

A 65-YEAR-LONG AIR TEMPERATURE SERIES FOR ADMIRALTY BAY, (62°05'S, ~58°23'W)

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Time: Sometime between Friday 11 June 16:00 and 17:30

theme: Theme 2. Past, present and future changes in Polar Regions

session: T2-2 Troposphere and stratosphere dynamics and processes and their links with climate

event: Poster session PS3 - Section C

location: Hall C

A series with 65 years of air temperature data from 1944 to 2009 has been assembled for Ferraz station at King George Island, in the northwest of the Antarctic Peninsula, thus allowing the analysis of climate tendencies in the region during the last decades.

This series relies basically on the old records of the British Admiralty Bay station, also known as Base “G”, which operated almost 13 years, from Mar/1948 to Dec/1960 as WMO #88934, and on 24 years of more recent data since 1986, from the Brazilian Ferraz station, located at that very same place, and now as WMO #89252 (62°05'07”S; 58°23'33”W; 20 m elev.) – see <http://antartica.cptec.inpe.br/>. Data from the lacking periods were obtained by extrapolation from nearby stations, adjusted by adding monthly individual coefficients calculated with the comparison of simultaneous measurement periods of the stations used. All the data can be found at <http://antartica.cptec.inpe.br/~rantar/data/resumos/climatolbaia.xls>

For Jan/1944-December/1945, Jan/1947-Feb/1948 and Jan/1961-Dec/1967, the data is from the old British station at Deception Island (62°59'S, 60°34'W) distant 150 km SW. From Mar/1968-Mar/1977, the data is from the Russian Bellingshausen Station at King George Island (62°12'S, 58°58'W), 33 km WSW, and from Apr/1978-Dec/1985 plus a few other months, from the Polish Arcktowski Station at Admiralty Bay, just 10 km SSW, and which collecting data in 1997. For the periods of Deception Island the use of reanalysis data was also tried, but it proved to be less consistent than the extrapolation, and was thus disregarded.

The monthly coefficients used for Deception were: May, -0.2°C; Jan and Feb, 0.1°C; Mar, Apr and Jul 0.2°C; Jun and Dec, 0.3°C; Aug, 0.4°C; Oct, 0.5°C; Nov 0.6°C; Set ,1.0°C. For Bellingshausen: Jul, 0.1°C; Feb, 0.2°C; Apr and Jun, 0.3°C; Jan, May and Aug, 0.4°C; Mar and Sep, 0.5°C; Oct, 0.6°C; Dec, 0.8°C and Nov,1.0°C. No adjustments were needed for the Arctowski records.

The graph presents the series obtained, indicating an overall warming gradient of 0.23/decade. However, due to the high regional variability and the peak warming in 1989, the same series show the other gradients depending on the time scale: 0.0 °C for the last 29 years; +0.3 °C for the last 24 years, and -0.6 °C (cooling) in the last 14 years.

