Atmospheric SO2 measurements at the Brazilian Antarctic station

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For a better comprehension of the atmospheric chemical and radiative properties, it is necessary to understand the behavior of trace gases and aerosols; some of these species are not well studied. Sulphur dioxide (SO2) is found in the troposphere, as a result of both natural and anthropogenic emissions. To study the behavior of this gas in the Antarctic continent, the data collected by the Brewer Spectrophotometer installed in the Brazilian Antarctic Station Comandante Ferraz (62o 05'S, 58o 24'W) were used. With this ground-based instrument, the total column of SO2 was measured from the beginning of springtime, to the beginning of summer, in the years from 2003 to 2009. It was possible to observe that the total columns of SO2 did not show any differences in the time of the development of the ozone hole, as comparing to other periods. The main sources of anthropogenic SO2 pollution in this region are the generation of energy, the operations with ships, and the burning of garbage, being a punctual impact. The natural generation of SO2 in this region is mainly related to the conversion of DMS (dimethyl sulfide) emitted by the ocean. In a few days, the SO2 total column exceeded the values considered normal for remote regions (¿2UD), and these high concentrations must have their sources identified and monitored.

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