



THE ANTARCTIC CONNECTION TO COLD AND WARM ANOMALIES IN SOUTH BRAZIL

Setzer, A.W.¹, Romão, M.O.¹ and Aquino, F.E.²

¹CPTEC\INPE - Center for Numerical Weather Forecast and Climate Studies, National Space Institute of Brazil

²CPC\UFRGS – Climate and Polar Center, Federal University of Rio Grande do Sul, Brazil.

alberto.setzer@cptec.inpe.br

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Masses of cold air from the Bellingshausen and Weddell seas occasionally propagate northwards at surface level, reaching the coastal tropical latitudes of Brazil and causing low temperatures, precipitation, and snow in high mountains. This paper presents an analysis of this south-north circulation (“SNC”) for the period of Jan/2004-Mar/2010, and shows how it determines extremes in monthly anomalies of average air temperature in south and southeast Brazil. Daily plots of NOAA-NCEP reanalysis for the vector wind at 925 hPa were visually examined for the occurrence and extent of the SNC. On average, a reduction in the days with SNC per month, from about 8 to 1, is evident in the last six years; SNC is more frequent on May, June and July, and the maximum was 14 days of SNC on Jul/2004. Nine months showed peaks in the number of SNC days, when anomalies for surface air temperature in south Brazil varied from -1°C to -3.5°C. The summer of 2004, so far the season with more SNC, was the coldest on record for the last 45 years at Rio de Janeiro. On 20/Jun/2005, the SNC reached the latitude of ~15°S, thus propagating over more than 8,000 km from ~85°S.