WIND AND MOUNTAIN CLIMATOLOGY IN SEVERE ENVIRONMENTS:

AVERAGE WINTER AND SUMMER HISTORICAL TEMPERATURE TRENDS:
MOUNT WASHINGTON AND DENALI NATIONAL PARK HQ SITE

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SUMMARY

A GENERAL COMPARISON OF AVERAGE WINTER AND SUMMER TEMPERATURE TRENDS FOR MOUNT WASHINGTON AND DENALI NP HQ IS PRESENTED IN THE GRAPHS BELOW. THE DENALI HQ SITE (SOUSANES, 2015) HAS A SLIGHTLY LONGER RECORD THAN MOUNT WASHINGTON, BUT BOTH THE OVERALL AND SPECIFIC COMPARATIVE TENDENCIES ARE OF INTEREST. ACCOUNTING FOR THE DISCREPANCY IN RECORD LENGTH, SOME DIFFERENCES AND SIMILARITIES EXIST.

FOR MOUNT WASHINGTON, AVERAGE WINTER MAXIMA OCCURRED IN 1997 (15.2 F) AND MINIMA IN 1976, (0.56 F), WHILE FOR DENALI (SOUSANES, 2015) THE SAME VALUES OCCURRED IN 2001 (17.3 F) AND IN 1933 (-8 F).

FOR MOUNT WASHINGTON, AVERAGE SUMMER MAXIMA OCCURRED IN 2005 (51.5 F) AND MINIMA IN 1982 (43.6 F), WHILE FOR DENALI (SOUSANES, 2015) THE SAME VALUES OCCURRED IN 2004 (58.6 F) AND IN 1971 (48.9 F).

OVERALL RECORD TREND FOR BOTH MOUNT WASHINGTON AND DENALI HQ APPREARS TO BE POSITIVE.

HOWEVER, FOR THE PAST DECADE, THAT POSITIVE TREND APPEARS TO BE FLAT – AT LEAST FOR MOUNT WASHINGTON – AND MAY SUPPORT THE OBSERVATION OF A SUBSYNOPTIC “CLIMATIC PAUSE” IN THE OVERALL POSITIVE TREND (G12). (SEE FYFE, 2016 AND TOLLEFSON, 2016.)

FOR ANOTHER PERSPECTIVE, ONE SHOULD COMPARE THE CURRENT TRENDS OF AVERAGE ANNUAL, SUMMER, AND WINTER TEMPERATURES WITH THOSE DERIVED FROM A 30-YEAR-OLD MOUNT WASHINGTON STUDY FOR 1936-1985 (GLIDDEN, 1986), AND LISTED BELOW AS FIGS. 5, 6, 8, 11, AND 12.
Figure 4. Average winter temperatures (December, January, February) at Denali Park Headquarters over the past 88 years. The green line shows a 10-year moving average. The dotted line shows a simple linear regression.
Figure 4. Average summer temperatures (June, July, August) at Denali Park Headquarters over the past 89 years. The green line shows a 10-year moving average. The dotted line shows a simple linear regression trend.
MWO AVERAGE ANNUAL TEMPERATURES 1934-2015

Record average annual temperature trend suggests an increase, with maxima in 2012 and minima in 1943.

After D. E. Glidden
Data source: MWO

Data platform developed during the Edutrip Program in Mountain Climatology
MWO AVERAGE ANNUAL TEMPERATURES 2005-2015

G12

SOUSANES, PAMELA, 2015, in National Park Service Central Alaska Network Quarterly Report, 3rd Qtr.


TOLLEFSON, J. 2016

The following *Occasional Papers* on Mount Washington and White Mountains Climatology, which are available in PDF form and developed from nearly 18 years of weekend summit seminar platforms, may offer historical climate comparison trends with benchmark data from other selected National Parks:


