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THE HEIGHT OF MINIMUM OZONE IN THE OZONE HOLE REGION OVER THE BRAZILIAN ANTARCTIC STATION AND PUNTA ARENAS, CHILE

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During the springtime of 2003 an intense field campaign took place at the Brazilian Antarctic station on King George Island (62.1° S; 58.4° W) and in 2005 at the Punta Arenas, Chile (53.03° S ; 70.85° W), with the launching of about 20 balloon-borne ozonesondes, to measure the vertical distribution of ozone. This technique uses the Electro Chemical Concentration cell, ECC sonde, launched on a balloon, developed many years ago and in use all over the world. In addition, a ground based Brewer spectrophotometer was used to monitor total column ozone. The period of observation during 2003 was from August to the beginning of December. The ozone hole appeared from late August to mid October, which is earlier compared to previous depletion periods. Low ozone values reached 121 Dobson Units, DU, over Brazilian Station during the critical period, which compares to 380-400 DU by the end of October beginning of November. At the 2005, the ozone hole appeared 3 times over Punta Arenas region, from late September, October and November.

Low ozone values reached 160 DU, on October, 08 and during the normal period the ozone mean values was 350 UD.

The ozone soundings were made during the normal and critical periods. Ozone concentrations are lowest in the lower stratosphere, at heights of 15-17 km at Antarctic and 17-20 Km over Punta Arenas region.

Several examples of these will be presented and discussed. There are cases when larger concentrations in the troposphere are the result of air-masses that arrive at the site from the direction of the continent.

The comparison of the total ozone content measured by the ozonesondes with the Total Ozone Mapping Spectrometer, TOMS is expressed by the percentage difference 100*(Sonde-Toms)/Sonde = 5.3 $\pm$ 3.1%. A Brewer spectrophotometer that operates from the ground has also been used during the campaign, giving a percentage difference of 3.9 $\pm$ 2.4 %.