



## **Evolution of the stratospheric polar vortex in the Southern Hemisphere over the period 1979 – 2016**

Audrey Lecouffe, Sophie Godin-Beekmann, Andrea Pazmiño, and Alain Hauchecorne  
LATMOS, UVSQ, SORBONNE UNIVERSITE, CNRS, Paris, France (audrey.lecouffe@latmos.ipsl.fr)

The stratospheric polar vortex in the Southern Hemisphere plays an important role in the intensity of the stratospheric ozone destruction during austral spring, which started in the late 1970s. The so-called ozone hole has in turn influenced the evolution of weather patterns in the Southern Hemisphere in the last decades (WMO, 2018). The seasonal and interannual evolution of the Southern polar vortex has been analyzed using meteorological fields from the European Center for Meteorology Weather Forecasts ERA-Interim reanalyses and the MIMOSA model (Modélisation Isentropique du transport Méso-échelle de l'Ozone Stratosphérique par Advection, Hauchecorne et al., 2002). This model provides potential vorticity (PV) fields at several isentropic levels (475 K, 550 K and 675 K) that are used to evaluate the edge and intensity of the polar vortex as a function of time from 1979 to 2016. The edge of the vortex is computed on isentropic surfaces from the wind and gradient of PV as a function of equivalent latitude (e.g. Nash et al, 1996; Godin et al., 2001). In order to remove the noise of PV gradient determination, tracers have been incorporated into the model, tracking air masses inside and outside the vortex as a function of time.

Results on the statistical analysis of the seasonal and interannual evolution of the intensity and extension of the southern polar vortex over the last 3 decades will be presented.

### References:

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