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Correlation between Southern Oscillation Index and total ozone column using Brewer and TOMS at southern Brazil (29.4˚S, 53.8˚W) from 1997 to 2003

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Total Ozone Column data in a station in the Brazilian Southern Space Observatory (29.4ºS, 53.8ºW) have been obtained using the MKIV (1997 – 2000), MKII (2000 – 2002) and MKIII (2002 – 2003) Brewer Spectrophotometers. The Total Ozone column data measured by the TOMS instruments in a grid point close to this station for the period from 1997 to 2003 are also used. The spectrophotometers measure Total Ozone Column on the wavelengths: 306.3, 310.1, 313.5, 316.8 and 320.0 nm with an accuracy of about 1 percent, while TOMS measures on**:** 317.5 and 331.2 nm with error of about 2 percent. These data are used to study the Total Ozone Column interannual variability in the Southern Brazil. The El Niño/ Southern Oscillation (ENSO) phenomenon cycle is measured by the Southern Oscillation Index (SOI). This index gives information on the phase and the intensity of the event and it is the standardized difference between the sea level pressure anomalies in Tahiti and Darwin. Monthly ozone climatological means for both equipments were calculated using the base period from January/1997 to December/2003, totalizing seven years. The differences between the monthly ozone and the corresponding monthly ozone climatological mean give the monthly ozone anomalies (OA). The monthly OA for the Brewer and for the TOMS instruments show similar behaviors. In addition the linear correlations between the OA and the SOI are of 0.45 for the TOMS instruments and of 0.53 for the Brewer instrument. Accordingly to a Student t-test these correlations are statistically significant. Therefore, these correlations suggest a reduction (an increase) of Total ozone in the Southern Brazil during El Niño (La Niña) episodes.