

NEW ZEALAND METEOROLOGICAL SERVICE

TECHNICAL INFORMATION CIRCULAR NO. 130

NZ. METEOR.
20 JUN 1969
1

ELEVEN YEARS OF TEMPERATURE RECORDS  
AT SCOTT BASE

The following paper by Dr. D.C. Thompson was published in "Antarctic", the News Bulletin of the New Zealand Antarctic Society in June 1968. It is reproduced here with the permission of the Antarctic Society and circulated for general information.

TIC 130



(J.F. Gabites)  
Director

New Zealand Meteorological Service,  
P.O. Box 722,  
WELLINGTON.

17 March 1969

NEW ZEALAND METEOROLOGICAL SERVICE

ELEVEN YEARS OF TEMPERATURE RECORDS

AT SCOTT BASE

Donald C. Thompson

Meteorological Observations commenced at Scott Base on 1st March, 1957, and have been carried out regularly ever since. We now have over eleven years of data, enough to give us a fairly clear picture of the average and extreme conditions to be expected there.

Of all the weather elements, temperature is probably the first to come to mind when we think of Antarctica. Scott Base is neither the warmest nor the coldest place in Antarctica, but as there is a great interest in activities there it was felt that readers would like to see some of the results of analyses that have been carried out on the records. In particular it was felt that those who had been fortunate in spending some time at Scott Base might like to compare conditions in "their year" with those experienced by others.

The information given in Tables 1 and 2 has been derived from the tabulations of the Climatological Division of the N.Z. Meteorological Service.

The warmest temperature recorded was  $43.7^{\circ}\text{F}$  in January, 1960, while the coldest was  $-67.2^{\circ}\text{F}$  in September of the same year. The variation from year to year of the extreme temperatures was remarkably small, particularly when one considers how variable the temperatures were from day to day. For example, the average range of temperatures within a given month is about  $35^{\circ}\text{F}$  in summer and over  $60^{\circ}\text{F}$  in winter, yet there was only  $8\frac{1}{2}^{\circ}\text{F}$  difference between the highest and lowest extreme minima over the 11 year period, and a similar range occurs in the extreme maxima.

This does not mean to say that there was little difference in weather conditions between years, however, as there was quite a significant range of variation in the average temperatures for given months, particularly in winter. Thus, the warmest July was in 1964 with an average temperature of  $-10.8^{\circ}\text{F}$ , while the coldest July was in 1958 when the average temperature for the month was  $-30.6^{\circ}\text{F}$ .

As a further indication of conditions experienced by parties at Scott Base the average temperatures for the warmest and coldest months in each year have been extracted and are shown in Table 1. On this basis the coldest month was August of 1964 with an average temperature of  $-31.4^{\circ}\text{F}$ . August was not always the coldest month, however, as in other years May, July and September achieved this distinction.

Table 2 gives mean temperatures for the eleven years of records and therefore provides a good indication of the average conditions to be expected in any given month. The increase in average temperatures for June is typical of Antarctic stations in the Ross Sea although the effect appears more marked at Scott Base than at other stations. Earlier explanations linked this effect with the formation of the pack ice around the continent, but it is now thought to be connected with persistent features of the general atmospheric circulation in the area to the east and south of Australia and New Zealand.

TABLE 1

Surface Air Temperatures ( $^{\circ}\text{F}$ ) at Scott  
Base, Antarctica, March 1957 to  
December 1967

	Extreme Max. for year	Extreme Min. for year	Monthly Mean Warmest Month	Monthly Mean Coldest Month
1957	37.2	-58.7	24.8	-20.7
1958	41.0	-62.5	25.5	-30.6
1959	41.0	-62.9	24.4	-29.6
1960	43.7	-67.2	21.2	-24.5
1961	39.2	-65.6	25.3	-25.2
1962	35.6	-60.0	22.6	-27.4
1963	35.8	-66.8	21.9	-22.7
1964	35.6	-64.1	22.5	-31.4
1965	38.3	-63.8	25.7	-28.3
1966	38.5	-63.6	23.4	-26.3
1967	41.4	-60.0	26.8	-19.1

TABLE 2

Mean Temperatures ( $^{\circ}$ F) at Scott Base  
March 1957 to December 1967

	Monthly Mean Temp.	Mean Monthly Max.	Mean Monthly Min.
Jan.	22.3	38.2	4.3
Feb.	12.5	31.4	-16.4
Mar.	-5.8	17.6	-35.7
Apr.	-11.3	17.0	-44.1
May	-18.5	12.6	-53.0
Jun.	-14.1	12.7	-48.9
Jul.	-19.4	11.9	-54.2
Aug.	-23.2	10.2	-60.3
Sept.	-16.4	12.2	-52.4
Oct.	-9.3	17.6	-39.3
Nov.	11.5	29.4	-14.1
Dec.	22.8	36.7	+1.9