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Surface Ozone in Coastal Continental Antarctica: First year of measurements

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A complete year of surface ozone (February 2007-January 2008) measurements at Belgrano station (Antarctica, 78°S, 35°W) are presented. A TECO-49C was deployed with the double purpose of contribute to the quality control of the ozonesounding before launch and get background data in a long term basis. The analysis shows a seasonal cycle with the ozone maximum in mid-winter (July) and minimum in summer (January) in opposition of typical mid-latitude continental observatories but in agreement with other coastal observatories in Antarctica. The daily maximum during the whole period was found to be 36.5 ppbv and the minimum daily value 9.2 ppbv. The mean ozone concentration value calculated during the observational period was 23.9 ppbv with a standard deviation of 7.5 ppbv. Seasonal ozone distribution does not correlate with available hours of light suggesting that the distribution is controlled by transport mechanisms with a minor contribution of the photochemistry. Episodes with dramatic ozone decay were observed on several occasions during the Austral spring (October-December) season, related to the presence of high concentration of BrO according to satellite data. A single episode with enhanced ozone is observed in December. From comparison with ozonosounding data, a 3.4 ppbv mean offset between both types of data is observed.