



## **Stratospheric ozone variability and anomalies as observed by radiosondes over Irene (25.5°S, 28.1°E)**

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Distribution of ozone is not simply a balance between production and loss. Because of interaction between planetary wave and the mean zonal flow, ozone can be transported away from the production region. Additionally, in the winter stratosphere, erosion of dynamical barriers such as polar vortex and subtropical barrier, due to planetary wave breaking, resulting in the formation of filaments (laminae), contributes also to ozone distribution. Several research project and studies have been undertaken in order to assess the ozone budget over the globe. However, many of those works focus on the NH. In fact, contrary to the NH, in situ ground-based measurements of ozone in the SH are sparse. Since 1998, a limited number of stations are operating in the southern hemisphere tropics and subtropics under the SHADOZ project.

The present study is based on the use of nearly 7-years ozonesonde measurements over Irene, a subtropical South African station (operating under SHADOZ project). That corresponds to 178 profiles collected during the period from November 1998 to May 2005. Our study is organised in two parts. The first part is about the background climatological state of the local stratospheric ozone, with a focus on the seasonal and inter-annual variability of ozone. In part two, we examine, on a statistical basis, all stratospheric ozone anomalies observed from ozonesonde dataset. This is made additionally by the use of ECMWF-ERA40 reanalyses data and advected PV fields from MIMOSA, in order to highlight the effect of isentropic transport and mixing on the stratospheric ozone budget over a subtropical location.