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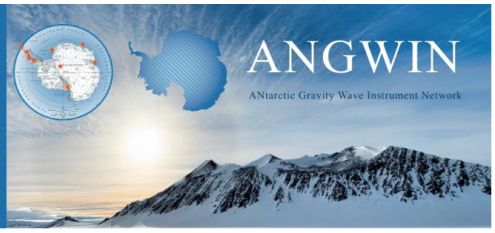


# TEMPERATURE BEHAVIOR ANALYSIS DURING EVENTS OF SECONDARY EFFECT OF THE OZONE HOLE

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## ABSTRACT

Ozone has one of the most relevant roles in the atmosphere when it comes to ultraviolet radiation absorption. Spectral range of ultraviolet radiation is from 100 to 400 nm, ultraviolet radiation type B (UV-B) ranges from 320 and 280 nm and it is known for cause harm to plants, animals and human health. Ozone reaches a high concentration in the stratosphere, between 20 and 35 km, forming a protection layer for ultraviolet radiation absorption, the "ozone layer". Its maximum concentration is located in 28 km approximately. It is evidenced that during the austral spring, between August and November, there is a severe decrease in ozone concentration, resulting in the "Antarctic ozone hole". During this period ozone levels may achieve 250 UD, which has direct consequences in the UV-B radiation levels that intensify, reaching the surface. There is evidence of effects in mid-latitudes regions, including southern Brazil, caused by the reduction in ozone concentration, which is called "Secondary effect of the ozone hole", during the events there is disturbance in the ozone levels in those regions. The main goal of the study presented here was to verify temperature behavior during the event of secondary effect of the ozone hole in the regions of Santa Maria and Uruguaiana, located in the south of Brazil. The instruments used in the analysis were a Brewer Spectrophotometer, located in São Martinho da Serra/RS – Brazil (29.53°S, 53.85°W), data from a sounding balloon, lunched from the same location, data from the satellites TIMED/SABER, AURA/MLS, and OMI-ERS.15 and a GPS-PRO as a forecast model. It was found that on October, 19th, 2016 there was a reduction in ozone concentration over the city of Uruguaiana and two days later there was a greater reduction in ozone levels in the same region. Concomitantly to the event it was registered an oscillation in stratospheric temperature which was expected to increase with height in stratosphere, had the opposite behavior. On October, 23rd the air mass poor in ozone moved from the site and the temperature in the stratosphere as well as ozone levels were normalized.

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