



## **Observations of the Antarctic Ozone Hole from 2003 to 2018**

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The Global Atmosphere Watch of WMO includes several stations in Antarctica that keep a close eye on the ozone layer during the ozone hole season. Observations made during the ozone holes from 2003 to 2018 will be compared to each other and interpreted in light of the meteorological conditions. Satellite observations will be used to get a more general picture of the size and depth of the ozone hole and will also be used to calculate various metrics for ozone hole severity. In 2003, 2005, 2006 and 2015 the ozone hole was relatively large with more ozone loss than normal. This is in particular the case for 2006, which by most ozone hole metrics was the most severe ozone hole on record. On the other hand, the ozone holes of 2004, 2007, 2010, 2012 and 2017 were less severe than normal, and only the very special ozone hole of 2002 had less ozone depletion when one regards the ozone holes of the last decade. The ozone hole of 2011 suffered more ozone depletion than in 2010, but it was quite average in comparison to other years of the last decade. The situation was similar in 2013 and 2014. In 2018, the south polar vortex was more stable than average and the area of temperatures cold enough for the formation of NAT clouds was somewhat larger than the 1979-2017 average throughout most of the season from early May to the end of October. The area of the ozone hole and the amount of ozone loss was considerably higher in 2018 than in 2016 and 2017, yet smaller than in 2015. The interannual variability will be discussed with the help of meteorological data, such as temperature conditions, possibility for polar stratospheric clouds, vortex shape and vortex longevity.