

LONG-TERM TRENDS IN METEOROLOGICAL RECORDS OF AIR AND GROUND TEMPERATURES IN SOUTHERN PARTS OF BRAZIL

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Air and ground temperatures recorded at several selected meteorological stations in southern Brazil (in the States of Rio de Janeiro, São Paulo, Paraná) were examined in an attempt to detect long term trends in regional climatic patterns. Though some of the sequences of records are found to be incomplete, the available data do indicate systematic patterns of climatic changes in southern Brazil over the last century. Thus cooling trends, with magnitudes of 0.3-1.5 °C/century, were observed for air temperatures at sites of Rio de Janeiro and Curitiba, for the period 1850 to 1940. This is in contrast with the warming trend, at the rate of 1.7 °C/century, observed for soil temperatures in São Paulo, for the period 1960 to 1990. Thus it is possible that cooling episodes in the last century preceded the warming trends of the recent decades. Similar patterns have also been reported in earlier studies in the southern parts of the South American continent, at sites in Argentina and Chile. Recent and more reliable data, including measurements of evaporative power (Piché), carried out at the meteorological station in the municipality of Avelar (22° 21'S; 43° 25'W, 507msl, State of Rio de Janeiro) confirm the warming trend for the period of 1930 to 1990. However the magnitude of change in evaporative power is large (50%), indicating possible influences of changes in soil use and vegetation cover in southern parts of Brazil, during this period.