NOTES AND CORRESPONDENCE

Areally-Weighted Temperature and Precipitation Averages for Alaska, 1931–1977

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ABSTRACT

Areally-weighted time series of temperature and precipitation have been compiled for Alaska for the period 1931–1977. Correlations of the temperature values with those of the contiguous United States indicate that, at both the monthly and seasonal time scales, the temperatures over the eastern two-thirds of the contiguous United States and Alaska are basically out of phase. However, with regard to long-term trends, the temperatures in both Alaska and the lower 48 states exhibit a similar pattern.

1. Introduction

Monthly averages of temperature and precipitation weighted by area for the contiguous 48 states are available from the National Climatic Center, Environmental Data and Information Service, National Oceanic and Atmospheric Administration, beginning with 1931. As far as the author knew, no comparably weighted statewide means had yet been computed for Alaska and Hawaii. The purpose of this note is to report on the availability of similarly computed temperature and precipitation averages for Alaska based on state climatic divisional data available from 1931 through 1977. Correlation analy-

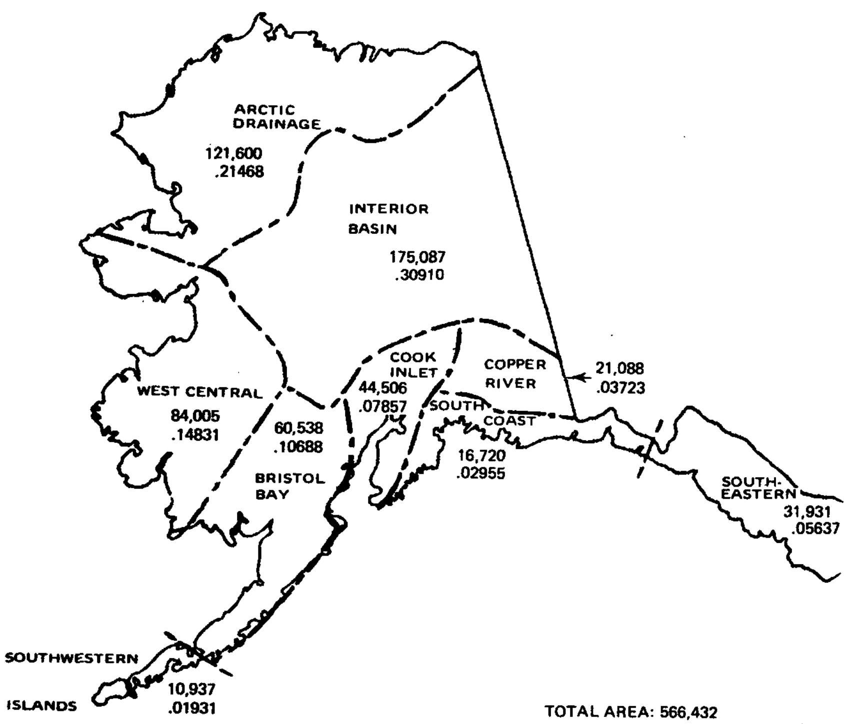

FIG. 1. Climatic division boundaries, showing area (mi²) and fraction of the state's total area.

TABLE 1. Monthly and annual mean temperature and standard deviation for Alaska (°C).

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
1931	-15.3	-14.8	-12.3	-5.1	2.0	8.9	10.9	10.3	5.0	-3.4	-8.5	-15.2	-3.1
1932	-21.1	-20.8	-9.4	-3.0	3.6	8.6	11.6	9.4	4.9	-0.8	-15.6	-14.6	-3.9
1933	-23.2	-17.0	-12.3	-2.9	3.7	8.6	11.5	10.1	4.8	-4.3	-11.2	-21.2	-4.4
1934	-24.7	-10.5	-11.3	-2.6	3.3	9.6	10.6	10.4	6.9	0.0	-10.0	-12.3	-2.5
1935	-17.4	-12.7	-10.6	-4.1	2.2	9.9	12.3	9.6	5.8	-1.9	-11.4	-18.3	-3.1
1936	-16.0	-18.6	-13.8	-3.7	4.0	12.1	12.7	12.0	6.1	0.0	-8.6	-16.9	-2.7
1937	-9.1	-17.4	-13.1	-6.3	2.4	10.7	12.2	9.9	7.6	-0.2	-7.8	-15.9	-2.4
1938	-20.1	-18.8	-12.7	-3.3	3.7	9.4	11.6	10.4	6.5	1.6	-8.2	-14.2	-3.0
1939	-19.6	-15.5	-15.2	-3.3	2.3	9.8	11.2	9.4	5.2	-4.0	-15.3	-13.5	-4.1
1940	-13.9	-14.4	-11.6	0.4	5.6	10.2	12.5	10.9	6.4	-0.8	-8.6	-14.1	-1.4
1941	-19.1	-11.6	-11.7	-3.2	3.7	10.3	10.3	12.3	6.8	-2.1	-11.5	-14.1	-2.5
1942	-10.1	-8.9	-12.5	-1.8	5.6	11.2	12.8	11.1	8.1	-1.0	-13.1	-22.5	-1.8
1943	-21.9	-12.7	-11.1	-4.2	5.3	11.2	12.1	10.3	5.7	-0.1	-6.6	-13.2	-2.1
1944	-16.1	-10.1	-12.1	-5.4	4.3	10.8	12.8	10.6	5.9	-0.4	-10.9	-13.1	-1.9
1945	-11.3	-12.9	-13.2	-5.0	2.1	8.7	11.9	9.9	6.2	-2.0	-16.2	-15.4	-3.1
1946	-14.1	-15.7	-16.2	-5.9	4.3	10.9	13.1	9.9	5.6	0.3	-12.5	-21.4	-3.4
1947	-23.9	-13.6	-11.6	-3.7	5.1	9.9	13.4	10.1	5.2	-2.6	-7.7	-12.4	-2.7
1948	-16.3	-16.9	-13.6	-4.7	3.1	10.1	11.4	9.2	4.2	-2.9	-14.5	-20.1	-4.2
1949	-16.7	-18.7	-7.3	-7.8	2.0	7.4	11.9	11.1	7.8	-0.9	-6.9	-18.2	-3.1
1950	-14.6	-22.1	-9.0	-3.8	3.7	9.7	13.2	12.4	6.8	-1.4	-11.9	-15.6	-2.7
1951	-22.7	-17.4	-16.9	-2.8	4.8	9.8	12.7	11.4	6.4	-3.2	-7.6	-16.3	-3.5
1952	-20.8	-16.8	-12.8	-6.6	0.9	9.1	11.8	10.3	4.9	-0.6	-5.6	-15.7	-3.5
1953	-21.7	-15.5	-14.0	-2.2	4.9	11.7	13.1	10.7	6.2	-3.5	-11.2	-15.6	-3.1
1954	-20.2	-22.1	-10.7	-5.5	4.8	10.0	11.4	11.3	6.1	-0.3	-7.8	-21.9	-3.7
1955	-13.8	-19.8	-12.7	-7.7	2.4	7.8	11.9	9.3	5.3	-4.3	-16.1	-18.4	-4.7
1956	-21.6	-20.2	-14.2	-5.0	3.8	8.6	12.0	9.9	5.2	-5.9	-15.7	-21.7	-5.4
1957	-12.6	-17.1	-10.3	-2.2	4.4	11.6	11.9	12.2	5.9	-0.2	-7.4	-20.3	-2.0
1958	-16.8	-14.7	-9.3	-2.7	3.4	10.9	12.6	10.9	5.6	-5.2	-11.5	-15.3	-2.7
1959	-19.7	-11.1	-19.2	-6.7	4.0	10.4	9.8	10.4	5.5	-2.8	-9.8	-18.9	-4.0
1960	-16.3	-11.7	-13.0	-7.8	5.3	8.6	11.9	10.1	4.3	-2.6	-12.7	-10.1	-2.8
1961	-13.2	-18.9	-16.8	-6.7	4.7	9.2	11.1	10.0	6.2	-4.3	-12.3	-22.1	-4.4
1962	-15.9	-11.1	-12.3	-4.8	2.3	9.3	12.9	11.5	4.6	-1.2	-10.2	-15.3	-2.5
1963	-11.7	-13.9	-12.5	-5.3	4.8	8.0	11.4	10.3	6.6	-3.1	-16.6	-11.2	-2.7
1964	-18.6	-17.7	-17.1	-7.8	0.2	9.4	11.7	10.4	6.2	-1.4	-11.2	-23.1	-4.9
1965	-19.4	-21.2	-5.7	-3.8	1.3	8.4	11.4	9.7	7.3	-6.3	-9.1	-18.2	-3.8
1966	-19.5	-16.1	-17.4	-6.1	1.7	10.4	11.8	10.1	6.6	-3.6	-10.4	-18.0	-4.2
1967	-17.2	-15.8	-9.6	-2.9	3.9	10.4	11.8	11.1	6.2	-3.1	-9.1	-14.5	-2.4
1968	-16.6	-17.3	-9.9	-5.7	3.8	9.4	13.4	12.0	4.9	-3.5	-10.8	-19.3	-3.3
1969	-20.3	-16.4	-10.5	-2.1	5.5	11.4	11.4	7.9	7.1	0.8	-12.9	-10.2	-2.3
1970	-21.3	-11.2	-8.8	-5.1	4.1	9.1	11.4	9.7	3.7	-6.6	-8.8	-17.5	-3.4
1971	-24.8	-19.0	-17.1	-7.1	1.9	10.4	11.7	9.9	5.2	-3.3	-12.6	-15.8	-5.1
1972	-20.4	-18.9	-18.5	-9.0	3.3	9.2	13.5	11.9	4.7	-1.3	-9.9	-14.7	-4.2
1973	-21.3	-14.6	-13.4	-4.2	3.7	9.2	11.2	9.6	6.4	-3.1	-12.8	-14.2	-3.6
1974	-19.3	-22.5	-13.1	-4.2	4.7	9.0	11.9	11.9	8.2	-4.5	-12.9	-19.9	-4.2
1975	-20.7	-17.4	-11.5	-6.4	3.6	8.8	12.4	10.4	4.9	-3.9	-16.3	-20.0	-4.7
1976	-18.1	-21.0	-12.9	-4.8	2.9	9.4	12.2	11.9	6.4	-3.5	-7.8	-15.9	-3.4
1977	-9.3	-11.1	-15.9	-7.3	3.3	10.4	13.2	13.7	6.8	-2.5	-15.8	-18.4	-2.7
MEAN	-17.8	-16.0	-12.7	-4.7	3.5	9.7	12.0	10.6	5.9	-2.3	-11.1	-16.7	-3.3
STD DEV	4.02	3.57	2.89	1.96	1.30	1.07	0.83	1.06	1.02	1.91	2.97	3.34	0.93

sis of the resulting monthly seasonal and annual temperatures are carried out with those of the contiguous United States. The results shed some light on the scale of atmospheric circulation patterns over North America.

2. Data sources

I have used monthly divisional averages of temperature and precipitation on file at the National Climatic Center. Area weights for Alaska's nine climatic divisions (Fig. 1) were not available in the literature. They were determined from the *Commercial Atlas & Marketing Guide* (Rand McNally & Co., 1978). The regional areas for Alaska given in the *Commercial Atlas* were drawn according to United States census boundaries, and these did not strictly correspond to the climatic division boundaries. It was thus necessary to apportion parts of some census regions among the climatic divisions. The divisional area and fractional area weight used to calculate the temperature and precipitation data are also given in Fig. 1.

Mitchell (1961a) showed that in areas where the homogeneity of individual station records is no better than the average record of the other stations in the region, the area-mean index, i.e., the mean over all the stations within that area, can be expected to have considerably smaller expected errors than a reference station index as a measure of secular temperature change in that region.

The number of reporting stations in the state has varied from 59 in January 1931 to 140 in January 1955 and 150 in January 1977. Most of the increase

TABLE 2. Monthly and annual precipitation and standard deviation for Alaska (mm).

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
1931	38.6	33.8	19.1	18.0	32.0	27.7	55.1	66.0	65.0	73.4	46.2	38.4	507.2
1932	41.7	47.0	17.5	15.2	29.0	41.7	50.3	83.3	75.2	51.6	24.9	31.2	508.3
1933	33.0	28.4	20.1	21.3	26.7	33.3	32.3	59.4	42.9	42.7	56.9	17.3	411.2
1934	40.6	30.7	29.2	26.7	23.9	26.2	56.1	75.7	53.6	54.4	29.0	45.7	494.5
1935	36.3	39.9	35.8	20.3	27.7	29.2	53.3	62.7	61.7	79.5	58.2	37.8	539.2
1936	28.4	20.6	29.2	18.3	25.7	24.6	52.6	70.1	56.9	88.9	82.3	49.3	549.7
1937	93.5	25.9	21.6	27.2	25.9	39.6	47.0	85.6	69.3	68.8	41.4	36.1	591.6
1938	42.4	33.5	27.2	32.8	40.1	44.5	61.0	92.7	93.0	73.7	59.2	48.5	630.7
1939	40.4	36.8	33.3	32.5	32.8	34.8	65.0	96.3	77.7	74.9	45.0	50.0	606.6
1940	40.1	18.3	25.9	23.9	30.0	32.3	40.6	72.9	86.4	59.2	45.5	42.7	517.9
1941	33.0	29.5	36.8	34.8	33.0	33.5	61.5	34.0	45.2	71.1	54.4	39.6	506.2
1942	44.5	39.4	32.8	29.7	28.2	42.9	58.9	94.0	86.6	69.3	31.0	21.6	579.1
1943	35.1	42.9	25.4	22.1	27.2	33.3	65.8	96.3	84.8	59.4	59.4	71.9	623.8
1944	41.1	42.9	38.1	17.3	50.3	32.3	57.2	109.0	71.9	74.4	35.8	43.4	614.2
1945	36.3	39.4	35.1	16.5	27.2	48.0	64.0	106.7	79.2	85.3	32.8	25.4	596.1
1946	34.3	30.0	37.8	25.1	35.8	27.7	50.5	88.1	57.9	89.9	39.4	40.1	557.0
1947	43.9	22.1	35.3	21.1	26.4	35.8	50.0	69.9	85.9	49.3	56.4	44.5	540.8
1948	51.3	19.1	32.0	30.5	22.4	32.8	74.2	68.6	73.2	74.7	53.3	39.1	571.2
1949	58.9	30.5	36.8	28.4	29.2	59.4	55.4	77.2	63.8	59.4	50.3	33.8	582.9
1950	29.0	18.5	20.3	27.9	32.0	46.5	55.6	62.0	75.2	39.9	29.0	39.4	475.2
1951	28.4	37.1	27.4	32.5	20.8	45.5	49.0	102.4	73.4	46.0	47.8	42.4	553.0
1952	39.9	29.5	29.5	27.9	27.9	35.8	64.3	72.4	62.2	83.3	67.6	40.4	580.6
1953	22.4	57.4	26.7	22.4	29.2	35.3	39.9	103.6	66.0	56.6	36.6	48.3	544.3
1954	31.5	34.5	37.8	14.7	22.4	34.3	68.6	78.7	79.2	58.9	54.1	46.7	561.8
1955	53.1	44.5	43.9	27.4	45.2	55.6	53.6	105.2	74.4	66.8	29.5	50.8	650.5
1956	23.4	45.7	34.3	29.5	43.7	33.5	53.3	95.3	67.6	53.8	69.9	32.5	582.4
1957	48.3	30.0	22.9	21.8	22.1	24.4	40.6	60.7	82.8	63.2	65.0	38.1	519.9
1958	44.7	18.0	25.7	23.6	37.8	45.0	66.0	86.1	66.8	75.2	50.0	39.9	578.6
1959	18.8	42.4	29.5	32.3	30.2	26.9	86.6	83.3	54.9	53.3	55.6	53.6	567.4
1960	49.8	29.5	25.1	29.5	24.9	38.4	71.6	74.7	95.5	66.8	40.6	58.7	605.0
1961	38.1	29.5	23.1	38.6	30.5	50.0	82.3	88.9	100.8	74.2	50.3	44.7	650.7
1962	55.1	23.9	34.5	25.9	34.8	56.9	56.1	76.7	78.5	54.9	33.8	42.4	573.8
1963	62.7	37.1	58.7	39.1	26.9	55.9	68.3	96.5	51.8	63.8	20.6	48.8	630.4
1964	30.7	56.1	29.2	34.3	29.0	35.1	47.2	64.5	58.7	62.5	44.5	35.6	527.8
1965	37.1	28.4	41.1	38.9	38.6	45.7	59.7	86.1	98.8	61.2	38.4	43.9	617.7
1966	19.6	35.1	27.7	20.6	43.2	27.4	55.4	77.0	67.8	63.0	52.3	28.7	517.9
1967	30.0	34.0	35.8	35.3	23.1	43.7	88.6	99.3	66.8	40.1	64.3	50.3	611.6
1968	33.3	38.1	22.4	29.5	34.3	34.3	38.9	51.1	53.6	47.2	38.1	26.4	446.8
1969	19.1	19.8	25.7	18.3	25.4	26.9	74.4	64.8	35.6	62.2	54.9	48.0	475.0
1970	20.8	37.6	40.6	34.8	23.6	44.5	65.8	72.9	54.9	63.0	51.1	51.8	561.1
1971	25.4	39.6	22.1	23.6	35.1	35.6	67.1	80.8	65.0	75.2	39.4	52.8	561.6
1972	32.3	17.5	22.4	24.6	26.2	42.2	37.3	64.8	75.4	82.8	37.6	32.5	495.3
1973	37.3	22.1	29.0	22.6	32.5	38.1	57.2	98.0	54.1	65.5	34.8	31.5	523.0
1974	20.1	31.0	18.3	23.9	17.0	38.1	63.5	70.6	58.7	77.7	61.7	42.9	523.7
1975	37.1	29.7	21.3	32.0	26.4	48.0	61.5	54.1	86.1	44.5	24.9	40.4	506.2
1976	41.9	23.6	33.3	22.9	36.8	28.4	46.0	49.8	73.2	56.9	68.8	45.7	527.8
1977	50.0	48.3	30.7	36.3	32.8	46.5	35.1	47.0	99.3	69.3	25.9	29.7	550.7
MEAN	38.2	33.0	30.0	26.6	30.3	38.3	57.5	78.2	70.4	64.4	46.6	41.3	554.2
STD DEV	13.41	9.80	7.93	6.55	6.85	9.04	12.70	17.48	15.21	12.76	13.99	9.89	52.6

occurred during the 1940's. In 1915, the earliest year for which there is a statewide summary, there were 40 stations reporting.

The effect of changes in the area-mean index introduced by factors such as changes in the network configuration, times of observations, etc., have been addressed by Schaal and Dale (1977) and Nelson *et al.* (1979). These authors analyzed the effect of such changes on the weighted mean temperature for Indiana, calculated from divisional means. They concluded that in extreme cases differences on the order of 0.6°C relative to a "bias free" mean could occur. Differences introduced mainly by network changes in Alaska are likely to be higher (at least 1°C). Nevertheless, it is felt that these data may provide a useful index of temperature and precipitation fluctuations in a region where there is a dearth of such records.

The divisional averages are weighted by area when forming the statewide mean, in order to count each climatic region in direct proportion to its relative size. Weighting by area has been carried out in many instances (for example, to estimate global or hemispheric temperature trends), whereby the averages in each latitudinal band are weighted by its area (Mitchell, 1961b; Borzenkova *et al.*, 1976).

3. Results

Monthly values of temperature and precipitation are presented in Tables 1 and 2, respectively. Six-month seasonal averages of temperature and pre-

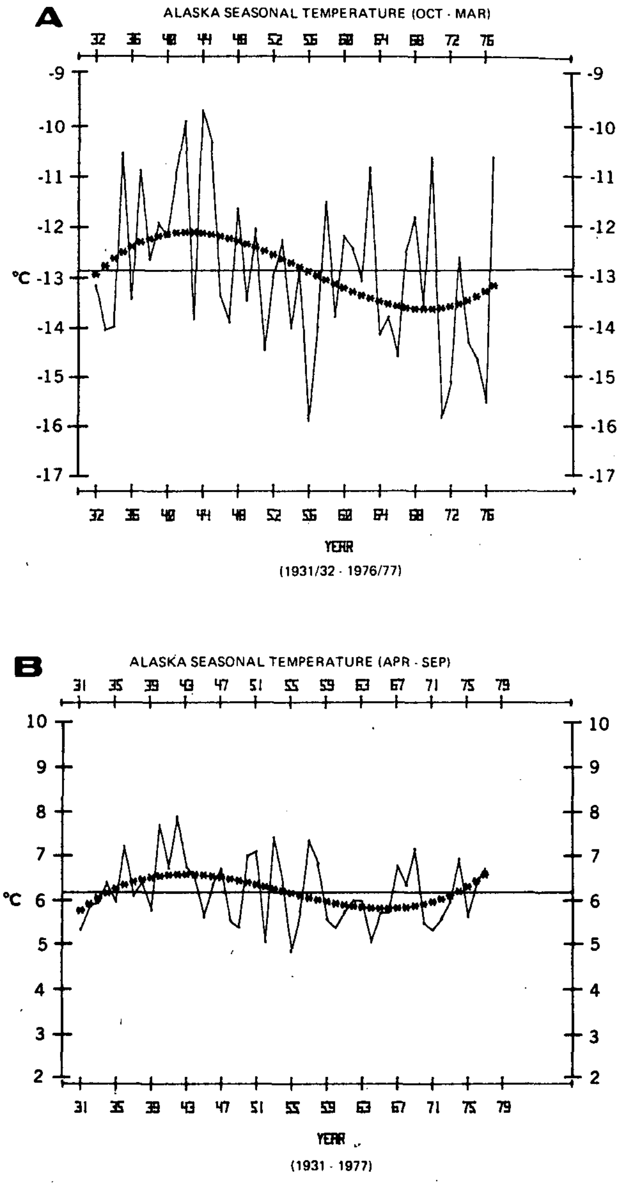

FIG. 2. Time-series of (a) October–March and (b) April–September seasonal temperatures for Alaska. Smoothed curve is a third-order polynomial of best fit.

cipitation for October–March and April–September are shown in Figs. 2 and 3, respectively. A third-order least-squares polynomial of best fit (starred curve) was drawn to accentuate long-term fluctuations.

Regarding the temperature curves (Fig. 2), note that the warmest temperatures occured during the 1930's and 1940's. This was also the case over the contiguous United States (Diaz and Quayle, 1980). Winter half-year temperature changes possess roughly double the amplitude of the summer changes. Both the summer and winter half-year series appear to have undergone some kind of rhythmic oscillation, with a time scale similar to the period of record. Also, note that the October–March period of 1976–77 was among the warmest on record in Alaska. During that time, the contiguous United States experienced one of the coldest October–March periods on record (Diaz and Quayle, 1978).

The seasonal precipitation series (Fig. 3) shows little change occurring during the cold half-year, although the data suggest slightly wetter winter conditions during the 1930's and 1940's when mean seasonal temperatures were somewhat warmer. By contrast, summer half-year precipitation appears to have peaked during the 1950's and 1960's and to have decreased fairly steadily since then.

Correlation coefficients were calculated between

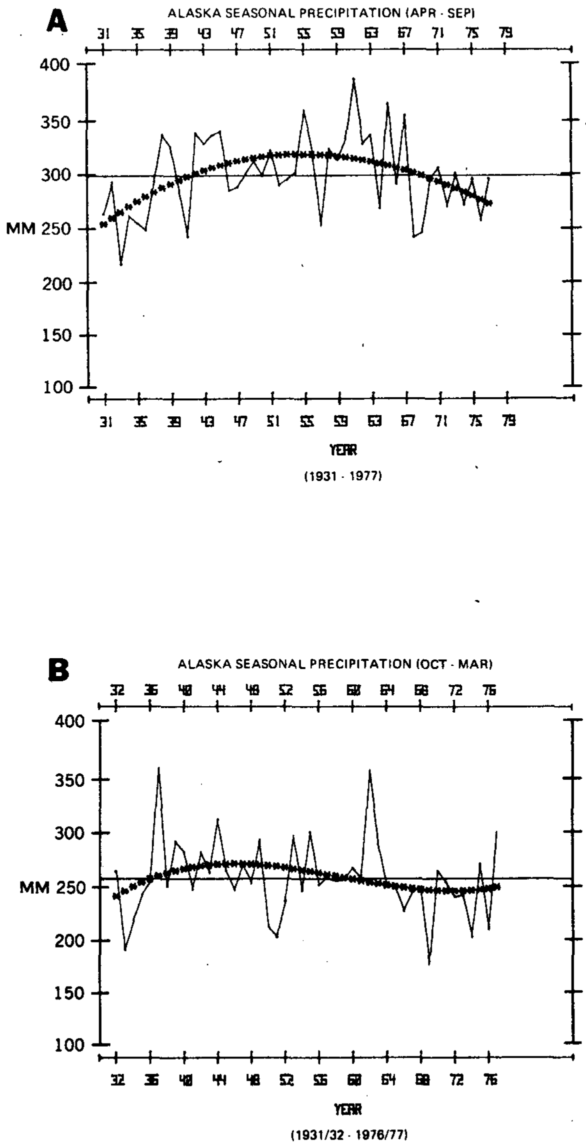

FIG. 3. As in Fig. 2, except for total seasonal precipitation.

TABLE 3. Correlation of Alaska mean monthly temperature with regional and national (contiguous states) temperature.

Region	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
United States	−0.52**	−0.11	−0.36*	−0.06	−0.12	0.04	−0.30*	−0.37*	−0.36*	−0.06	−0.16	−0.24	0.10
New England	−0.20	−0.24	−0.12	0.09	0.03	−0.12	−0.22	−0.22	−0.13	0.04	−0.22	−0.13	0.03
Mid-Atlantic	−0.30*	−0.39**	−0.23	0.03	0.01	0.09	−0.21	−0.32*	−0.27	−0.06	−0.28	−0.25	−0.15
E.N. Central	−0.36*	−0.29*	−0.28	−0.13	−0.17	−0.07	−0.23	−0.28	−0.41**	−0.14	−0.23	−0.21	−0.15
W.N. Central	−0.29*	−0.02	−0.35*	−0.15	−0.23	−0.15	−0.24	−0.32*	−0.39**	−0.12	−0.09	−0.07	0.01
S. Atlantic	−0.24	−0.38**	−0.22	−0.02	−0.04	−0.32*	−0.19	0.05	−0.22	−0.05	−0.23	−0.27	−0.22
E.S. Central	−0.29*	−0.32*	−0.25	−0.02	−0.08	0.38**	−0.19	0.03	−0.31*	0.03	−0.21	−0.33*	−0.08
W.S. Central	−0.43**	−0.21	−0.35*	−0.10	−0.11	0.24	−0.1	−0.04	−0.30*	0.03	−0.20	−0.42**	−0.09
Mountain	−0.40**	0.11	−0.25	0.00	0.02	−0.01	−0.24	−0.44**	−0.09	−0.01	−0.01	−0.07	0.35*
Pacific	−0.31*	0.27	−0.02	0.14	0.08	−0.09	−0.18	−0.03	0.13	−0.06	0.10	0.04	0.42**

* Significant at the 5% level.
** Significant at the 1% level.

Alaskan mean temperatures and the nine United States Census regions and the contiguous United States for each month and year; the values are shown in Table 3. The geographic boundaries of the nine United States Census regions are shown in Fig. 4. A test of significance using Fisher's Z transformation (Panofsky and Brier, 1965) was performed on each of the correlations.

The highest absolute correlation occurs with the contiguous United States mean January temperature (−0.52), a value which is highly significant. No significant correlations (at the 5% level) occur with any of the contiguous United States areas in April, May, October and November. The reason might be that these are transition months between the summer and winter regimes, and represent a time of shifting and formation of new atmospheric circulation patterns. It may often be that winter and summer circulation patterns over Alaska and the United States either persist somewhat longer than usual or they break somewhat sooner, resulting in the development of a mixed temperature distribution. Note that all the significant monthly and seasonal correlations are negative. Only two significant correlations occur on the annual mean temperature scale, in the Mountain and Pacific regions. These, however, have a positive sign.

It is intriguing that the mean annual temperatures in the western United States (Mountain and Pacific regions) should be in phase with the Alaskan temperatures (to the extent of the variance shared), but are out of phase at the monthly time scale. Furthermore, although correlations with the Pacific

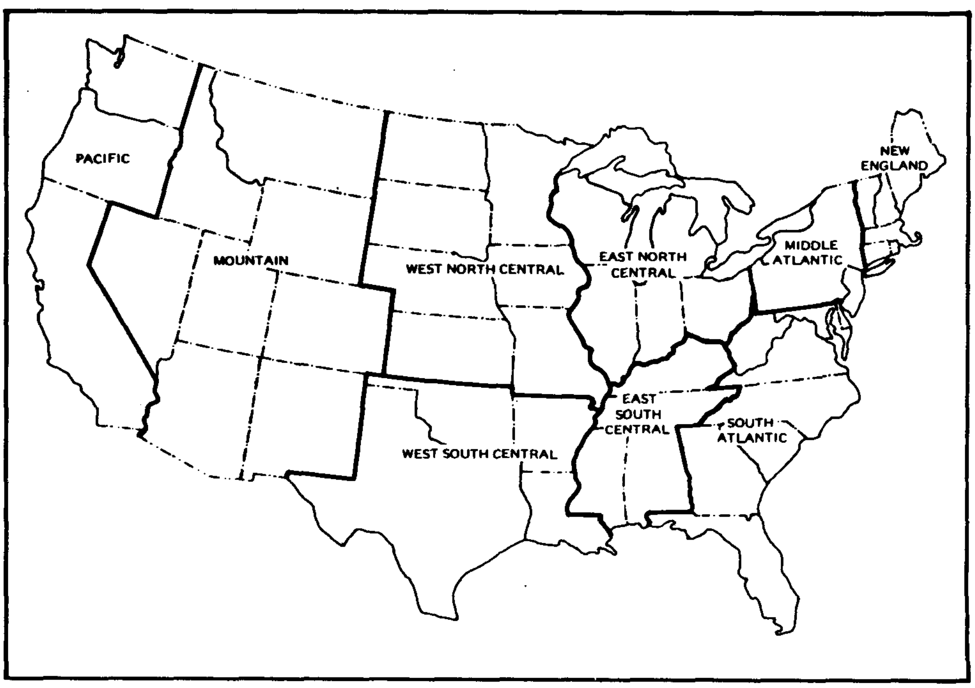

FIG. 4. Regional boundaries of the contiguous United States.

TABLE 4. Correlation of Alaska mean seasonal temperature with regional and national (contiguous states) temperature.

	Winter (Dec–Feb)	Spring (Mar–May)	Summer (June–Aug)	Fall (Sep–Nov)
United States	−0.24	−0.16	−0.12	−0.11
New England	−0.29*	−0.06	−0.36*	−0.05
Mid-Atlantic	−0.41**	−0.12	−0.26	−0.24
E.N. Central	−0.31*	−0.24	−0.21	−0.28
W.N. Central	0.30*	0.12	−0.35*	0.18
S. Atlantic	−0.13	−0.07	0.18	−0.13
E.S. Central	−0.05	0.15	0.12	0.08
W.S. Central	−0.44**	−0.19	0.07	−0.16
Mountain	0.05	−0.02	−0.07	0.10
Pacific	0.19	0.16	0.07	0.21

* Significant at the 5% level.
** Significant at the 1% level.

region at the seasonal time scale are not statistically significant (Table 4), they are nonetheless positive.

The reason must be found in the pattern of atmospheric teleconnections associated with each of these time scales. Studies of atmospheric teleconnections have been published by Kutzbach (1967), van Loon and Williams (1976a,b), van Loon and Rogers (1978), and others. These results show that regional trends of surface temperature are related to changes in atmospheric circulation on the scale of the long waves.

In the analyses by van Loon and Williams referenced above, winter correlations between the Alaska area and the western United States were shown to be largely positive while in summer they were close to zero. Strong negative correlations were evident in both seasons between Alaska and the eastern United States. These results are in agreement with the correlations shown in Table 4.

Monthly maps of teleconnections of surface temperature suggest that for the most part, a negative relationship is present. The negative coupling is maximized during the winter months because the greatest departures from the mean occur during this time. I suspect that the major contributions to the observed positive correlation between Alaska and the western United States at longer time scales stem from a coupling at low frequencies.

Temperature correlations were also computed at one and two month lag displacements. This was done to determine whether monthly circulation patterns in Alaska affected temperature patterns in the continental United States one or two months later. No statistically significant correlations were found at one month lag, and only a few areas and months had significant values at two months lag. The significant correlations at two months lag, however, occurred mostly between summer monthly temperatures in Alaska and early fall temperatures in several regions; e.g., July with September in the mid-Atlantic, east North Central, South Atlantic and Pacific regions. The correlations at two month lag were generally slightly higher than those at one month lag.

Monthly mean data are available in published form for Alaska beginning in 1915 (U.S. Weather Bureau, 1915–30). In the future an effort will be made to extend the state record back to that time.

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