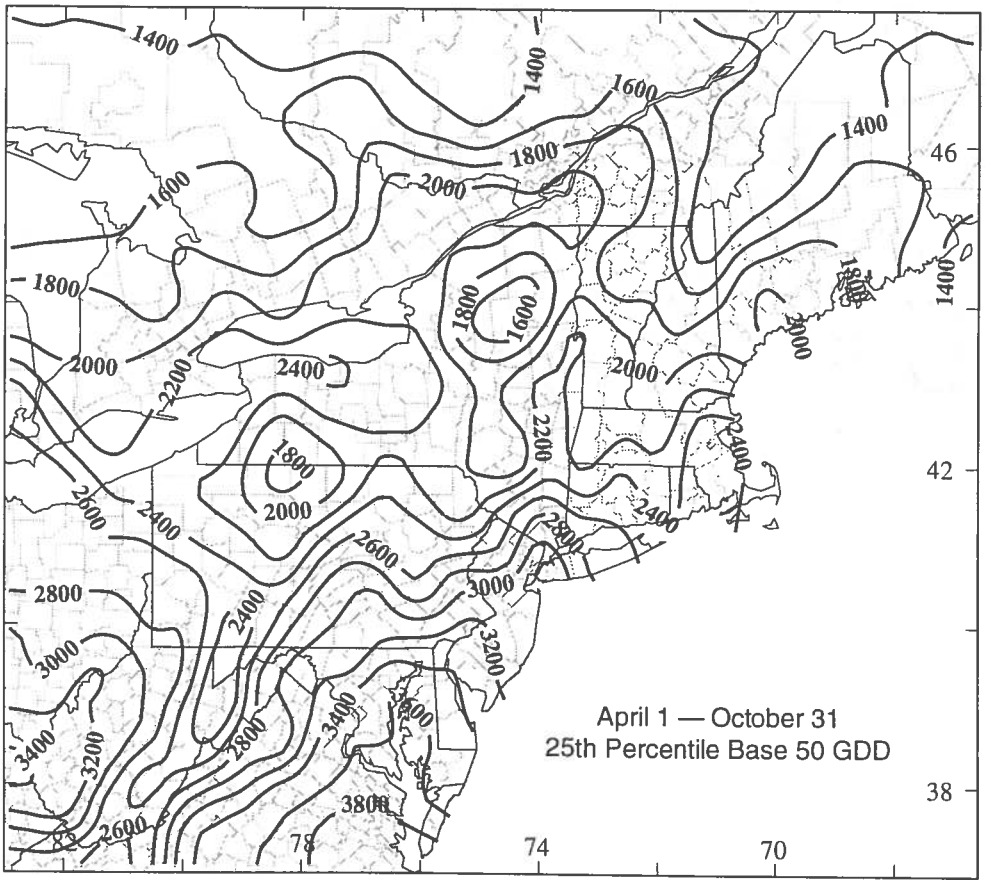
April 1 — October 31
25th Percentile Base 50 GDD
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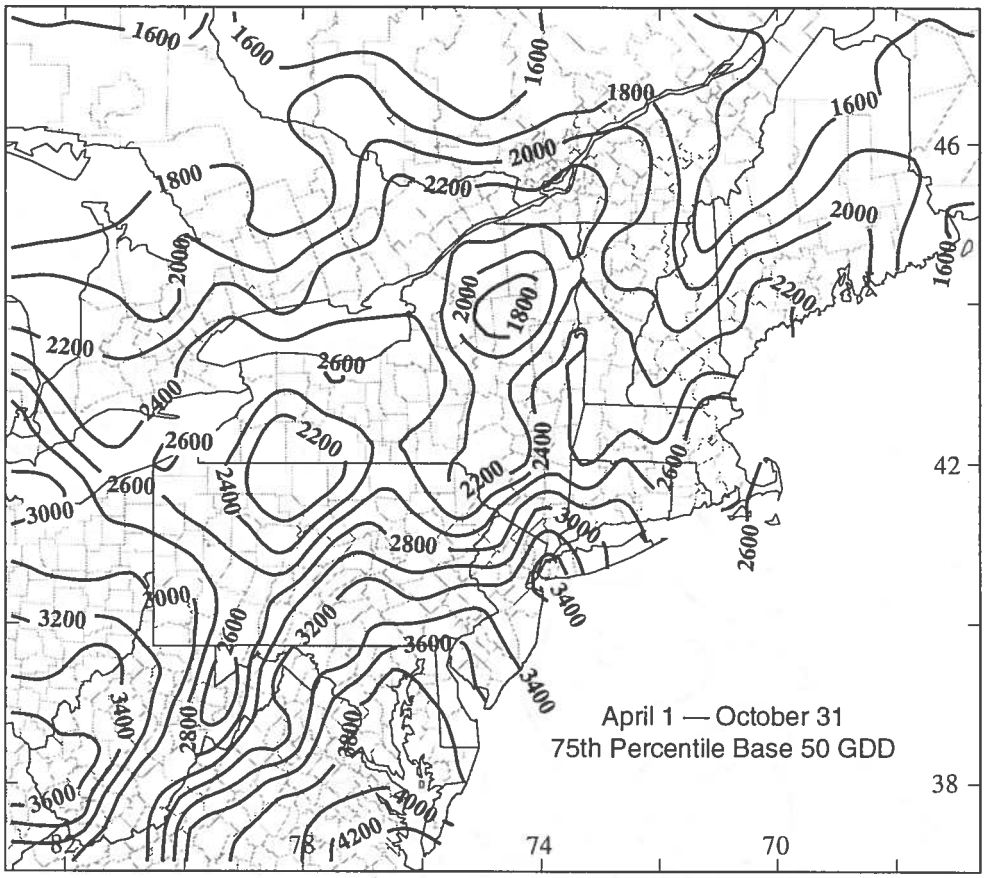
April 1 — October 31
75th Percentile Base 50 GDD
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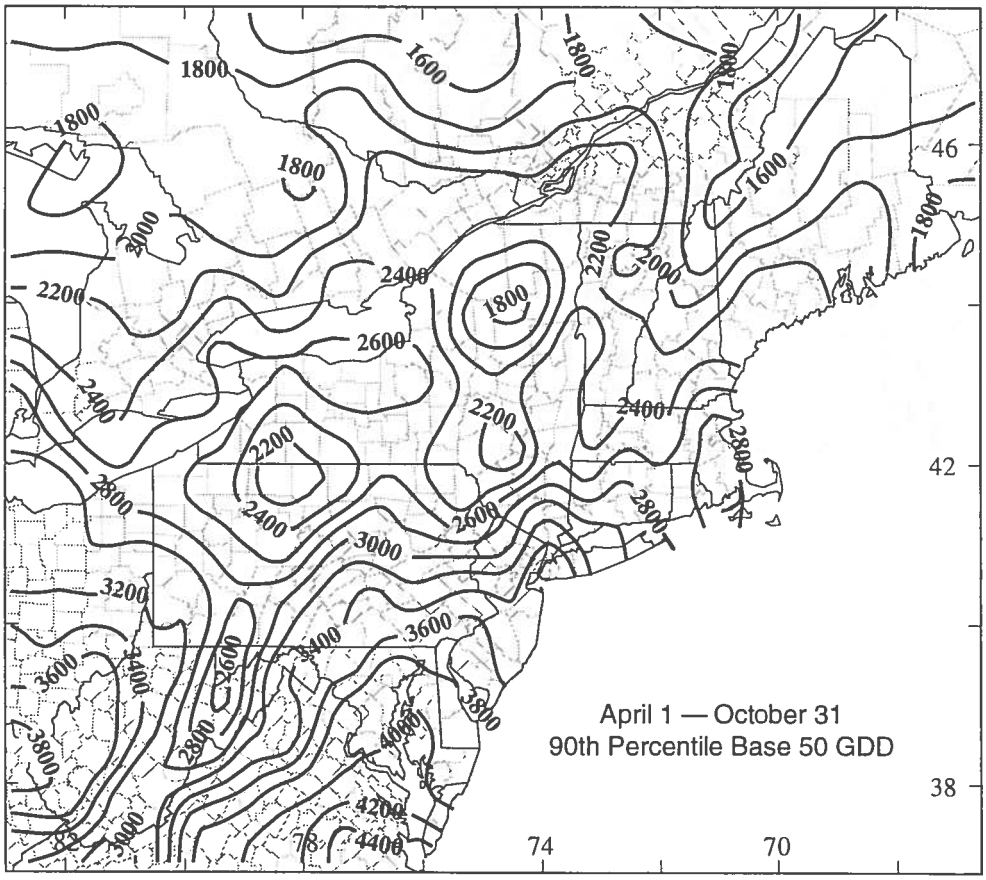
April 1 — October 31
90th Percentile Base 50 GDD
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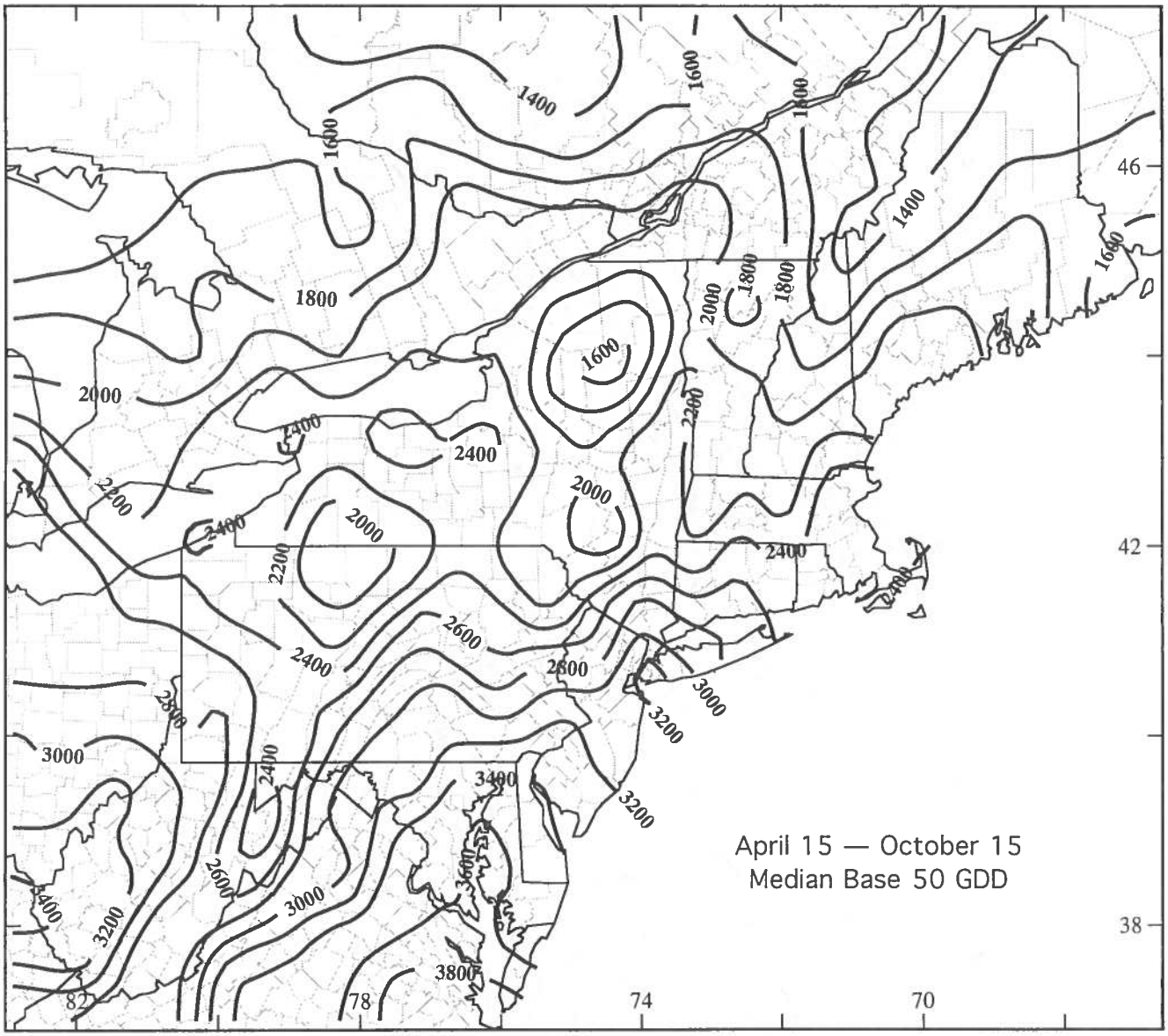
April 15 — October 15
Median Base 50 GDD
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42
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74
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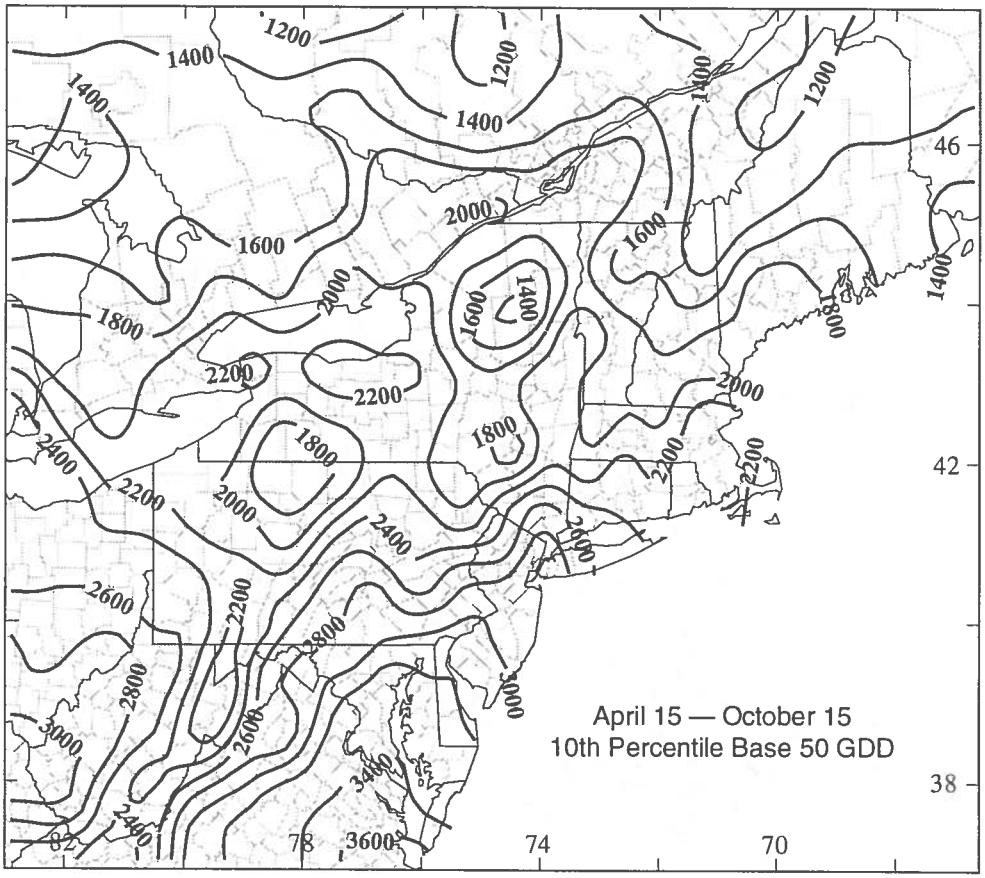
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800


April 15 — October 15
10th Percentile Base 50 GDD
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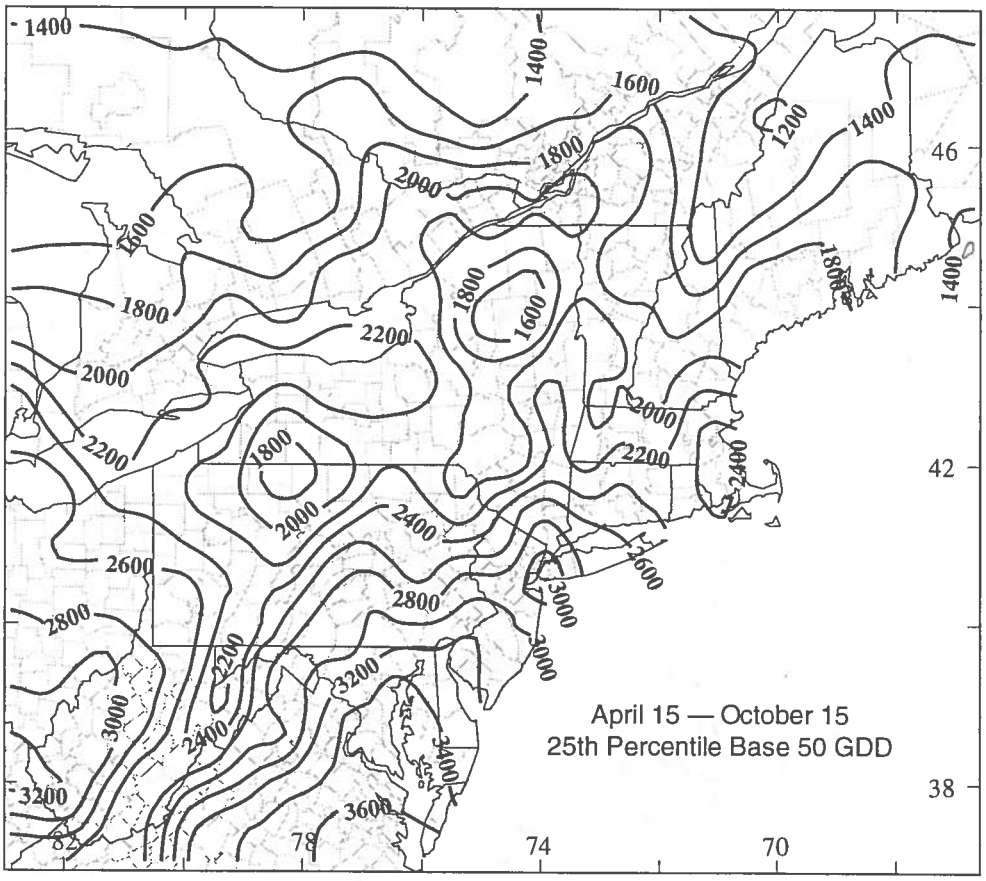
April 15 — October 15
25th Percentile Base 50 GDD
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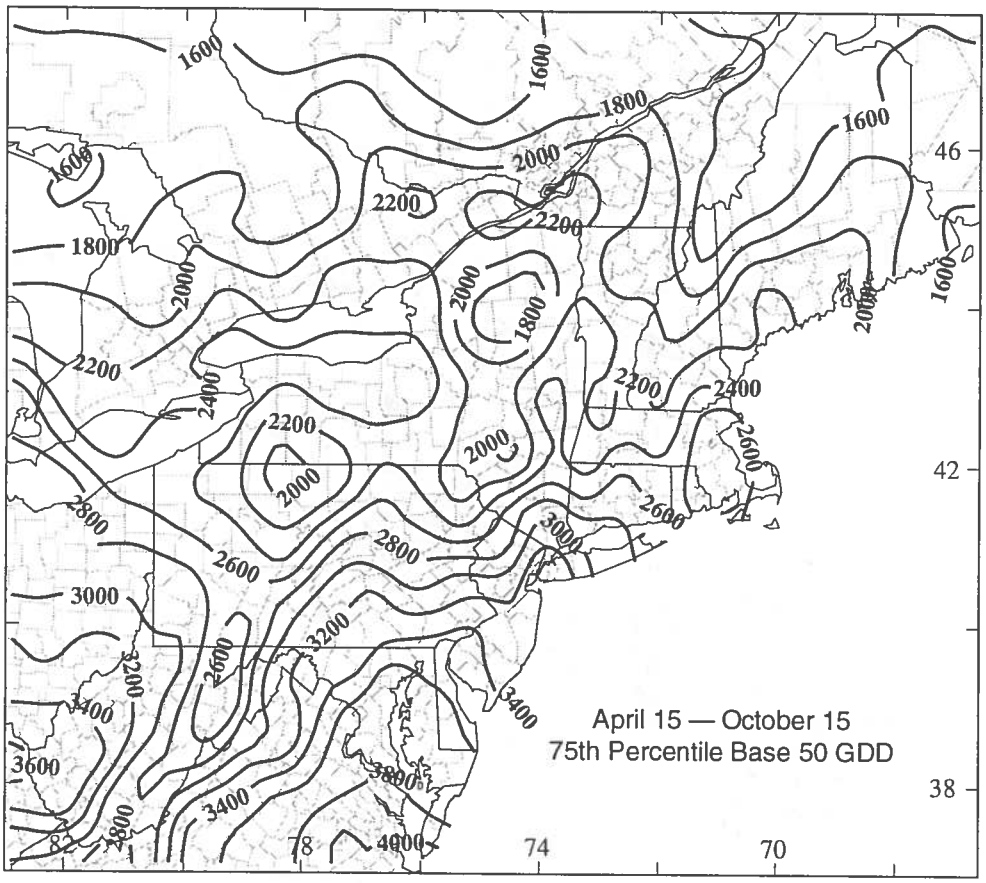
April 15 — October 15
75th Percentile Base 50 GDD
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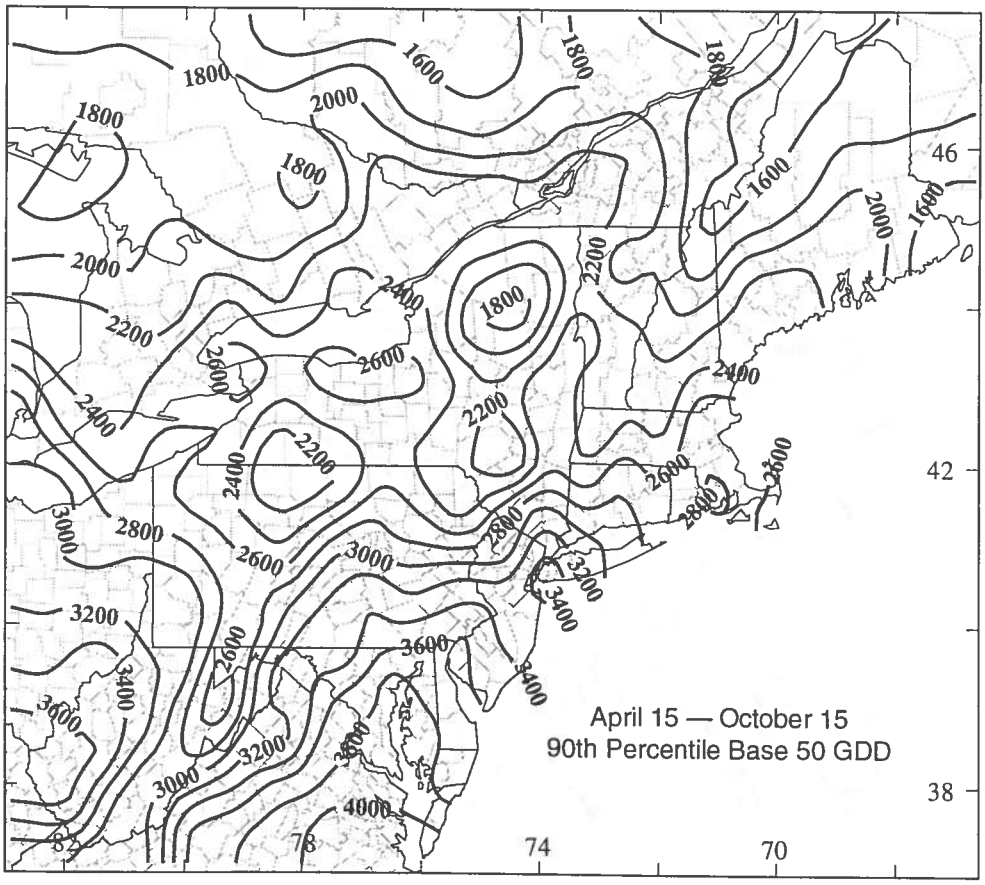
April 15 — October 15
90th Percentile Base 50 GDD
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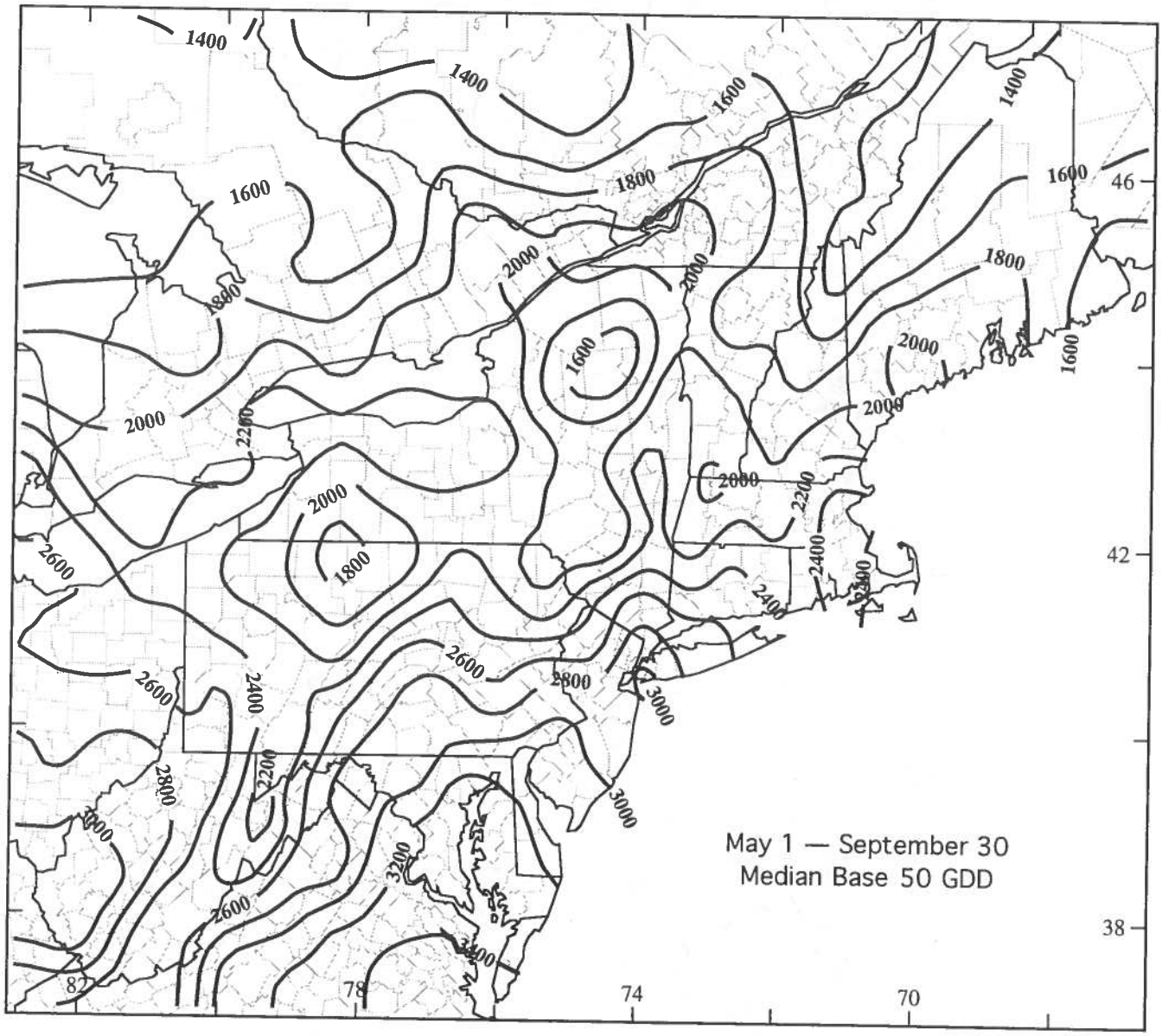
May 1 — September 30
Median Base 50 GDD
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42
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82
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74
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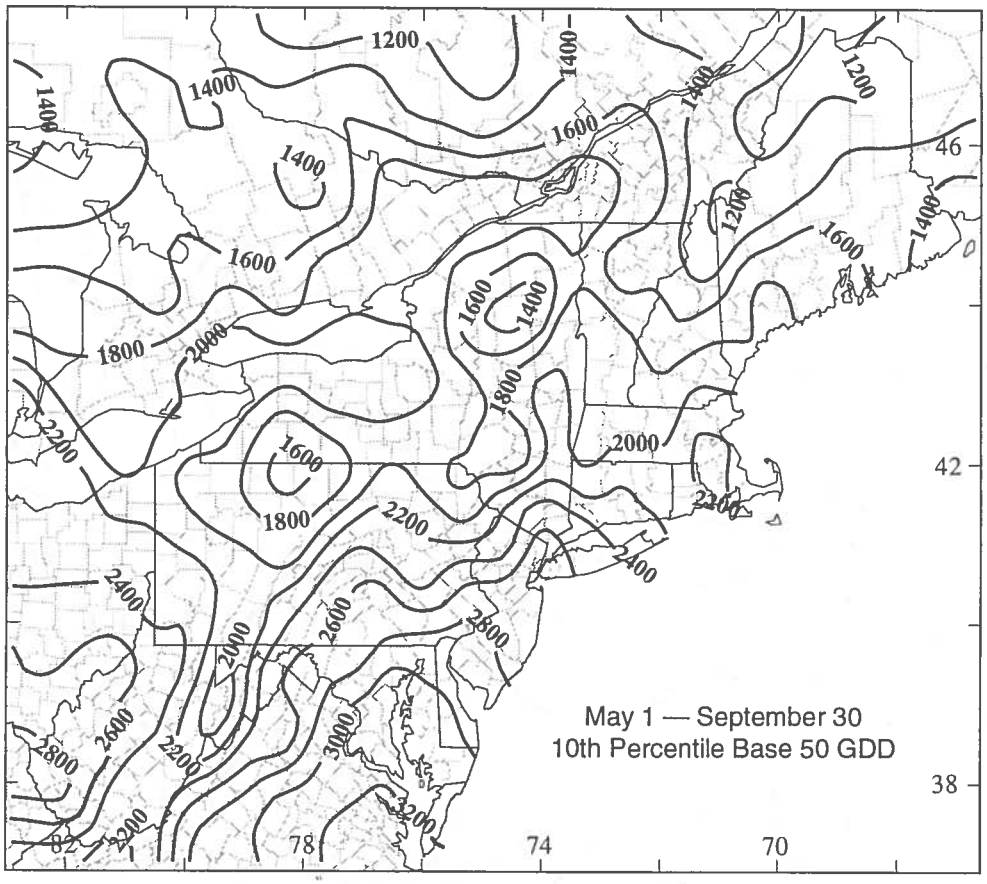
May 1 — September 30
10th Percentile Base 50 GDD
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74
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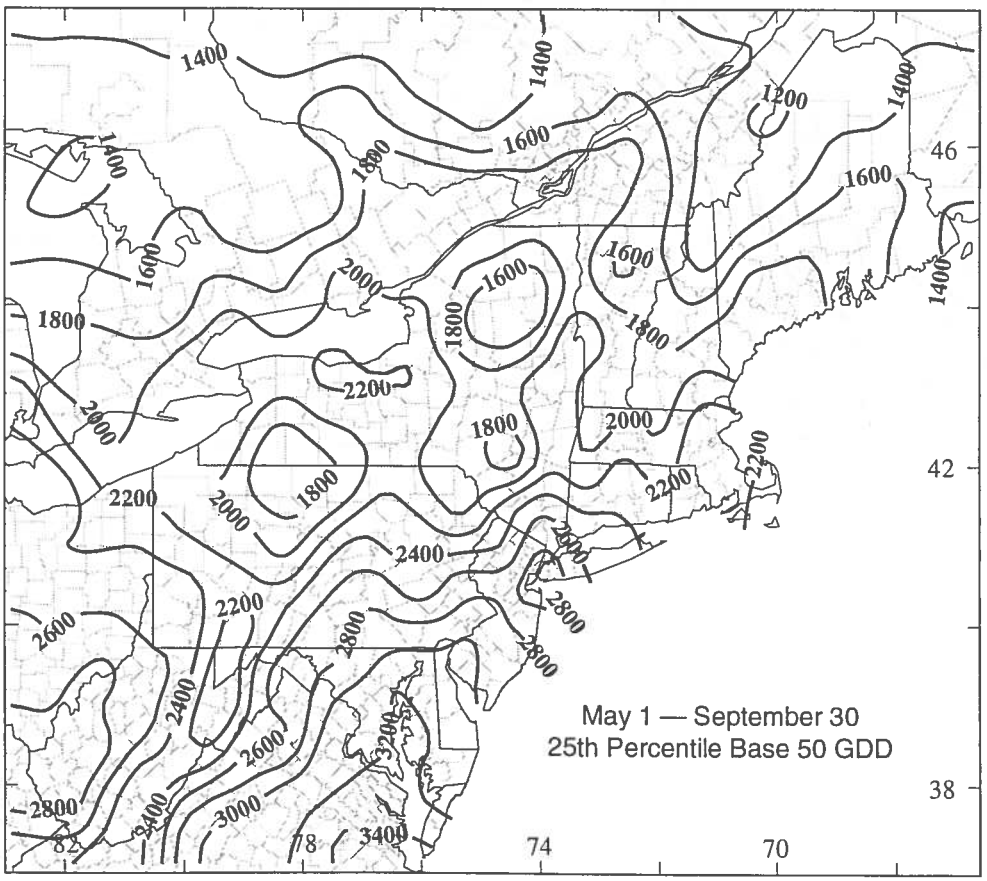
May 1 — September 30
25th Percentile Base 50 GDD
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42
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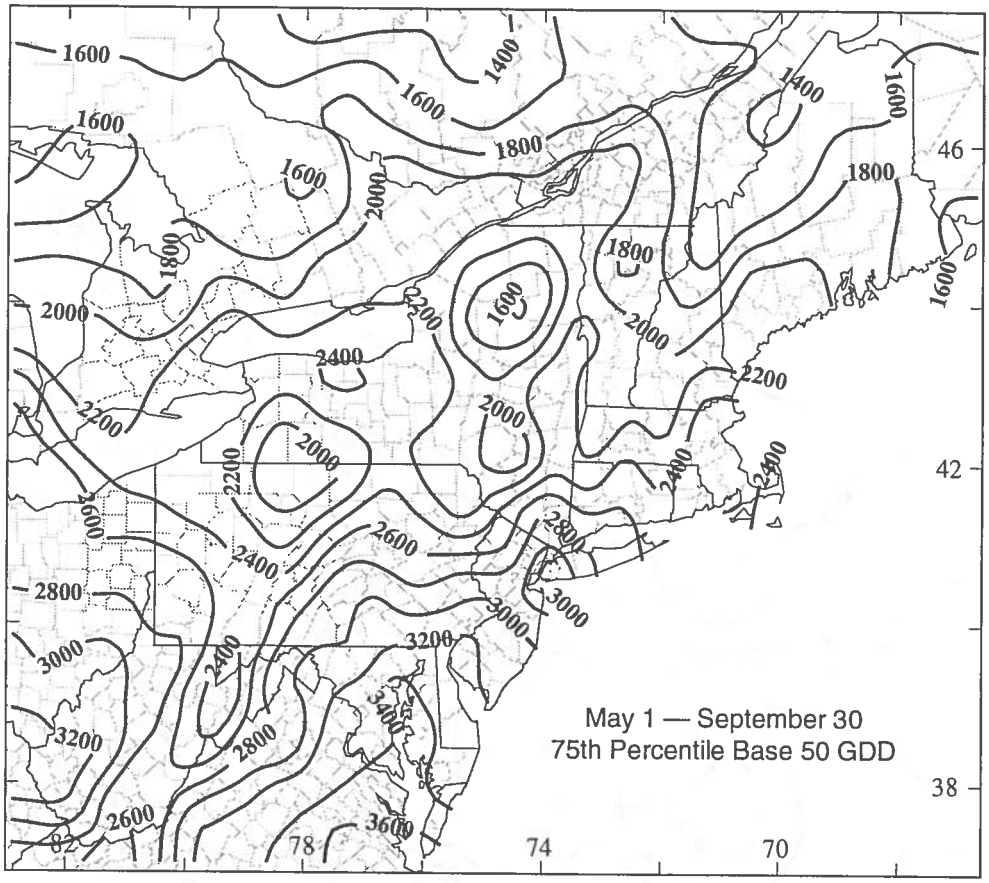
82
78
74
70


May 1 — September 30
75th Percentile Base 50 GDD
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78
74
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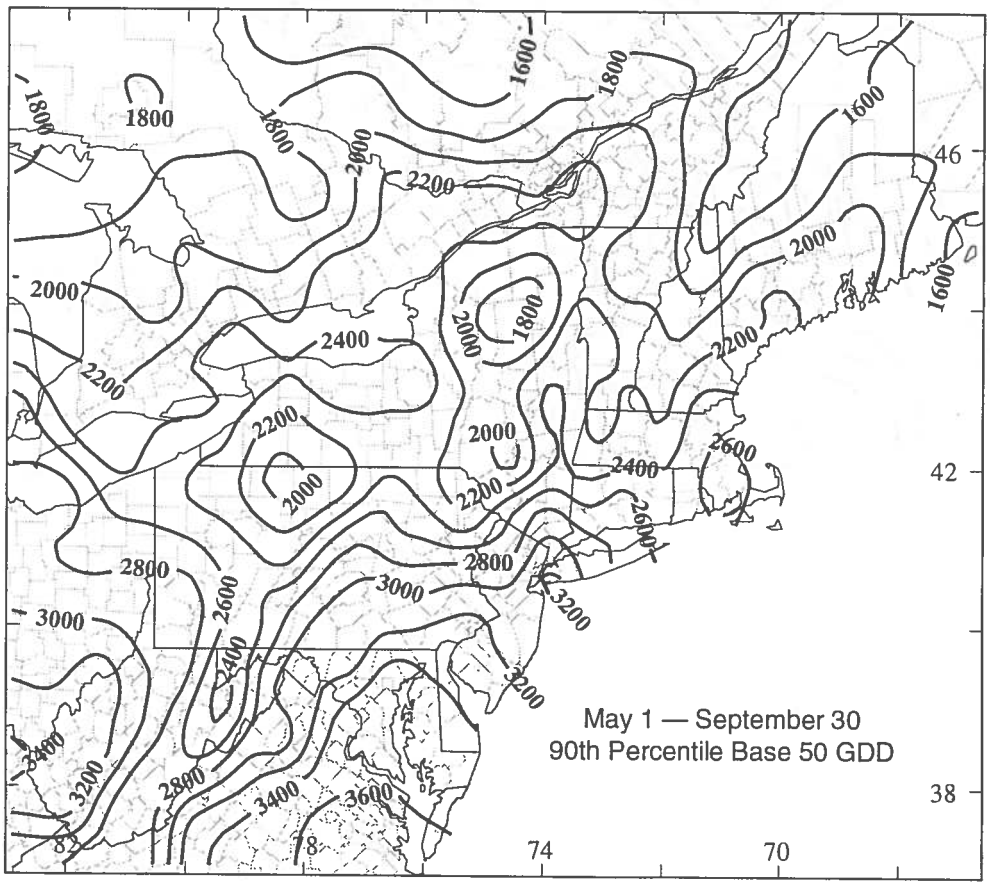
May 1 — September 30
90th Percentile Base 50 GDD
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82
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74
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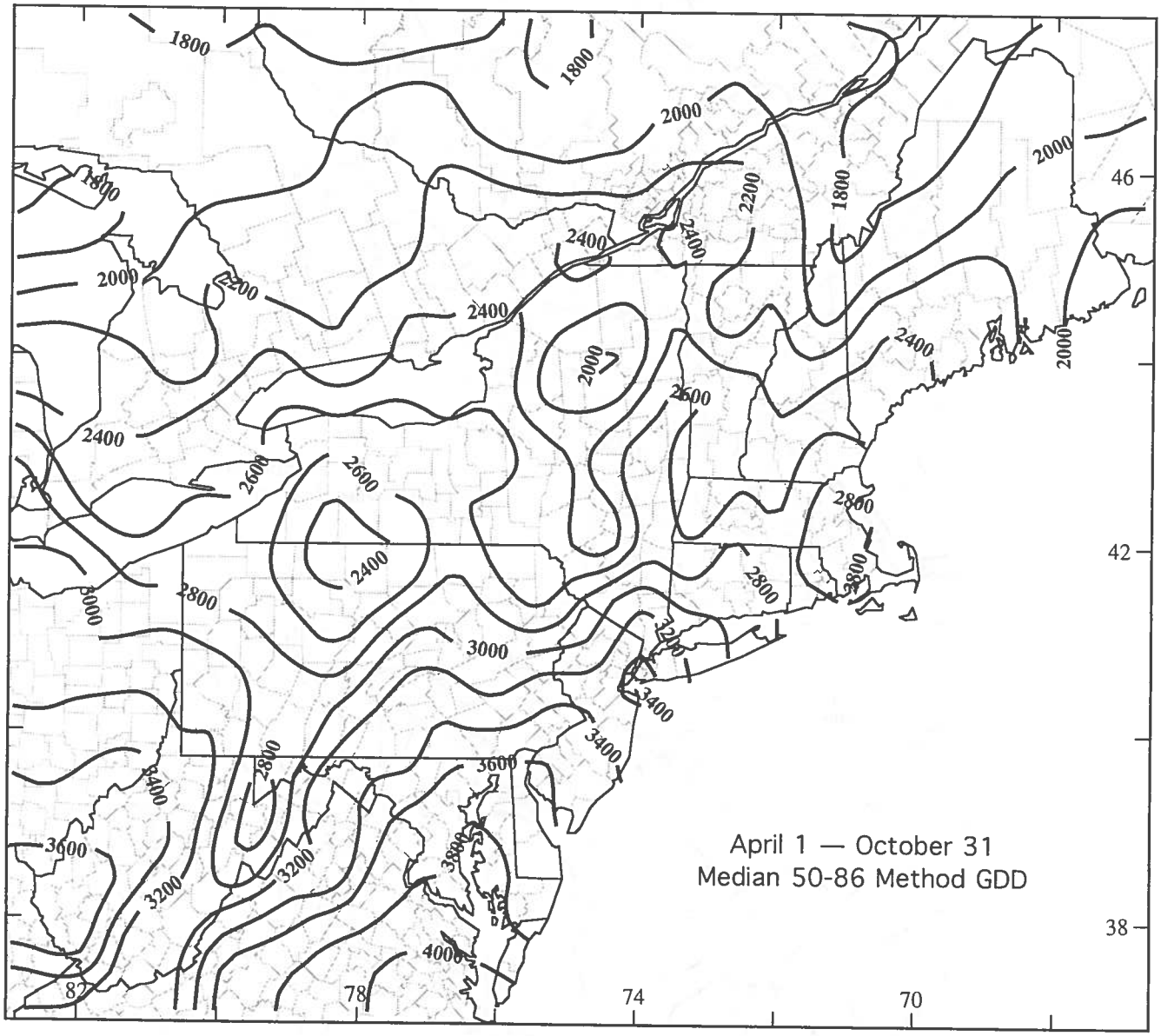
April 1 — October 31
Median 50-86 Method GDD
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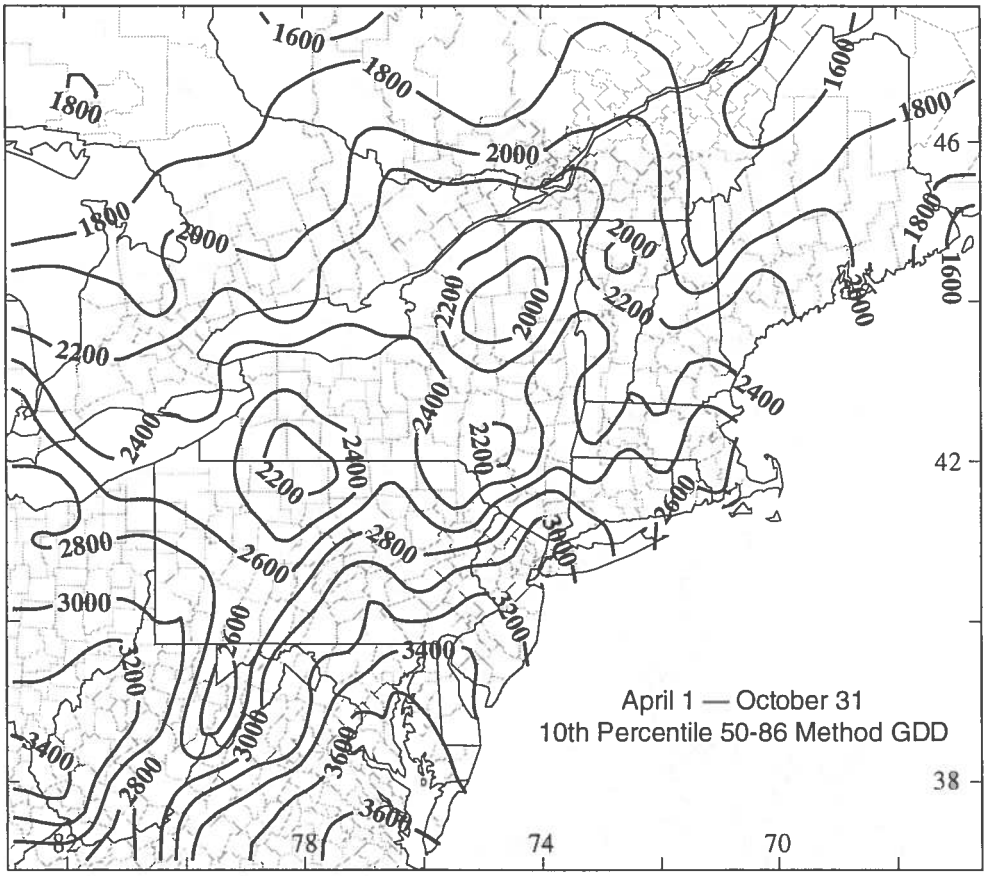
42
38
87
78
74
70


April 1 — October 31
10th Percentile 50-86 Method GDD
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38
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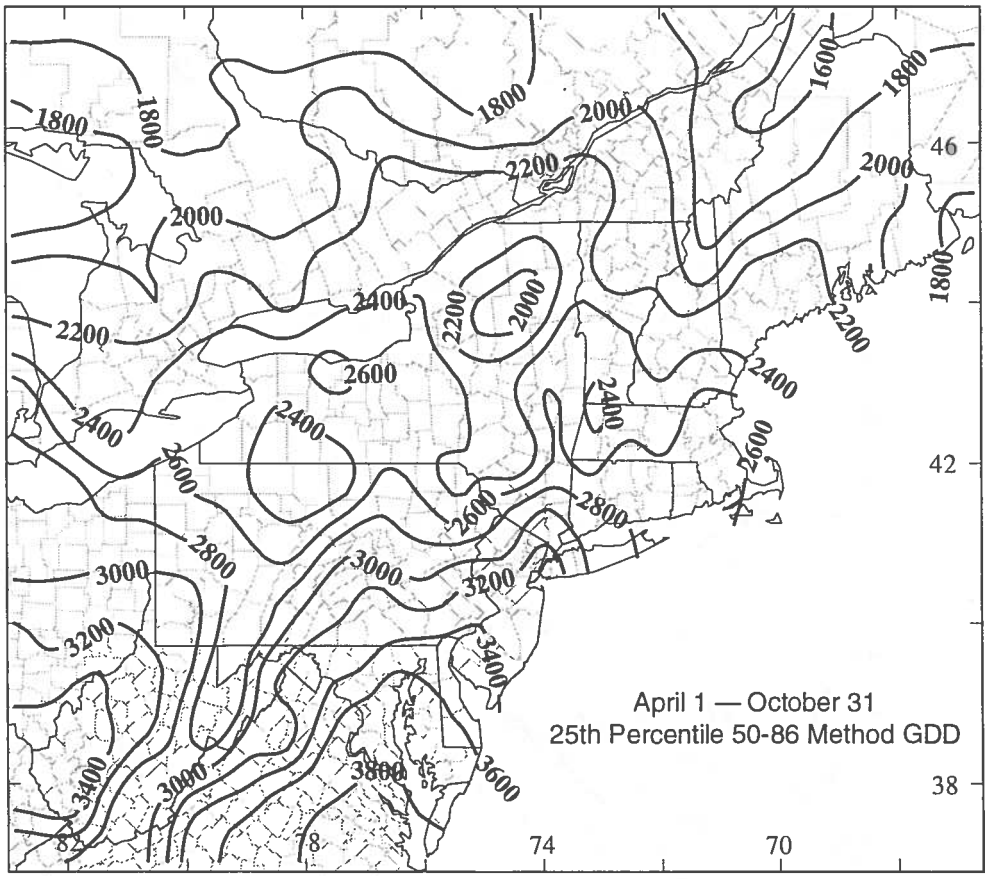
April 1 — October 31
25th Percentile 50-86 Method GDD
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42
38
82
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74
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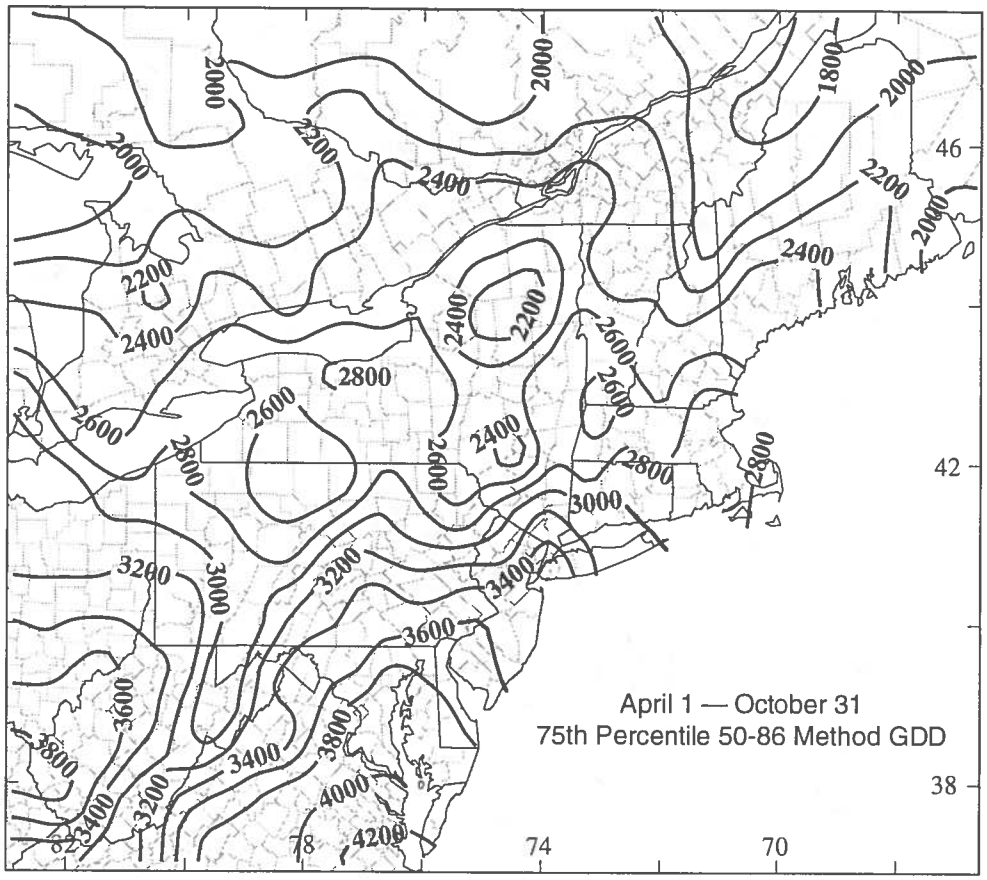
April 1 — October 31
75th Percentile 50-86 Method GDD
46
42
38
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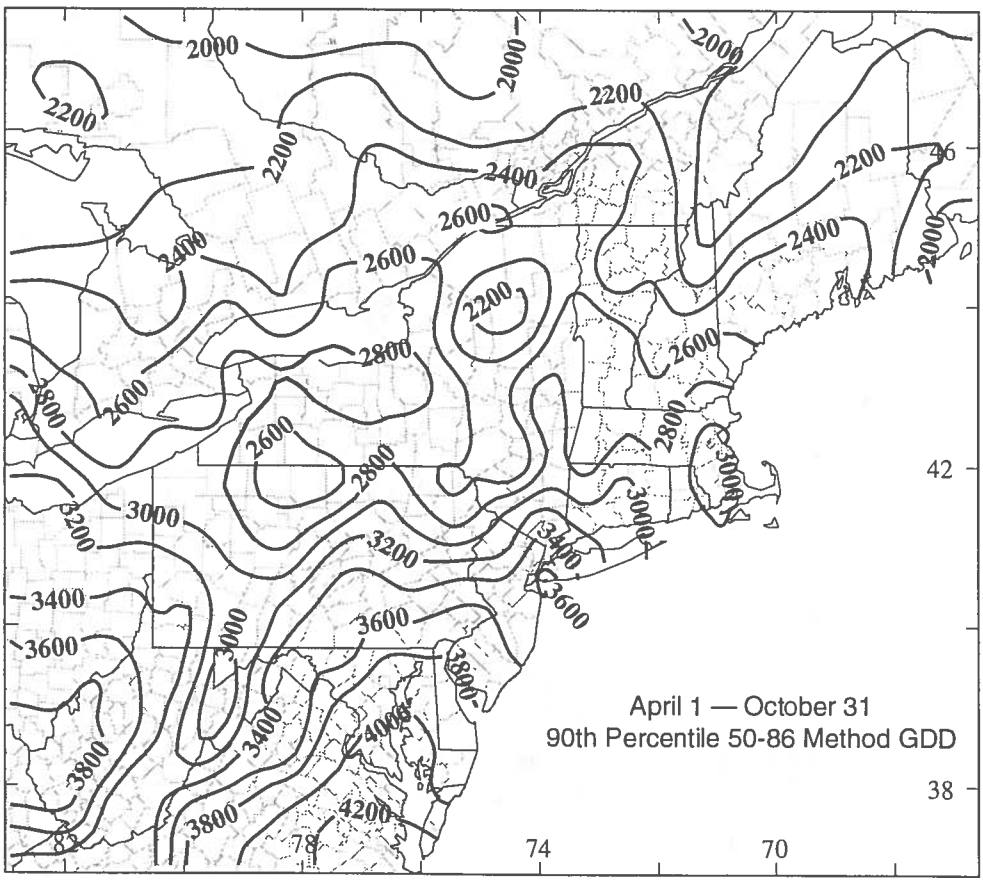
April 1 — October 31
90th Percentile 50-86 Method GDD
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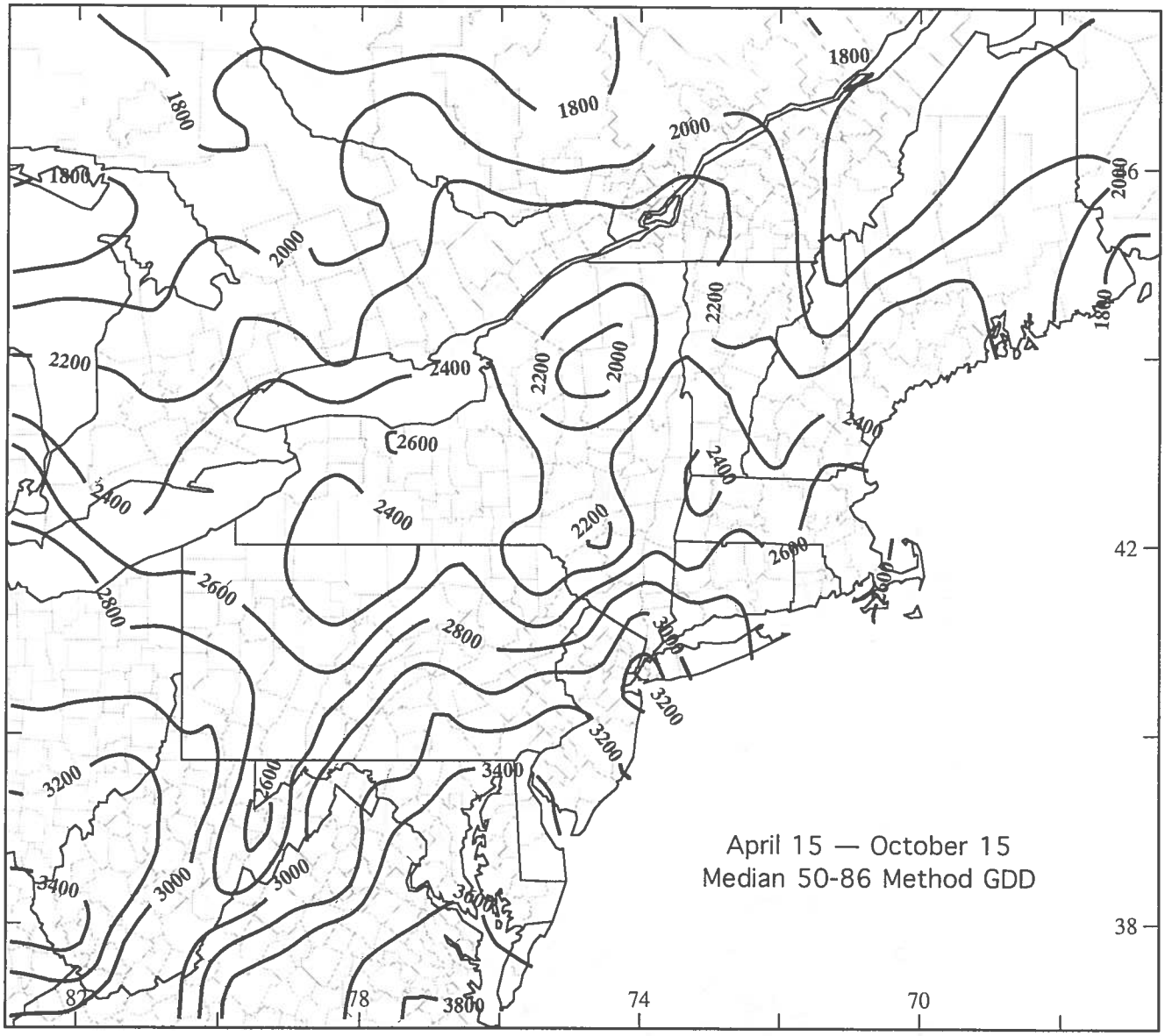
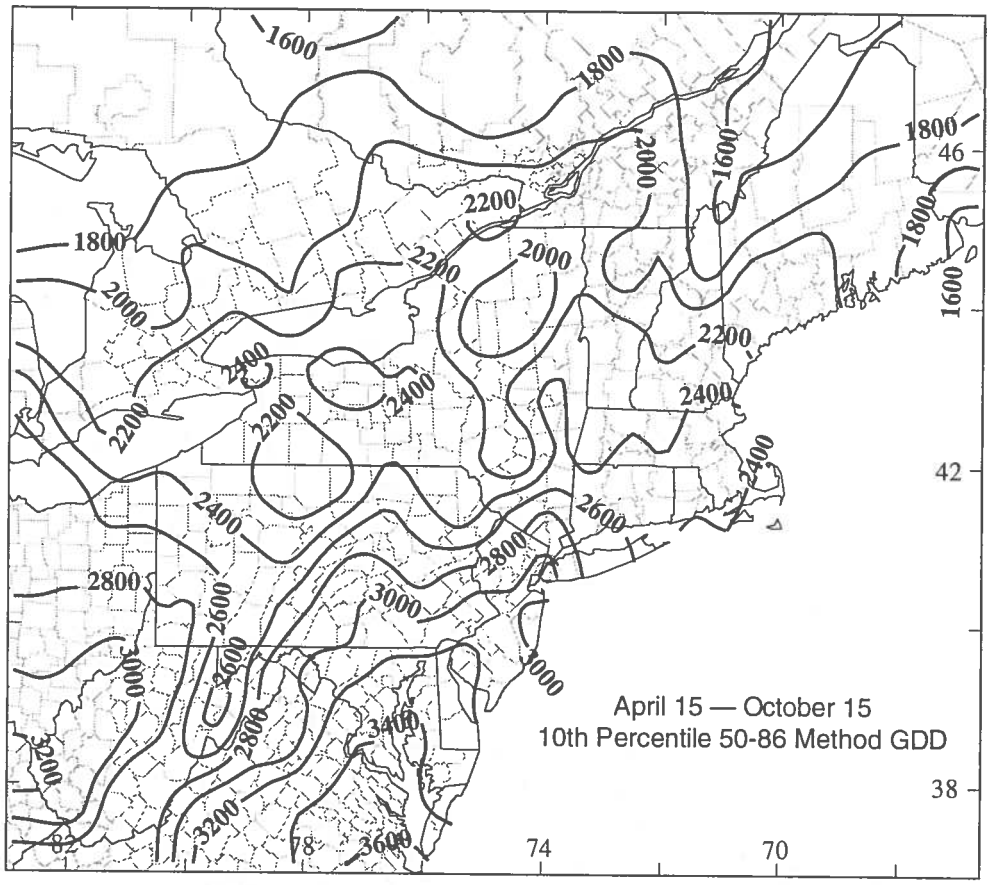

April 15 — October 15
Median 50-86 Method GDD
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
46
42
38
82
78
74
70


April 15 — October 15
10th Percentile 50-86 Method GDD
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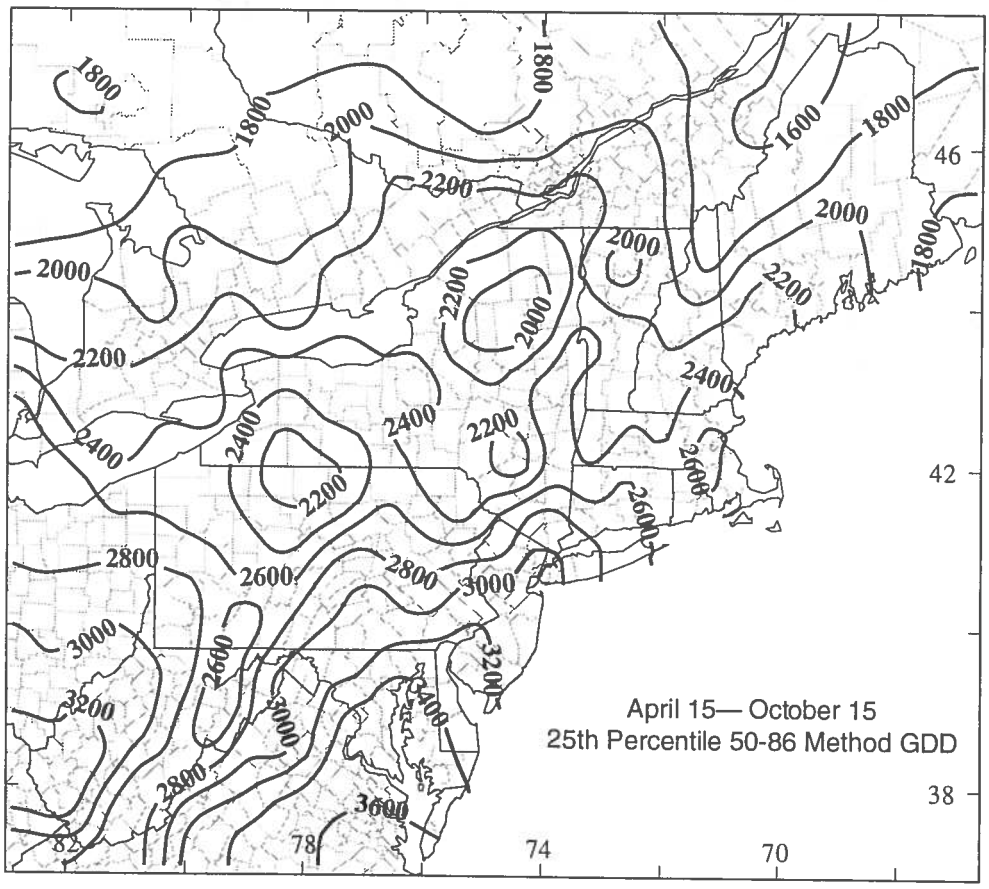
April 15— October 15
25th Percentile 50-86 Method GDD
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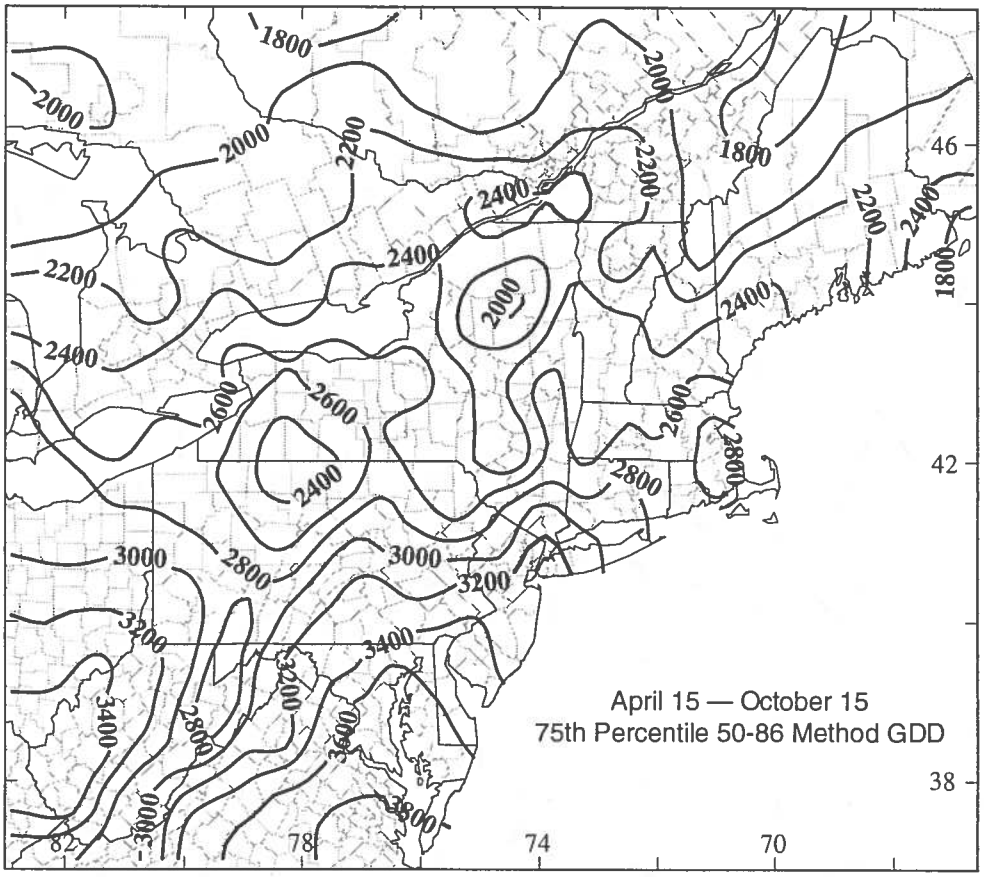
April 15 — October 15
75th Percentile 50-86 Method GDD
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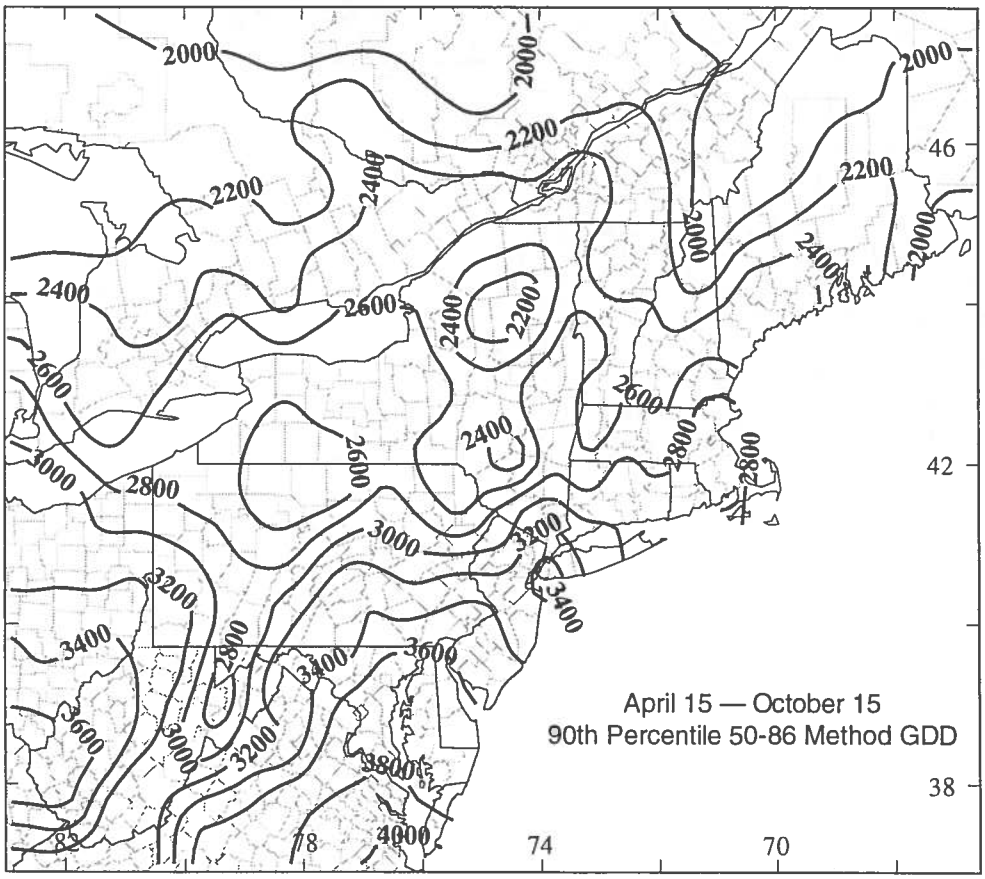
April 15 — October 15
90th Percentile 50-86 Method GDD
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42
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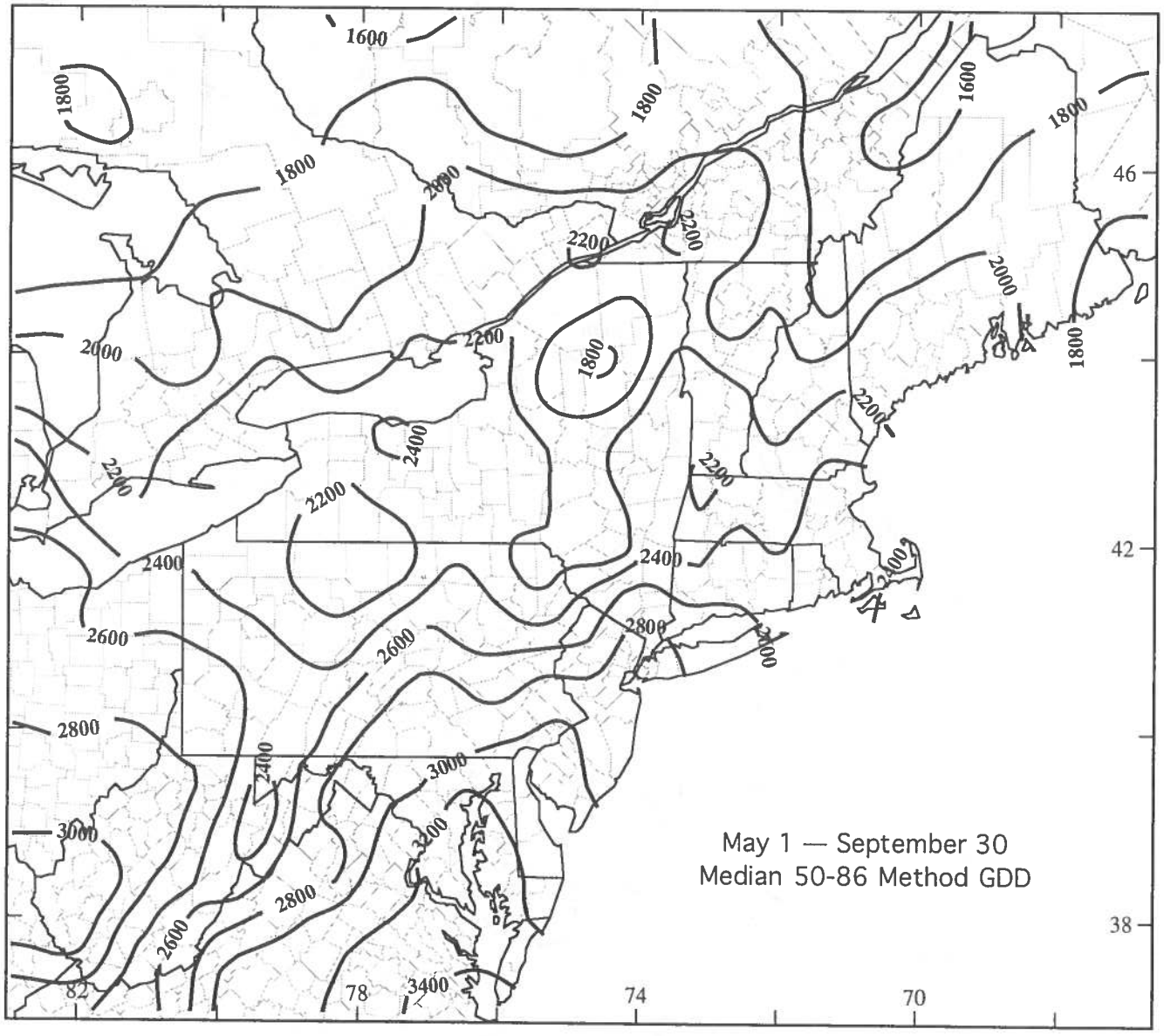
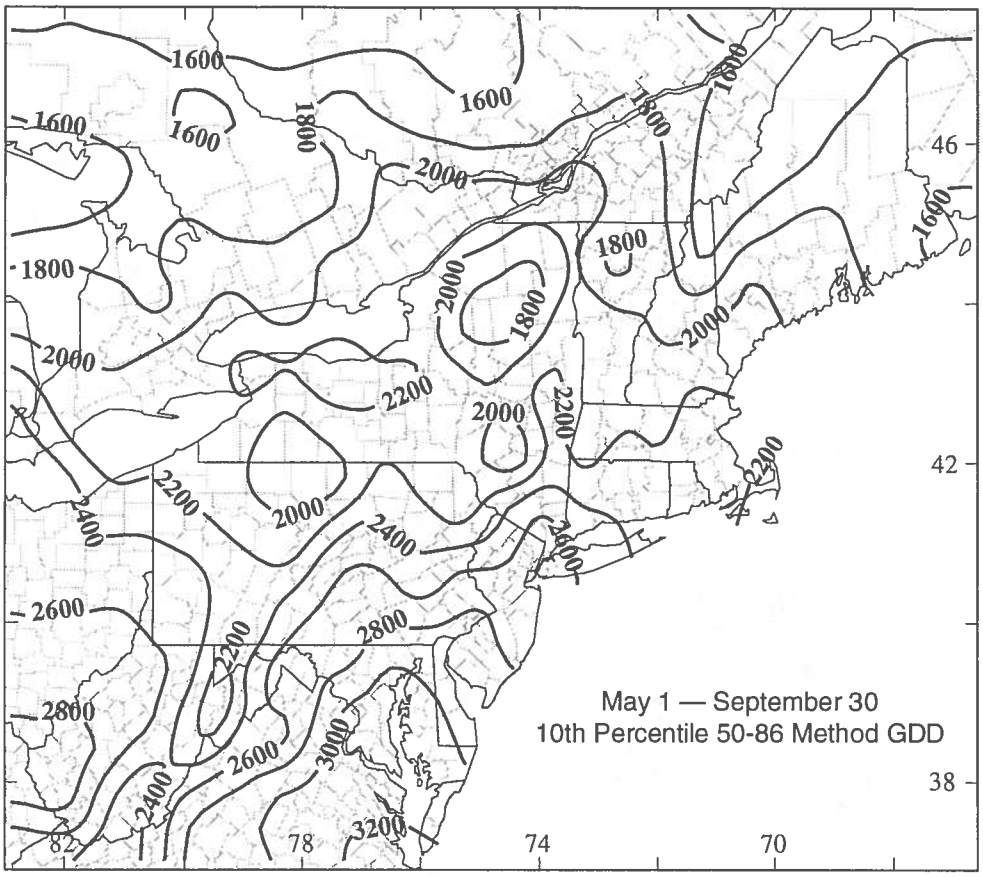

May 1 — September 30
Median 50-86 Method GDD
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
46
42
38
82
78
74
70


May 1 — September 30
10th Percentile 50-86 Method GDD
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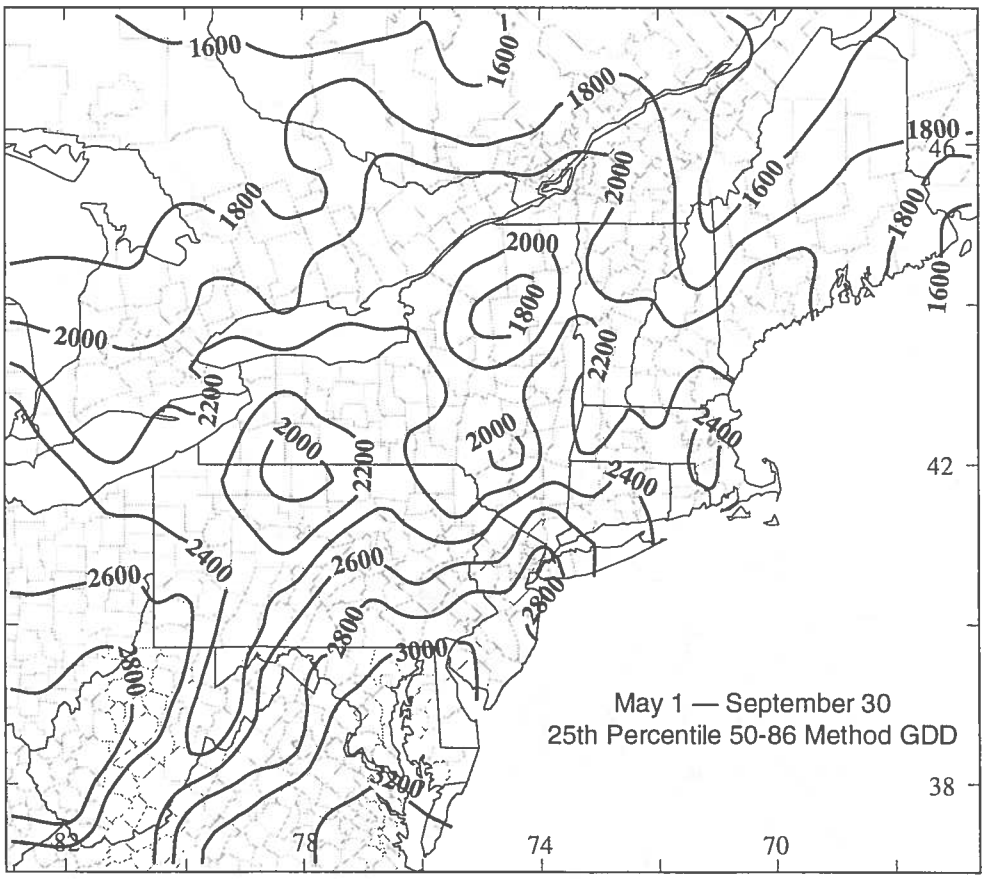
May 1 — September 30
25th Percentile 50-86 Method GDD
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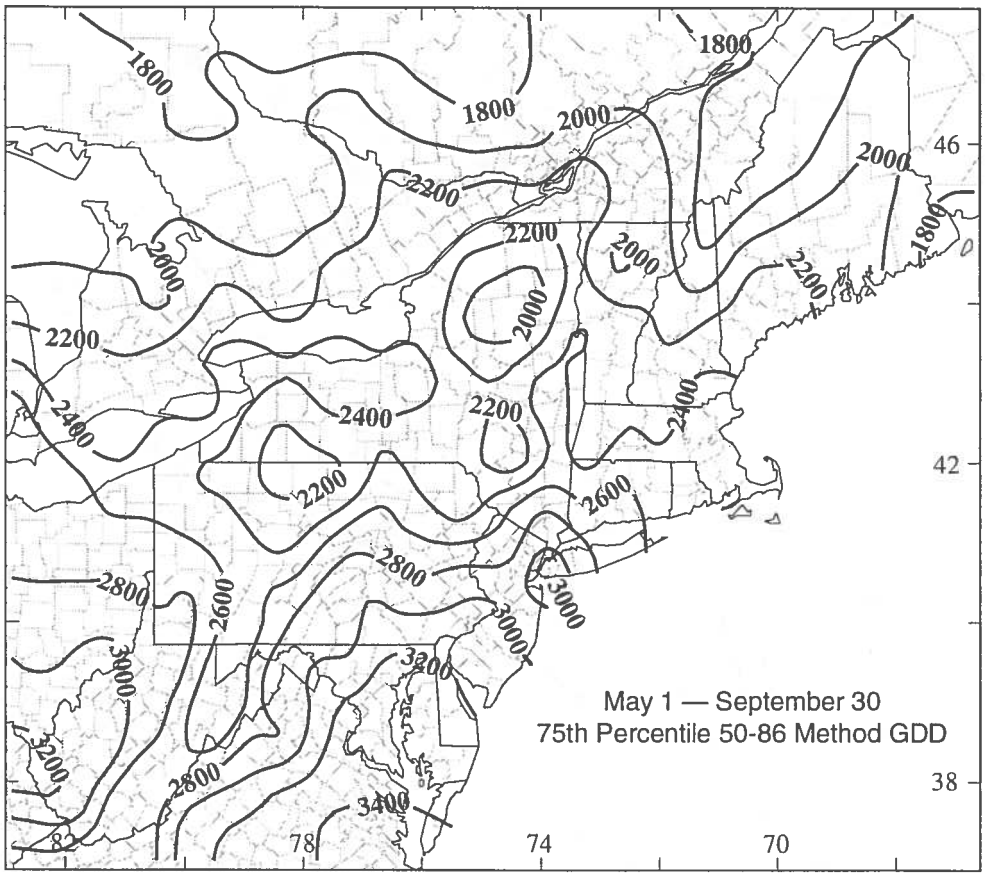
May 1 — September 30
75th Percentile 50-86 Method GDD
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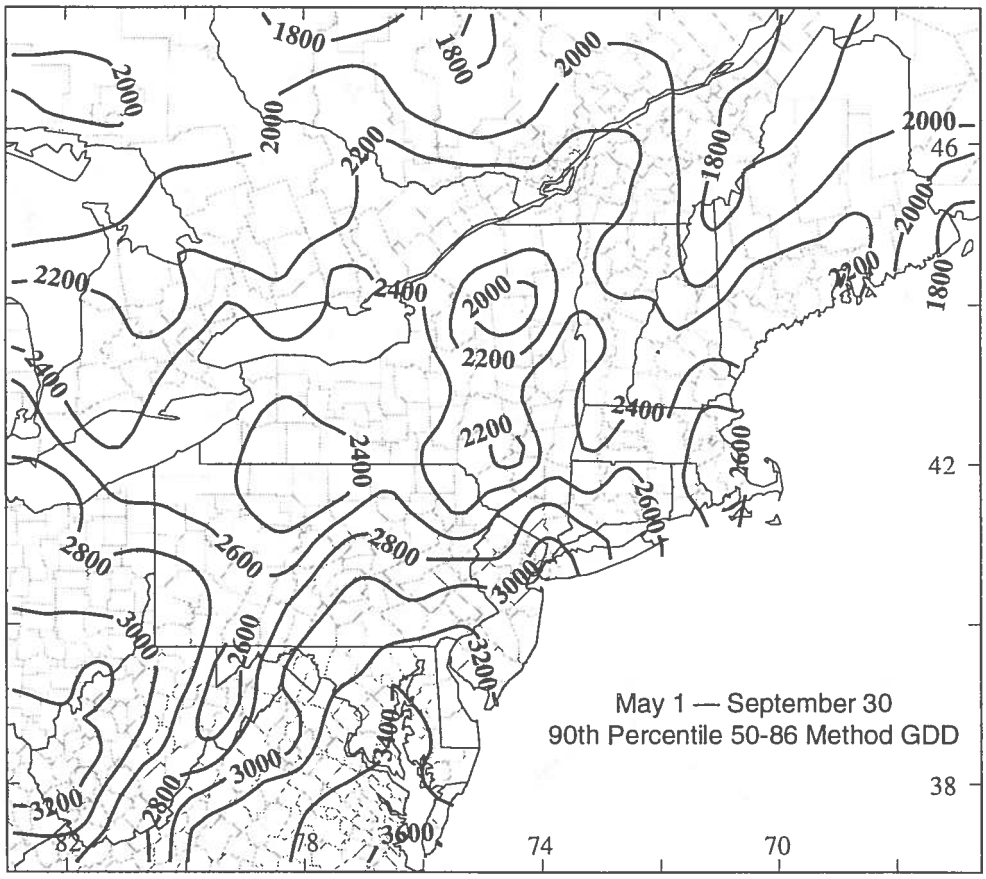
May 1 — September 30
90th Percentile 50-86 Method GDD
46
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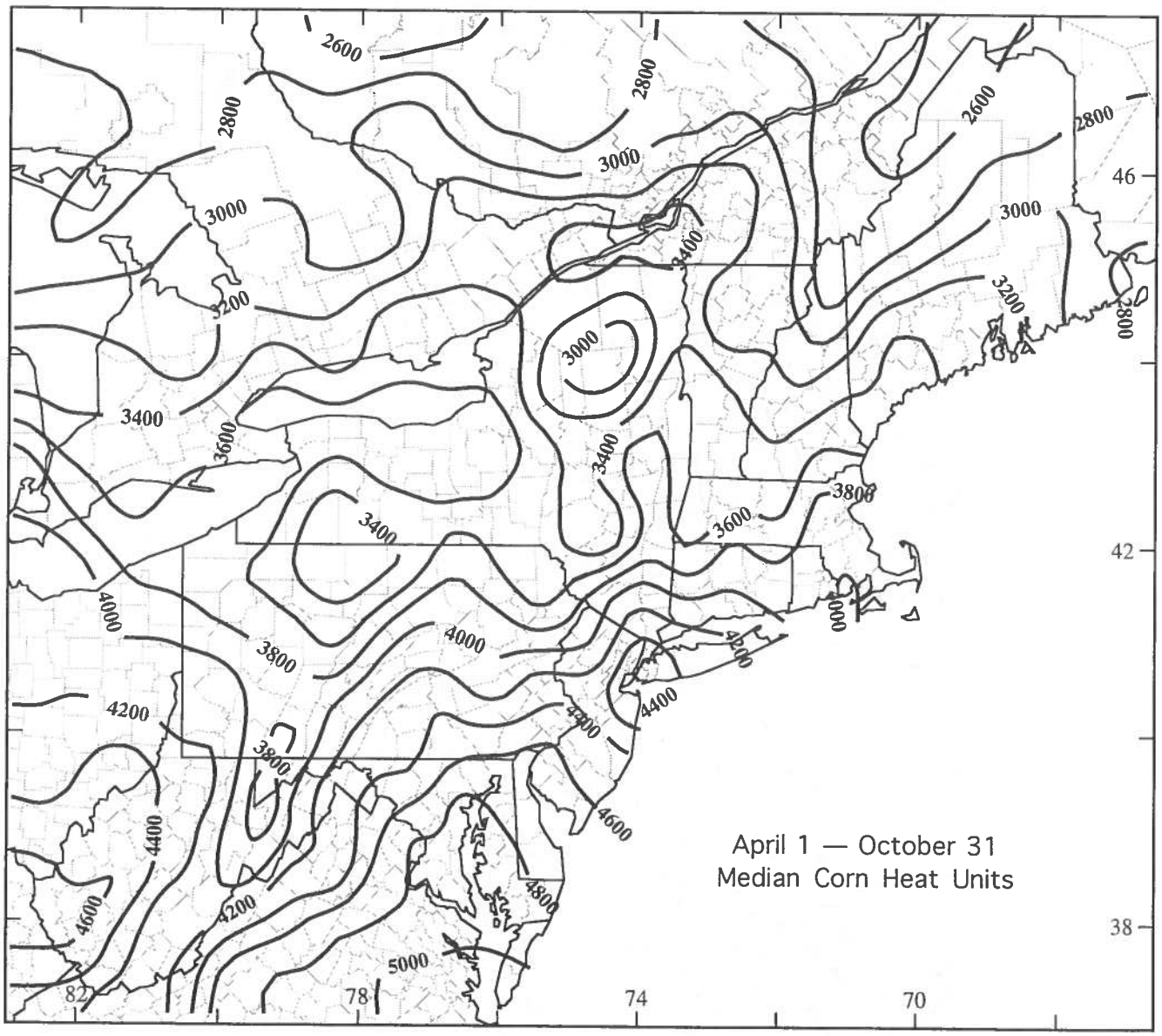
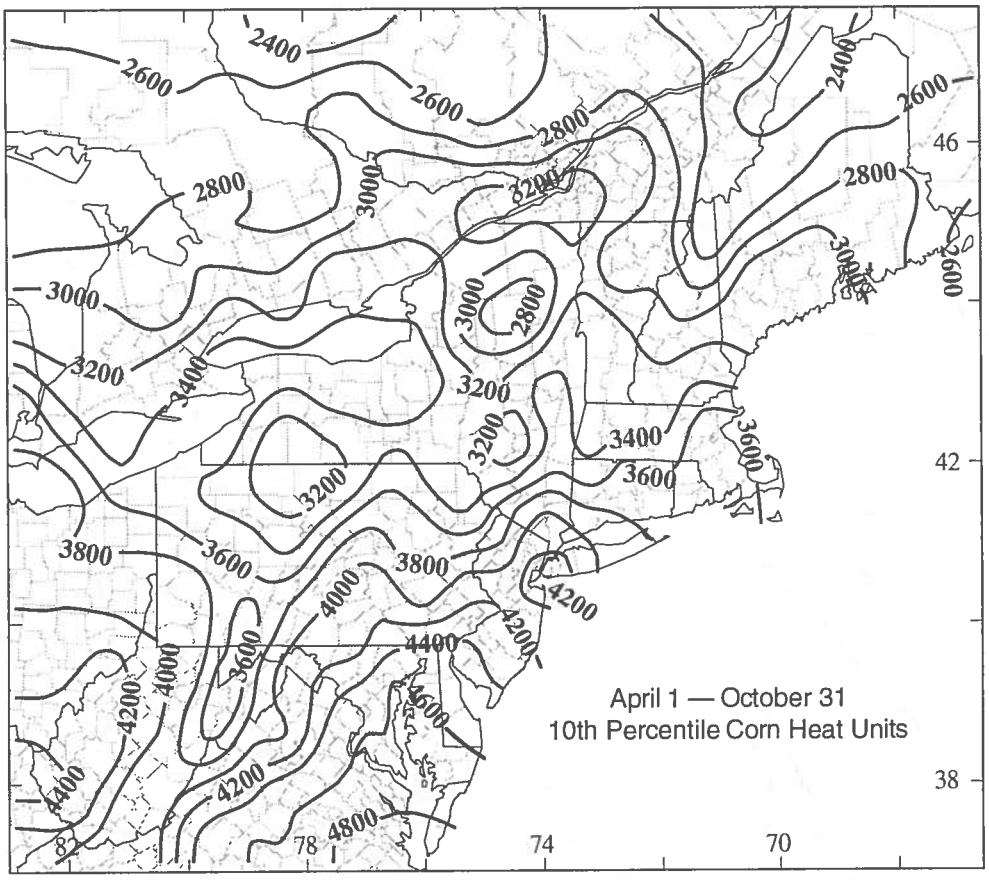
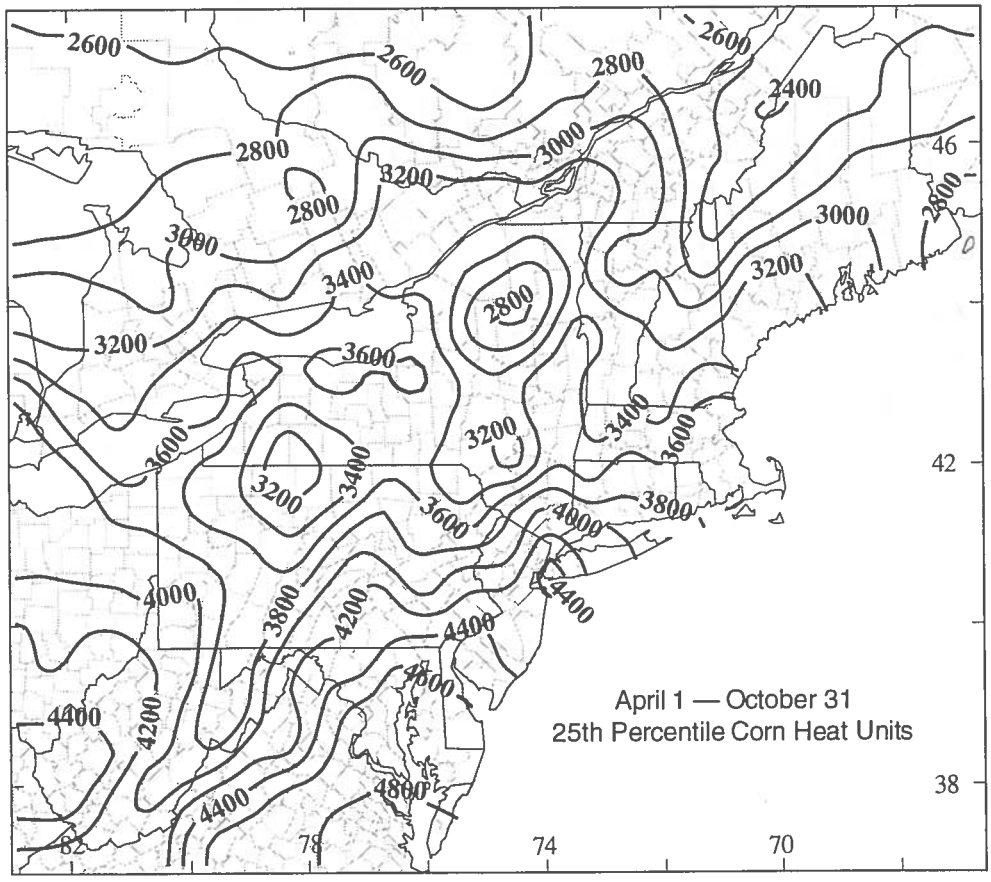

April 1 — October 31
Median Corn Heat Units
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
46
42
38
82
78
74
70


April 1 — October 31
10th Percentile Corn Heat Units
46
42
38
82
78
74
70


April 1 — October 31
25th Percentile Corn Heat Units
46
42
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74
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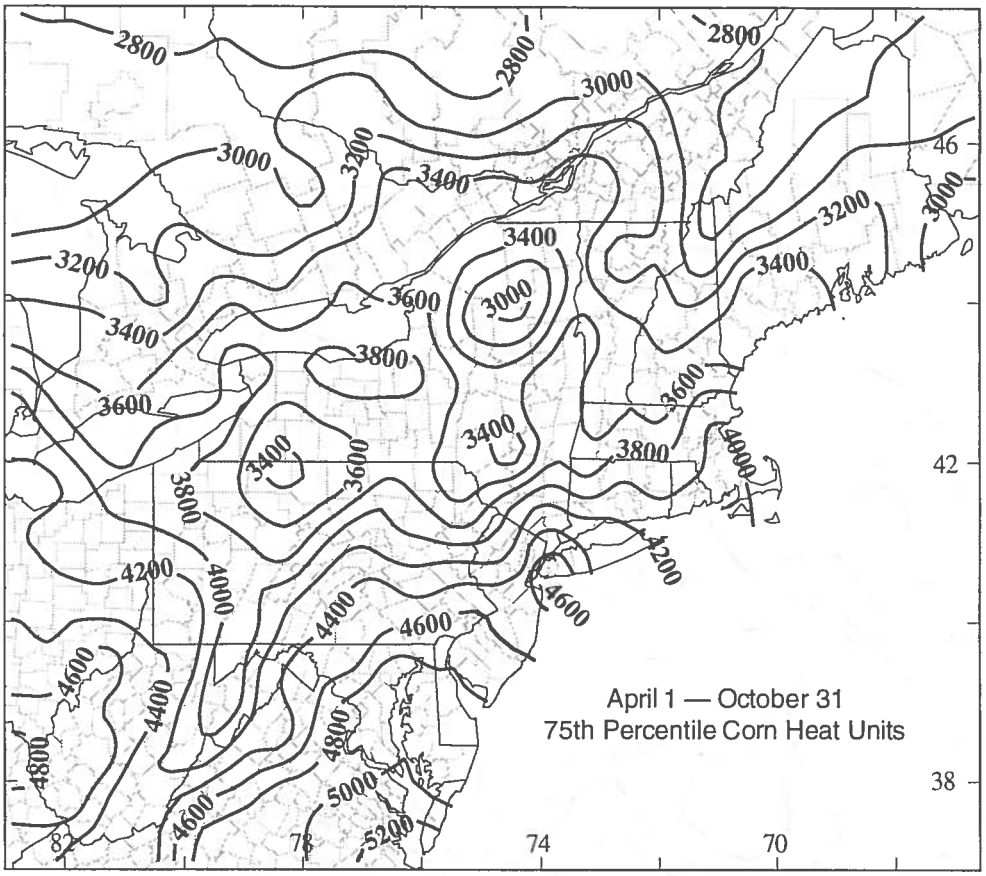
April 1 — October 31
75th Percentile Corn Heat Units
46
42
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74
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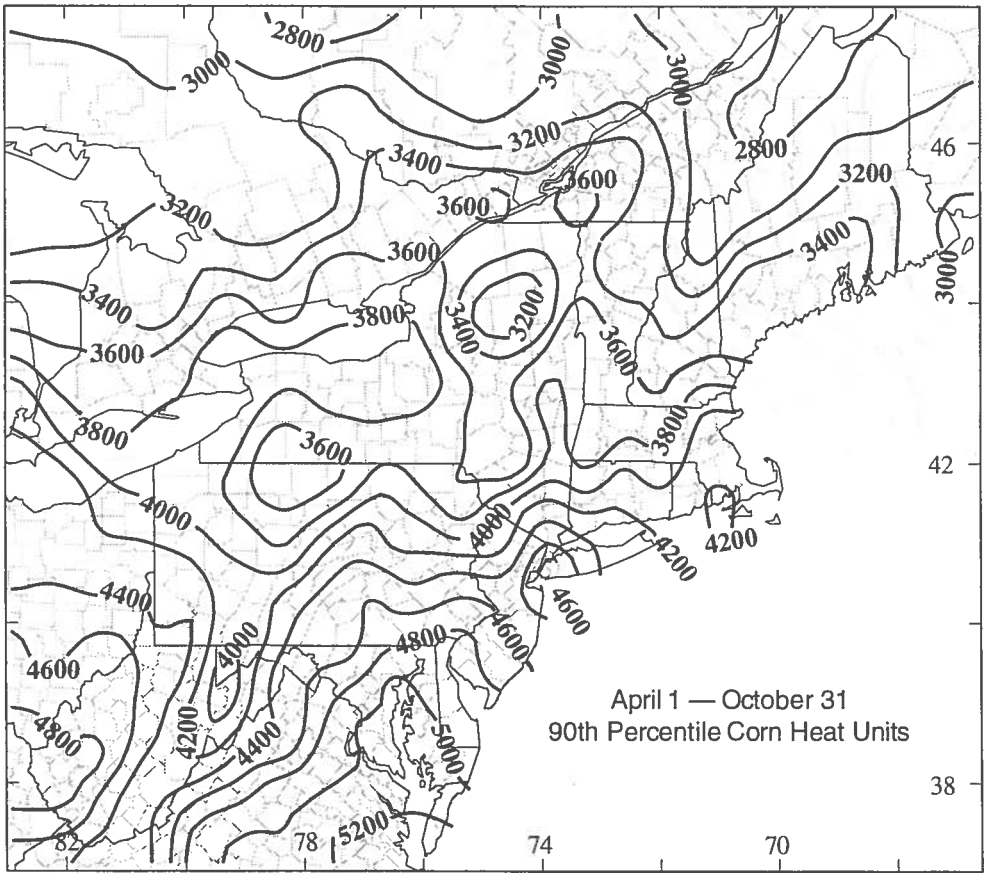
April 1 — October 31
90th Percentile Corn Heat Units
46
42
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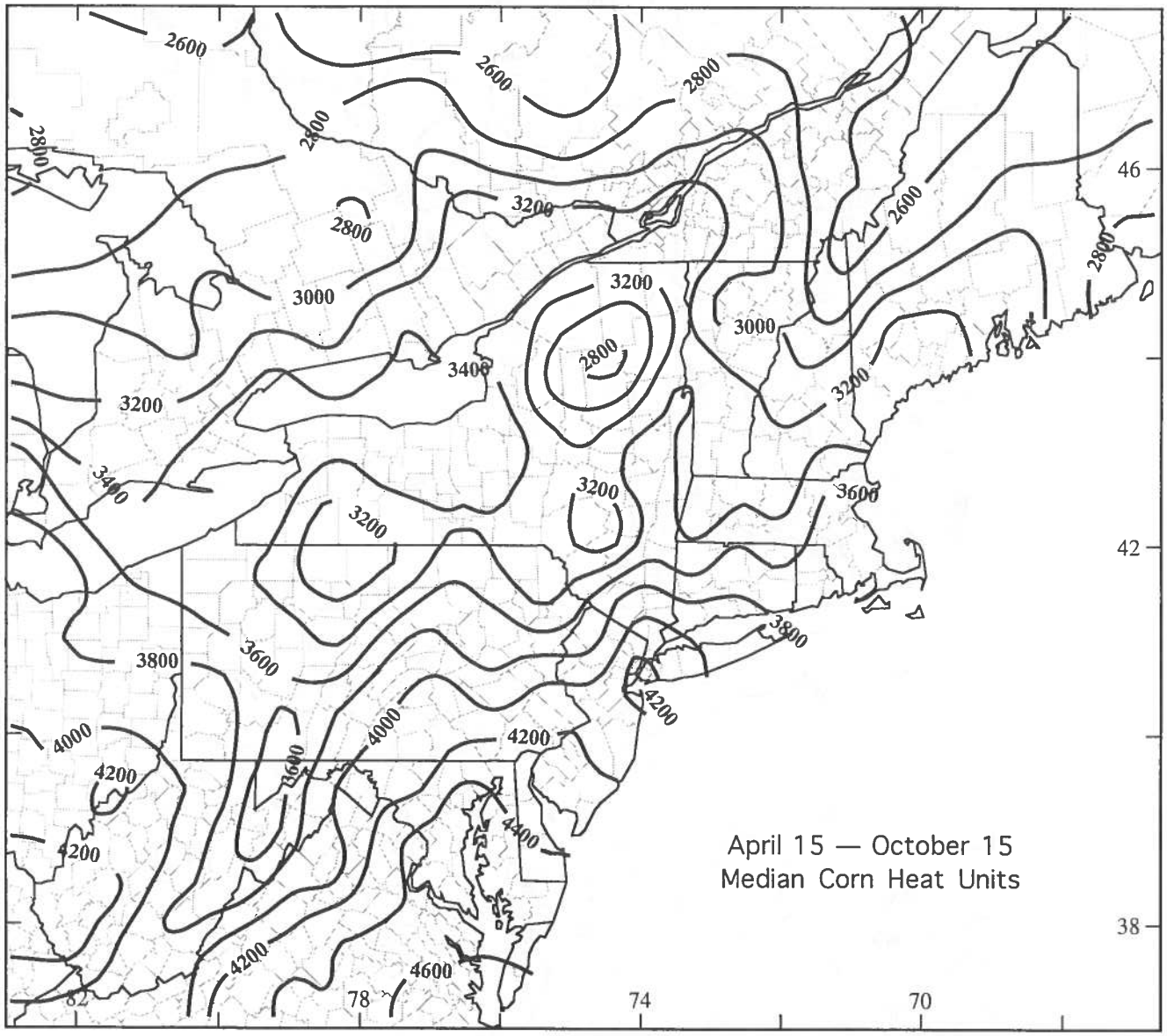
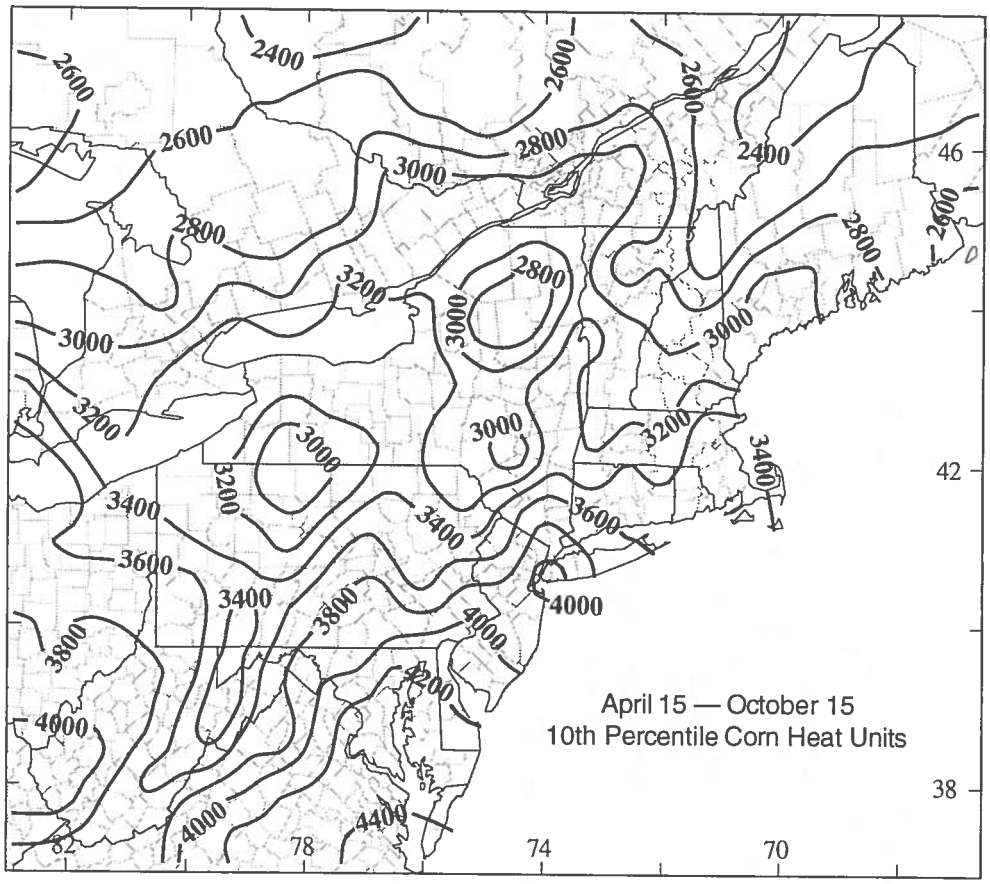

April 15 — October 15
Median Corn Heat Units
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
46
42
38
82
78
74
70


April 15 — October 15
10th Percentile Corn Heat Units
46
42
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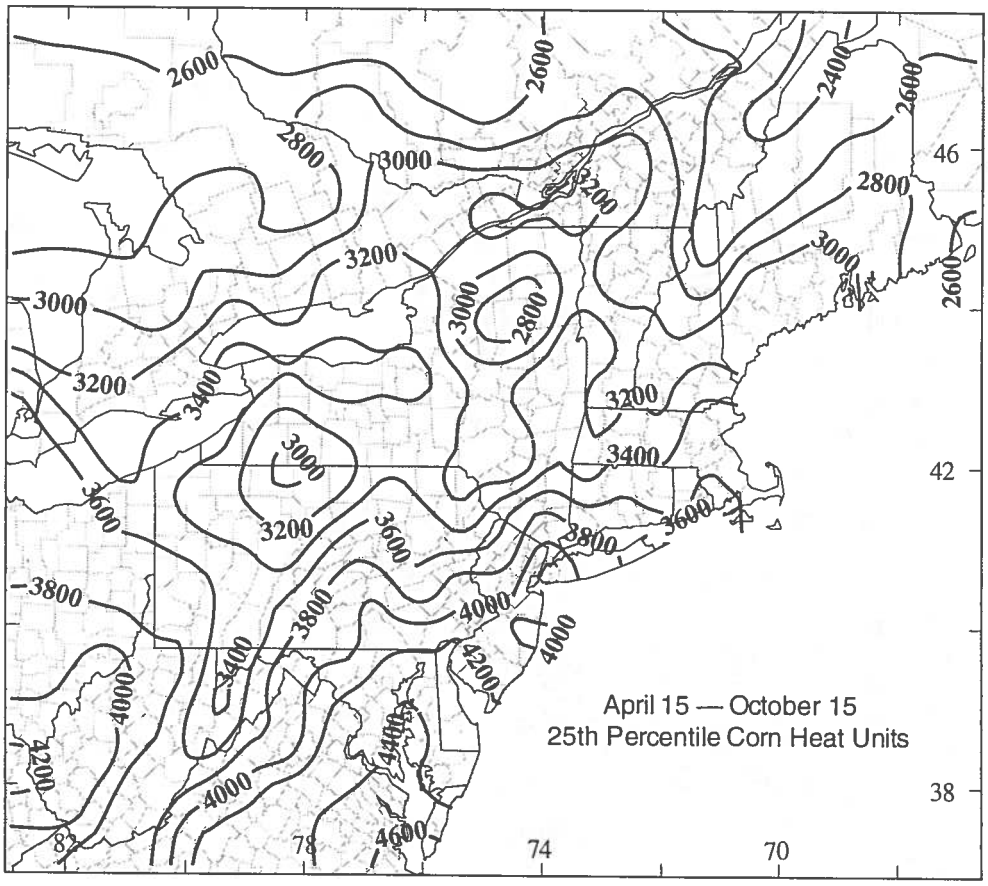
April 15 — October 15
25th Percentile Corn Heat Units
46
42
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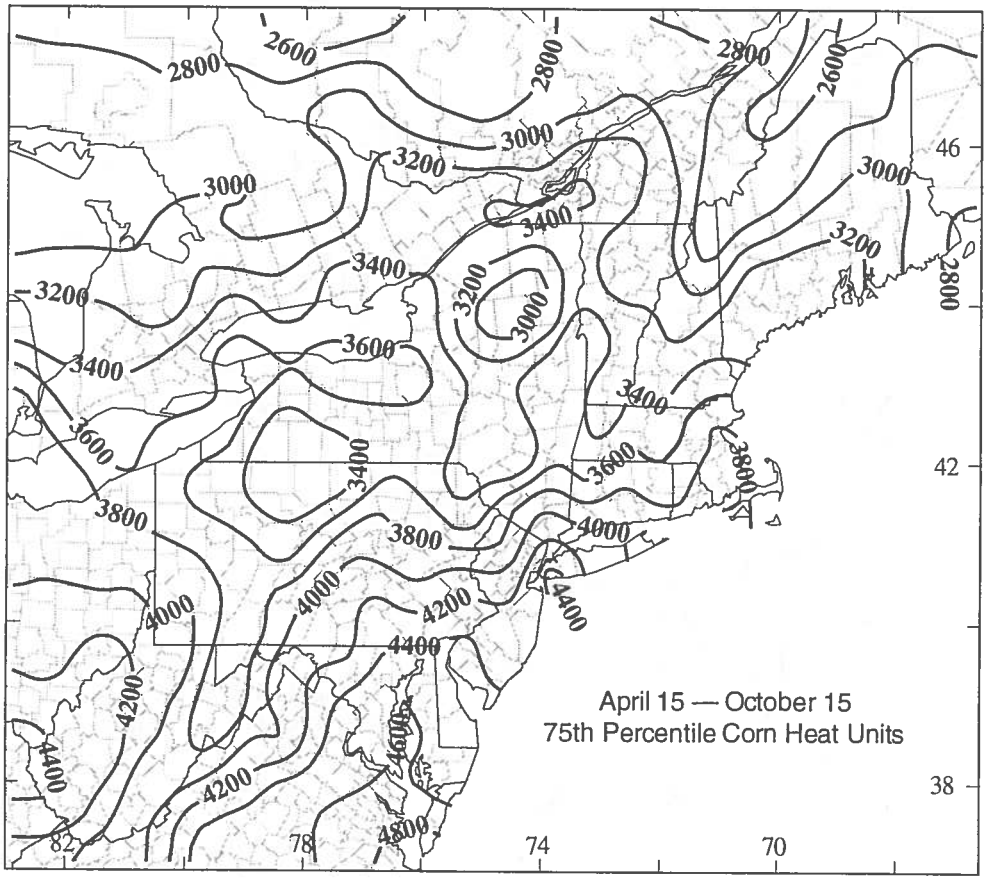
April 15 — October 15
75th Percentile Corn Heat Units
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42
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74
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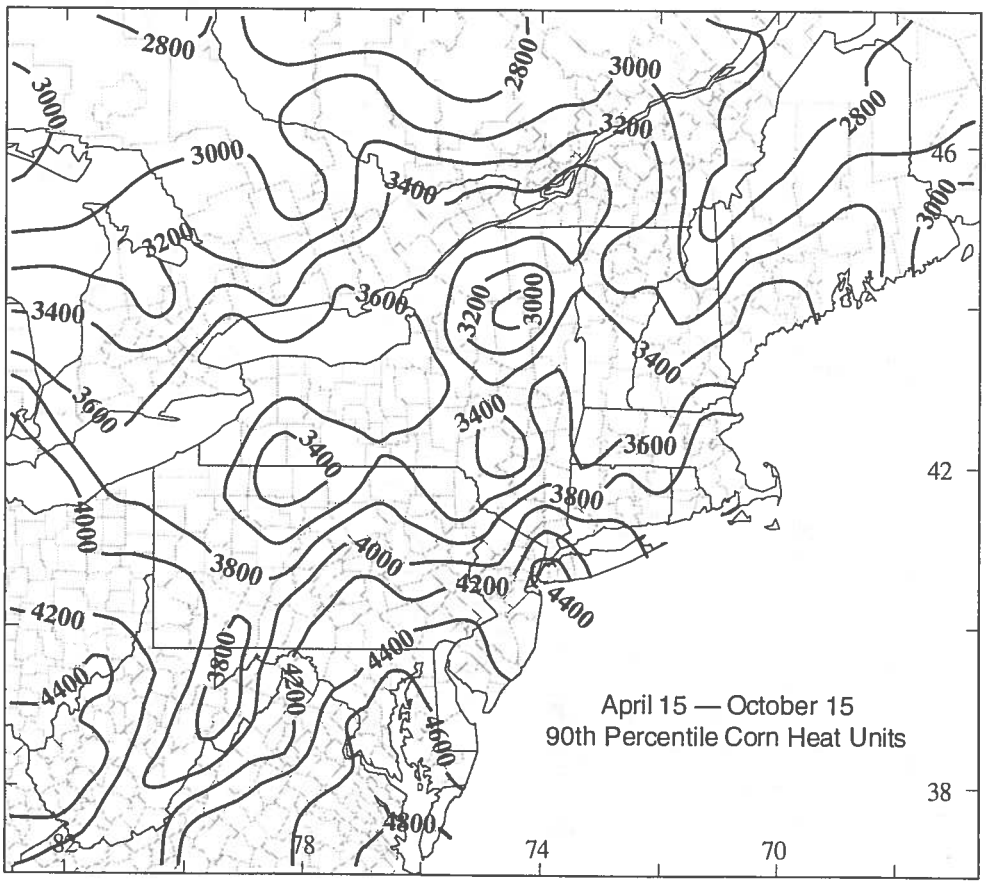
April 15 — October 15
90th Percentile Corn Heat Units
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42
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82
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74
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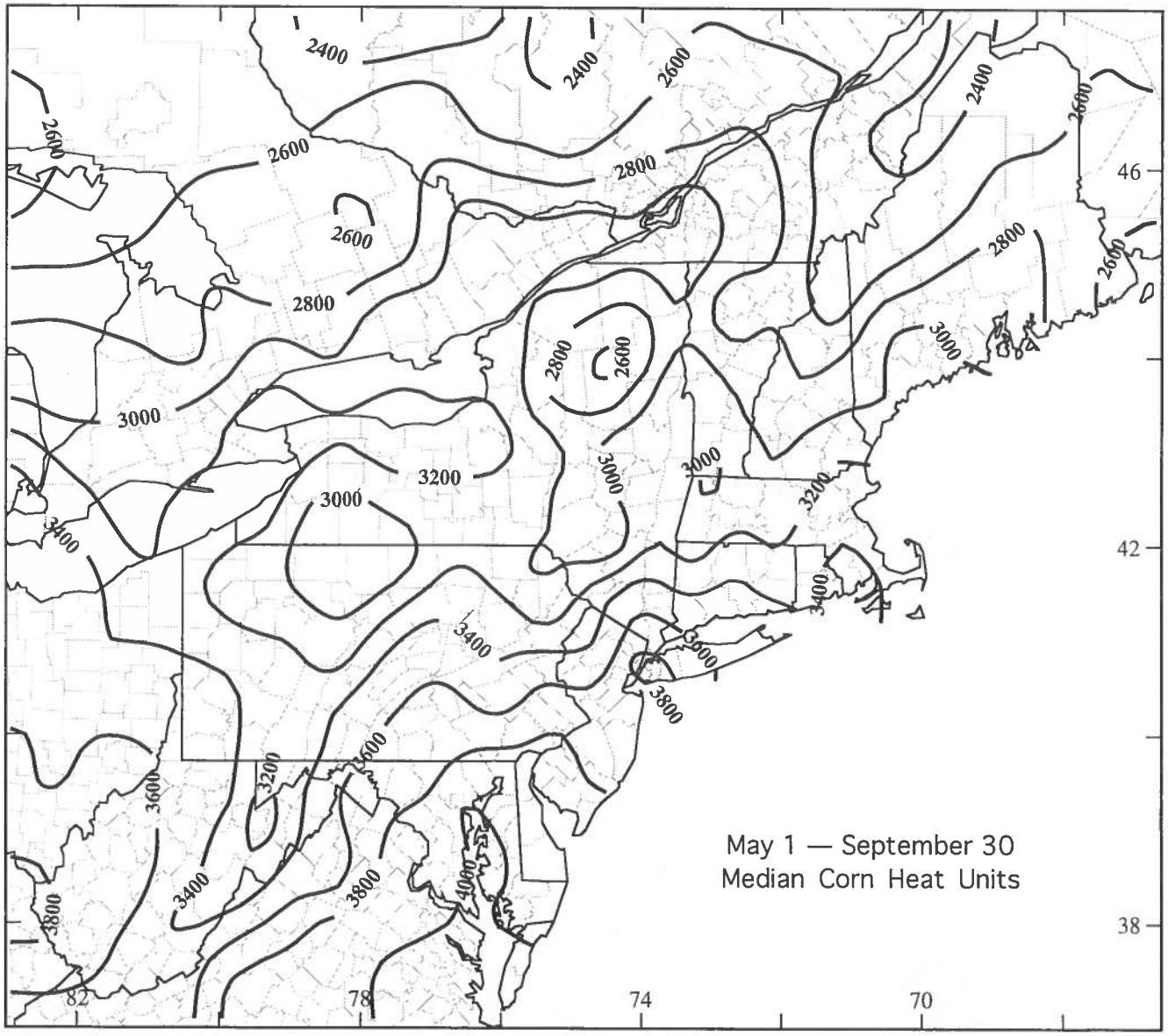
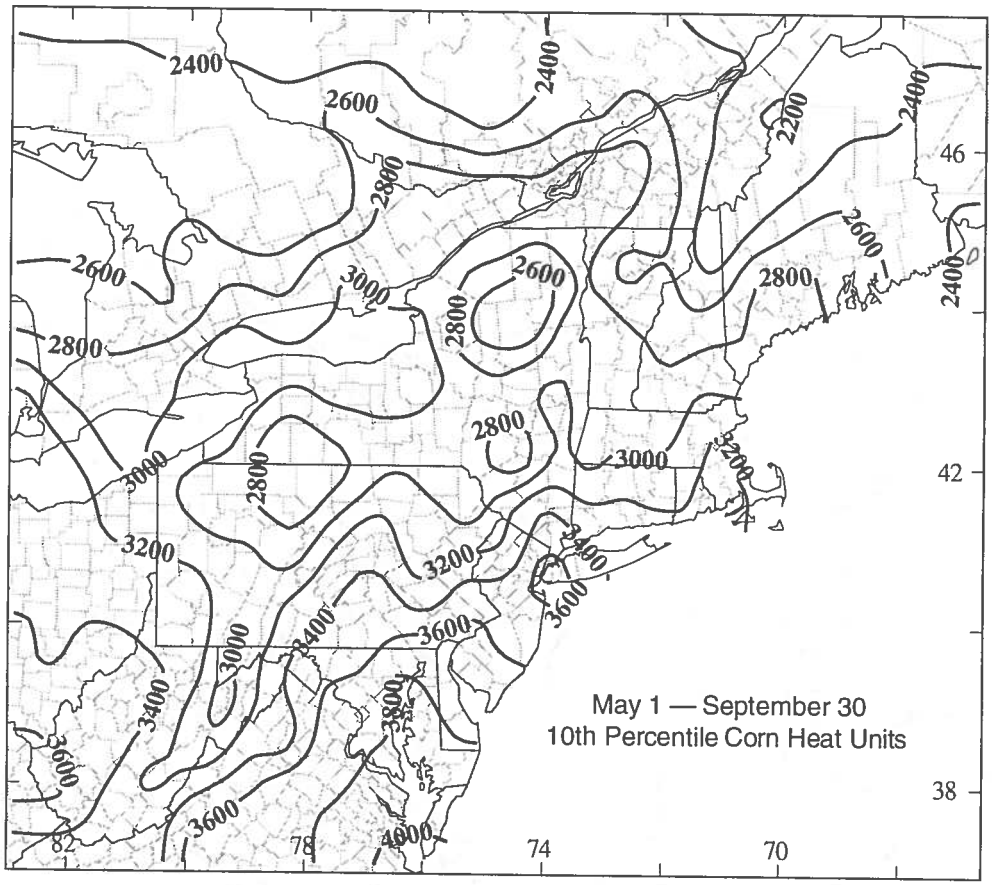

May 1 — September 30
Median Corn Heat Units
46
42
38
82
78
74
70


May 1 — September 30
10th Percentile Corn Heat Units
46
42
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82
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74
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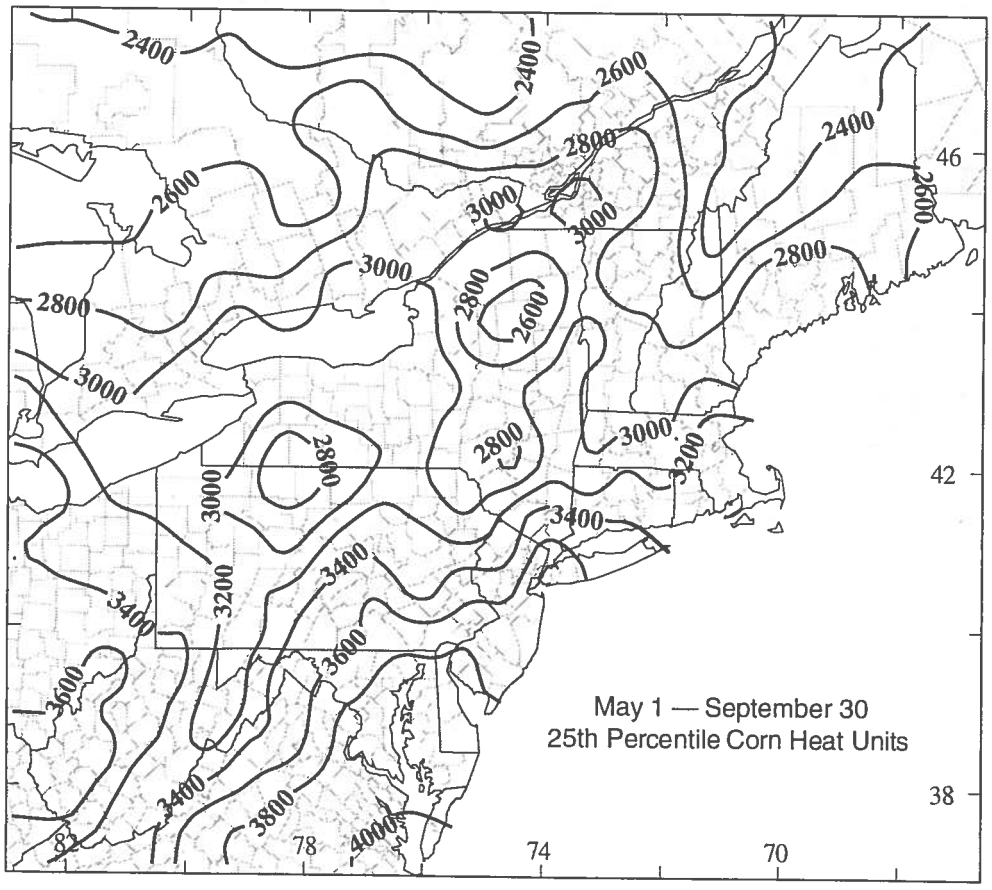
May 1 — September 30
25th Percentile Corn Heat Units
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42
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82
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74
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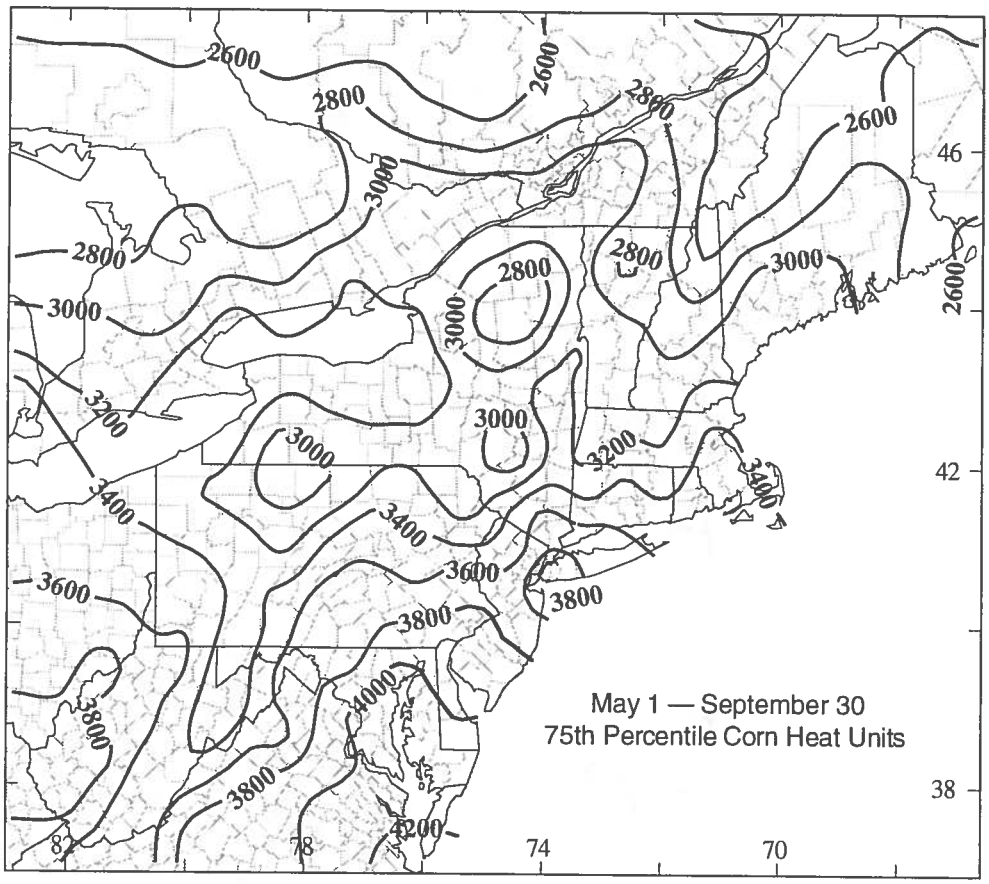
May 1 — September 30
75th Percentile Corn Heat Units
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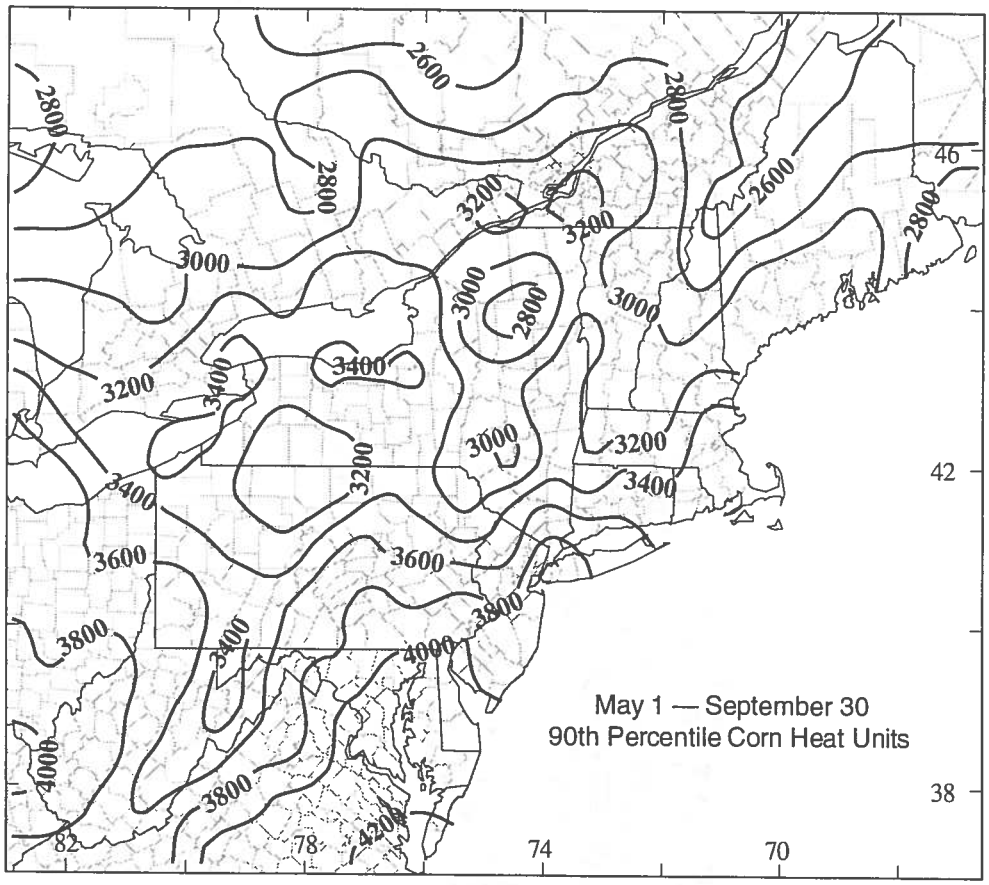
May 1 — September 30
90th Percentile Corn Heat Units
46
42
38
82
78
74
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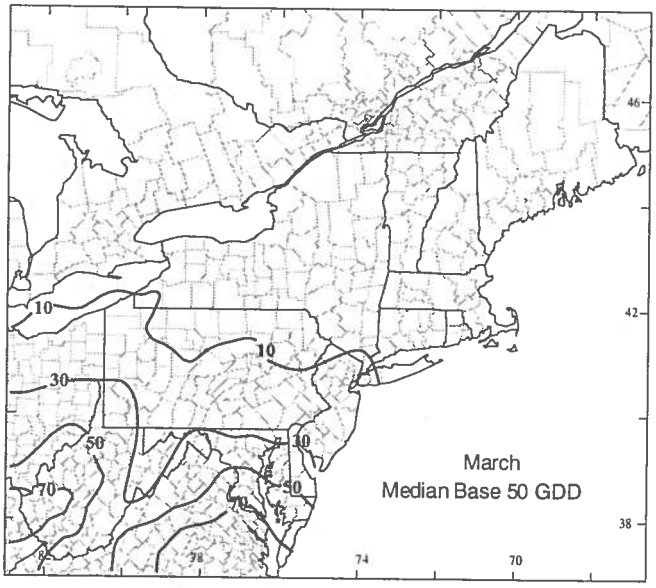
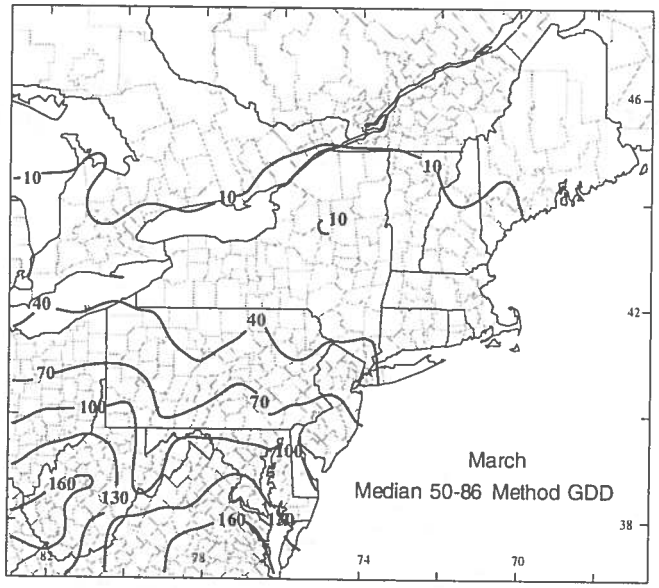
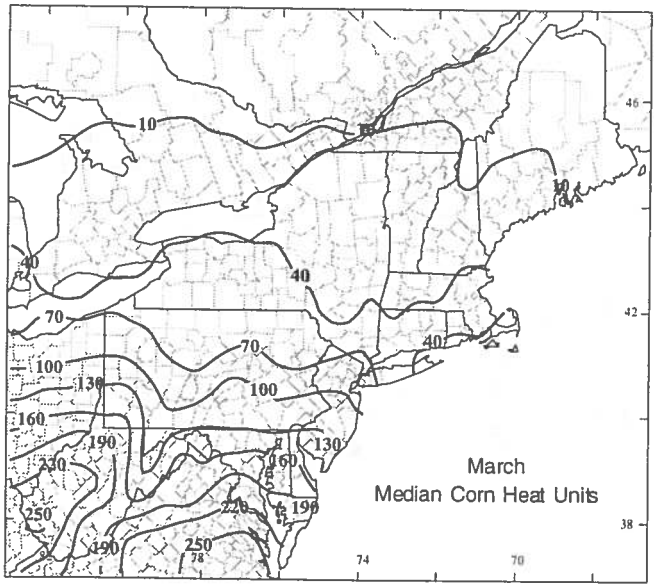
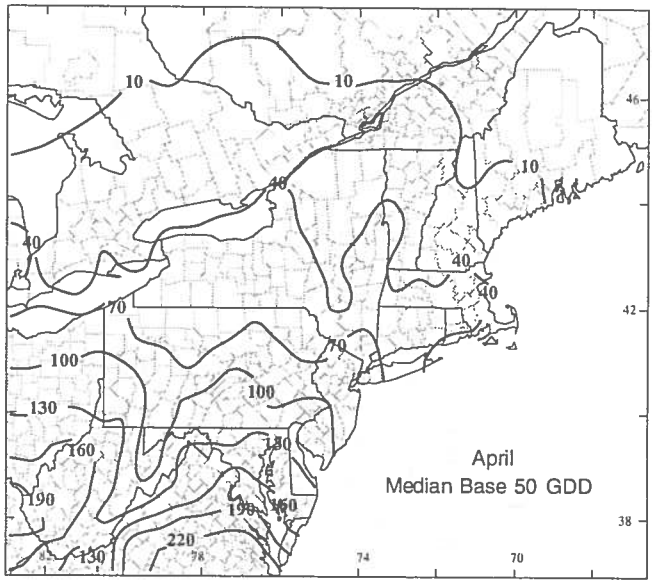

March
Median Base 50 GDD
46
42
38
78
74
70
10
30
50
70


March
Median 50-86 Method GDD
46
42
38
82
78
74
70
10
40
70
100
130
160


March
Median Corn Heat Units
46
42
38
78
74
70
10
40
70
100
130
160
190
220
250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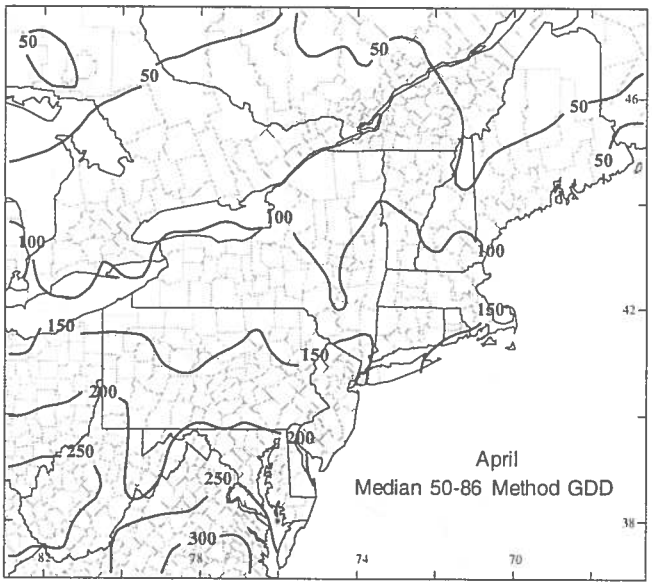
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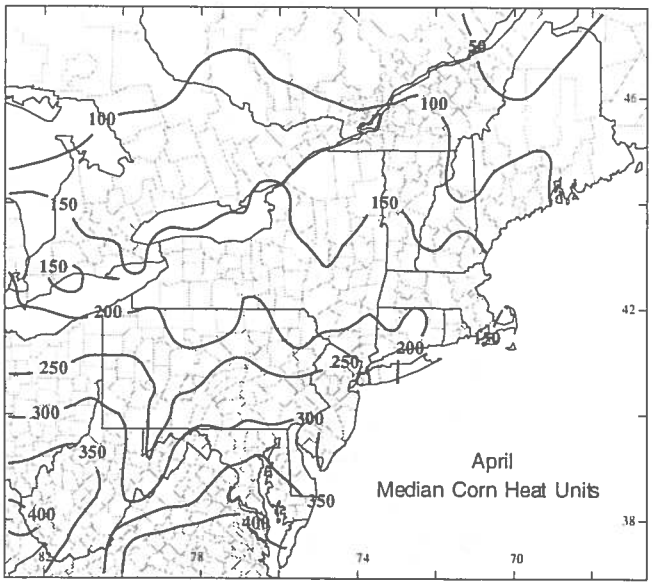
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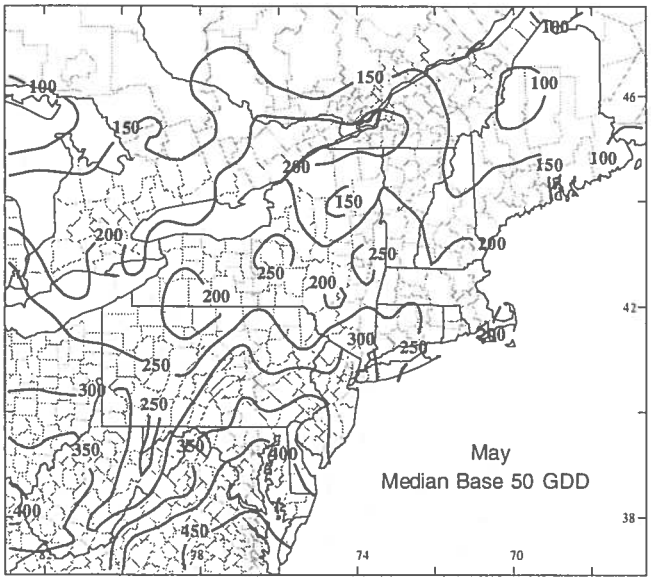
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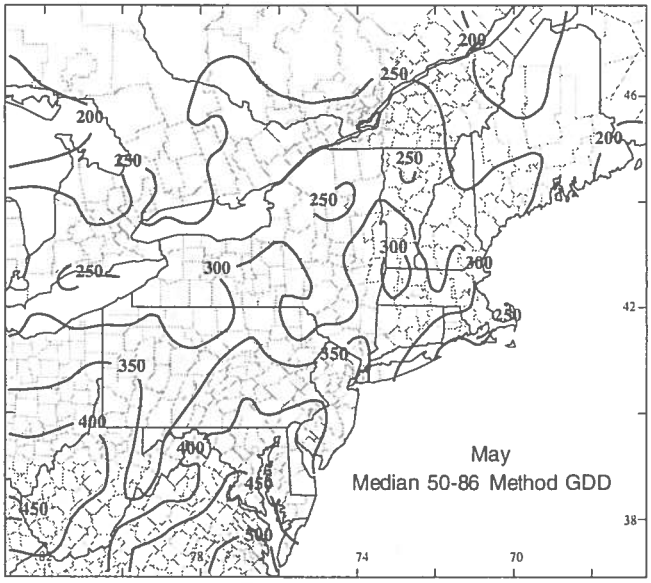
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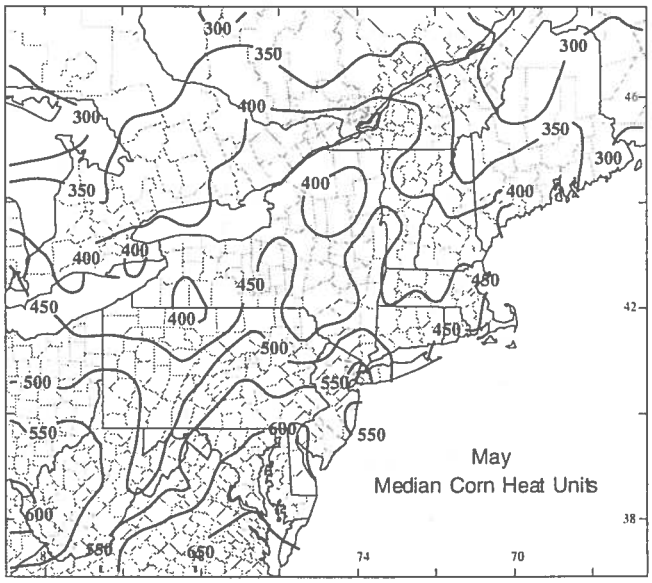
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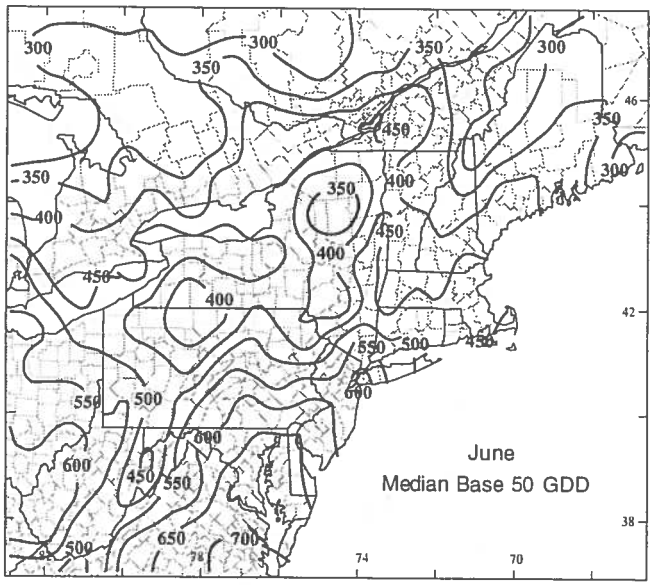
Median Corn Heat Units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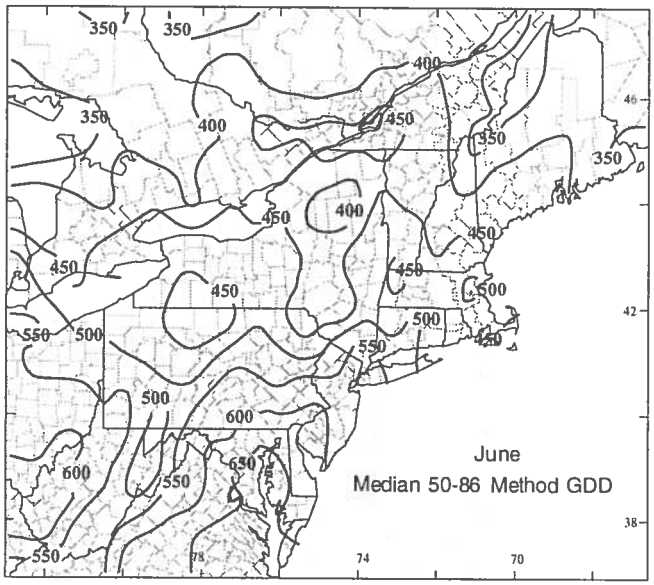
Median Base 50 GDD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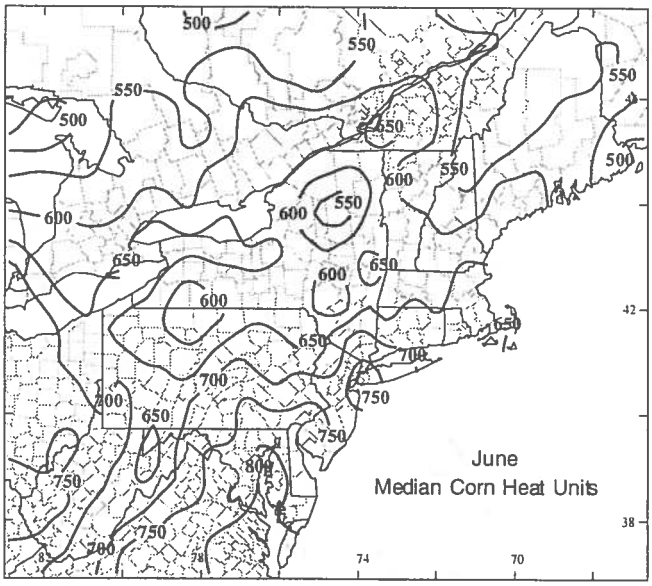
Median 50-86 Method GDD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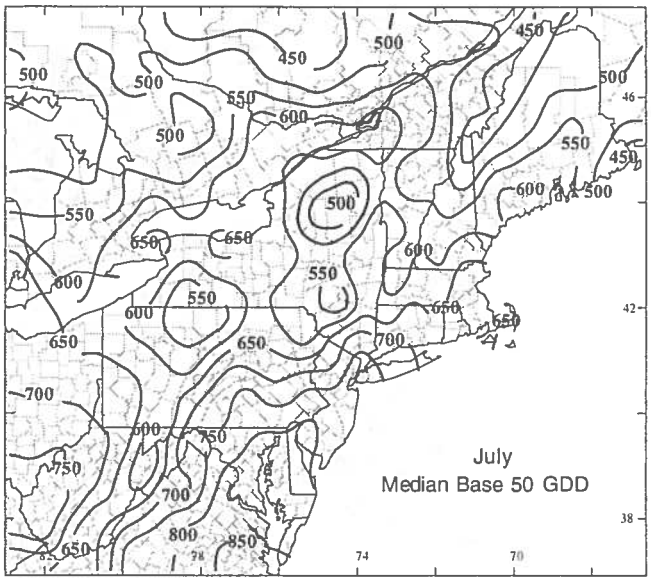
Median Corn Heat Units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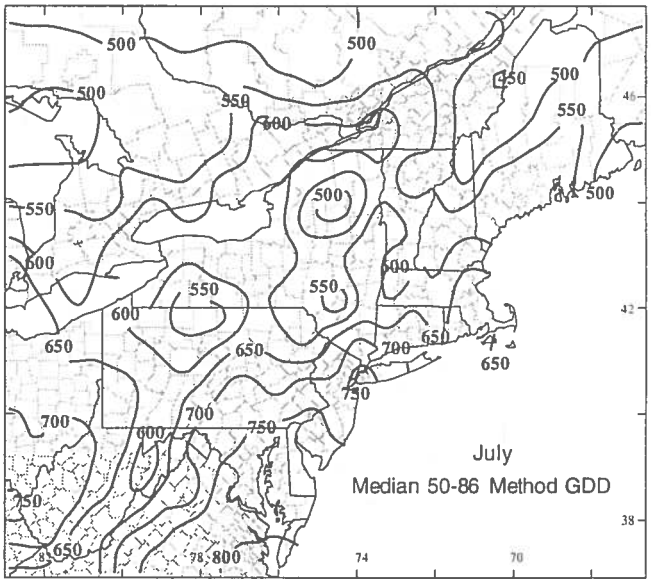
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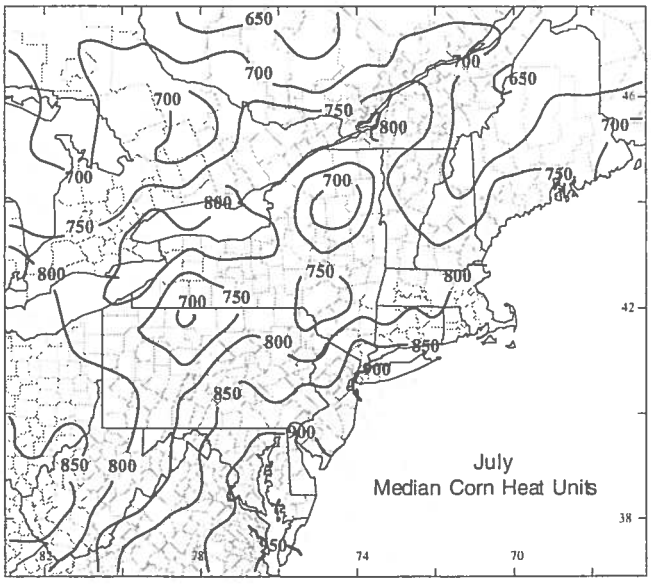
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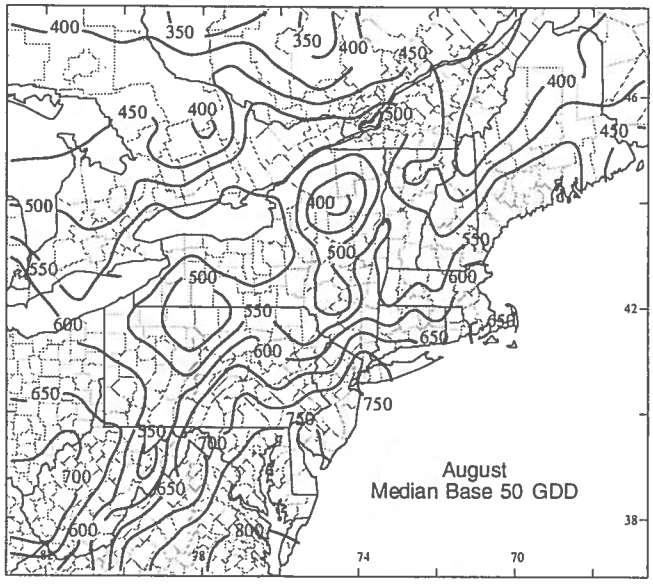
Median Corn Heat Units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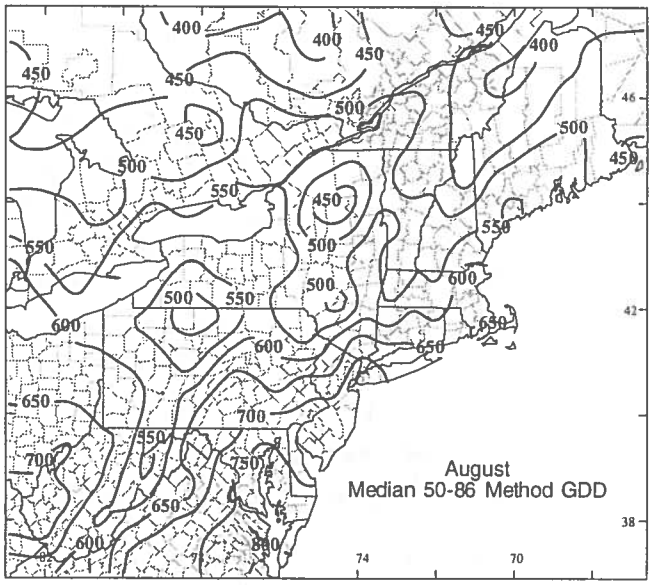
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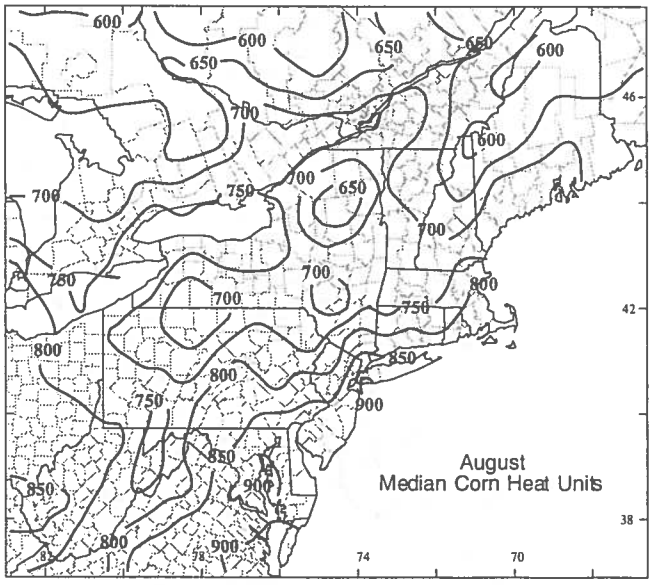
Median 50-86 Method GDD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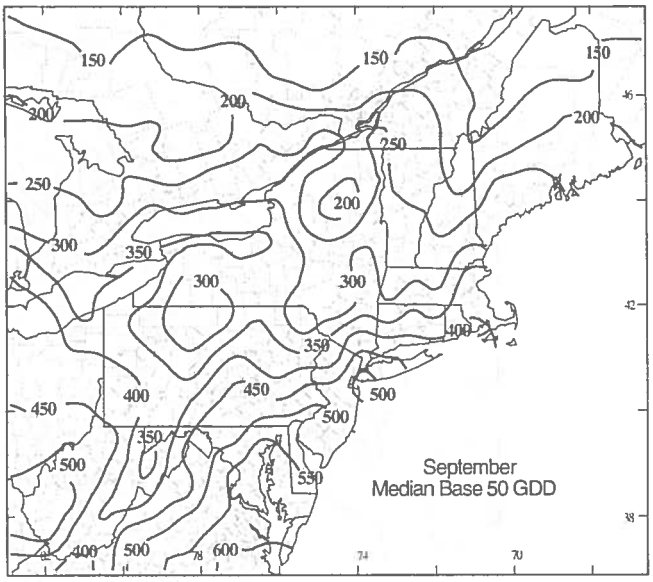
Median Corn Heat Units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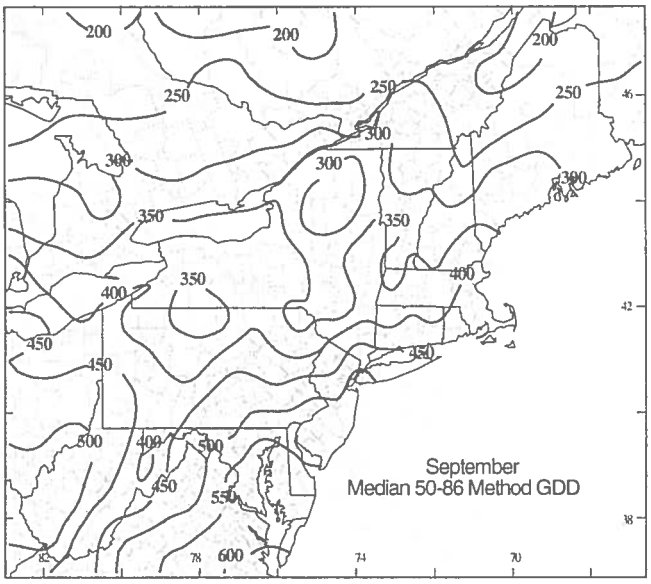
Median Base 50 GDD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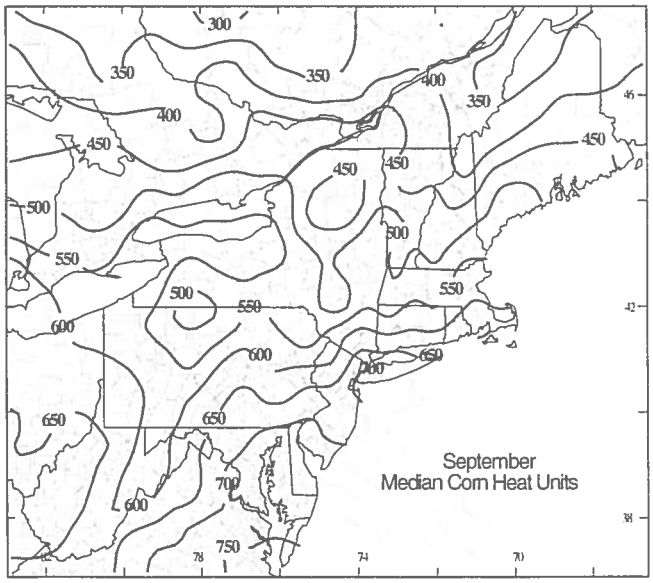
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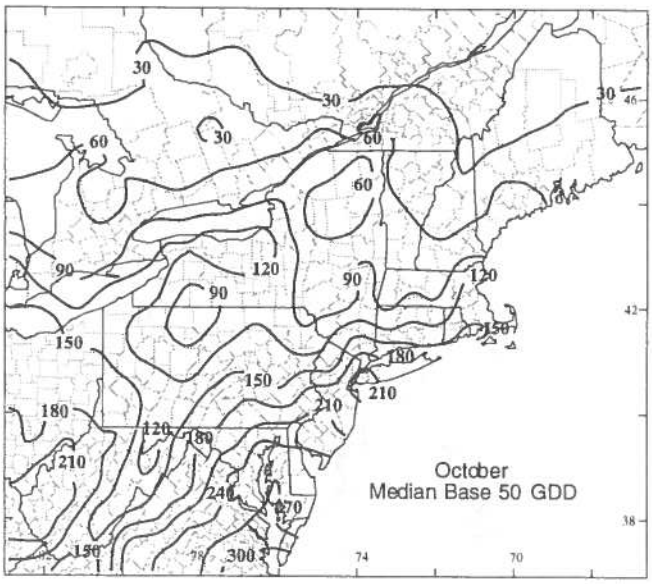
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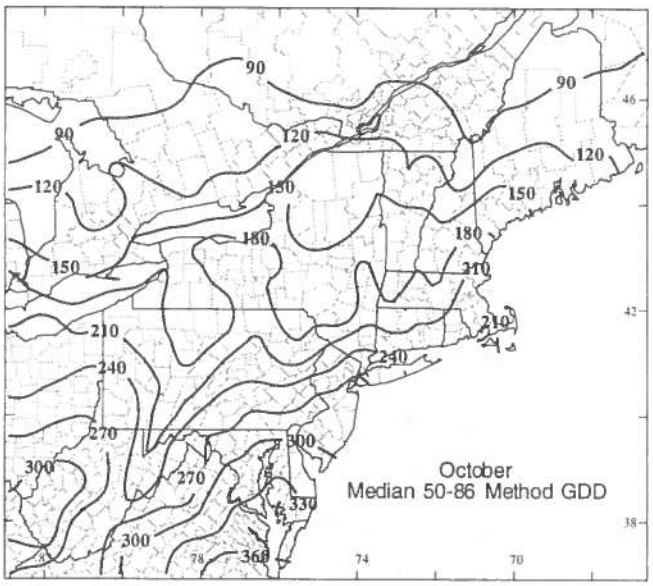
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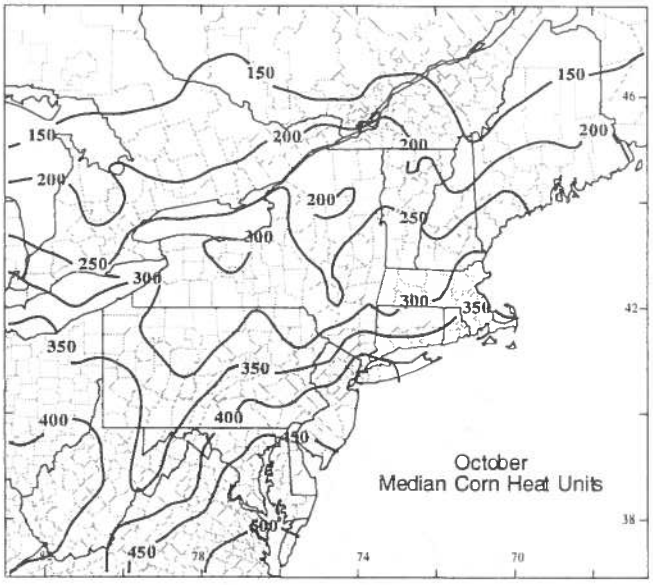
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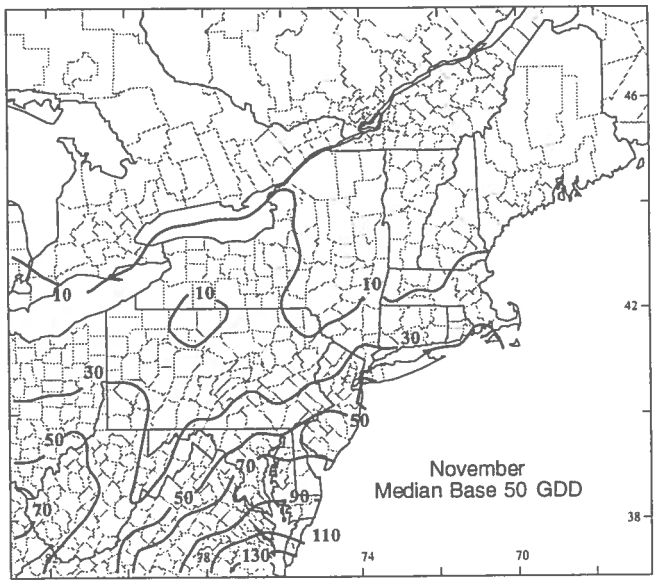
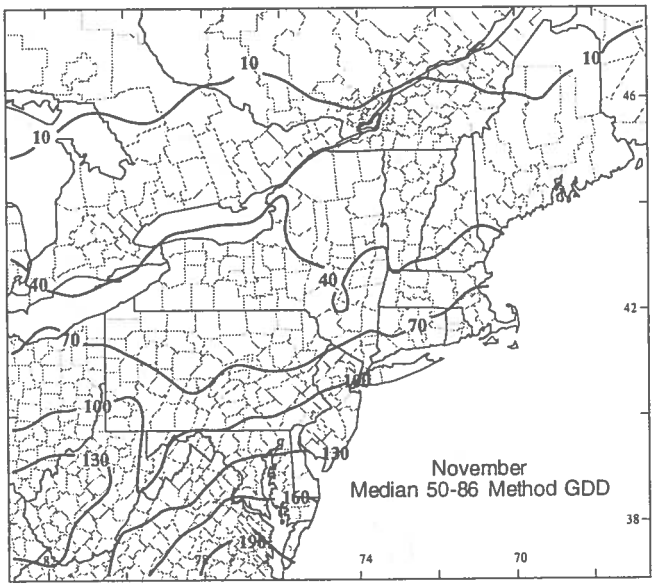
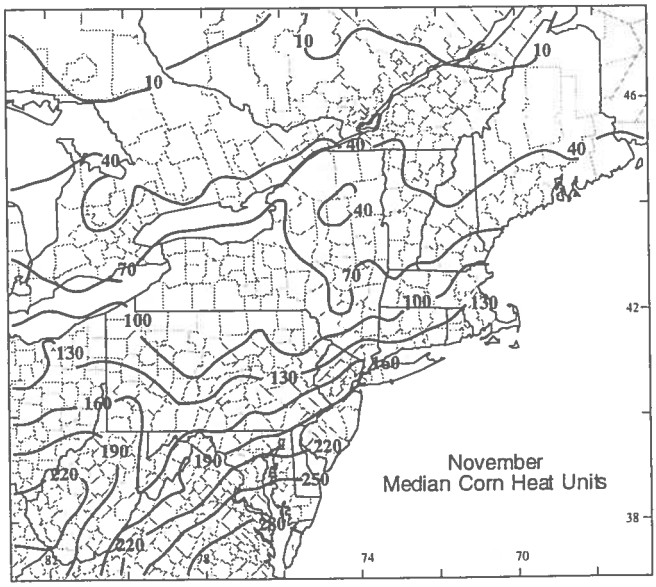
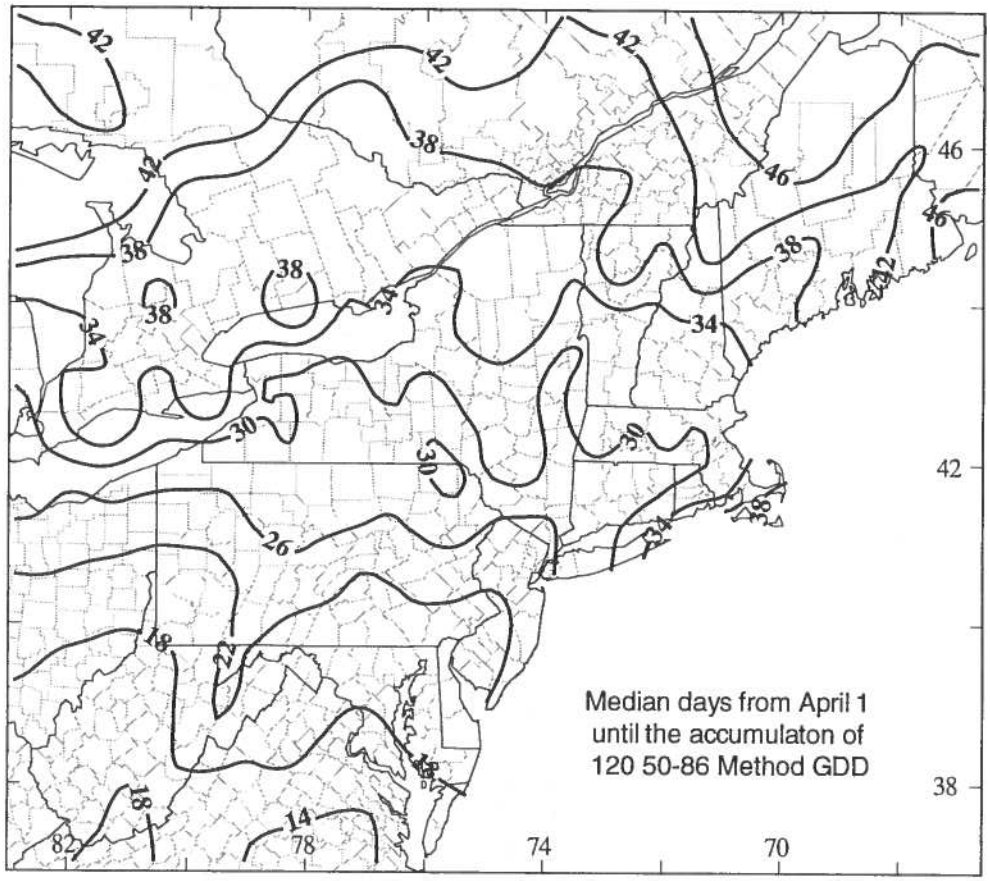
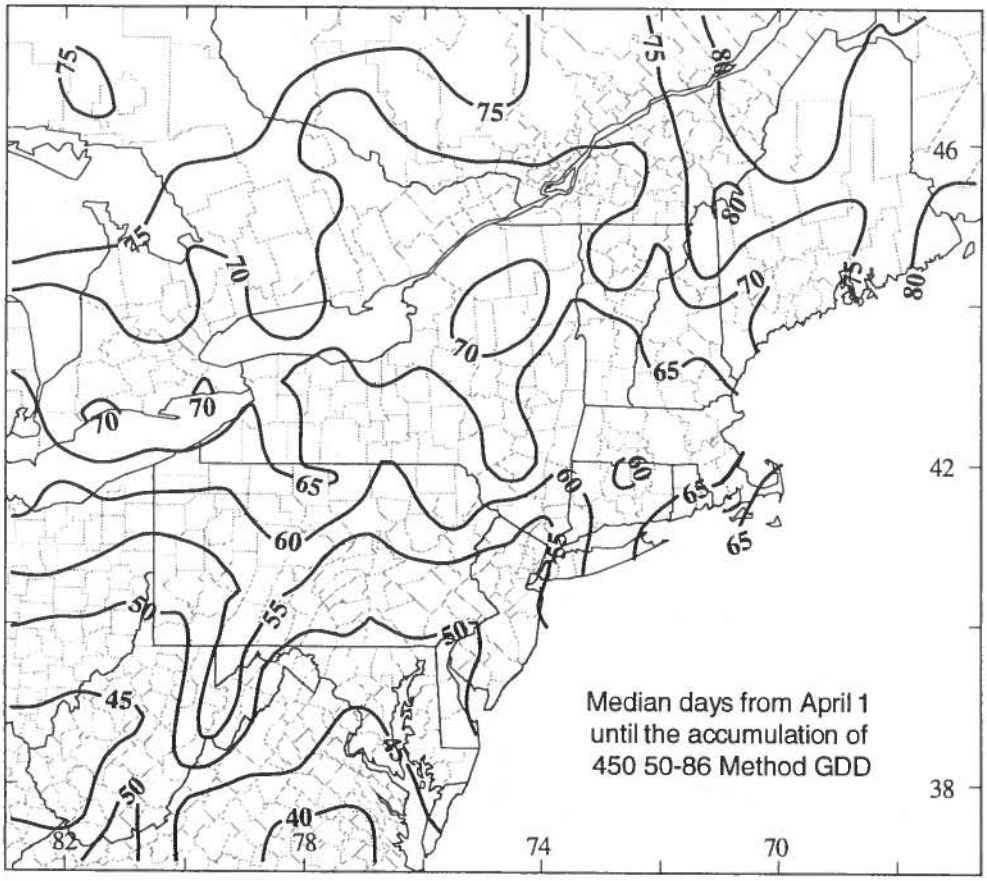
Median Corn Heat Units

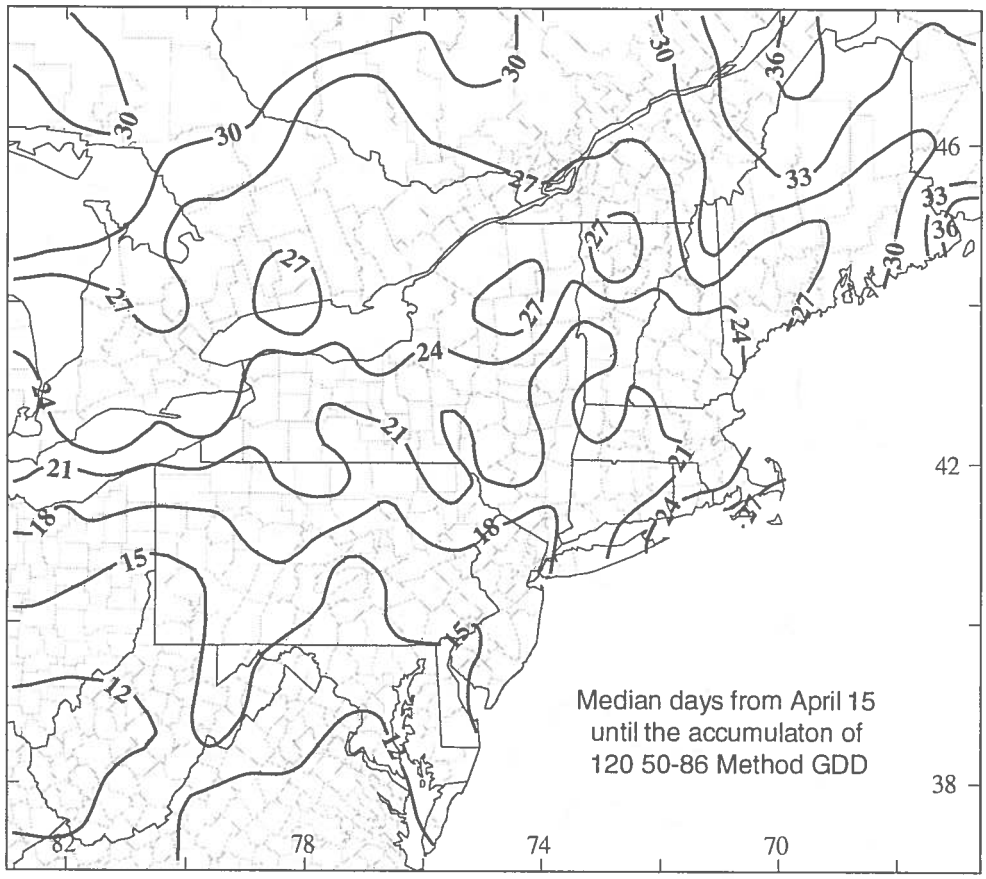

November
Median Base 50 GDD
10
30
50
70
90
110
130
46
42
38
74
70


November
Median 50-86 Method GDD
10
40
70
100
130
160
190
46
42
38
74
70


November
Median Corn Heat Units
10
40
70
100
130
160
190
220
250
280
46
42
38
74
70


Median days from April 1
until the accumulaton of
120 50-86 Method GDD
46
42
38
82
78
74
70


Median days from April 1
until the accumulation of
450 50-86 Method GDD
46
42
38
82
78
74
70


Median days from April 15
until the accumulaton of
120 50-86 Method GDD
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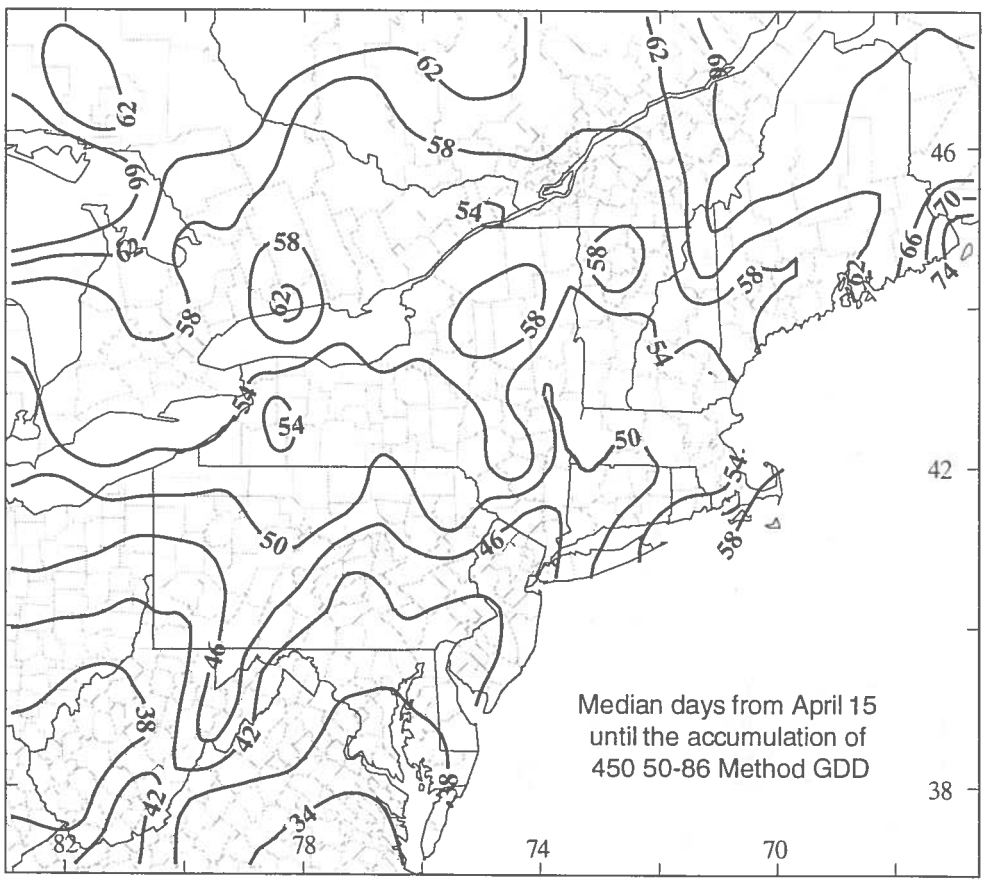
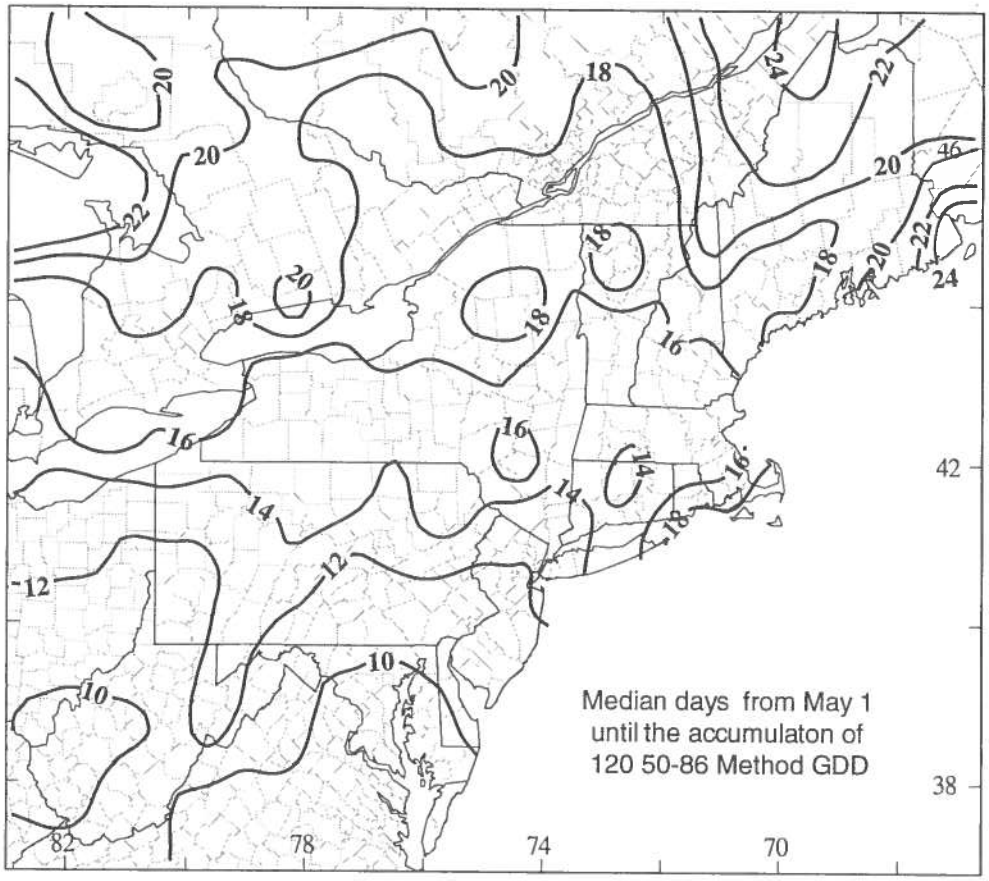
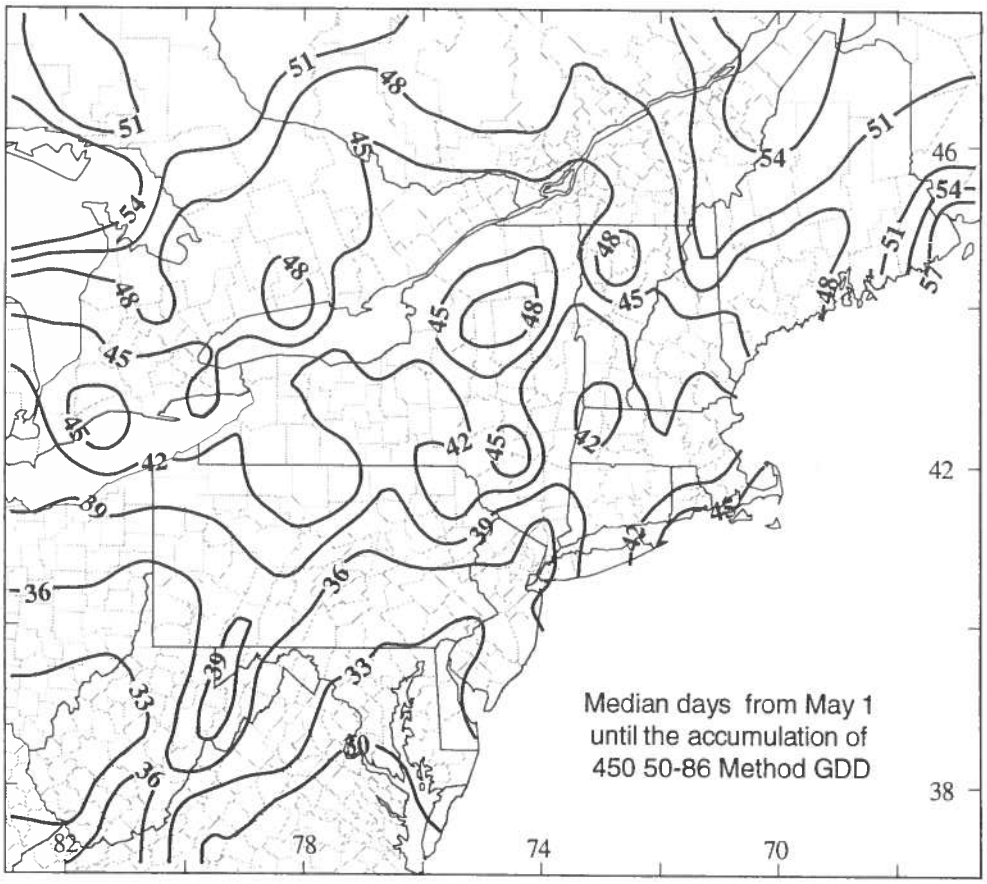
42
38
82
78
74
70


Median days from April 15
until the accumulation of
450 50-86 Method GDD
46
42
38
82
78
74
70


Median days from May 1
until the accumulaton of
120 50-86 Method GDD
46
42
38
82
78
74
70


Median days from May 1
until the accumulation of
450 50-86 Method GDD
46
42
38
82
78
74
70

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