



INFLUENCE OF THE ANTARCTIC OZONE HOLE ON THE SOUTHERN REGION OF BRAZIL IN THE LAST 11 YEARS

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ABSTRACT

The Antarctic Ozone Hole (AOH) is a cyclical phenomenon occurring during the austral spring, where a temporary reduction in ozone content is observed in the Antarctic region. However, ozone-depleted air masses can break away from the Ozone Hole and reach mid-latitude regions such as the southern region of Brazil, known as the Secondary Effect of the Antarctic Ozone Hole. Thus, the objective of this work is to show the behavior of the stratospheric and tropospheric dynamics during the occurrence of this type of event. The identification of the events of influence the AOH on the southern region of Brazil was done through analysis of 11 years of daily average data, the total ozone column was analyzed through the Brewer Spectrophotometer (MKIII # 167) and also data from the OMI satellite was used. In the analysis of stratospheric and tropospheric fields, reanalysis data available from the ECMWF and stratospheric fields were used at four different isentropic potential temperature levels (475 Kelvin, 530 K, 600 K and 700 K). Besides the preparation of tropospheric fields also using reanalysis data. Thus, it was possible to confirm the occurrence of events influence of the AOH that reached the southern region of Brazil for the period of 11 years of data studied here (2006 to 2016). Most of the AOH side effects events in southern Brazil (~ 38%) were identified in October, followed by September (~ 32.3%). The climatology of the stratospheric fields showed a decrease in the potential vorticity in October and November, whereas the anomaly fields showed a predominance of positive anomalies, mainly in the southern region of Brazil in the months of analysis. In addition, the events showed a predominance of occurrence after the passage of frontal systems (~ 68% of the cases) over the southern region of Brazil, and with the presence of jet stream (polar or subtropical, ~ 91% of cases).